Detailed Site Investigation – Upgrade to Cammeray Public School

68 Palmer Street, Cammeray NSW

Prepared for: Department of Education

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ADE CONSULTING GROUP

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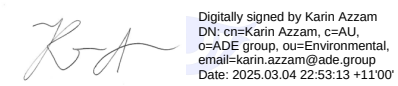

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Executive Summary

Background and Objective

ADE Consulting Group Pty Ltd (ADE) was engaged by Department of Education (DoE) to undertake a Detailed Site Investigation (DSI) to investigate the nature and extent of potential contamination (if any) within a portion of land for the upgrade to Cammeray Public School (the ”site”).

This DSI has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the Cammeray Public School (the “proposed activity”). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure, 2021) as “development permitted without consent” on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The objectives were to assess whether contamination has the potential to exist in the investigation area and whether further investigation or future management is necessary to facilitate the suitability for the proposed activity and to provide indicative waste classification advise for soil material surplus to requirement during the proposed development.

Scope of Works

The scope of work consisted of:

- Preliminary works including a review and summary of the findings from the preliminary site investigation undertaken by ADE in 2023 (ADE, 2023) and development of a soil sampling plan.
- Site inspection and an intrusive investigation including the advancement of 5 boreholes was completed on 12 January 2024 across the investigation area using a mechanical drilling rig to enable assessment of the subsurface lithology and collection of representative soil samples for laboratory analysis.
- The excavation of 5 test pits by mechanical excavator and gravimetric asbestos assessment was completed on 26 April 2024.
- The installation of 3 soil vapour bores on 24 April 2024 and soil vapour sampling on 2 May 2024.
- Data evaluation and provision of this DSI report with findings and recommendations from the assessment.

Summary of key findings

- The investigation area has formed part of Cammeray Public School since 1915. The investigation area and immediate surroundings appeared to have been levelled to form part of a tennis court in the 1990s. The area surrounding the investigation area was developed with new classrooms (permanent and demountable) in the early 2000s with a demountable classroom present in the southeast corner of the investigation area.
- The investigation area is underlain by shallow fill (pavement and sand) with natural sand below from approximately 0.3 to 0.6 metres below ground level (mBGL) and weathered sandstone bedrock encountered from between 0.6 and 1.0 mBGL.
- Analytical soils results were reported below the investigation area assessment criteria considering the on-going use of the investigation area as part of a primary school with marginal exceedances of CT1 criteria for general solid waste within the shallow fill.

- Analytical soil vapour results were reported below adopted criteria for all analytes and below LOR for the majority of analytes.

Conclusions and Recommendations

Based on the analytical results collected from soil samples analysed across the investigation area, the soils present a low risk of contamination and are considered chemically suitable for the proposed activity and ongoing land-use as a primary school.

The soil vapour assessment indicates that the UPSS within upgradient service station has not contaminated the environment as to present a potential risk to sensitive receptor and any potential risk linkage is considered incomplete.

ADE considers the investigation area suitable for the proposed activity with no further investigation needed.

Mitigation Measures

The recommended mitigation measures are:

- Develop and prepare an unexpected finds protocol to be implemented during the demolition and construction phase of the activity.
- Develop and prepare a soil and water management plan/ sub-plan to prevent erosion and generation of sediment.
- Develop and prepare a construction environmental management plan to be implemented during the course of demolition and construction phase of the activity.
- Ensure all soil to be removed from the site as waste is classified in accordance with NSW EPA (2014) prior to leaving the investigation area.

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Abbreviations

Abbreviation	Definition
ACM	Asbestos Containing Material
ADE	ADE Consulting Group Pty Ltd
AHD	Australian Height Datum
AS	Australian Standard
BGL	Below Ground Level
BR	Blind Replicate
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CoC	Chain of Custody
CoPCs	Contaminants of Potential Concern
CSM	Conceptual Site Model
DEC	Department of Environment and Conservation
DP	Deposited Plan
BYDA	Before You Dig Australia
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EILs	Ecological Investigation Levels
EPA	Environment Protection Authority
ESLs	Ecological Screening Levels
HILs	Health Investigation Levels
HSLs	Health Screening Levels
LEP	Local Environmental Plan
LGA	Local Government Area
m BGL	meters Below Ground Level
NATA	National Association of Testing Authorities
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
OPPs	Organophosphorus Pesticides
OCPs	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Per-fluoroalkyl substances
PQL	Practical Quantification Limit
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
SAC	Site Assessment Criteria

1 Introduction

ADE Consulting Group Pty Ltd (ADE) was engaged by the Department of Education (DoE) to perform a targeted Detailed Site Investigation (DSI) within a section of land at Cammeray Public School (CPS).

This DSI has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the CPS (the "proposed activity"). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure, 2021) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The proposed activity is for upgrades to the existing CPS at 68 Palmer Street, Cammeray NSW 2062 (the site).

The area of the proposed activity (investigation area) measures approximately 300 m^2 and is located in the central west portion of the site. Plans showing the footprint of the proposed new building are presented in **Appendix A**. The investigation area is situated within the Local Government Area (LGA) of North Sydney and is zoned as SP2 – infrastructure "Educational Establishment". The investigation area is legally defined as:

- Part Lot 1 DP123406; and
- Part Lot 4 DP571310.

The site and investigation area are shown in **Figure 1** at the end of this report.

