RAW EARTH

ENVIRONMENTAL

DETAILED SITE INVESTIGATION

74 Fern Avenue

Bradbury

NSW 2560

March 2021

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REPORT DISTRIBUTION

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Author	Daniel Taylor Environmental Scientist B.Sc. (Geology) Licensed Asbestos Assessor (Registration Identification LAA 001282)
Date	1st March 2021
Raw Earth Environmental Pty Ltd ACN: 635 583 327	Enquiries: hello@rawearthenvironmental.com.au www.rawearthenvironmental.com.au

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EXECUTIVE SUMMARY

Raw Earth Environmental Pty Ltd (REE) were engaged to conduct a Detailed Site Investigation (DSI) at the property located at 74 Fern Avenue, Bradbury NSW 2560 (the site).

As shown in **Figure 1**, the site is located approximately 44 km south-west of Sydney, within the Local Government Area of Campbelltown City Council. The site covers an approximate area of 2.3ha (as shown in **Figure 2**) and is identified as Lot 101 DP 1168971.

This DSI has been prepared to identify Areas of Environmental Concern (AEC) within the site and assess potentially contaminating activities which may have impacted these areas. A site inspection was conducted by REE on 19th February 2021. Four AECs were identified and subject to a soil investigation program. The AECs are shown in **Figure 3**.

Based on the soil investigation undertaken at the site, four AECs (AEC1 – AEC4) were identified within the site and assessed for potentially contaminating activities which may have impacted these areas. A site inspection was conducted by REE on 19th February 2021. The AECs which were be investigated are shown in **Figure 3**.

Based on the soil investigation undertaken at the site, four AECs were identified within the site and assessed for potentially contaminating activities which may have impacted these areas. A site inspection was conducted by REE on 19th February 2021. The AECs which were be investigated are shown in **Figure 3**.

Based on REE's assessment of the site, the following conclusions have been made:

- No soil samples collected from AEC 1, AEC 2 and/or AEC 4 detected concentrations greater than applicable guideline criteria;

- The soil sampling program recorded exceedances over applicable guideline criteria for benzo(a)pyrene and asbestos from samples collected within AEC 3;

- Benzo(a)pyrene was detected at levels (1.8mg/kg) exceeding ESLs for urban residential and public open space for fine grain soils in soil sample S1, from AEC 3;

- Asbestos was detected in soil samples S1 and S2, collected from AEC 3. The estimated asbestos fibres (%w/w) were calculated at >0.01 in sample S2, exceeding applicable guideline criteria;

- Suspected ACM was identified in all on-site structures; and

- No groundwater was encountered during borehole excavations.

Given the presence of on-site contamination identified through soil sampling within AEC 3, **Section 11** provides recommendations in order to make the site suitable for its intended development for residential land-use.

It is the opinion of REE and in accordance with relevant Australian standards and guidelines that the site can be made suitable for the proposed residential development subject to identified areas of contamination be remediated through implementation of the following recommendations.

- A Remediation Action Plan (RAP) should be developed for the site by an experienced Environmental Scientist who is a qualified NSW Licensed Asbestos Assessor (LAA), which details the objectives and processes for remediating contaminated soils identified in **Section 9** in accordance with relevant Australian standards and guidelines. The RAP should set objectives for the remediation strategy and the recommended clean-up criteria. In order for

the site to be made suitable for its intended land-use, the levels of soil contamination listed in **Section 9** must be reduced to an acceptable level;

- Preparation of a Site Validation Report concluding that the site has been remediated to allow the proposed development for residential purposes should be prepared for the site.

- If fill material is to be removed offsite for disposal, it will require classification in accordance with the NSW Environmental Protection Authority, *Waste Classification Guidelines Part 1: Classifying Waste*, 2014. These materials should be disposed of at an appropriately licenced landfill facility;

- If fill material is to be removed from AEC 3, as a minimum a Class B (bonded) licensed asbestos removal contractor should be engaged to remove the asbestos-impacted material;

- A Hazardous Materials (HAZMAT) Survey should be completed for all on-site structures scheduled to be demolished as per Australian Standards;

- In the event of any unexpected finds including the discovery of underground storage tanks, ACM, odorous and/or stained soil material during excavation activities, all site works must cease, and REE must be notified immediately for further investigation.

1. INTRODUCTION

1.1 BACKGROUND

Raw Earth Environmental Pty Ltd (REE) were engaged to conduct a Detailed Site Investigation (DSI) at the property located at 74 Fern Avenue, Bradbury NSW 2560 (the site).

As shown in **Figure 1**, the site is located approximately 44 km south-west of Sydney, within the Local Government Area of Campbelltown City Council. The site covers an approximate area of 2.3ha (as shown in **Figure 2**) and is identified as Lot 101 DP 1168971.

The site is currently occupied by one two-storey structure, one single-storey structure, one carparking area and associated driveway, a tennis court, 2 cleared areas, 2 infilled pools, a pool pump shed, with trees, gardens and landscaping throughout the site.

This report is provided in support of a Development Application (DA) to Campbelltown City Council and for the purpose of enabling the developer to meet its obligations under the Contaminated Land Management Act 1997 (CLM Act), for the assessment and management of contaminated land.

1.2 PROPOSED DEVELOPMENT

REE understand that site is proposed to be subdivided and developed to allow for the completion of residential lots in the form of dwelling houses which may involve the following works:

- Tree removal and demolition of existing structures;
- Subdivision of existing allotments;
- Civil works including the construction of new roads and excavation of land; and
- Construction of new dwellings.

Site photographs are included in the **Photographic Log** in **Appendix A.**

1.3 REGULATORY FRAMEWORK

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

- Department of Urban Affairs and Planning, NSW Environmental Protection Authority, *Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land*, 1998;
- National Environment Protection (Assessment of Site Contamination) Measure 1999, *Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater,* 2013;
- National Environment Protection (Assessment of Site Contamination) Measure 1999, *Schedule B2 – Guideline on Site Characterisation*, 2013;
- NSW Department of Environment and Conservation, *Guidelines for the Assessment and Management of Groundwater Contamination*, 2007;

- NSW Environmental Protection Authority, *Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, 2017;

- NSW Environmental Protection Authority, *Guidelines on the Duty to Report Contamination under Contaminated Land Management Act*, 1997;

- NSW Environmental Protection Authority, *Sampling Design Guidelines,* 1995;

- NSW Environmental Protection Authority, *Waste Classification Guidelines Part 1: Classifying Waste*, 2014;

- NSW Office of Environment & Heritage, *Guidelines for Consultants Reporting on Contaminated Sites*, 2011;

- State Environment Protection Policy 55 (SEPP 55). *Remediation of Land Under the Environmental Planning and Assessment Act*, 1998;

- Western Australia Department of Health, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*, 2009;

- Work Health and Safety Act, 2011; and

- Work Health and Safety Regulation, 2017.

1.4 PROJECT OBJECTIVES

This DSI has been prepared to identify Areas of Environmental Concern (AEC) within the site and assess potentially contaminating activities which may have impacted these areas. A site inspection was conducted by REE on 19th February 2021. The AECs which were be investigated are shown in **Figure 3**.

Table 1: Areas of Environmental Concern

Area of Environmental Concern Reference	Figure	Description
AEC 1	3	Cleared Area 1. North-west portion of the site. Park area appeared to have fill imported to the site in order to make the ground surface level.
AEC 2	3	Cleared Area 2. North-east portion of the site. Park area appeared to have fill imported to the site in order to make the ground surface level.
AEC 3	3	Pool Area. Southern portion of the site. It is understood in-ground swimming pools were back-filled with soil materials.
AEC 4	3	Carparking area.

1.5 SCOPE OF WORKS

To achieve the above project objectives, the following scope of works were undertaken to produce this DSI.

1.5.1 DESKTOP STUDY

- Discussion of the site condition through a desktop review of neighbouring properties and ecological receptors;

- Review of available environmental, architectural and/or engineering reports (if any);

- Dial-Before-You-Dig enquiry for an evaluation into local underground services and assets;

- Review of local geological and hydrogeological information, an evaluation of the WaterNSW registered groundwater bore database and Acid Sulphate Soil (ASS) data;

- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination, exposure pathways, and human/ ecological receptors; and

- Identify potential Areas of Environmental Concern (AEC) to be confirmed during the site inspection.

1.5.2 FIEDWORK & LABORATORY ANALYSIS

- A site inspection and soil investigation program were undertaken on 19th February 2021;

- Hand auger excavation of 15 boreholes (S1 to S15) spread across accessible areas of the AECs within the site in a judgemental sampling approach to identify areas of contamination;

- Implement a soil investigation program to investigate the degree of contamination (if present) by means of intrusive soil sampling within fill soil materials which included the collection of 15 primary soil samples;

- Implement standard quality assurance (QA) and quality control (QC) measures including the collection of 1 intra- laboratory (blind duplicate) soil sample. Rinsate blank, trip blank and trip spike samples were also collected to ensure the quality of sampling, handling and transport of samples;

- Laboratory analysis of samples collected from the site by a National Association of Testing Authorities (NATA) accredited laboratory for relevant contaminants of potential concern (COPC) which may have impacted the site during current and historical activities, as determined from the site history survey and field observations made during the investigation program; and

- COPCs include Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Polychlorinated Biphenyls (PCBs), heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc, mercury), and/or asbestos.

1.5.3 DATA ANALYSIS & REPORTING

This DSI report will document desktop study findings, the conceptual site model, data quality objectives and investigation methodologies in areas of the site which were identified as an AEC.

In addition, a discussion of laboratory analytical results and an assessment of site contamination (if any) are presented. Advice is provided on suitability of the site for its proposed residential land-use with recommendations for remediation and/or management if necessary.

2. SITE INFORMATION

2.1 SITE IDENTIFICATION

The location of the site is shown in **Figure 1** with a detailed site plan shown in **Figure 2**.

Table 2: Site Details

Address	74 Fern Avenue, Bradbury NSW 2560
Deposited plan	Lot 101 DP 1168971
Locality map	**Figure 1**
Site plan	**Figure 2**
Site photographs	**Appendix A**
Area	2.3ha

2.2 SITE DESCRIPTION

A qualified Environmental Scientist inspected the site on 19th February 2021. Site photographs are provided in **Appendix A**. Observations noted during the inspection are summarised below.

At the time of the site inspection, the site contained the following structures and features:

- One residential dwelling;
- One two-storey structure;
- One single-storey structure,
- One carparking area and associated driveway,
- One tennis court,
- Two cleared parkland areas,
- Two infilled pools,
- A pool pump shed, and
- Trees, gardens and landscaping throughout the site;
- On-site vegetation showed no signs of decay and/or stress; and
- There were no indicators of other aboveground and/or underground storage tanks.

2.3 SURROUNDING LAND-USE

Table 3 below outlines the surrounding land-uses neighbouring the site.

Table 3: Surrounding land-use adjacent to the site.

Direction from site	Land-use
North	Fern Avenue and residential properties beyond.
East	Residential properties.
South	Commercial and residential properties.
West	Appin Road and residential properties beyond.

2.4 GEOLOGY

The Geological Map of Wollongong- Port Hacking (Geological Series Sheet 9029-9129, Scale 1:100,000, Edition 1, 1985), published by the Department of Primary Industries indicates the residual soils within the site to be underlain by fine to medium grained lithic sandstone of the Wianamatta Group.

2.5 HYDROLOGY

A groundwater bore search was conducted on 27th February 2021 and one registered groundwater bore was detected within 500 m of the site. The nearest groundwater bores to the site are summarised in **Table 4** below.

Table 4: Nearest Registered Groundwater Bore Data

GW Bore ID	Location	Intended Purpose	Distance from site boundary (m)	Drill Depth (mbgl)	Standing Water Level (mbgl)	Drillers Log (mbgl)
GW103996	34°04'55.7"S; 150°48'44.5"E	Monitoring Bore	Approx. 390	3.87	-	0.00 – 0.1: Asphalt. 0.1 – 0.8: Clayey sand, brown and grey. 0.8- 3.87: Sandstone, orange

2.6 ACID SULPHATE SOILS

To determine whether there is a potential for acid sulphate soils to be present at the site, an indicative review of available Acid Sulphate Soils (ASS) risk maps was undertaken. The site is located within an area which suggests there is no known occurrence regarding the presence of ASS.

2.7 SURFACE WATER RECEPTORS

The nearest surface water body is Fishers Ghost Creek, approximately 300m to the east. Given the distance to this surface water body, it is not considered to be a potential receptors of groundwater contamination sourced from the site (if any).

Based on regional topography and the nearest surface water sources, groundwater is expected to flow towards the east.

3. PREVIOUS INVESTIGATIONS

Previous environmental investigations of the site were recorded under the following reports:

- Noel Arnold & Associates Pty Ltd, *Preliminary Site Investigation and Limited Soil Investigation*, dated March 2012.

Noel Arnold & Associates Pty Ltd (NAA) undertook a Preliminary Site Investigation (PSI) with a Limited Soil Investigation (LSI) at the site in March 2012.