1.1 Background

The site is located at 68 Palmer Street, Cammeray on the northern side of Palmer Road, bound by Palmer Street to the south, Bellevue Street to the east and Miller Street to the west. The site has an area of 1.36 ha and comprises 11 allotments, legally described as:

- Lot 11 DP 837836
- Lot 1 DP 316130
- Lot 1 DP 316706
- Lot 1 DP 123406
- Lot 2 DP 174370
- Lot 1 DP 174370
- Lot 4 Sec 35 DP 758790
- Lot 5 Sec 35 DP 758790
- Lot 66 DP 1049613
- Lot 3 DP 571310
- Lot 4 DP 571310

The site currently comprises an existing co-education primary public school with 6 permanent buildings, 3 demountable structures, covered walkways linked at multiple levels, play areas, on-grade parking, sports court, covered outdoor learning area and vegetation/green spaces with mature trees. The existing school buildings are clustered towards the southern portion of the site and comprise both single and 2 storey buildings. The northern portion of the site contains the sports court, vegetable garden and play equipment.

The north-western portion of the site is heavily vegetated with trees of high landscape significance that are protected with fencing.

The site is identified as a locally listed heritage item (I0019) under Schedule 5 Environmental Heritage pursuant to the North Sydney Local Environmental Plan 2013 (NSLEP). The school is also identified in the Plateau Heritage Conservation Area (Part 2 Schedule 5 of the NSLEP). The school is listed on the Department of Education (DoE) Section 170 Heritage Conservation Register as 'Cammeray Public School'. The site is approximately 115 m from a State heritage item (I0004) being the electricity substation at 143 Bellevue Street and in close proximity to locally heritage listed items.

1.2 Proposed Activity

The proposed activity involves upgrades to the existing school, including the following:

- Construction of 4 new permanent teaching spaces in a two-storey building incorporating 2 general learning spaces and 2 practical activity areas
- New egress lift and stairs for access to all building levels
- External covered walkways connecting the new building to the existing school network
- Landscaping and external works including compensatory planting
- Upgrades to site infrastructure and services to support the new buildings
- Removal of 3 temporary (demountable) classrooms from the eastern side of the school
- 50 bicycle parking spaces

The intent of the activity is to provide 4 permanent teaching spaces (PTS) and 2 practical activity areas (PAA) across a two-storey addition, adjoining Building E. This will result in Cammeray Public School retaining the capacity of a 'large' school (553-1,000 students) under EFSG (SINSW Education Facilities Standards and Guidelines).

1.3 Objectives

The objective of this targeted DSI is to

- Determine whether contamination exists within the investigation area at levels that warrant additional investigation or necessitate future management actions to ensure suitability for the proposed activity.
- Provide indicative advice regarding the off-site management of material which may be surplus to requirements, in accordance with NSW Environment Protection Authority (EPA) (2014) Waste Classification Guidelines: Part 1 Classifying Waste (the "Waste Guidelines")

1.4 Scope of Work

The scope of works undertaken to achieve the project objectives, are summarised in **Table 1** below.

Table 1: Scope of Works

Phase of Work	Detail
Preliminary Works	• Desktop review and summary of the findings from the preliminary site investigation undertaken by ADE (ADE, 2023). • Obtain and review Before You Dig (BYD) documentation.

Phase of Work	Detail
	• Develop and sign onto a job specific Safety, Health & Environmental Work Method Statement (SH&EWMS). • Conducting scan for underground services, supervising a qualified/licenced utility search subcontractor to mark-out safe locations for intrusive assessment.
Intrusive Soil Investigation	• Inspection to identify features and any potential activities of environmental concern, including evidence of contaminating uses and/or contamination (e.g. staining, odours), potential asbestos-containing materials (PACM etc • Intrusive soil investigation comprising: - Advancement of 5 soil boreholes using a tracked drilling rig to a target depth of 1.5 m to enable assessment of the subsurface lithology and collection of representative soil samples. - Excavation of 5 shallow test pits to a maximum depth of 0.8 m for qualitative quantification of asbestos - Logging of surface and subsurface soil material, including indications of visual / olfactory contamination and/or asbestos.
Soil Vapour Investigation	• Drilling of three soil bores and installation of three soil vapour wells. • Sampling of soil vapour wells.
Laboratory Analysis	• Submission of selected representative soil samples to laboratories accredited with the National Association of Testing Authorities (NATA) under Chain of Custody Documentation for commonly occurring environmental contaminants of concern (COPC) and asbestos. • Submission of soil vapour samples (transported in Silonite Mini-Cans) to SLS, a NATA accredited laboratory for TO15 volatile organic compounds (VOC) and total recoverable hydrocarbons (TRH).
Data Assessment	• Data evaluation and provision of this targeted DSI report with findings and recommendations from the assessment including: - Summary of results of field and laboratory assessment compared to adopted 'Tier 1' criteria. - Update of the preliminary CSM for contamination, highlighting any completed risk linkages that still may exist. - Conclusion on the suitability of the investigation area for ongoing use as a primary school and contamination risk status of proposed activity with provision of preliminary waste classification advice for fill and natural material. - Provision of mitigation measures for additional assessment required to fill information / data gaps, or remediation planning (if required).

1.5 Legislation, Guidelines and Codes of Practice

The legislative framework for the report is based on guidelines that have been issued and/or endorsed by the NSW EPA, formerly the Office of Environment and Heritage under the following Acts/Regulations:

- Contaminated Land Management Act 1997
- Environmental Planning and Assessment Act 1979
- Protection of the Environment Operations Act 1997 and

- State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021.

The relevant guidelines issued under the provisions of the Acts/Regulations include:

- Department of Environment, Climate Change and Water (DECCW) (2010) Vapour Intrusion: Technical Practice Note
- Department of Health (DoH) (2017) – Health Based Guidance Values for PFAS for Use in Site Investigations in Australia (April 2017).
- Guidance for the Preparation of Standard Operating Procedures for Quality-Related Documents (EPA QA/G-6)
- Guidance on Data Quality Indicators, EPA QA/G-5I
- Guidelines for the NSW Site Auditor Scheme (3rd Edition), NSW 2017
- Guidelines on the Duty to Report Contamination (2015) under the Contaminated Land Management Act 1997
- Guidance for the Data Quality Objectives Process (EPA QA/G-4)
- Guidance for Data Quality Assessment: Practical Methods for Data Analysis (EPA QA/G-9)
- NSW EPA Contaminated Land Guidelines: Sampling Design Part 1 - Application (NSW EPA 2022)
- National Environmental Protection Council [NEPC]. (2013). National Environmental Protection Measure 1999, 2013 Amendment (ASC NEPM, 2013)
- New South Wales Environmental Protection Authority [NSW EPA]. (2020). Consultants reporting on contaminated land - Contaminated Land Guidelines (NSW EPA, 2020)
- The Heads of EPAs Australia and New Zealand [HEPA]. (2020). PFAS National Environmental Management Plan Version 2.0, dated January 2020 (HEPA, 2020).
- WA Department of Health (DoH, 2009) *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Site*

It is noted that WA DoH (2009) was superseded by an update in 2021, however NSW EPA have not endorsed this update and supplied a position statement for guidance (NSW EPA, 2023).

Australian Standards applied to this investigation:

- Australian Standard AS 4482.1 Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005).
- Australian Standard AS 4482.2 Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances, (Standards Australia, 1999)
- Standards Australia Australian Standard AS4964-2004: Method for the qualitative identification of asbestos in bulk samples (Standards Australia, 2004) and

The following local government plan has also been taken into consideration for preparation of this targeted DSI:

- North Sydney Local Government Environmental Plan (NSLEP) 2013.

1.6 REF Review Checklist

The following REF Review Checklist items provided by DoE (and relevant to this report) have been presented in **Table 2** below.

Table 2: REF Review Checklist Relevant Items

Item	Comment
Details of: - The proposed activity.	Section 1.2
- Relevant legislation and policies.	Section 1.5
- Relevant plans	Appendix A
A description of the investigation area and surrounding environment.	Section 2.1, Section 2.2 and Section 2.3
Address all the potential sources of contamination mentioned	Section 3 and Section 8
Summarise investigations undertaken and conclude that contamination risk has been appropriately addressed.	Executive Summary, Section 5 and Section 8
Preparation of a DSI that details the contamination risk and suitability for the site for the proposed activity.	Section 9
Mitigation measures recommended	Section 12

2 Site Identification and Condition

2.1 Site Location

Cammeray Public School is located at 68 Palmer Street, Cammeray NSW and covers an approximate area of 1.35 ha. For the proposed activity, the investigation area is limited to a targeted area of asphalt play court on in the western side of Cammeray Public school, immediately east of the Miller Street entrance gate. Refer to **Figure 1** for site locality and **Figure 2** for investigation area boundary and investigation locations.

2.2 Summary of Site Details

Table 3: Summary of Site Details

Item	Details		
Site address:	68 Palmer Street Cammeray, NSW		
Title identification:	Lot 11 DP 837826 Lot 1 DP 316130 Lot 1 DP 316706 Lot 1 DP 123406	Lot 2 DP 174370 Lot 1 DP 174370 Lot 4 Sec 35 DP 758790 Lot 5 Sec 35 DP 758790	Lot 66 DP 1049613 Lot 3 DP 571310 Lot 4 DP571310
Investigation Titles	Part of Lot 1 DP 123406 and Part of Lot 4 DP571310		
Investigation area:	Approximately 300 m^2		
Council Area:	North Sydney Council		
Land Use Zoning:	SP2 Educational Establishment		
Current Site Owner:	Department of Education NSW		
Current Land Use:	Educational purposes/school (primary school)		
Future Uses:	Educational purposes/school (primary school)		
Local Environmental Plan	North Sydney Local Government Environmental Plan (NSLEP) 2013		

2.3 Surrounding Features

Table 4: Summary of Surrounding Site Uses

Site Surrounds	Description
North	The Cammeray Public School oval, low density residential housing up until Pine Street.
East	Cammeray Public School classrooms followed by Bellevue Street and low density residential properties.
South	Palmer Street lies immediately south followed by a local petrol station with a nearby tyre shop and other smaller commercial establishments.
West	Miller Street lies immediately east followed by low density residential properties.

2.4 Environmental Setting

Table 5: Physical Setting

Item	Detail
Topography	The local topography of the site sits at an elevation of approximately 30 – 35 metres above Australian Height Datum (mAHD). The investigation area appears artificially flattened, as a result of the development of the play area.
Drainage	Based on the inspection undertaken at the time of investigation, stormwater drains were observed on nearby buildings where water would flow directly into the soil. Rainwater is considered likely to collect in gutters and downpipes, followed by pooling on the ground surface, then vertical percolation through the topsoil and underlying residual soil materials. Rainwater transported through overland flow is likely to be transported along local roads and stormwater pipes towards the northwestern portion of the site.
Nearest surface water feature	Flat Rock Creek is located 200 m west and Willoughby Creek is located 700 m to the south east. Other notable nearby water features include Flat Rock Gully to the North and Middle Harbour to the east.
Hydrogeology & Groundwater	A search for registered groundwater wells undertaken by Land Insight Resources indicated no registered groundwater wells within one km radius of the site (refer to ADE PSI, 2023)
Local geology and soil	The site forms part of the Gymea/Lambert Soil landscape. The Lambert soil landscape is characterised by undulating rises to rolling hills with slopes <20% local relief between 20-120m and elevation between 6 and 610m. Soils typically consist of well-drained brown and yellow-Orthic Tenosols and brown Kandosols at shallow depths. The soils comprise well drained Leptic Rudosols and moderately deep depths (50-100cm) the soil typically consists of imperfectly drained yellow podzolic soils. The Gymea landscape comprises undulating to rolling hills with a local relief 20-80m and slopes from 10-25%. The soils typically consist of yellow earths and earthy sands on crests and inside benches, shallow regions consist of siliceous sands and yellow podzolic soils. Dominant soil materials include loose, coarse sandy loam, earthy, yellowish-brown clayey sand, yellowish-brown sandy clay loam and yellowish-brown clay. The regional geology underlying the site comprises Hawksbury Sandstone, part of the ungrouped Triassic units. The dominant lithology is sandstone which comprises medium-to coarse grained quartz sandstone with minor shale and laminate lenses, as per the 1:100 000 Sydney Geological Map.
Acid sulfate soil risk	ADE undertook a review of the department of Planning, Industry and Environment's *Environmental Planning Instrument – Acid Sulfate Soils* to establish the potential for Acid Sulfate Soil (ASS) at the site. The site was classified as having a low probability of occurrence. Furthermore, the Australian Soil Resources Information System (ASRIS) lists the sites acid sulfate soil risk classification as being 'low probability of occurrence' (refer to ADE,2023).