NAA came to the following conclusions:

- As indicated by the historical aerial photographs, the main Building (Raith House) was constructed before 1956;

- As indicated by the historical aerial photographs, the ancillary structures including the 'Pool Area' were constructed between 1984 and 1994;

- As indicated by the historical aerial photographs, the pool was filled in between 2002 and 2011;

- A search of OEH records revealed the site and its surrounding properties have not been declared as contaminated or listed on the NSW contaminated sites register;

- There is potential for asbestos and/or hazardous building materials to be present within the buildings on the site;

- Asbestos containing material (ACM) fragments were found within the soil profile of the standard sized pool;

- It was suspected the fill material of the baby pool also contains asbestos materials;

- A Remedial Action Plan (RAP) or a Site Management Plan that addresses the remediation and/or management of asbestos impacted soils is required to be prepared by a suitably qualified environmental consultant;

- If fill material is to be removed off-site for disposal, it will require classification in accordance with the NSW Environmental Protection Authority, *Waste Classification Guidelines Part 1: Classifying Waste*, 2014. These materials should be disposed of at an appropriately licenced landfill facility;

- If fill material is to be removed, as a minimum a Class B (bonded) licensed asbestos removal contractor should be engaged to remove the asbestos-impacted material;

- Prior to demolition of any buildings on site a Hazardous Building Materials Survey should be undertaken

- Should areas of potential soil or groundwater contamination not covered by this LSI be identified at the site during future works or development, a suitably qualified environmental consultant should be contacted, and appropriate investigations undertaken.

4. CONCEPTUAL SITE MODEL

In accordance with NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, a Conceptual Site Model (CSM) assesses plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation. The CSM can be seen in **Table 5** in **Section 4.2.**

4.1 POTENTIAL CONTAMINATION

Based on the findings of the previous site investigations by NAA (2012), a desktop review of the site, neighbouring properties, nearby ecological receptors, the COPCs at the site are considered to be:

Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Polychlorinated Biphenyls (PCBs), heavy metals and/or asbestos.

4.2 CONTAMINATION SOURCES, EXPOSURE PATHWAYS & RECEPTORS

Potential contamination sources, exposure pathways and human and environmental receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in **Table 5**.

Table 5: Conceptual Site Model

Potential Sources of Contamination	Potential Receptor	Potential Exposure Pathway	Complete Connection	Risk	Justification
Contaminated soil from importation of uncontrolled fill across the site. ACM in site structures and soil materials. Vehicle parking on-site	Site occupants, neighbours, workers, general public.	Dermal contact, inhalation/ingestion of particulates.	Limited (Current)	Low	Direct contact with potentially contaminated soil is limited (if any).
			No (Future)	-	If present, impacted soils are likely to be remediated and/or disposed of off-site.
	Ecosystems of Fishers Ghost Creek.	Migration of impacted sediment, groundwater and surface water run-off.	Limited (Current)	Low	Due to distance to surface water bodies, they are not considered to be receptors of groundwater/ surface water contamination sourced from the site (if any).
			No (Future)	-	If present, impacted soils are likely to be remediated and/or disposed of off-site.
	Underlying aquifer	Leaching and migration of contaminants through groundwater infiltration.	Limited (Current)	Low	Due to expected shallow bedrock, leachability of COPC and migration of COPC is likely to be limited.
			No (Future)	-	If present, contaminated soil and/or groundwater is likely to be remediated.

4.3 ADDRESSING DATA GAPS

Based on information on the site history and the site investigation on 19th February 2021, potential contamination sources, exposure pathways and human and environmental receptors identified in the CSM, the following data gaps were identified and addressed:

- The contamination status of on-site soils within AECs due to historical importation of fill to the site and vehicle parking. A combination of visual inspections and soil sampling within accessible areas of the AECs was undertaken to identify any potential on-site contamination.

5. AREAS OF ENVIRONMENTAL CONCERN

Based on the site history, previous reports, review of available information on the site and the site inspection, the Areas of Environmental Concern (AEC) and their associated COPCs for the site were identified and summarised in **Table 6** below.

Table 6: Potential Areas and Contaminants of Concern

AEC	Potentially Contaminating Activity	COPC	Likelihood of Site Impact	Comments
AEC 1- Cleared Area 1	Importation of fill material from unknown origin.	Heavy Metals, TPH, BTEX, PAH, OCP, PCBs, Asbestos	Low	Based on site observations, the presence of imported fill material is likely.
AEC 2- Cleared Area 2	Importation of fill material from unknown origin.	Heavy Metals, TPH, BTEX, PAH, OCP, PCBs, Asbestos	Low	Based on site observations, the presence of imported fill material is likely.
AEC 3 – Pool Area	Importation of fill material from unknown origin.	Heavy Metals, TPH, BTEX, PAH, OCP, PCBs, Asbestos	Low	Based on site observations, the presence of imported fill material is likely.
AEC 4 – Carparking Area	Fuel and oil spills/leaks with vehicles	Metals, TPH, BTEX, PAH.	Low	Staining areas within car parking areas were not noted during site inspection.

Abbreviations: Asbestos Containing Materials (ACM), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Ozone Depleting Substances (ODS), Organochlorine Pesticides (OCPs), Organophosphorus Pesticides (OPPs), Polychlorinated biphenyls (PCBs), Polycyclic Aromatic Hydrocarbon (PAH), Total Petroleum Hydrocarbons (TPH), Synthetic Mineral Fibres (SMF).

6. DATA QUALITY OBJECTIVES

In accordance with the US EPA (2006) Data Quality Assessment and the DEC (2006) Guidelines for the NSW Site Auditor Scheme, the process of developing Data Quality Objectives (DQO) was used to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented below.

- Step 1: State the problem.

  The subject site may be contaminated as a result of previous and current land use which may impact suitability of the site as residential land-use.

- Step 2: Identify the decision.

  Undertake a soil investigation at the site to identify any potential contamination which may pose a risk to human health and/or the environment. If contamination is identified within the site, can the site be made suitable for its intended residential land use with the requirement for remediation and/or management if necessary.

- Step 3: Identify inputs into the decision.

  - Identification of issues of potential environmental concern;
  - Appropriate identification of COPC;
  - Judgemental and/or systematic soil sampling and analysis programs of shallow soil across the site;
  - Visual inspection of potentially contaminating waste materials, including asbestos, soil odours and staining.
  - Visual inspection of systematic shallow soil samples for presence of ACM;

- Appropriate QA/QC to enable an evaluation of the reliability of the analytical data; and
- Screening sample analytical results against appropriate assessment criteria for the intended land use.

- Step 4: Define the boundaries of the site.

  - The boundaries of the site are those outlined in **Figure 2**. The AECs subject to this environmental investigation differ from the site boundary and are also shown in **Figure 3**. The AEC boundaries which make up this investigation within the overall site were established during the initial site inspection by REE on 19th February 2021.

- Step 5: Develop a decision rule.

  To accept the assessment decision the following decision rules apply:
  For judgemental soil sampling the sampling data must meet the following qualifiers;

  - The 95% Upper Confidence Limit of COPC concentration data does not exceed the soil assessment criteria;
  - No single sample exceeds 250% of the soil COPC assessment criteria;
  - The standard deviation of COPC analytical results is less than 50% of the soil assessment criteria; and
  - There is no visible identification of ACM in soil samples or on the ground surface.

- Step 6: Specify acceptable limits on decision errors.

  The field sampling methodology, sample preservation techniques, and laboratory analytical procedures must be appropriate to provide confidence in data quality so any comparison

against assessment criteria can be considered reliable. This is achieved by defining and comparing results against the Data Quality Indicators (DQIs).

- Step 7: Optimise the design for obtaining data.

  This is achieved with a sampling plan design in consideration of the available site history information, areas of environmental concern, contaminant behaviour in the environment, and likely spatial distribution of contamination.

7. INVESTIGATION METHODOLOGIES

REE conducted a site inspection and soil sampling program on the 19th of February 2021. Sample locations for the site are presented in **Figure 2**. The investigation methodology is presented below.

7.1 SAMPLING ANALYSIS PLAN

To assess the potential for soil contamination at the site, REE identified four AECs within the overall site and implemented a judgemental soil investigation program to investigate the degree of contamination (if present) by means of intrusive soil sampling within fill soil materials which included the following processes.

- Hand auger excavation of 15 boreholes (S1 to S15) spread across accessible areas of the AECs within the site in a judgemental sampling approach to identify areas of contamination;

- Implement standard QA/QC measures including the collection of 1 intra- laboratory (duplicate) soil sample, 1 set of soil trip blank and trip spike, and 1 rinsate blank sample;

- Visual inspection of the ground surface and excavated soil for ACM;

- Laboratory analysis of samples collected from the site by a National Association of Testing Authorities (NATA) accredited laboratory for relevant COPC which may have impacted the site during current and historical activities, as determined from the site history survey and field observations made during the investigation program; and

- COPCs include Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Polychlorinated Biphenyls (PCBs), heavy metals, and asbestos.

7.2 SOIL SAMPLING METHODOLOGY

Boreholes S1 to S15 were completed using a manual hand auger to a maximum depth of 0.6m below ground surface (mbgl) or prior refusal.

Soil samples were collected directly from the auger, placed in laboratory prepared 250mL soil jars, labelled and placed on ice in an esky for transport under chain of custody (COC) to a NATA accredited laboratory for the analysis of the COPC. The hand auger was decontaminated between each borehole excavation with Decon90.

Subsurface conditions across the site as observed during borehole excavations were generally silty topsoil underlain by inhomogeneous fill material consisting of predominantly clays with minor gravels,

sands, silts, crushed bricks and concrete, humid to moist, medium to low plasticity. Table 6A summarises sample locations, depths and rationale. Refer to **Figure 2** for detailed sample locations.

Table 6A: Soil Sample Depth, Location and Rationale

Sample Reference / Depth (m)	On-site Location	Rationale for Sampling Location
S1 0.3	Southern portion.	Extend site coverage, laterally delineate potential contamination within AEC 3.
S2 0.3	Southern portion.	Extend site coverage, laterally delineate potential contamination within AEC 3.
S3 0.3	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S4 0.3	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S5 0.2	North-east portion.	Extend site coverage, laterally delineate potential contamination within AEC 2.
S6 0.3	Eastern portion.	Extend site coverage, laterally delineate potential contamination within AEC 4.
S7 0.2	North-east portion.	Extend site coverage, laterally delineate potential contamination within AEC 2.
S8 0.2	North-east portion.	Extend site coverage, laterally delineate potential contamination within AEC 2.
S9 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S10 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S11 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.

S12 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S13 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S14 0.2	Northern portion.	Extend site coverage, laterally delineate potential contamination within AEC 1.
S15 0.3	Eastern portion.	Extend site coverage, laterally delineate potential contamination within AEC 4.

7.3 QUALITY ASSURANCE

Quality Assurance (QA) and Quality Control (QC) sampling was undertaken in accordance with relevant Australian standards and guidelines. Field QA/QC samples collected are summarised in **Table 7**.

One duplicate sample was collected to determine the variability of the sampling process. Duplicate and samples are collected simultaneously from the same source as the primary sample, under the same field conditions and sampling technique. Duplicate samples are analysed by the primary NATA accredited laboratory and labelled differently to the primary sample.

Soil trip blank and trip spike samples were prepared by the primary laboratory for the sampling event. Trip blanks are stored with collected samples to determine if cross-contamination amongst samples during collection, storage and transport had occurred. Trip spike samples are spiked with a predetermined concentration of BTEX to determine the loss of volatile compounds during storage and transport of samples from the field.

Rinsate blank sample RS1 was collected during the sampling event to determine whether reusable sampling equipment was appropriately decontaminated between sample collection.

Table 7: Quality Control Duplicate Sample Summary

Replicate Sample Identification	Primary Sample Identification	Sample Matrix	Rate of Collection
QS1	Field Duplicate of S1	Soil	1 in 20 Samples

The laboratory internal QA/QC procedures are consistent with the NEPM policy on laboratory analysis of contaminated soils.

8.ASSESSMENT CRITERIA

The following soil assessment criteria were adopted for the investigation.

NEPM Health Based Investigation Level A (HILs A)

HILs are Tier 1 risk based generic assessment criteria used for the assessment of potential risks to human health from chronic exposure to contaminants in soil. They are intentionally conservative and based on a reasonable worst-case scenario for generic land use settings including Residential (HILs A/B), Open Space/Recreational (HILs C) and Commercial Industrial (HILs D). HILs A soil assessment criteria were adopted on the basis the proposed site use is for low-density residential dwellings with gardens/ landscaped areas.

NEPM Health Screening Levels A (HSLs A)

HSLs are Tier 1 risk based generic soil assessment criteria used for the assessment of potential risks to human health from chronic inhalation exposure of petroleum vapour emanating off petroleum contaminated soils (Vapour Risk). They are intentionally conservative and based on a reasonable worst-case scenario for generic soil types, contamination depth and land use settings including Residential (HSLs A/B), Open Space/Recreational (HSLs C) and Commercial Industrial (HSLs D). HSLs A soil assessment criteria for clay soil from 0 to <1 m was adopted on the basis that the proposed site use is for residential dwellings with gardens/ landscaped areas and onsite topsoil/ fill comprised predominantly clays with minor gravel, sand and silt.

NEPM Management Limits – Residential, parkland and public open space

Management Limits for petroleum have been developed for prevention of explosive vapour accumulation, prevention of the formation of observable Light Non-Aqueous Phase Liquids (LNAPL) and protection against effects on buried infrastructure. Residential, parkland and public open space limits have been adopted based on the proposed land use.

NEPM Soil Ecological Assessment Levels

Soil ecological assessment criteria for urban residential and public open space were adopted for the investigation based on the proposed land use.

9. INVESTIGATION RESULTS

9.1 SOIL ANALYTICAL RESULTS

The soil analytical results from the soil sampling program implemented on 19th February 2021 are summarised below. A discussion of the results is presented in **Section 10** with recommendations provided in **Section 11**. Soil analytical results are presented in the **Appendix B Laboratory Analytical Results.**

Total Recoverable Hydrocarbons (TRH)

No TRH compounds were detected at concentrations greater than laboratory LORs in any of the soil samples analysed with the exception of soil sample S1, however these results did not exceed applicable guideline criteria.

Benzene Toluene Ethylbenzene Xylenes (BTEX)

No BTEX compounds were detected at concentrations greater than applicable guideline criteria in any of the soil samples.

Polycyclic Aromatic Hydrocarbons (PAHs)

No PAH compounds were detected at concentrations greater than laboratory LORs in any of the soil samples analysed with the exception of soil sample S1. Benzo(a)pyrene was detected at levels (1.8mg/kg) exceeding ESLs for urban residential and public open space for fine grain soils in sample S1.

Organochlorine Pesticides (OCPs)

No OCPs were detected at concentrations greater than applicable guideline criteria in any of the soil samples.

Heavy Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Zinc, Mercury)

Heavy metals were detected at concentrations greater than laboratory LOR in all soil samples collected, however these results did not exceed applicable guidelines criteria.

Asbestos Containing Material (ACM)

Asbestos was detected in soil sample S1 and exceeding applicable guideline criteria (WA DoH) in soil sample S2. The estimated asbestos fibres (%w/w) were calculated at <0.01 in sample S1 and >0.01 in sample S2.

ACM in soil and/or ground surfaces was not visually identified by REE during the site inspection.

Refer to soil analytical results presented in **Appendix B Laboratory Analytical Results.**

9.2 QA/QC RESULTS

The assessment of variability within the sampling process and between laboratories indicates accuracy and precision with all primary and duplicate samples identified in **Table 7** and **Table 8** reporting analytical results within compliance levels.

Australian Standard 4482.1 specifies the typical Relative Percentage Difference (RPD) for blind replicate samples to be 30% - 50%. RPDs are to be less than 30% for inorganic analytes and 50% for organic analytes.

Relative Percentage Difference (RPD) applies if results are at least 10 times the laboratory limit of reporting (LOR), otherwise no acceptance criteria for RPD's applies. Soil primary duplicate and triplicate sample analytical results are below the primary and secondary laboratory LORs, therefore no acceptance criteria for RPD's apply.

Trip blank samples were analysed by the primary laboratory and reported analytical results below the laboratory limits of reporting (LOR). These results indicate that no cross-contamination has occurred.

Trip spike samples were analysed by the primary laboratory and reported analytical results within acceptable limits of the original concentration (60% - 140%).

Rinsate blank sample RS1 collected on 19th February 2021, were analysed by the primary laboratory and reported no analytes exceeding the detection limit of the laboratory, indicating appropriate decontamination procedures were implemented during the sampling event.

Table 8: Relative Percentage Difference Summary

Chemical	LOR (Primary Laboratory)	Sample Name	S1 (mg/kg)	QS1 (mg/kg)	RPD (%)
Arsenic	1		4	4	0
Cadmium	0.3		<0.3	<0.3	-
Chromium	0.5		7.2	7.9	9
Copper	0.5		25	24	4
Lead	1		42	35	16
Mercury	0.05		0.16	0.12	29
Nickel	0.5		14	18	25
Zinc	2		66	52	24

Refer to **Laboratory Analytical Reports** in **Appendix B** for details of these results.

10. CONCLUSIONS

Based on the soil investigation undertaken at the site, four AECs were identified within the site and assessed for potentially contaminating activities which may have impacted these areas. A site inspection was conducted by REE on 19th February 2021. The AECs which were be investigated are shown in **Figure 3**.

Based on REE's assessment of the site, the following conclusions have been made:

- No soil samples collected from AEC 1, AEC 2 and/or AEC 4 detected concentrations greater than applicable guideline criteria;
- The soil sampling program recorded exceedances over applicable guideline criteria for benzo(a)pyrene and asbestos from samples collected within AEC 3;
- Benzo(a)pyrene was detected at levels (1.8mg/kg) exceeding ESLs for urban residential and public open space for fine grain soils in soil sample S1, from AEC 3;
- Asbestos was detected in soil samples S1 and S2, collected from AEC 3. The estimated asbestos fibres (%w/w) were calculated at >0.01 in sample S2, exceeding applicable guideline criteria;
- Suspected ACM was identified in all on-site structures; and
- No groundwater was encountered during borehole excavations.

Given the presence of on-site contamination identified through soil sampling, **Section 11** provides recommendations in order to make the site suitable for its intended development for residential land-use.

11. RECOMMENDATIONS

It is the opinion of REE and in accordance with relevant Australian standards and guidelines that the site can be made suitable for the proposed residential development subject to identified areas of contamination be remediated through implementation of the following recommendations.

- A Remediation Action Plan (RAP) should be developed for the site by an experienced Environmental Scientist who is a qualified NSW Licensed Asbestos Assessor (LAA), which details the objectives and processes for remediating contaminated soils identified in **Section 8** in accordance with relevant Australian standards and guidelines. The RAP should set objectives for the remediation strategy and the recommended clean-up criteria. In order for the site to be made suitable for its intended land-use, the levels of soil contamination listed in **Section 8** must be reduced to an acceptable level;

- Preparation of a Site Validation Report concluding that the site has been remediated to allow the proposed development for residential purposes should be prepared for the site.

- If fill material is to be removed offsite for disposal, it will require classification in accordance with the NSW Environmental Protection Authority, *Waste Classification Guidelines Part 1: Classifying Waste*, 2014. These materials should be disposed of at an appropriately licenced landfill facility;

- If fill material is to be removed from AEC 3, as a minimum a Class B (bonded) licensed asbestos removal contractor should be engaged to remove the asbestos-impacted material;

- A Hazardous Materials (HAZMAT) Survey should be completed for all on-site structures scheduled to be demolished as per Australian Standards;

- In the event of any unexpected finds including the discovery of underground storage tanks, ACM, odorous and/or stained soil material during excavation activities, all site works must cease, and REE must be notified immediately for further investigation.

12. LIMITATIONS

Raw Earth Environmental Pty Ltd (REE) understands to the best of our knowledge, the information within this report is accurate at the date of issue. However, due to the irregularity and dynamic nature of subsurface conditions, soil and groundwater characteristics are capable of change over a short period of time. No warranties, expressed or implied, are made. The contents of this report must be read in full.

Subsurface conditions across a site cannot be fully defined by an investigation. Soil and/or groundwater samples were analysed for common contaminants and/or indicators of contamination only. Sample analytical results obtained during the investigation may not be representative of the extremes of contamination which could be present at the site. Therefore, there is not guarantee that other toxic compounds and/or hazardous materials do not exist within the site.

If the unexpected finds of materials suspected to be hazardous or toxic occur, all site works must cease, and REE must be immediately contacted for further instruction.

REE performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. There is no investigation thorough enough to dismiss a particular material, which presently or in the future is considered hazardous at the site. Regulatory criteria are subject to change, where concentrations of a particular contaminant currently considered low, could be subject to review and fall under different regulatory standards and criteria and may require remediation in the future.

The results of this assessment are based on the site conditions and regulatory criteria identified at the time of the site inspection. REE will not be liable to revise the report to account for any changes in site characteristics, regulatory requirements, assessment criteria or the availability of additional information, subsequent to the issue date of this report. The scope and period of REEs' services are subject to restrictions and limitations. REE did not perform a complete assessment of all possible conditions that may exist at the site.

REE takes no responsibility or liability for errors in any data obtained from scientific laboratories, regulatory agencies, statements from sources outside of REE, or developments resulting from situations outside the scope of this project.

All conclusions and recommendations regarding the site are the opinion of REE. Opinions are judgements, which are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

We trust the information contained within this document meets your requirements. Should you have any queries, please do not hesitate to contact the REE.

13. REFERENCES

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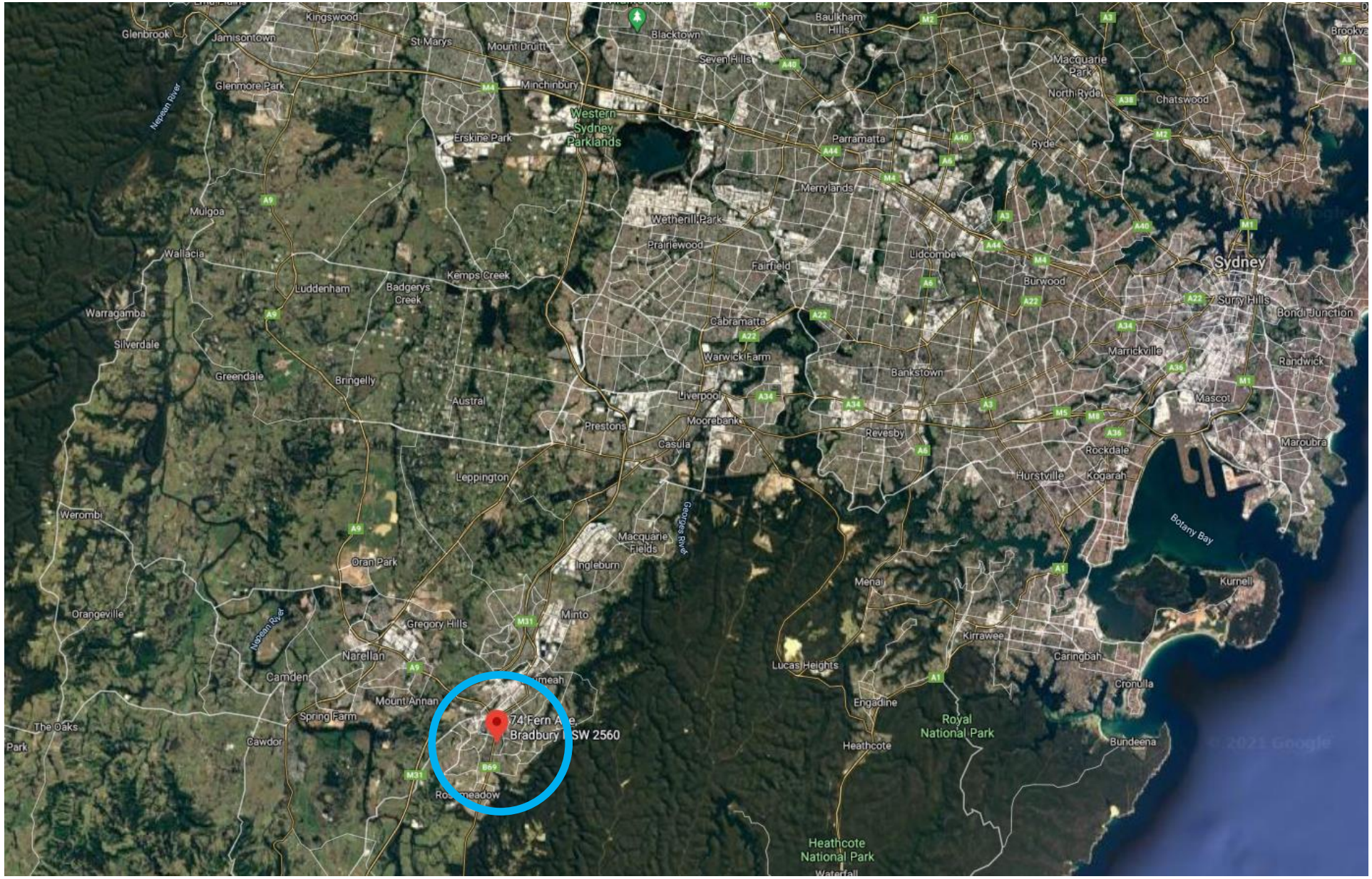
FIGURES

RAW EARTH
ENVIRONMENTAL



N

Site location

Source: Google Earth 2020

Figure 1	Locality Map
Project	74 Fern Ave, Bradbury NSW

RAW EARTH
ENVIRONMENTAL

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Soil Sampling Locations

Site boundary

Figure 2	Site Plan with Sample Locations
Project	74 Fern Ave, Bradbury

RAW EARTH
ENVIRONMENTAL

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- AEC 1 – Cleared Area 1
- AEC 2 – Cleared Area 2
- AEC 3 – Pool Area
- AEC 4 – Carparking Area
- Site boundary

Figure 3	Site Plan with Areas of Environmental Concern
Project	74 Fern Ave, Bradbury

APPENDIX A

Photographic Log

Photograph 1: AEC 1 looking south.

Photograph 2: AEC 1 looking west.

Photograph 3: AEC 1 looking north-west.

Photograph 4: AEC 2 looking east.

Photograph 5: Pump shed adjacent pool area (AEC 3).

Photograph 6: AEC 3, pool area, looking south.

Photograph 1: AEC 3, pool area, looking east towards pool pump shed.

Photograph 2: AEC 4, carparking area.

Photograph 3: Main structure onsite. Security fencing surrounds the perimeter of the building. Area was inaccessible at the time of the inspection.

Photograph 4: Secondary structure onsite.