2.5 History

The site is known as Cammeray Public School and was originally called Suspension Bridge Public School, opened in 1915. Since then, the site has been used for educational purposes until the current date. Throughout this time the school has gradually developed new structures across most of the site. Notably, 10 new classrooms were built in 2004, new play equipment and landscaping has been added as well as a canteen upgrade in 2020. The surrounding area has also seen significant developments, most notably being the addition of the M1 Warringah Freeway to the south. Historically, surrounding gulleys and low-lying areas have been used as landfill and sandstone quarries.

Forming part of the school, the investigation area and location of the proposed activity appeared to have remained part of a vegetated sloping playground until 1990s when it appears to have been levelled and formed part of hardstand tennis court. The area around the investigation area was developed with classrooms, including the demountable classroom present on site, in the early 2000s.

2.6 Previous Environmental Investigation

A preliminary site investigation (PSI) was undertaken by ADE in 2023 for Cammeray Public School with findings reported in ADE (2023) Preliminary Site Investigation – Cammeray Public School, 68 Palmer St, Cammeray NSW (ref: A101023.0722_Cammeray PSIC_v1f; 30 November 2023).

The PSI included a review of desktop information, a site walkover inspection, an assessment of potential areas and sources of on-site and off-site contamination and potential risk from contamination (if any) in view of the proposed activity, as well as recommendations for further investigations where necessary.

Main findings of the report included:

- There have been occurrences in 2011 and 2013 of bonded asbestos containing material (ACM) found on exposed ground surface in the northeast corner of the school grounds as documented in WSP (2020) Cammeray Public School – Asbestos in Grounds Management Plan, dated 25 June 2020. The areas were remediated by “sparrow-picking” visible ACM fragments found on exposed ground surface.
- No signs of gross contamination were identified on site during the site walkover inspection.
- A potential off-site source of petroleum hydrocarbon contamination was identified the form of a service station and motor vehicle repair shop located approximately 90 m to the south of the investigation area. A review of the current NSW EPA register of sites notified under Section 60 of the CLM Act reported that the service station is listed as ‘regulation under CLM Act not required’ by the NSW EPA.

The report concluded that:

- There has not been any historic finding of asbestos along the western portion of the school grounds and in the vicinity of the proposed activity. Therefore, historic asbestos finds in the northeast corner of the school grounds poses a low risk to the proposed activity.
- Whilst the service station is not regulated under CLM Act by the NSW EPA, there is a potential risk for petroleum hydrocarbons (associated with leaks and spills from fuel infrastructure) to have migrated onto site, via underlying groundwater.
- The PSI recommended that a Detailed Site investigation was carried out to refine the conceptual site model and assess the potential for contamination to be present within soils in the area of proposed activity.

3 Preliminary Conceptual Site Model

A conceptual site model (CSM is an iterative method required by ASC NEPM (2013) to allow the risks from potential contamination as a result of historic site uses or activities to be characterised with regard to the likely exposure of sensitive receptors. The CSM defines the potential sources of contamination, the methods/ pathways through which exposure/ migration may occur and the receptors (human and environmental) that may foreseeably be exposed to contamination.

Where any of the source, pathway or receptor is missing, then the risk linkage status can be considered incomplete, and there is no unacceptable risk.

3.1 Potential sources of contamination

In view of the proposed activity, the following potential contamination sources were identified during the PSI (ADE, 2023)

- Potential for contamination via imported fill materials of unknown origin used in the construction of the classrooms in the past.
- Offsite service station (90 m south of site) - Potential impact from primary sources of petroleum hydrocarbon impact from underground petroleum storage systems (UPSS) (namely underground storage tanks (USTs), fuel suction lines, bowsers).

3.2 Chemicals of potential concern

The Chemicals of Potential Concern (CoPCs) were primarily selected for due diligence and the number of sensitive receptors on and off site. The CoPCs were chosen to represent a wide range of potential environmental contamination and, ensuring the most vulnerable individuals are adequately protected from potential health risks.

- Total recoverable hydrocarbons (TRHs);
- Benzene, toluene, ethylbenzene and xylenes (BTEX);
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs);
- Organochlorine and organophosphorus pesticides (OCPs/OPPs);
- Heavy metals;
- Phenols;
- PFAS
- Asbestos

3.3 Exposure pathways

3.3.1 Human

The potential pathways by which contamination could reach potential human receptors are considered to be:

- Direct contact (dermal).
- Ingestion.
- Inhalation of volatilised organic compounds which migrate through soil pore spaces.

3.3.2 Ecological

Due to the proposed construction of new structures in the investigation area and the current asphalt hardstand surfaces, the potential for ecological receptors to be present within the investigation area was low. While minor plant root growth may occur, this was not considered to result in potential for significant ecological receptors.

3.4 Sensitive receptors

Potential human receptors for the investigation area include:

- Current and future users including students and staff; and
- Residents of neighbouring properties and surrounding users;
- Construction / landscaping workers involved with any future works onsite;
- Current and future maintenance workers undertaking subsurface maintenance works.