APPENDIX B

LABORATORY ANALYTICAL RESULTS

			Project	Bradbury																
							Sample Name	SE216722.001	SE216722.002	SE216722.003	SE216722.004	SE216722.005	SE216722.006	SE216722.007	SE216722.008	SE216722.009	SE216722.010	SE216722.011	SE216722.012	SE216722.013	SE216722.014	SE216722.015
							Description	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
							Sample Date	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021	19/2/2021
							Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte Name	Units	Reporting Limit	Health Investigation Level A (HILs A)	Health Screening Levels A (HSLs A) 0m - 1m CLAY	Management Limits – Residential, parkland and public open space - Fine Soil	Soil Ecological Assessment Levels - Urban residential and public open space															
Benzene	mg/kg	0.1		1.0		65.0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1		1800.0		105.0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1		490.0		125.0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3		330.0		45.0		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6						<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1		1.0		170.0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1				65.0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25		270				<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25			800	180		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
TRH C10-C14	mg/kg	20						<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45						**94**	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45						<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100						<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25		210				<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25			1000	120		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90			3500	1300		**120**	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120			10000	5600	<120		<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110					<110		<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210					<210		<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210	<210
Naphthalene	mg/kg	0.1				170.0		**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1						**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1						**1.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1						**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1						**0.6**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1						**5.7**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1						**1.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1						**5.6**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1						**5.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1						**2.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1						**1.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1						**1.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1						**1.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1				1.4		1.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1						**1.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1						**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1						**1.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.0					**2.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3						**2.6**	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2						**2.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	300.0					**31**	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8						**31**	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Hexachlorobenzene (HCB)	mg/kg	0.1	10.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Alpha BHC	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Lindane	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Heptachlor	mg/kg	0.1	7.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Aldrin	mg/kg	0.1	7.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Beta BHC	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Delta BHC	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Heptachlor epoxide	mg/kg	0.1	7.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
o,p'-DDE	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Alpha Endosulfan	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Gamma Chlordane	mg/kg	0.1	50.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Alpha Chlordane	mg/kg	0.1	50.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
trans-Nonachlor	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
p,p'-DDE	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Dieldrin	mg/kg	0.2	7.0				<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Endrin	mg/kg	0.2	10.0				<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
o,p'-DDD	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
o,p'-DDT	mg/kg	0.1				180.0	<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Beta Endosulfan	mg/kg	0.2	300.0				<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
p,p'-DDD	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
p,p'-DDT	mg/kg	0.1				180.0	<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Endosulfan sulphate	mg/kg	0.1	300.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Endrin Aldehyde	mg/kg	0.1	10.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methoxychlor	mg/kg	0.1	400.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Endrin Ketone	mg/kg	0.1	10.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Isodrin	mg/kg	0.1					<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Mirex	mg/kg	0.1	10.0				<0.1		<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total CLP OC Pesticides	mg/kg	1					<1		<1	<1	<1	<1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1016	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1221	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1232	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1242	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1248	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1254	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1260	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1262	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arochlor 1268	mg/kg	0.2					<0.2		<0.2	<0.2	<0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total PCBs (Arochlors)	mg/kg	1	1				<1		<1	<1	<1	<1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Arsenic, As	mg/kg	1	100			100		**4**	**5**	**5**	**7**	**7**	**5**	**5**	**8**	**7**	**6**	**7**	**6**	**6**	**6**	**5**
Cadmium, Cd	mg/kg	0.3	20.0				<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	100.0					**7.2**	**7.3**	**7.1**	**8.8**	**10**	**8.0**	**9.6**	**6.6**	**13**	**12**	**8.9**	**8.0**	**8.3**	**8.4**	**9.8**
Copper, Cu	mg/kg	0.5	7000.0					**25**	**15**	**28**	**21**	**20**	**27**	**18**	**30**	**21**	**19**	**29**	**25**	**25**	**26**	**21**
Lead, Pb	mg/kg	1	300			1100		**42**	**22**	**22**	**28**	**26**	**20**	**26**	**29**	**27**	**24**	**32**	**27**	**30**	**31**	**19**
Nickel, Ni	mg/kg	0.5	400.0					**14**	**5.6**	**8.6**	**11**	**11**	**9.1**	**6.9**	**13**	**9.3**	**9.4**	**17**	**8.9**	**9.0**	**10**	**8.0**
Zinc, Zn	mg/kg	2	8000					**66**	**31**	**54**	**64**	**50**	**48**	**40**	**84**	**39**	**29**	**100**	**65**	**71**	**73**	**37**
Mercury	mg/kg	0.05	200.00					**0.16**	<0.05	<0.05	<0.05	<0.05	<0.05	**0.91**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.06**	<0.05
% Moisture	%w/w	1						**13.2**	**14.7**	**18.5**	**22.6**	**16.7**	**10.2**	**18.4**	**13.0**	**19.1**	**18.4**	**18.4**	**20.7**	**21.1**	**19.6**	**9.0**
Asbestos Detected	No unit	0					Yes		Yes	No	No	No	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Estimated Asbestos Fibres	%w/w	0.01	0.01 (WA DoH)				<0.01		**>0.01**	<0.01	<0.01	<0.01	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	DANIEL TAYLOR	Manager	Huong Crawford
Client	RAW EARTH ENVIRONMENTAL	Laboratory	SGS Alexandria Environmental
Address	4/140 HASTINGS PARADE BONDI NSW 2026	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	0409 492 988	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	daniel@rawearthenvironmental.com.au	Email	au.environmental.sydney@sgs.com
Project	**DSI-BRAD**	SGS Reference	**SE216722 R0**
Order Number	(Not specified)	Date Received	19 Feb 2021
Samples	19	Date Reported	26 Feb 2021

COMMENTS

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

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

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

Sample #1: Asbestos found in approx 6x4x2mm cement sheet fragment.
Sample #2: Asbestos found in approx 10x6x3mm cement sheet fragment.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

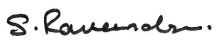
Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Organic Chemist/Metals Chemis

Huong CRAWFORD
Production Manager

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head



Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Parameter	Units	LOR	Sample Number: SE216722.001 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S1	SE216722.002 Soil 19 Feb 2021 S2	SE216722.003 Soil 19 Feb 2021 S3	SE216722.004 Soil 19 Feb 2021 S4
VOC's in Soil Method: AN433 Tested: 22/2/2021						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	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
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**86**	**88**	**78**	**77**
d8-toluene (Surrogate)	%	-	**97**	**101**	**85**	**83**
Bromofluorobenzene (Surrogate)	%	-	**70**	**72**	**61**	**60**
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 22/2/2021						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**86**	**88**	**78**	**77**
d8-toluene (Surrogate)	%	-	**97**	**101**	**85**	**83**
Bromofluorobenzene (Surrogate)	%	-	**70**	**72**	**61**	**60**
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE216722.001 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S1	SE216722.002 Soil 19 Feb 2021 S2	SE216722.003 Soil 19 Feb 2021 S3	SE216722.004 Soil 19 Feb 2021 S4
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 22/2/2021						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**94**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**120**	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 22/2/2021						
Naphthalene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	**1.0**	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	**0.6**	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**5.7**	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	**1.0**	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**5.6**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	**5.4**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	**2.1**	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	**1.9**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**1.5**	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	**1.1**	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**1.8**	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**1.5**	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**1.0**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	**2.6**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**2.6**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**2.6**	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	**31**	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**31**	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**88**	**115**	**125**	**111**
2-fluorobiphenyl (Surrogate)	%	-	**92**	**78**	**80**	**102**
d14-p-terphenyl (Surrogate)	%	-	**88**	**97**	**92**	**95**
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE216722.001 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S1	SE216722.002 Soil 19 Feb 2021 S2	SE216722.003 Soil 19 Feb 2021 S3	SE216722.004 Soil 19 Feb 2021 S4
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021 (continued)						
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**112**	**106**	**106**	**105**
PCBs in Soil Method: AN420 Tested: 22/2/2021						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**112**	**106**	**106**	**105**
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 23/2/2021						
Arsenic, As	mg/kg	1	**4**	**5**	**5**	**7**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**7.2**	**7.3**	**7.1**	**8.8**
Copper, Cu	mg/kg	0.5	**25**	**15**	**28**	**21**
Nickel, Ni	mg/kg	0.5	**14**	**5.6**	**8.6**	**11**
Lead, Pb	mg/kg	1	**42**	**22**	**22**	**28**
Zinc, Zn	mg/kg	2	**66**	**31**	**54**	**64**
Mercury in Soil Method: AN312 Tested: 23/2/2021						
Mercury	mg/kg	0.05	**0.16**	<0.05	<0.05	<0.05

Parameter	Units	LOR	Sample Number: SE216722.001 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S1	SE216722.002 Soil 19 Feb 2021 S2	SE216722.003 Soil 19 Feb 2021 S3	SE216722.004 Soil 19 Feb 2021 S4
Moisture Content Method: AN002 Tested: 22/2/2021						
% Moisture	%w/w	1	**13.2**	**14.7**	**18.5**	**22.6**
Fibre Identification in soil Method: AN602 Tested: 25/2/2021						
FibreID						
Asbestos Detected	No unit	-	Yes	Yes	No	No
SemiQuant						
Estimated Fibres*	%w/w	0.01	<0.01	**>0.01**	<0.01	<0.01
Trace Metals (Total) in Water by ICPMS Method: AN022/AN318 Tested: 23/2/2021						
Total Arsenic	µg/L	1	-	-	-	-
Total Cadmium	µg/L	0.1	-	-	-	-
Total Chromium	µg/L	1	-	-	-	-
Total Copper	µg/L	1	-	-	-	-
Total Lead	µg/L	1	-	-	-	-
Total Nickel	µg/L	1	-	-	-	-
Total Zinc	µg/L	5	-	-	-	-
Mercury (total) in Water Method: AN311(Perth) /AN312 Tested: 23/2/2021						
Total Mercury	mg/L	0.0001	-	-	-	-

Parameter	Units	LOR	Sample Number: SE216722.005 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S5	SE216722.006 Soil 19 Feb 2021 S6	SE216722.007 Soil 19 Feb 2021 S7	SE216722.008 Soil 19 Feb 2021 S8
VOC's in Soil Method: AN433 Tested: 22/2/2021						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	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
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**80**	**100**	**103**	**90**
d8-toluene (Surrogate)	%	-	**77**	**97**	**100**	**86**
Bromofluorobenzene (Surrogate)	%	-	**77**	**98**	**100**	**88**
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 22/2/2021						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**80**	**100**	**103**	**90**
d8-toluene (Surrogate)	%	-	**77**	**97**	**100**	**86**
Bromofluorobenzene (Surrogate)	%	-	**77**	**98**	**100**	**88**
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE216722.005 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S5	SE216722.006 Soil 19 Feb 2021 S6	SE216722.007 Soil 19 Feb 2021 S7	SE216722.008 Soil 19 Feb 2021 S8
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 22/2/2021						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 22/2/2021						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	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
Chrysene	mg/kg	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
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	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
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**105**	**92**	**105**	**105**
2-fluorobiphenyl (Surrogate)	%	-	**92**	**92**	**78**	**94**
d14-p-terphenyl (Surrogate)	%	-	**83**	**89**	**89**	**82**
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-	-
Alpha BHC	mg/kg	0.1	<0.1	-	-	-
Lindane	mg/kg	0.1	<0.1	-	-	-
Heptachlor	mg/kg	0.1	<0.1	-	-	-
Aldrin	mg/kg	0.1	<0.1	-	-	-
Beta BHC	mg/kg	0.1	<0.1	-	-	-
Delta BHC	mg/kg	0.1	<0.1	-	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	-	-
o,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	-	-
p,p'-DDE	mg/kg	0.1	<0.1	-	-	-
Dieldrin	mg/kg	0.2	<0.2	-	-	-
Endrin	mg/kg	0.2	<0.2	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE216722.005 Soil 19 Feb 2021 S5	SE216722.006 Soil 19 Feb 2021 S6	SE216722.007 Soil 19 Feb 2021 S7	SE216722.008 Soil 19 Feb 2021 S8
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021 (continued)						
o,p'-DDD	mg/kg	0.1	<0.1	-	-	-
o,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	-	-
p,p'-DDD	mg/kg	0.1	<0.1	-	-	-
p,p'-DDT	mg/kg	0.1	<0.1	-	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	-	-
Methoxychlor	mg/kg	0.1	<0.1	-	-	-
Endrin Ketone	mg/kg	0.1	<0.1	-	-	-
Isodrin	mg/kg	0.1	<0.1	-	-	-
Mirex	mg/kg	0.1	<0.1	-	-	-
Total CLP OC Pesticides	mg/kg	1	<1	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**106**	-	-	-
PCBs in Soil Method: AN420 Tested: 22/2/2021						
Arochlor 1016	mg/kg	0.2	<0.2	-	-	-
Arochlor 1221	mg/kg	0.2	<0.2	-	-	-
Arochlor 1232	mg/kg	0.2	<0.2	-	-	-
Arochlor 1242	mg/kg	0.2	<0.2	-	-	-
Arochlor 1248	mg/kg	0.2	<0.2	-	-	-
Arochlor 1254	mg/kg	0.2	<0.2	-	-	-
Arochlor 1260	mg/kg	0.2	<0.2	-	-	-
Arochlor 1262	mg/kg	0.2	<0.2	-	-	-
Arochlor 1268	mg/kg	0.2	<0.2	-	-	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**106**	-	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 23/2/2021						
Arsenic, As	mg/kg	1	**7**	**5**	**5**	**8**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**10**	**8.0**	**9.6**	**6.6**
Copper, Cu	mg/kg	0.5	**20**	**27**	**18**	**30**
Nickel, Ni	mg/kg	0.5	**11**	**9.1**	**6.9**	**13**
Lead, Pb	mg/kg	1	**26**	**20**	**26**	**29**
Zinc, Zn	mg/kg	2	**50**	**48**	**40**	**84**
Mercury in Soil Method: AN312 Tested: 23/2/2021						
Mercury	mg/kg	0.05	<0.05	<0.05	**0.91**	<0.05

Parameter	Units	LOR	Sample Number: SE216722.005 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S5	SE216722.006 Soil 19 Feb 2021 S6	SE216722.007 Soil 19 Feb 2021 S7	SE216722.008 Soil 19 Feb 2021 S8
Moisture Content Method: AN002 Tested: 22/2/2021						
% Moisture	%w/w	1	**16.7**	**10.2**	**18.4**	**13.0**
Fibre Identification in soil Method: AN602 Tested: 25/2/2021						
FibreID						
Asbestos Detected	No unit	-	No	-	-	-
SemiQuant						
Estimated Fibres*	%w/w	0.01	<0.01	-	-	-
Trace Metals (Total) in Water by ICPMS Method: AN022/AN318 Tested: 23/2/2021						
Total Arsenic	µg/L	1	-	-	-	-
Total Cadmium	µg/L	0.1	-	-	-	-
Total Chromium	µg/L	1	-	-	-	-
Total Copper	µg/L	1	-	-	-	-
Total Lead	µg/L	1	-	-	-	-
Total Nickel	µg/L	1	-	-	-	-
Total Zinc	µg/L	5	-	-	-	-
Mercury (total) in Water Method: AN311(Perth) /AN312 Tested: 23/2/2021						
Total Mercury	mg/L	0.0001	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE216722.009 Soil 19 Feb 2021 S9	SE216722.010 Soil 19 Feb 2021 S10	SE216722.011 Soil 19 Feb 2021 S11	SE216722.012 Soil 19 Feb 2021 S12
VOC's in Soil Method: AN433 Tested: 22/2/2021							
Monocyclic Aromatic Hydrocarbons							
Benzene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	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
o-xylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs							
Naphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Surrogates							
d4-1,2-dichloroethane (Surrogate)	%	-		**89**	**85**	**80**	**82**
d8-toluene (Surrogate)	%	-		**83**	**79**	**73**	**75**
Bromofluorobenzene (Surrogate)	%	-		**86**	**83**	**78**	**80**
Totals							
Total Xylenes	mg/kg	0.3		<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6		<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 22/2/2021							
TRH C6-C10	mg/kg	25		<25	<25	<25	<25
TRH C6-C9	mg/kg	20		<20	<20	<20	<20
Surrogates							
d4-1,2-dichloroethane (Surrogate)	%	-		**89**	**85**	**80**	**82**
d8-toluene (Surrogate)	%	-		**83**	**79**	**73**	**75**
Bromofluorobenzene (Surrogate)	%	-		**86**	**83**	**78**	**80**
VPH F Bands							
Benzene (F0)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25		<25	<25	<25	<25

Parameter	Units	LOR	Sample Number: SE216722.009 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S9	SE216722.010 Soil 19 Feb 2021 S10	SE216722.011 Soil 19 Feb 2021 S11	SE216722.012 Soil 19 Feb 2021 S12
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 22/2/2021						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 22/2/2021						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	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
Chrysene	mg/kg	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
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	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
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**123**	**105**	**95**	**94**
2-fluorobiphenyl (Surrogate)	%	-	**94**	**78**	**85**	**85**
d14-p-terphenyl (Surrogate)	%	-	**94**	**90**	**97**	**101**
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021						
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-

Parameter	Units	LOR	Sample Number: SE216722.009 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S9	SE216722.010 Soil 19 Feb 2021 S10	SE216722.011 Soil 19 Feb 2021 S11	SE216722.012 Soil 19 Feb 2021 S12
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021 (continued)						
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
PCBs in Soil Method: AN420 Tested: 22/2/2021						
Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 23/2/2021						
Arsenic, As	mg/kg	1	**7**	**6**	**7**	**6**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**13**	**12**	**8.9**	**8.0**
Copper, Cu	mg/kg	0.5	**21**	**19**	**29**	**25**
Nickel, Ni	mg/kg	0.5	**9.3**	**9.4**	**17**	**8.9**
Lead, Pb	mg/kg	1	**27**	**24**	**32**	**27**
Zinc, Zn	mg/kg	2	**39**	**29**	**100**	**65**
Mercury in Soil Method: AN312 Tested: 23/2/2021						
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Parameter	Units	LOR	Sample Number: SE216722.009 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S9	SE216722.010 Soil 19 Feb 2021 S10	SE216722.011 Soil 19 Feb 2021 S11	SE216722.012 Soil 19 Feb 2021 S12
Moisture Content Method: AN002 Tested: 22/2/2021						
% Moisture	%w/w	1	**19.1**	**18.4**	**18.4**	**20.7**
Fibre Identification in soil Method: AN602 Tested: 26/2/2021						
FibreID						
Asbestos Detected	No unit	-	-	-	-	-
SemiQuant						
Estimated Fibres*	%w/w	0.01	-	-	-	-
Trace Metals (Total) in Water by ICPMS Method: AN022/AN318 Tested: 23/2/2021						
Total Arsenic	µg/L	1	-	-	-	-
Total Cadmium	µg/L	0.1	-	-	-	-
Total Chromium	µg/L	1	-	-	-	-
Total Copper	µg/L	1	-	-	-	-
Total Lead	µg/L	1	-	-	-	-
Total Nickel	µg/L	1	-	-	-	-
Total Zinc	µg/L	5	-	-	-	-
Mercury (total) in Water Method: AN311(Perth) /AN312 Tested: 23/2/2021						
Total Mercury	mg/L	0.0001	-	-	-	-

Parameter	Units	LOR	Sample Number: SE216722.013 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S13	SE216722.014 Soil 19 Feb 2021 S14	SE216722.015 Soil 19 Feb 2021 S15	SE216722.016 Soil 19 Feb 2021 QS1
VOC's in Soil Method: AN433 Tested: 22/2/2021						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**88**	**80**	**98**	-
d8-toluene (Surrogate)	%	-	**83**	**73**	**92**	-
Bromofluorobenzene (Surrogate)	%	-	**84**	**78**	**94**	-
Totals						
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 22/2/2021						
TRH C6-C10	mg/kg	25	<25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	<20	-
Surrogates						
d4-1,2-dichloroethane (Surrogate)	%	-	**88**	**80**	**98**	-
d8-toluene (Surrogate)	%	-	**83**	**73**	**92**	-
Bromofluorobenzene (Surrogate)	%	-	**84**	**78**	**94**	-
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	-

Parameter	Units	LOR	Sample Number: SE216722.013 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S13	SE216722.014 Soil 19 Feb 2021 S14	SE216722.015 Soil 19 Feb 2021 S15	SE216722.016 Soil 19 Feb 2021 QS1
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 22/2/2021						
TRH C10-C14	mg/kg	20	<20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	-
TRH F Bands						
TRH >C10-C16	mg/kg	25	<25	<25	<25	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 22/2/2021						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	-
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	-
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**94**	**93**	**97**	-
2-fluorobiphenyl (Surrogate)	%	-	**83**	**96**	**82**	-
d14-p-terphenyl (Surrogate)	%	-	**94**	**91**	**84**	-
OC Pesticides in Soil Method: AN420 Tested: 22/2/2021						
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-	-
Lindane	mg/kg	0.1	-	-	-	-
Heptachlor	mg/kg	0.1	-	-	-	-
Aldrin	mg/kg	0.1	-	-	-	-
Beta BHC	mg/kg	0.1	-	-	-	-
Delta BHC	mg/kg	0.1	-	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-	-
Dieldrin	mg/kg	0.2	-	-	-	-
Endrin	mg/kg	0.2	-	-	-	-

Parameter	Units	LOR	Sample Number: SE216722.013 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S13	SE216722.014 Soil 19 Feb 2021 S14	SE216722.015 Soil 19 Feb 2021 S15	SE216722.016 Soil 19 Feb 2021 QS1
OC Pesticides in Soil Method: AN420 Tested: 26/2/2021 (continued)						
o,p'-DDD	mg/kg	0.1	-	-	-	-
o,p'-DDT	mg/kg	0.1	-	-	-	-
Beta Endosulfan	mg/kg	0.2	-	-	-	-
p,p'-DDD	mg/kg	0.1	-	-	-	-
p,p'-DDT	mg/kg	0.1	-	-	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	-	-
Methoxychlor	mg/kg	0.1	-	-	-	-
Endrin Ketone	mg/kg	0.1	-	-	-	-
Isodrin	mg/kg	0.1	-	-	-	-
Mirex	mg/kg	0.1	-	-	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
PCBs in Soil Method: AN420 Tested: 22/2/2021						
Arochlor 1016	mg/kg	0.2	-	-	-	-
Arochlor 1221	mg/kg	0.2	-	-	-	-
Arochlor 1232	mg/kg	0.2	-	-	-	-
Arochlor 1242	mg/kg	0.2	-	-	-	-
Arochlor 1248	mg/kg	0.2	-	-	-	-
Arochlor 1254	mg/kg	0.2	-	-	-	-
Arochlor 1260	mg/kg	0.2	-	-	-	-
Arochlor 1262	mg/kg	0.2	-	-	-	-
Arochlor 1268	mg/kg	0.2	-	-	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-	-	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 23/2/2021						
Arsenic, As	mg/kg	1	**6**	**6**	**5**	**4**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**8.3**	**8.4**	**9.8**	**7.9**
Copper, Cu	mg/kg	0.5	**25**	**26**	**21**	**24**
Nickel, Ni	mg/kg	0.5	**9.0**	**10**	**8.0**	**18**
Lead, Pb	mg/kg	1	**30**	**31**	**19**	**35**
Zinc, Zn	mg/kg	2	**71**	**73**	**37**	**52**
Mercury in Soil Method: AN312 Tested: 23/2/2021						
Mercury	mg/kg	0.05	<0.05	**0.06**	<0.05	**0.12**

Parameter	Units	LOR	Sample Number: SE216722.013 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: S13	SE216722.014 Soil 19 Feb 2021 S14	SE216722.015 Soil 19 Feb 2021 S15	SE216722.016 Soil 19 Feb 2021 QS1
Moisture Content Method: AN002 Tested: 22/2/2021						
% Moisture	%w/w	1	**21.1**	**19.6**	**9.0**	**13.4**
Fibre Identification in soil Method: AN602 Tested: 26/2/2021						
FibreID						
Asbestos Detected	No unit	-	-	-	-	-
SemiQuant						
Estimated Fibres*	%w/w	0.01	-	-	-	-
Trace Metals (Total) in Water by ICPMS Method: AN022/AN318 Tested: 23/2/2021						
Total Arsenic	µg/L	1	-	-	-	-
Total Cadmium	µg/L	0.1	-	-	-	-
Total Chromium	µg/L	1	-	-	-	-
Total Copper	µg/L	1	-	-	-	-
Total Lead	µg/L	1	-	-	-	-
Total Nickel	µg/L	1	-	-	-	-
Total Zinc	µg/L	5	-	-	-	-
Mercury (total) in Water Method: AN311(Perth) /AN312 Tested: 23/2/2021						
Total Mercury	mg/L	0.0001	-	-	-	-