No ecological receptors were identified considering the proposed activity in the investigation area.

3.5 Source to receptor linkages

The risk linkage status between the potential sources of contamination and sensitive receptors was summarised within **Table 6**.

For the purpose of this report, the following qualitative risk assessment has been applied:

- Low Risk – the activities and related CoPC are likely to pose no or a low potential human health/environmental impact. Any impact is likely localised to a specific area of the investigation area;
- Moderate Risk – the activities and related CoPC are likely to pose potential for moderate human health/environmental impact. Any impact is likely localised to a specific area of the investigation area; and
- High Risk – the activities and related CoPC could pose a significant environmental impact. There is potential for impacts of the immediate local area of the investigation area or off-Site migration impacting surrounding human and/or environmental receptors.

Table 6: Preliminary Source Pathway Receptor Analysis

Potential contamination sources and CoPC	Exposure Pathways	Receptor	S-P-R Linkage – risk status	Notes
Onsite				
Hazardous building Materials **ACM used in current structures and use of lead based paint**. **Asbestos, heavy metals**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future users, primary school children, teachers, workers neighbours & visitors	Potentially complete - Low Risk	Source can be from uncontrolled fill or historical demolition of buildings; this can impact the top layer of the soil and potentially be interacted with if the soil is exposed to receptors within the school.
Potential uncontrolled fill material **Uncontrolled imported fill potentially during the construction of current structures** **Heavy metals, TRH, BTEX, PAH, pesticides, asbestos**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future users, primary school children, teachers, workers neighbours & visitors	Potentially complete - Low Risk	Uncontrolled fill may have been used to level parts within the investigation area or placed underneath the asphalt within the investigation area. Potential linkage present in areas where levelling or building construction present. If contamination is present direct contact with impacted soil can affect receptors within the school.
General pest control and pesticides that could have been sprayed or injected on or underneath concrete slabs. **OCPs, OPPs, Arsenic**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future users, primary school children, teachers, workers neighbours & visitors	Potentially complete- low-moderate Risk	General gardening and upkeep of the investigation area presents a risk of pesticide contamination. Potentially linkage present, investigation area is covered in gardens and vegetation which historically could have been subject to pesticide use. If contamination is present direct contact with impacted soil can affect receptors within the school.
Offsite				
UPSS within adjacent offsite service station Coles Express Cammeray, 477-483 Miller Street **Petroleum hydrocarbons (TRH <C16), BTEX, naphthalene and lead.**	**Human** - Dermal contact, ingestion, inhalation Volatilisation and migration of vapours into indoor airspaces	**Human** – current and future users, primary school children, teachers, workers neighbours & visitors	Potentially complete- low-moderate Risk	A review of the current NSW EPA register of sites notified under Section 60 of the CLM Act show that regulation is not required under the CLM Act for the service station. The NSW EPA is satisfied that risk(s) posed by petroleum hydrocarbons to onsite / offsite receptors is currently being managed appropriately. Available information indicates that it has not contaminated the environment as to present a potential risk to sensitive receptor, however without specific details, the risk linkage status cannot be considered incomplete.

4 Data Quality Objectives

The investigative works were designed using data quality objectives (DQO) generated per NEPM National Environment Protection (Assessment of Site Contamination) Measure (1999), 2013 Amendment (NEPC, 2013) and Australian Standard (AS) 4482.1 (2005).

The DQO process consists of a seven-step planning approach to facilitate the development of qualitative and quantitative statements that specify the quality of the data required to support decision making within the scope of the investigation. This process utilises systematic planning and statistical hypothesis testing to differentiate between two or more clearly defined alternatives.

4.1 Step 1 – State the Problem

- In order to accommodate student demand, the DoE need to build additional permanent classrooms at Cammeray Public School, located at 68 Palmer Street Cammeray, NSW. A targeted DSI is required to fulfill due diligence requirements to determine whether contamination exists within the footprint of the proposed new building (investigation area) at levels that warrant additional investigation or necessitate future management actions to ensure suitability for the proposed activity.
- Planning team comprise: DoE (Client) and ADE Consulting Group (site contamination assessment consultant)

Summary of Conceptual Site Model:

A preliminary conceptual site model (CSM) was developed by ADE (ASE 2023) as part of the PSI, and is summarised below.

- **Sources** – Preliminary site investigation by ADE (ADE 2023) identified the following potential sources of contamination:
    - Imported fill materials of unknown origin used in levelling and formation of the investigation area surface within the area of proposed activity.
    - General pest control and pesticides that could have been sprayed or injected on or underneath concrete slabs.
    - Offsite service station and motor vehicle workshop located approximately 90 m to the south.
- **Contaminants of Potential Concern (COPC)**: COPC associated with the identified onsite potential sources of contamination are predominantly top down sources of contamination and include commonly occurring environmental contaminants of concern, including
    - Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
    - Total recoverable hydrocarbons (TRHs),
    - Benzene, toluene, ethylbenzene and xylenes (BTEX);
    - Polycyclic aromatic hydrocarbons (PAHs);
    - Polychlorinated biphenyls (PCBs);
    - Organochlorine and organophosphorus pesticides (OCPs/OPPs);
    - Phenols;
    - Polyfluoroalkyl substances (PFAS)

- Asbestos

- **Receptors:** Current and future users (staff, students and visitors), groundworkers, underlying groundwater and offsite residents. Due to the proposed construction of new structures at the investigation area and the current asphalt hardstand surfaces, the potential for ecological receptors to be present within the investigation area was low. While minor plant root growth may occur, this has not been considered to result in potential for significant ecological receptors.
- **Pathways**: dermal contact, ingestion, inhalation, leaching and migration via groundwater, migration via unsaturated zone
- **Constraints**: Sampling locations were constrained by access provisions for sampling equipment, underground services and existing buildings. The investigation was limited to the area of proposed activity.