Parameter	Units	LOR	Sample Number: SE216722.017 Sample Matrix: Soil Sample Date: 19 Feb 2021 Sample Name: Trip Blank	SE216722.018 Soil 19 Feb 2021 Trip Spike	SE216722.019 Water 19 Feb 2021 RS1
VOC's in Soil Method: AN433 Tested: 22/2/2021					
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	0.1	<0.1	[90%]	-
Toluene	mg/kg	0.1	<0.1	[94%]	-
Ethylbenzene	mg/kg	0.1	<0.1	[97%]	-
m/p-xylene	mg/kg	0.2	<0.2	[97%]	-
o-xylene	mg/kg	0.1	<0.1	[96%]	-
Polycyclic VOCs					
Naphthalene	mg/kg	0.1	<0.1	-	-
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**98**	**91**	-
d8-toluene (Surrogate)	%	-	**90**	**85**	-
Bromofluorobenzene (Surrogate)	%	-	**94**	**86**	-
Totals					
Total Xylenes	mg/kg	0.3	<0.3	-	-
Total BTEX	mg/kg	0.6	<0.6	-	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 22/2/2021					
TRH C6-C10	mg/kg	25	<25	-	-
TRH C6-C9	mg/kg	20	<20	-	-
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**98**	-	-
d8-toluene (Surrogate)	%	-	**90**	-	-
Bromofluorobenzene (Surrogate)	%	-	**94**	-	-
VPH F Bands					
Benzene (F0)	mg/kg	0.1	<0.1	-	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE216722.017 Soil 19 Feb 2021 Trip Blank	SE216722.018 Soil 19 Feb 2021 Trip Spike	SE216722.019 Water 19 Feb 2021 RS1
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 26/2/2021					
TRH C10-C14	mg/kg	20	-	-	-
TRH C15-C28	mg/kg	45	-	-	-
TRH C29-C36	mg/kg	45	-	-	-
TRH C37-C40	mg/kg	100	-	-	-
TRH C10-C36 Total	mg/kg	110	-	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	-
TRH F Bands					
TRH >C10-C16	mg/kg	25	-	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	-
TRH >C16-C34 (F3)	mg/kg	90	-	-	-
TRH >C34-C40 (F4)	mg/kg	120	-	-	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 26/2/2021					
Naphthalene	mg/kg	0.1	-	-	-
2-methylnaphthalene	mg/kg	0.1	-	-	-
1-methylnaphthalene	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)fluoranthene	mg/kg	0.1	-	-	-
Benzo(k)fluoranthene	mg/kg	0.1	-	-	-
Benzo(a)pyrene	mg/kg	0.1	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	-	-	-
Dibenzo(ah)anthracene	mg/kg	0.1	-	-	-
Benzo(ghi)perylene	mg/kg	0.1	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	-	-	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	-	-	-
Total PAH (18)	mg/kg	0.8	-	-	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	-	-	-
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	-	-	-
2-fluorobiphenyl (Surrogate)	%	-	-	-	-
d14-p-terphenyl (Surrogate)	%	-	-	-	-
OC Pesticides in Soil Method: AN420 Tested: 26/2/2021					
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	-
Alpha BHC	mg/kg	0.1	-	-	-
Lindane	mg/kg	0.1	-	-	-
Heptachlor	mg/kg	0.1	-	-	-
Aldrin	mg/kg	0.1	-	-	-
Beta BHC	mg/kg	0.1	-	-	-
Delta BHC	mg/kg	0.1	-	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	-
o,p'-DDE	mg/kg	0.1	-	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	-
Gamma Chlordane	mg/kg	0.1	-	-	-
Alpha Chlordane	mg/kg	0.1	-	-	-
trans-Nonachlor	mg/kg	0.1	-	-	-
p,p'-DDE	mg/kg	0.1	-	-	-
Dieldrin	mg/kg	0.2	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE216722.017 Soil 19 Feb 2021 Trip Blank	SE216722.018 Soil 19 Feb 2021 Trip Spike	SE216722.019 Water 19 Feb 2021 RS1
OC Pesticides in Soil Method: AN420 Tested: 26/2/2021 (continued)						
Endrin	mg/kg	0.2		-	-	-
o,p'-DDD	mg/kg	0.1		-	-	-
o,p'-DDT	mg/kg	0.1		-	-	-
Beta Endosulfan	mg/kg	0.2		-	-	-
p,p'-DDD	mg/kg	0.1		-	-	-
p,p'-DDT	mg/kg	0.1		-	-	-
Endosulfan sulphate	mg/kg	0.1		-	-	-
Endrin Aldehyde	mg/kg	0.1		-	-	-
Methoxychlor	mg/kg	0.1		-	-	-
Endrin Ketone	mg/kg	0.1		-	-	-
Isodrin	mg/kg	0.1		-	-	-
Mirex	mg/kg	0.1		-	-	-
Total CLP OC Pesticides	mg/kg	1		-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		-	-	-
PCBs in Soil Method: AN420 Tested: 26/2/2021						
Arochlor 1016	mg/kg	0.2		-	-	-
Arochlor 1221	mg/kg	0.2		-	-	-
Arochlor 1232	mg/kg	0.2		-	-	-
Arochlor 1242	mg/kg	0.2		-	-	-
Arochlor 1248	mg/kg	0.2		-	-	-
Arochlor 1254	mg/kg	0.2		-	-	-
Arochlor 1260	mg/kg	0.2		-	-	-
Arochlor 1262	mg/kg	0.2		-	-	-
Arochlor 1268	mg/kg	0.2		-	-	-
Total PCBs (Arochlors)	mg/kg	1		-	-	-
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		-	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 26/2/2021						
Arsenic, As	mg/kg	1		-	-	-
Cadmium, Cd	mg/kg	0.3		-	-	-
Chromium, Cr	mg/kg	0.5		-	-	-
Copper, Cu	mg/kg	0.5		-	-	-
Nickel, Ni	mg/kg	0.5		-	-	-
Lead, Pb	mg/kg	1		-	-	-
Zinc, Zn	mg/kg	2		-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE216722.017 Soil 19 Feb 2021 Trip Blank	SE216722.018 Soil 19 Feb 2021 Trip Spike	SE216722.019 Water 19 Feb 2021 RS1
Mercury in Soil Method: AN312 Tested: 26/2/2021					
Mercury	mg/kg	0.05	-	-	-
Moisture Content Method: AN002 Tested: 22/2/2021					
% Moisture	%w/w	1	<1.0	-	-
Fibre Identification in soil Method: AN602 Tested: 26/2/2021					
FibreID					
Asbestos Detected	No unit	-	-	-	-
SemiQuant					
Estimated Fibres*	%w/w	0.01	-	-	-
Trace Metals (Total) in Water by ICPMS Method: AN022/AN318 Tested: 23/2/2021					
Total Arsenic	µg/L	1	-	-	<1
Total Cadmium	µg/L	0.1	-	-	<0.1
Total Chromium	µg/L	1	-	-	<1
Total Copper	µg/L	1	-	-	<1
Total Lead	µg/L	1	-	-	<1
Total Nickel	µg/L	1	-	-	<1
Total Zinc	µg/L	5	-	-	<5
Mercury (total) in Water Method: AN311(Perth) /AN312 Tested: 23/2/2021					
Total Mercury	mg/L	0.0001	-	-	<0.0001

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury (total) in Water **Method: ME-(AU)-[ENV]AN311(Perth) /AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Mercury	LB219140	mg/L	0.0001	<0.0001	0%	NA

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB219266	mg/kg	0.05	<0.05	0 - 9%	94%	77%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB219103	%w/w	1	0%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Hexachlorobenzene (HCB)	LB219086	mg/kg	0.1	<0.1	0%	NA
Alpha BHC	LB219086	mg/kg	0.1	<0.1	0%	NA
Lindane	LB219086	mg/kg	0.1	<0.1	0%	NA
Heptachlor	LB219086	mg/kg	0.1	<0.1	0%	105%
Aldrin	LB219086	mg/kg	0.1	<0.1	0%	103%
Beta BHC	LB219086	mg/kg	0.1	<0.1	0%	NA
Delta BHC	LB219086	mg/kg	0.1	<0.1	0%	99%
Heptachlor epoxide	LB219086	mg/kg	0.1	<0.1	0%	NA
o,p'-DDE	LB219086	mg/kg	0.1	<0.1	0%	NA
Alpha Endosulfan	LB219086	mg/kg	0.2	<0.2	0%	NA
Gamma Chlordane	LB219086	mg/kg	0.1	<0.1	0%	NA
Alpha Chlordane	LB219086	mg/kg	0.1	<0.1	0%	NA
trans-Nonachlor	LB219086	mg/kg	0.1	<0.1	0%	NA
p,p'-DDE	LB219086	mg/kg	0.1	<0.1	0%	NA
Dieldrin	LB219086	mg/kg	0.2	<0.2	0%	102%
Endrin	LB219086	mg/kg	0.2	<0.2	0%	103%
o,p'-DDD	LB219086	mg/kg	0.1	<0.1	0%	NA
o,p'-DDT	LB219086	mg/kg	0.1	<0.1	0%	NA
Beta Endosulfan	LB219086	mg/kg	0.2	<0.2	0%	NA
p,p'-DDD	LB219086	mg/kg	0.1	<0.1	0%	NA
p,p'-DDT	LB219086	mg/kg	0.1	<0.1	0%	99%
Endosulfan sulphate	LB219086	mg/kg	0.1	<0.1	0%	NA
Endrin Aldehyde	LB219086	mg/kg	0.1	<0.1	0%	NA
Methoxychlor	LB219086	mg/kg	0.1	<0.1	0%	NA
Endrin Ketone	LB219086	mg/kg	0.1	<0.1	0%	NA
Isodrin	LB219086	mg/kg	0.1	<0.1	0%	NA
Mirex	LB219086	mg/kg	0.1	<0.1	0%	NA
Total CLP OC Pesticides	LB219086	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB219086	%	-	96%	5%	98%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB219086	mg/kg	0.1	<0.1	0%	106%	107%
2-methylnaphthalene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB219086	mg/kg	0.1	<0.1	0%	109%	111%
Acenaphthene	LB219086	mg/kg	0.1	<0.1	0%	97%	105%
Fluorene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB219086	mg/kg	0.1	<0.1	0%	115%	116%
Anthracene	LB219086	mg/kg	0.1	<0.1	0%	108%	104%
Fluoranthene	LB219086	mg/kg	0.1	<0.1	0%	114%	135%
Pyrene	LB219086	mg/kg	0.1	<0.1	0%	113%	119%
Benzo(a)anthracene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Chrysene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(b&j)fluoranthene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(k)fluoranthene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(a)pyrene	LB219086	mg/kg	0.1	<0.1	0%	116%	117%
Indeno(1,2,3-cd)pyrene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Dibenzo(ah)anthracene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB219086	mg/kg	0.1	<0.1	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB219086	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB219086	TEQ (mg/kg)	0.3	<0.3	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB219086	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Total PAH (18)	LB219086	mg/kg	0.8	<0.8	0%	NA	NA
Total PAH (NEPM/WHO 16)	LB219086	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB219086	%	-	114%	25%	99%	89%
2-fluorobiphenyl (Surrogate)	LB219086	%	-	80%	15%	92%	86%
d14-p-terphenyl (Surrogate)	LB219086	%	-	99%	3%	80%	84%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arochlor 1016	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1221	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1232	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1242	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1248	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1254	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1260	LB219086	mg/kg	0.2	<0.2	0%	81%
Arochlor 1262	LB219086	mg/kg	0.2	<0.2	0%	NA
Arochlor 1268	LB219086	mg/kg	0.2	<0.2	0%	NA
Total PCBs (Arochlors)	LB219086	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB219086	%	-	96%	5%	98%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB219246	mg/kg	1	<1	0 - 8%	110%	92%
Cadmium, Cd	LB219246	mg/kg	0.3	<0.3	0%	97%	88%
Chromium, Cr	LB219246	mg/kg	0.5	<0.5	1 - 8%	116%	92%
Copper, Cu	LB219246	mg/kg	0.5	<0.5	3 - 11%	112%	86%
Nickel, Ni	LB219246	mg/kg	0.5	<0.5	3 - 27%	106%	88%
Lead, Pb	LB219246	mg/kg	1	<1	1 - 6%	109%	89%
Zinc, Zn	LB219246	mg/kg	2	<2.0	6 - 15%	108%	55%

Trace Metals (Total) in Water by ICPMS Method: ME-(AU)-[ENV]AN022/AN318

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Arsenic	LB219133	µg/L	1	<1	0%	91%
Total Cadmium	LB219133	µg/L	0.1	<0.1	0%	109%
Total Chromium	LB219133	µg/L	1	<1	0%	113%
Total Copper	LB219133	µg/L	1	<1	0%	115%
Total Lead	LB219133	µg/L	1	<1	0%	100%
Total Nickel	LB219133	µg/L	1	<1	0%	110%
Total Zinc	LB219133	µg/L	5	<5	0%	103%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB219086	mg/kg	20	<20	0%	100%	95%
TRH C15-C28	LB219086	mg/kg	45	<45	0%	88%	108%
TRH C29-C36	LB219086	mg/kg	45	<45	0%	80%	95%
TRH C37-C40	LB219086	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB219086	mg/kg	110	<110	0%	NA	NA
TRH >C10-C40 Total (F bands)	LB219086	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB219086	mg/kg	25	<25	0%	98%	98%
TRH >C10-C16 - Naphthalene (F2)	LB219086	mg/kg	25	<25	0%	NA	NA
TRH >C16-C34 (F3)	LB219086	mg/kg	90	<90	0%	78%	108%
TRH >C34-C40 (F4)	LB219086	mg/kg	120	<120	0%	90%	NA

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

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB219076	mg/kg	0.1	<0.1	0%	79%	71%
Toluene	LB219076	mg/kg	0.1	<0.1	0%	80%	71%
Ethylbenzene	LB219076	mg/kg	0.1	<0.1	0%	78%	73%
m/p-xylene	LB219076	mg/kg	0.2	<0.2	0%	78%	73%
o-xylene	LB219076	mg/kg	0.1	<0.1	0%	79%	73%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB219076	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB219076	%	-	88%	4 - 5%	90%	81%
d8-toluene (Surrogate)	LB219076	%	-	98%	4 - 5%	107%	93%
Bromofluorobenzene (Surrogate)	LB219076	%	-	78%	2 - 4%	75%	68%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB219076	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB219076	mg/kg	0.6	<0.6	0%	NA	NA

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB219076	mg/kg	25	<25	0%	81%	69%
TRH C6-C9	LB219076	mg/kg	20	<20	0%	80%	68%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB219076	%	-	88%	4 - 5%	90%	81%
d8-toluene (Surrogate)	LB219076	%	-	98%	4 - 5%	107%	93%
Bromofluorobenzene (Surrogate)	LB219076	%	-	78%	2 - 4%	75%	68%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB219076	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB219076	mg/kg	25	<25	0%	81%	68%

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.
AN022	The water sample is digested with Nitric Acid and made up to the original volume similar to APHA3030E.
AN022/AN318	Following acid digestion of un filtered sample, determination of elements at trace level in waters by ICP-MS technique, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
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.
AN311(Perth) /AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions taken from unfiltered sample 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
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).

METHOD	METHODOLOGY SUMMARY
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

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 calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

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

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

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

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

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

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

STATEMENT OF QA/QC PERFORMANCE

SE216722 R0

CLIENT DETAILS

Contact	DANIEL TAYLOR
Client	RAW EARTH ENVIRONMENTAL
Address	4/140 HASTINGS PARADE BONDI NSW 2026
Telephone	0409 492 988
Facsimile	(Not specified)
Email	daniel@rawearthenvironmental.com.au
Project	**DSI-BRAD**
Order Number	(Not specified)
Samples	19

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	**SE216722 R0**
Date Received	19 Feb 2021
Date Reported	26 Feb 2021

COMMENTS

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

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

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

Surrogate	VOC's in Soil	1 item
	Volatile Petroleum Hydrocarbons in Soil	1 item
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	VOC's in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	18 Soil, 1 Water
Date documentation received	20/2/2021@12:40pr	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE216722 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 sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219416	19 Feb 2021	19 Feb 2021	19 Feb 2022	25 Feb 2021	19 Feb 2022	26 Feb 2021
S2	SE216722.002	LB219416	19 Feb 2021	19 Feb 2021	19 Feb 2022	25 Feb 2021	19 Feb 2022	26 Feb 2021
S3	SE216722.003	LB219416	19 Feb 2021	19 Feb 2021	19 Feb 2022	25 Feb 2021	19 Feb 2022	26 Feb 2021
S4	SE216722.004	LB219416	19 Feb 2021	19 Feb 2021	19 Feb 2022	25 Feb 2021	19 Feb 2022	26 Feb 2021
S5	SE216722.005	LB219416	19 Feb 2021	19 Feb 2021	19 Feb 2022	25 Feb 2021	19 Feb 2022	26 Feb 2021

Mercury (total) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE216722.019	LB219140	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	23 Feb 2021

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S2	SE216722.002	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S3	SE216722.003	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S4	SE216722.004	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S5	SE216722.005	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S6	SE216722.006	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S7	SE216722.007	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S8	SE216722.008	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S9	SE216722.009	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S10	SE216722.010	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S11	SE216722.011	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S12	SE216722.012	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S13	SE216722.013	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S14	SE216722.014	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
S15	SE216722.015	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021
QS1	SE216722.016	LB219266	19 Feb 2021	19 Feb 2021	19 Mar 2021	23 Feb 2021	19 Mar 2021	26 Feb 2021

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S2	SE216722.002	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S3	SE216722.003	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S4	SE216722.004	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S5	SE216722.005	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S6	SE216722.006	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S7	SE216722.007	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S8	SE216722.008	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S9	SE216722.009	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S10	SE216722.010	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S11	SE216722.011	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S12	SE216722.012	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S13	SE216722.013	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S14	SE216722.014	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
S15	SE216722.015	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
QS1	SE216722.016	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021
Trip Blank	SE216722.017	LB219103	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	27 Feb 2021	26 Feb 2021

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

HOLDING TIME SUMMARY

SE216722 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 sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S11	SE216722.011	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

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
S1	SE216722.001	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S11	SE216722.011	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S11	SE216722.011	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

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
S1	SE216722.001	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S2	SE216722.002	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S3	SE216722.003	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S4	SE216722.004	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S5	SE216722.005	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S6	SE216722.006	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S7	SE216722.007	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S8	SE216722.008	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S9	SE216722.009	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S10	SE216722.010	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S11	SE216722.011	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S12	SE216722.012	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S13	SE216722.013	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S14	SE216722.014	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
S15	SE216722.015	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021
QS1	SE216722.016	LB219246	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	26 Feb 2021

HOLDING TIME SUMMARY

SE216722 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 sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE216722.019	LB219133	19 Feb 2021	19 Feb 2021	18 Aug 2021	23 Feb 2021	18 Aug 2021	23 Feb 2021

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S11	SE216722.011	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219086	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S11	SE216722.011	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
Trip Blank	SE216722.017	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
Trip Spike	SE216722.018	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE216722.001	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S2	SE216722.002	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S3	SE216722.003	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S4	SE216722.004	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S5	SE216722.005	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S6	SE216722.006	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S7	SE216722.007	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S8	SE216722.008	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S9	SE216722.009	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S10	SE216722.010	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S11	SE216722.011	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S12	SE216722.012	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S13	SE216722.013	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S14	SE216722.014	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
S15	SE216722.015	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
Trip Blank	SE216722.017	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021
Trip Spike	SE216722.018	LB219076	19 Feb 2021	19 Feb 2021	05 Mar 2021	22 Feb 2021	03 Apr 2021	26 Feb 2021

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)	S1	SE216722.001	%	60 - 130%	112
	S2	SE216722.002	%	60 - 130%	106
	S3	SE216722.003	%	60 - 130%	106
	S4	SE216722.004	%	60 - 130%	105
	S5	SE216722.005	%	60 - 130%	106

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S1	SE216722.001	%	70 - 130%	92
	S2	SE216722.002	%	70 - 130%	78
	S3	SE216722.003	%	70 - 130%	80
	S4	SE216722.004	%	70 - 130%	102
	S5	SE216722.005	%	70 - 130%	92
	S6	SE216722.006	%	70 - 130%	92
	S7	SE216722.007	%	70 - 130%	78
	S8	SE216722.008	%	70 - 130%	94
	S9	SE216722.009	%	70 - 130%	94
	S10	SE216722.010	%	70 - 130%	78
	S11	SE216722.011	%	70 - 130%	85
	S12	SE216722.012	%	70 - 130%	85
	S13	SE216722.013	%	70 - 130%	83
	S14	SE216722.014	%	70 - 130%	96
	S15	SE216722.015	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	S1	SE216722.001	%	70 - 130%	88
	S2	SE216722.002	%	70 - 130%	97
	S3	SE216722.003	%	70 - 130%	92
	S4	SE216722.004	%	70 - 130%	95
	S5	SE216722.005	%	70 - 130%	83
	S6	SE216722.006	%	70 - 130%	89
	S7	SE216722.007	%	70 - 130%	89
	S8	SE216722.008	%	70 - 130%	82
	S9	SE216722.009	%	70 - 130%	94
	S10	SE216722.010	%	70 - 130%	90
	S11	SE216722.011	%	70 - 130%	97
	S12	SE216722.012	%	70 - 130%	101
	S13	SE216722.013	%	70 - 130%	94
	S14	SE216722.014	%	70 - 130%	91
	S15	SE216722.015	%	70 - 130%	84
d5-nitrobenzene (Surrogate)	S1	SE216722.001	%	70 - 130%	88
	S2	SE216722.002	%	70 - 130%	115
	S3	SE216722.003	%	70 - 130%	125
	S4	SE216722.004	%	70 - 130%	111
	S5	SE216722.005	%	70 - 130%	105
	S6	SE216722.006	%	70 - 130%	92
	S7	SE216722.007	%	70 - 130%	105
	S8	SE216722.008	%	70 - 130%	105
	S9	SE216722.009	%	70 - 130%	123
	S10	SE216722.010	%	70 - 130%	105
	S11	SE216722.011	%	70 - 130%	95
	S12	SE216722.012	%	70 - 130%	94
	S13	SE216722.013	%	70 - 130%	94
	S14	SE216722.014	%	70 - 130%	93
	S15	SE216722.015	%	70 - 130%	97

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	S1	SE216722.001	%	60 - 130%	112
	S2	SE216722.002	%	60 - 130%	106
	S3	SE216722.003	%	60 - 130%	106
	S4	SE216722.004	%	60 - 130%	105
	S5	SE216722.005	%	60 - 130%	106

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE216722.001	%	60 - 130%	70
	S2	SE216722.002	%	60 - 130%	72
	S3	SE216722.003	%	60 - 130%	61
	S4	SE216722.004	%	60 - 130%	60 ①
	S5	SE216722.005	%	60 - 130%	77
	S6	SE216722.006	%	60 - 130%	98
	S7	SE216722.007	%	60 - 130%	100
	S8	SE216722.008	%	60 - 130%	88
	S9	SE216722.009	%	60 - 130%	86
	S10	SE216722.010	%	60 - 130%	83
	S11	SE216722.011	%	60 - 130%	78
	S12	SE216722.012	%	60 - 130%	80
	S13	SE216722.013	%	60 - 130%	84
	S14	SE216722.014	%	60 - 130%	78
	S15	SE216722.015	%	60 - 130%	94
	Trip Blank	SE216722.017	%	60 - 130%	94
	Trip Spike	SE216722.018	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	S1	SE216722.001	%	60 - 130%	86
	S2	SE216722.002	%	60 - 130%	88
	S3	SE216722.003	%	60 - 130%	78
	S4	SE216722.004	%	60 - 130%	77
	S5	SE216722.005	%	60 - 130%	80
	S6	SE216722.006	%	60 - 130%	100
	S7	SE216722.007	%	60 - 130%	103
	S8	SE216722.008	%	60 - 130%	90
	S9	SE216722.009	%	60 - 130%	89
	S10	SE216722.010	%	60 - 130%	85
	S11	SE216722.011	%	60 - 130%	80
	S12	SE216722.012	%	60 - 130%	82
	S13	SE216722.013	%	60 - 130%	88
	S14	SE216722.014	%	60 - 130%	80
	S15	SE216722.015	%	60 - 130%	98
	Trip Blank	SE216722.017	%	60 - 130%	98
	Trip Spike	SE216722.018	%	60 - 130%	91
d8-toluene (Surrogate)	S1	SE216722.001	%	60 - 130%	97
	S2	SE216722.002	%	60 - 130%	101
	S3	SE216722.003	%	60 - 130%	85
	S4	SE216722.004	%	60 - 130%	83
	S5	SE216722.005	%	60 - 130%	77
	S6	SE216722.006	%	60 - 130%	97
	S7	SE216722.007	%	60 - 130%	100
	S8	SE216722.008	%	60 - 130%	86
	S9	SE216722.009	%	60 - 130%	83
	S10	SE216722.010	%	60 - 130%	79
	S11	SE216722.011	%	60 - 130%	73
	S12	SE216722.012	%	60 - 130%	75
	S13	SE216722.013	%	60 - 130%	83
	S14	SE216722.014	%	60 - 130%	73
	S15	SE216722.015	%	60 - 130%	92
	Trip Blank	SE216722.017	%	60 - 130%	90
	Trip Spike	SE216722.018	%	60 - 130%	85

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE216722.001	%	60 - 130%	70
	S2	SE216722.002	%	60 - 130%	72
	S3	SE216722.003	%	60 - 130%	61
	S4	SE216722.004	%	60 - 130%	60 ①
	S5	SE216722.005	%	60 - 130%	77
	S6	SE216722.006	%	60 - 130%	98
	S7	SE216722.007	%	60 - 130%	100

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S8	SE216722.008	%	60 - 130%	88
	S9	SE216722.009	%	60 - 130%	86
	S10	SE216722.010	%	60 - 130%	83
	S11	SE216722.011	%	60 - 130%	78
	S12	SE216722.012	%	60 - 130%	80
	S13	SE216722.013	%	60 - 130%	84
	S14	SE216722.014	%	60 - 130%	78
	S15	SE216722.015	%	60 - 130%	94
	Trip Blank	SE216722.017	%	60 - 130%	94
d4-1,2-dichloroethane (Surrogate)	S1	SE216722.001	%	60 - 130%	86
	S2	SE216722.002	%	60 - 130%	88
	S3	SE216722.003	%	60 - 130%	78
	S4	SE216722.004	%	60 - 130%	77
	S5	SE216722.005	%	60 - 130%	80
	S6	SE216722.006	%	60 - 130%	100
	S7	SE216722.007	%	60 - 130%	103
	S8	SE216722.008	%	60 - 130%	90
	S9	SE216722.009	%	60 - 130%	89
	S10	SE216722.010	%	60 - 130%	85
	S11	SE216722.011	%	60 - 130%	80
	S12	SE216722.012	%	60 - 130%	82
	S13	SE216722.013	%	60 - 130%	88
	S14	SE216722.014	%	60 - 130%	80
	S15	SE216722.015	%	60 - 130%	98
	Trip Blank	SE216722.017	%	60 - 130%	98
d8-toluene (Surrogate)	S1	SE216722.001	%	60 - 130%	97
	S2	SE216722.002	%	60 - 130%	101
	S3	SE216722.003	%	60 - 130%	85
	S4	SE216722.004	%	60 - 130%	83
	S5	SE216722.005	%	60 - 130%	77
	S6	SE216722.006	%	60 - 130%	97
	S7	SE216722.007	%	60 - 130%	100
	S8	SE216722.008	%	60 - 130%	86
	S9	SE216722.009	%	60 - 130%	83
	S10	SE216722.010	%	60 - 130%	79
	S11	SE216722.011	%	60 - 130%	73
	S12	SE216722.012	%	60 - 130%	75
	S13	SE216722.013	%	60 - 130%	83
	S14	SE216722.014	%	60 - 130%	73
	S15	SE216722.015	%	60 - 130%	92
	Trip Blank	SE216722.017	%	60 - 130%	90

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB219266.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB219086.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB219086.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	99

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB219086.001	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

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.

PCBs in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB219086.001		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	96

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

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

Sample Number	Parameter	Units	LOR	Result
LB219246.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result
LB219133.001	Total Arsenic	µg/L	1	<1
	Total Cadmium	µg/L	0.1	<0.1
	Total Copper	µg/L	1	<1
	Total Lead	µg/L	1	<1
	Total Nickel	µg/L	1	<1
	Total Zinc	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB219086.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB219076.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	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	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	88
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	78
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB219076.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	88

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 give a different calculated RPD.