4.2 Step 2 – Identify the Decision/ Goals of the Study

The overall objective of the investigation is to determine if the investigation area in its current state is suitable for the proposed actvity. Additional questions to be considered in this decision are:

- Has the investigation area been appropriately characterised, with all data gaps addressed?
- What is the nature and extent of contamination within the investigation area?
- Is there any evidence of offsite migration of contaminants from the investigation area?
- Is there any risk to human health or the environment based on the data obtained from the DSI and in the context of the proposed use of the investigation area?
- Are remediation activities required to render the investigation area suitable for the proposed activity.

4.3 Step 3 – Identify Information Inputs

Information inputs required to resolve the goals of the study include:

- Soil and soil vapour data collected as part of this investigation, including field samples and analytical samples

Investigation criteria will be sourced from:

- National Environmental Protection Measure [NEPM] Schedule B1 (NEPC, 2013)
- NSW EPA, Waste Classification Guidelines. Part 1: Classifying Waste (NSW EPA, 2014)
- HEPA, PFAS National Environmental Management Plan (NEMP) v2.0 (HEPA, 2020)
- Department of Environment, Climate Change and Water (DECCW) (2010) Vapour Intrusion: Technical Practice Note

Sampling and analytical methods will be consistent with existing guidance, including NEPC 2013. Analytical laboratories will be NATA accredited.

4.4 Step 4 – Define Boundaries of the Study

The investigation boundaries are presented in **Table 7**.

Table 7: Summary of the Study Boundaries.

Spatial Boundaries	The lateral boundaries of the investigation area are illustrated in Figure 1 (*Appendix – Figures) and* limited to: In situ soils across the investigation area Unsaturated soil zone The vertical boundary of the investigation to date within the investigation area is limited to *in-situ* soils extending from the fill to natural layer (approximately 0.1 – 1.5 m below ground level (bgl).
Sampling Unit	Sampling units will consist of: Field samples of appropriately described and logged samples which are field screened.
Temporal Boundaries	The investigation works were undertaken on 12 January 2024, 24 April 2024, 26 April 2024 and 02 May 2024.
Investigation Limit	The limit of the investigation extent was defined by recommendations provided in the Preliminary Site Investigation and inspection (ADE, 2023).

4.5 Step5 – Develop a Decision Rule

The primary objectives of the proposed contamination investigation are to assess the potential for unknown contamination at the investigation area to present a risk in the proposed activity. The decision rules to assess the suitability of the investigation area will be as follows:

- QA/QC assessment indicates that the data is usable
- Samples will be submitted to NATA-accredited laboratories. The laboratories' analytical LORs are suitably below the adopted criteria
- If contaminant concentrations for each sample are **below** the adopted investigation levels, then no further assessment/remediation is required with respect to that chemical/media/area
- If contaminant concentrations are reported to **exceed** the adopted investigation levels, then additional investigation and/or management (including remediation) may be required

In considering whether, or not contaminant concentrations exceed investigation levels, statistical measures of central tendency will be used. The data evaluation will include:

- The 95% UCL arithmetic mean to be ≤ criterion
- No individual sample to exceed 250% of the criterion
- The sample standard deviation with be ≤50% criterion
- Additional considerations will include aesthetic requirements, including no odours or staining, no waste materials and no monolithic deposits as per NEPC 2013, B2.

4.6 Step6 – Specify Acceptable Limits on Decision Errors

There are two sources of error for input to decisions:

- Sampling errors, which occur when the samples collected are not representative of the conditions within the investigation area; and
- Measurement errors, which occur during sample collection, handling, preparation, analysis, and data reduction.

The null hypothesis for this study is:

- Contaminant concentrations within the soil, and soil vapour at the investigation area are above the adopted investigation levels.

These errors may lead to the following decision errors:

- Type I - deciding that the risks posed by soil, sediment and groundwater within the investigation area are acceptable when these risks are not acceptable. The consequence of this error may be unacceptable impacts to human health, or the receiving environment; or
- Type II - deciding that the risks posed by soil, sediment and groundwater within the investigation area are unacceptable when the risks are acceptable. The consequence of this error is that management actions will be undertaken to reduce risks that are not necessary.

The acceptable limit on decision errors is a 5% probability of a false negative (i.e. assessing that the average concentrations of CoPC are less than the adopted soil and groundwater investigation levels when they are greater than the investigation levels).

Where data sets are sufficiently populated, the 95% upper confidence limit (UCL) of the arithmetic mean will be used to calculate this probability. The 95% UCLs are to be less than the investigation level and standard deviation of the sample population shall be less than 50% of the investigation level.

4.7 Step 7 – Optimise the Design for Obtaining Data

Based on the findings of the PSI and the preliminary CSM, to address any potential risk linkages to sensitive receptors at the investigation area, the targeted DSI would include an intrusive investigation (borehole and test pit assessment) and a soil vapour investigation.

5 Investigation Methodology

5.1 Preliminary Items

Preliminary works included the following:

- Review and summarise the findings from the desktop study of the investigation area and in order to develop and sampling analysis plan.
- Preparation of safe work methods statement (SWMS) for fieldworks undertaken.
- Undertake a Before-You Dig-Australia (BYDA) online search of current utilities potentially running onto the investigation area.
- Conducting scan for underground services, supervising a qualified/licenced utility search subcontractor to mark-out safe locations for intrusive assessment.

5.2 Soil Sampling

For the intrusive soil contamination assessment, a systematic sampling regime was completed to collect representative samples from the lithology across the investigation area and to provide coverage. The distribution of individual sample locations was defined by on-site limitations and restrictions such as underground services, and the adopted lateral/vertical investigation limits.