Mercury (total) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.019	LB219140.006	Total Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.010	LB219266.014	Mercury	mg/kg	0.05	<0.05	<0.05	181	0
SE216722.016	LB219266.021	Mercury	mg/kg	0.05	0.12	0.11	72	9

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.007	LB219103.011	% Moisture	%w/w	1	18.4	18.3	35	0
SE216722.017	LB219103.022	% Moisture	%w/w	1	<1	<1	200	0

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.005	LB219086.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	197	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	197	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	138	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	138	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	165	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	30	5

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.006	LB219086.024	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

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 give a different calculated RPD.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.006	LB219086.024		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.6	30	25
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	15
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.005	LB219086.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	5

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.010	LB219246.014	Arsenic, As	mg/kg	1	6	6	47	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	12	11	34	8
		Copper, Cu	mg/kg	0.5	19	18	33	3
		Nickel, Ni	mg/kg	0.5	9.4	9.1	35	3
		Lead, Pb	mg/kg	1	24	24	34	1
		Zinc, Zn	mg/kg	2	29	28	37	6
SE216722.016	LB219246.021	Arsenic, As	mg/kg	1	4	4	55	8
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	7.9	7.9	36	1
		Copper, Cu	mg/kg	0.5	24	21	32	11
		Nickel, Ni	mg/kg	0.5	18	14	33	27
		Lead, Pb	mg/kg	1	35	37	33	6
		Zinc, Zn	mg/kg	2	52	45	34	15

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.019	LB219133.014	Total Arsenic	µg/L	1	<1	<1	200	0
		Total Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Total Chromium	µg/L	1	<1	<1	200	0
		Total Copper	µg/L	1	<1	<1	200	0
		Total Lead	µg/L	1	<1	<1	200	0
		Total Nickel	µg/L	1	<1	<1	200	0
		Total Zinc	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.006	LB219086.024	TRH C10-C14	mg/kg	20	<20	<20	200	0
		TRH C15-C28	mg/kg	45	<45	<45	200	0
		TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH C37-C40	mg/kg	100	<100	<100	200	0
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0

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 give a different calculated RPD.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.006	LB219086.024	TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE216722.015	LB219086.023		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.007	LB219076.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	9.9	50	4
			d8-toluene (Surrogate)	mg/kg	-	10.0	9.5	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.0	9.8	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE216722.015	LB219076.026	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.8	9.4	50	5
			d8-toluene (Surrogate)	mg/kg	-	9.2	8.8	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	9.0	50	4
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE216722.007	LB219076.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.3	9.9	30	4
			d8-toluene (Surrogate)	mg/kg	-	10.0	9.5	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	10.0	9.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE216722.015	LB219076.026		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	-	9.8	9.4	30	5
			d8-toluene (Surrogate)	mg/kg	-	9.2	8.8	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	9.0	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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 %
LB219266.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	94

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219086.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	105
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	103
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	99
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	102
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	103
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	99
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219086.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	109
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	115
		Anthracene	mg/kg	0.1	4.3	4	60 - 140	108
		Fluoranthene	mg/kg	0.1	4.5	4	60 - 140	114
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	113
		Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	116
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	99
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219086.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	81

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 %
LB219246.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	110
	Cadmium, Cd	mg/kg	0.3	5.3	5.41	80 - 120	97
	Chromium, Cr	mg/kg	0.5	44	38.31	80 - 120	116
	Copper, Cu	mg/kg	0.5	330	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	106
	Lead, Pb	mg/kg	1	98	89.9	80 - 120	109
	Zinc, Zn	mg/kg	2	290	273	80 - 120	108

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219133.002	Total Arsenic	µg/L	1	18	20	80 - 120	91
	Total Cadmium	µg/L	0.1	22	20	80 - 120	109
	Total Chromium	µg/L	1	23	20	80 - 120	113
	Total Copper	µg/L	1	23	20	80 - 120	115
	Total Lead	µg/L	1	20	20	80 - 120	100
	Total Nickel	µg/L	1	22	20	80 - 120	110
	Total Zinc	µg/L	5	21	20	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219086.002		TRH C10-C14	mg/kg	20	40	40	60 - 140	100
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	88
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	78
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

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

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

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219076.002	Monocyclic	Benzene	mg/kg	0.1	3.9	5	60 - 140	79
	Aromatic	Toluene	mg/kg	0.1	4.0	5	60 - 140	80
		Ethylbenzene	mg/kg	0.1	3.9	5	60 - 140	78
		m/p-xylene	mg/kg	0.2	7.8	10	60 - 140	78
		o-xylene	mg/kg	0.1	4.0	5	60 - 140	79
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	10	70 - 130	90
		d8-toluene (Surrogate)	mg/kg	-	10.7	10	70 - 130	107
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.5	10	70 - 130	75

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB219076.002		TRH C6-C10	mg/kg	25	75	92.5	60 - 140	81
		TRH C6-C9	mg/kg	20	64	80	60 - 140	80
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	10	70 - 130	90
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.5	10	70 - 130	75
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	51	62.5	60 - 140	81

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 in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216722.001	LB219266.004	Mercury	mg/kg	0.05	0.32	0.16	0.2	77

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216722.005	LB219086.025		Naphthalene	mg/kg	0.1	4.3	<0.1	4	107
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.5	<0.1	4	111
			Acenaphthene	mg/kg	0.1	4.2	<0.1	4	105
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.7	<0.1	4	116
			Anthracene	mg/kg	0.1	4.2	<0.1	4	104
			Fluoranthene	mg/kg	0.1	5.4	<0.1	4	135
			Pyrene	mg/kg	0.1	4.8	<0.1	4	119
			Benzo(a)anthracene	mg/kg	0.1	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	0.2	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.7	<0.1	4	117
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.7	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.8	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.8	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	37	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	-	89
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	86
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	84

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%
SE216722.001	LB219246.004	Arsenic, As	mg/kg	1	50	4	50	92
		Cadmium, Cd	mg/kg	0.3	44	<0.3	50	88
		Chromium, Cr	mg/kg	0.5	53	7.2	50	92
		Copper, Cu	mg/kg	0.5	68	25	50	86
		Nickel, Ni	mg/kg	0.5	58	14	50	88
		Lead, Pb	mg/kg	1	86	42	50	89
		Zinc, Zn	mg/kg	2	93	66	50	55 ④

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216692.001	LB219086.004		TRH C10-C14	mg/kg	20	38	0	40	95
			TRH C15-C28	mg/kg	45	<45	0	40	108
			TRH C29-C36	mg/kg	45	<45	0	40	95
			TRH C37-C40	mg/kg	100	<100	0	-	-
			TRH C10-C36 Total	mg/kg	110	<110	0	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	39	0	40	98
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	35	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	40	108
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216692.001	LB219076.004	Monocyclic	Benzene	mg/kg	0.1	3.6	0.013891959	5	71
		Aromatic	Toluene	mg/kg	0.1	3.6	0.012602587	5	71
			Ethylbenzene	mg/kg	0.1	3.7	0.017997129	5	73
			m/p-xylene	mg/kg	0.2	7.4	0.04302092	10	73
			o-xylene	mg/kg	0.1	3.7	0.020678025	5	73

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

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

VOC's in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216692.001	LB219076.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.00963408	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	8.495293997	10	81
			d8-toluene (Surrogate)	mg/kg	-	9.3	9.072652864	10	93
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.8	6.690628137	10	68 ①
		Totals	Total Xylenes	mg/kg	0.3	11	0.063698945	-	-
			Total BTEX	mg/kg	0.6	22	0	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE216692.001	LB219076.004		TRH C6-C10	mg/kg	25	65	0.585072857	92.5	69
			TRH C6-C9	mg/kg	20	55	0.41930588	80	68
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.1	8.495293997	10	81
			d8-toluene (Surrogate)	mg/kg	-	9.3	9.072652864	10	93
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.8	6.690628137	-	68
		VPH F	Benzene (F0)	mg/kg	0.1	3.6	0.013891959	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	43	0.585072857	62.5	68

MATRIX SPIKE DUPLICATES

SE216722 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	DANIEL TAYLOR
Client	RAW EARTH ENVIRONMENTAL
Address	4/140 HASTINGS PARADE BONDI NSW 2026
Telephone	0409 492 988
Facsimile	(Not specified)
Email	daniel@rawearthenvironmental.com.au
Project	**DSI-BRAD**
Order Number	(Not specified)
Samples	5

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	**SE216722 R0**
Date Received	19 Feb 2021
Date Reported	26 Feb 2021

COMMENTS

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

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

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

Sample #1: Asbestos found in approx 6x4x2mm cement sheet fragment.
Sample #2: Asbestos found in approx 10x6x3mm cement sheet fragment.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Organic Chemist/Metals Chemis

Huong CRAWFORD
Production Manager

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

ANALYTICAL REPORT

SE216722 R0

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE216722.001	S1	Soil	194g Clay,Sand,Soil, Rocks	19 Feb 2021	Chrysotile Asbestos Found at the reporting limit of 0.1g/kg Organic Fibres Detected	<0.01
SE216722.002	S2	Soil	177g Clay,Sand,Soil, Rocks	19 Feb 2021	Chrysotile Asbestos Found at the reporting limit of 0.1g/kg Organic Fibres Detected	>0.01
SE216722.003	S3	Soil	168g Clay,Soil,Rocks	19 Feb 2021	No Asbestos Found at the reporting limit of 0.1g/kg Organic Fibres Detected	<0.01
SE216722.004	S4	Soil	105g Clay,Soil,Rocks	19 Feb 2021	No Asbestos Found at the reporting limit of 0.1g/kg Organic Fibres Detected	<0.01
SE216722.005	S5	Soil	189g Clay,Sand,Soil, Rocks	19 Feb 2021	No Asbestos Found at the reporting limit of 0.1g/kg Organic Fibres Detected	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

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

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

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

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

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

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

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

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

Company Name:	Raw Earth Environmental	Project Name/No:	DSI-BRAD
Address:	Hastings Pde, Bondi NSW	Purchase Order No:	
		Results Required By:	Standard 26/2/21
		Telephone:	0409492988
Contact Name:	Daniel Taylor	Facsimile:	
		Email Results:	daniel@rawearthenvironmental.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	ASBESTOS	CL10	CL16	VOC8260	BTEX	8 METALS	vTPH/BTEX
S1	19.2.21	1		X			x		X				
S2	19.2.21	2		X			x		x				
S3	19.2.21	3		X			x		x				
S4	19.2.21	4		X			x		x				
S5	19.2.21	5		X			x		x				
S6	19.2.21	6		X				X					
S7	19.2.21	7		X				X					
S8	19.2.21	8		X				X					
S9	19.2.21	9		X				X					
S10	19.2.21	10		X				X					
S11	19.2.21	11		X				X					
S12	19.2.21	12		X				X					
S13	19.2.21	13		X				X					
S14	19.2.21	14		X				X					
S15	19.2.21	15		X				X					
QS1	19.2.21	16		X								x	

E-MAILED 20/2/21 12:40pm

SGS EHS Sydney COC
SE216722

Relinquished By:	Date/Time:	Received By: George Zhi	Date/Time 19/2/21 @ 5:40pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

CHAIN OF CUSTODY & ANALYSIS REQUEST

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

Company Name:	Raw Earth Environmental	Project Name/No:	DSI-BRAD
Address:	Hastings Pde, Bondi NSW	Purchase Order No:	
		Results Required By:	Standard 26/2/21
		Telephone:	0409492988
Contact Name:	Daniel Taylor	Facsimile:	
		Email Results:	daniel@rawearthenvironmental.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	ASBESTOS	CL10	PCB	VOC8260	BTEX	8 METALS	vTPH/BTEX
Trip Blank	19.2.21	17		X									X
Trip Spike	19.2.21	18		x									x
RS1	19.2.21	19	x									x	

Relinquished By:	Date/Time:	Received By: George Zhi	Date/Time 19/2/21 @ 5:40pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SAMPLE RECEIPT ADVICE

SE216722

CLIENT DETAILS

Contact	DANIEL TAYLOR
Client	RAW EARTH ENVIRONMENTAL
Address	4/140 HASTINGS PARADE BONDI NSW 2026
Telephone	0409 492 988
Facsimile	(Not specified)
Email	daniel@rawearthenvironmental.com.au
Project	**DSI-BRAD**
Order Number	(Not specified)
Samples	19

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	Fri 19/2/2021
Report Due	Fri 26/2/2021
SGS Reference	**SE216722**

SUBMISSION DETAILS

This is to confirm that 19 samples were received on Friday 19/2/2021. Results are expected to be ready by COB Friday 26/2/2021. Please quote SGS reference SE216722 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	18 Soil, 1 Water
Date documentation received	20/2/2021@12:40pm	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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

COMMENTS

SAMPLE RECEIPT ADVICE

SE216722

CLIENT DETAILS

Client RAW EARTH ENVIRONMENTAL

Project DSI-BRAD

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	S1	29	26	11	7	10	11	7
002	S2	29	26	11	7	10	11	7
003	S3	29	26	11	7	10	11	7
004	S4	29	26	11	7	10	11	7
005	S5	29	26	11	7	10	11	7
006	S6	-	26	-	7	10	11	7
007	S7	-	26	-	7	10	11	7
008	S8	-	26	-	7	10	11	7
009	S9	-	26	-	7	10	11	7
010	S10	-	26	-	7	10	11	7
011	S11	-	26	-	7	10	11	7
012	S12	-	26	-	7	10	11	7
013	S13	-	26	-	7	10	11	7
014	S14	-	26	-	7	10	11	7
015	S15	-	26	-	7	10	11	7
016	QS1	-	-	-	7	-	-	-
017	Trip Blank	-	-	-	-	-	11	7
018	Trip Spike	-	-	-	-	-	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

SE216722

CLIENT DETAILS

Client RAW EARTH ENVIRONMENTAL

Project DSI-BRAD

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	Trace Metals (Total) in Water by ICPMS
001	S1	2	1	1	-
002	S2	2	1	1	-
003	S3	2	1	1	-
004	S4	2	1	1	-
005	S5	2	1	1	-
006	S6	-	1	1	-
007	S7	-	1	1	-
008	S8	-	1	1	-
009	S9	-	1	1	-
010	S10	-	1	1	-
011	S11	-	1	1	-
012	S12	-	1	1	-
013	S13	-	1	1	-
014	S14	-	1	1	-
015	S15	-	1	1	-
016	QS1	-	1	1	-
017	Trip Blank	-	-	1	-
019	RS1	-	-	-	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

SE216722

CLIENT DETAILS

Client RAW EARTH ENVIRONMENTAL

Project DSI-BRAD

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (total) in Water
019	RS1	1

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