A systematic sampling design with a combined 10 sampling locations including the 5 borehole locations and the 5 test pit locations allow the detection of a potential contamination hotspot of 6.5 m with 95% confidence according to the NSW EPA sampling design guidelines. This is greater than the minimum number of locations recommended, however the methodologies are split between boreholes and test pits with test pits being appropriate for assessing potential asbestos contamination. Samples were collected and selected for analysis across varying depths with soil lithologies, including imported fill materials and residual natural soil materials.

5.2.1 Borehole Assessment

The combined geotechnical and environmental intrusive investigation was conducted on 12 January 2024 by a qualified and suitably experienced environmental consultants from ADE. Photographs from the investigation are shown in **Appendix B** (Photograph 3 – 7). The components of the intrusive works relating to the environmental investigation are listed below.

- Supervision of drilling by a qualified subcontractor on 12 January 2024, advancing 5 boreholes using the continuous flight auger method into natural material to a maximum depth of 1.5 metres (m) below ground level (BGL) for a combined soil and geotechnical assessment (ID: BH01 – BH05).
- Samples of soil material were collected at each location which enabled assessment of material type, texture, moisture, inclusions and indications of visual / olfactory contamination. Subsurface observations were recorded on detailed bore logs, presented in **Appendix C**.
- Samples were collected in clean glass jars and bags supplied by the laboratory. The jars were filled to capacity to ensure minimal headspace was present and placed directly into a chilled esky for transportation to the laboratory.

- Semi-quantitative field screening for volatile organic compounds (VOCs) in soil was undertaken at each sampling location using a calibrated photo-ionisation detector (PID) device. Screening involved placing the soil sample in a resealable plastic zip lock bag, agitating the sample then inserting the PID tip into the headspace and recording the reading.
- Collection of one intra-laboratory duplicate and one inter-laboratory duplicate for quality assurance / quality control (QA/QC) purposes.

5.2.2 Test Pit Sampling Methodology

To improve the confidence in the assessment of any potential asbestos contamination, shallow test pitting was completed on 26 April 2024, supervised by a qualified and suitably experienced environmental consultant from ADE. Photographs from the test pit investigation are shown in **Appendix B** (Photograph 11 – 16). The following was completed:

- Supervision of test pitting by a qualified subcontractor, advancing 5 shallow test pits using a mechanical excavator into natural material, to a maximum depth of 0.8 mBGL (ID: TP01 – TP05).
- Asbestos sampling was undertaken at each test pit location using the gravimetric method to quantify weight / weight percentages (%w/w) as documented in the WA DoH (2021) and ASC NEPM (2013) guidelines., as follows:
    - 10L of soil materials were collected, weighed and screened for the presence/absence of bonded asbestos using a 7mm x 7mm sieve or manually sieved over a colour-contrasting plastic sheet.
    - If bonded asbestos fragments were identified/suspected during the screening process, they were collected and analysed to determine the percentage weight-by-weight concentration (% w/w) of asbestos for each sample.
    - 500 mL soil samples was then collected within medium zip lock bags and sent for analysis of asbestos fines (AF) and fibrous asbestos (FA)
- Subsurface observations such as material type, texture, moisture, inclusions and indications of visual / olfactory contamination were recorded on detailed test pit logs (**Appendix C**).

5.3 Soil Vapour Assessment

The soil vapour assessment was carried out in general accordance with (DECCW, 2010) Vapour Intrusion: Technical Practice Note.

Based on the findings in the preliminary CSM and the location of the potential off-site source (offsite service station to the south of the investigation area), 3 soil vapour bores were installed along the southern boundary of the investigation area, perpendicular to a potential pathway originating from the nearby service station.

Three soil vapour bores were considered to be suitable in order to identify any potential exposure pathways and health risks associated with the contamination to sensitive land users and to produce a sufficient data set that can be evaluated for consistency whilst ensuring samples are representative.

5.3.1 Soil Vapour Well Installation

The soil vapour installation was completed on 24 April 2024 supervised by a qualified and suitably experienced environmental consultant from ADE. Photographs from the soil vapour installation are shown in **Appendix B** (Photograph 7 – 10). The following was completed:

- Three soil bores were advanced to a maximum of 1.5 m BGL using a truck mounted geoprobe drill, along the southern boundary of the investigation area as shown on **Figure 2**. The soil vapour borehole locations were placed in an area completely covered with bitumen and were as such considered to provide an adequately representative measure of potential conditions beneath a building.
- A total of three soil vapour bores (ID: SV01, SV02 and SV03) were installed at an approximate depth of 1.4 m BGL.
- Stainless-steel soil vapour probes were installed into the base of the bore hole, with a 3-5 mm pea gravel installed to create a highly porous and permeable sample interval covering the probe and a further 50 mm. A narrow Teflon tube connected the probe to the surface, with a bentonite seal constructed within the bore annulus to prevent atmospheric interference during sampling.
- The soil vapour bores were finished with flush covers concreted into the ground and secured with bolts to prevent tampering and to allow sampling at a later date.
- The soil vapour bore (SVB) logs are presented in **Appendix C**.

5.3.2 Soil Vapour Sampling

Sampling of the three newly installed SVBs (SV01, SV02 and SV03) was completed on 02 May 2024, 8 days after the SVB installation to allow time for subsurface conditions to equilibrate.

The SVBs were purged and sampled in accordance with Department of Environment, Climate Change and Water (DECCW) (2010) Vapour Intrusion: Technical Practice Note, which outline the following methodology:

- Prior to sampling, each SVB was leak checked by enclosing the top with a shroud and flooding it with isopropyl alcohol.
- Volumes were purged from within the screen implant using a calibrated PID.
- Purged soil vapour was screened in the field using a PID for the presence of potential VOCs.
- Laboratory supplied 1.4 L Silonite Mini-Cans and sampling manifolds were pressure checked with an analogue pressure gauge prior to sampling.
- Teflon tubing from the SVB was then connected to the sampling manifold which was connected to 1.4 L Summa canister for sample collection.
- The canisters were monitored during sampling by using the dedicated analogue pressure gauge supplied by the laboratory to allow termination of sampling before the pressure within the canister reached zero, inch of mercury (“HG”).
- Following sampling, the vacuum within cannisters was recorded to allow for comparison with the vacuum of the cannisters once received by the laboratory.
- The soil vapour samples in the Silonite Mini-Cans were sent to ALS, a NATA accredited laboratory for the analytes.
- Field records of purge time, volume removed, leak check, soil vapour sampling parameters (e.g. canister identity (ID), sampling Manifold ID, start and finish pressures, fill rate, purging and after purging parameters) and field observations are presented in **Appendix D**.

At shallow depths (<1 m) soil gas concentrations can be influenced by meteorological variations. Weather observations on the day of sampling and 2 days prior, were recorded using information gathered from the Bureau of Meteorology (BOM, 2024) and summaries in **Table 8** below.

Table 8: Summary of Weather Observations

Date	Time	Atmospheric Pressure (hPa)	Total rainfall (mm)	Windspeed (km/h)	Wind Direction	Temperature (°C)	Relative Humidity (%)
30/04/2024	9:00	1025.4	0	15	SSW	19	81
	15:00	1025.3		24	SSW	17.1	86
01/05/2024	9:00	1030.4	22.8	20	W	13.8	90
	15:00	1028.6		24	SSW	17.9	79
02/05/2024	9:00	1031.6	23.2	17	W	15	93
	15:00	1029.3		15	S	19.2	67

Notes
Daily Weather Observations available at http://www.bom.gov.au/nsw/observations/index.shtml (accessed 15/05/2024).
Temperature, humidity and rainfall observations from Sydney Observatory Hill (station 066214), atmospheric pressure from Sydney Airport AMO (station 066037) and wind observations from Fort Denison (station 066022).

5.4 Documentation

A field observation log was kept by sampling personnel during all phases of soil and soil vapour sampling. Details recorded in the log included:

- Borehole/monitoring well and sample number
- Soil profile notes
- Sampling method
- Sample identification
- Sample description
- Sample point measurements

A comprehensive master sample register was maintained. As samples were received, they were given a unique sequential number from the sample register into which details from the labels were entered. Before packing and dispatch of samples for analysis, a chain of custody (CoC) form was completed (refer to **Appendix G – Chain of Custody Documentation and Analytical Reports**). This form recorded details of the individual samples being dispatched and the type of analysis required for each sample.

5.5 Laboratory Analysis

5.5.1 Soil

Samples were transported to laboratories accredited with the National Association of Testing Authorities (NATA) for each analytical method used in chilled containers under full chain-of-custody documentation. Primary and the intra-laboratory duplicate soil samples were submitted to:

- Sydney Laboratory Services (SLS) – Address: 4/10-11 Millennium Ct, Silverwater NSW 2128; and
- Envirolab Servies Sydney (Envirolab) – Address: 12 Ashley St, Chatswood NSW 2067.

The inter-laboratory duplicate sample was submitted to Envirolab.

The primary soil samples were submitted for the following laboratory analysis:

- 10 soil samples submitted for:
    - Heavy metals (As, Cd, Cr_{TOTAL}, Cu, Hg, Ni, Pb and Zn).
    - Benzene, toluene, ethylbenzene and total xylenes (BTEX).
    - Total recoverable hydrocarbons (TRH) (Fractions $C_6 – C_{40}$)
    - Polycyclic aromatic hydrocarbons (PAH).
    - Organochlorine pesticides / organophosphate pesticides (OCP/OPP).
    - Polychlorinated biphenyls (PCB).
    - Asbestos (presence / absence).
- 5 samples submitted for asbestos quantification in soil in accordance with WA DoH (2021) and ASC NEPM (2013) procedures.
- 3 soil samples submitted for per- and polyfluoroalkyl substances (PFAS).
- One sol sample was submitted for analysis to assist in deriving specific ecological investigation levels (EILs) for the investigation area including:
    - pH.
    - Electrical conductivity (EC).
    - Total Organic Carbon (%).
    - Cation Exchange Capacity (CEC).
    - Total iron (Fe).

One intra-laboratory duplicate, and one inter-laboratory duplicate sample were submitted QA/QC purposes for the full analytical suite detailed above with the exception of asbestos in soils, PFAS and EIL analytes. **Table 9** below show the sampling and analytical schedule.

Table 9: Summary of analytical schedule

Analytes	Number of primary samples analysed	Number of duplicate samples analysed
Heavy Metals *	10	2
BTEX	10	2
TRH	10	2
PAH	10	2
OCP/ OPP	10	2
PCB	10	2
VOC	10	2
Asbestos +/-	10	-
Asbestos w/w	5	
PFAS	10	-
pH / EC	1	-
CEC	1	-
TOC	1	-
Total Iron	1	-

Notes

Heavy Metals	Arsenic, Cadmium, Copper, Chromium, Mercury, Nickel, Lead and Zinc
BTEX	Benzene, toluene, ethylbenzene and total xylenes
TRH	Total Recoverable Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbons
OCP/OPP	Organochlorine pesticides / Organophosphate pesticides
PCB	Polychlorinated biphenyls
VOC	Volatile organic compounds
Asbestos	Asbestos (presence/absence) in soil
Asbestos w/w	Asbestos quantification in soil in accordance with WA DoH (2021) and ASC NEPM (2013)
PFAS	Per- and polyfluoroalkyl substances
pH/EC	pH, Electrical conductivity
CEC	Cation Exchange Capacity
TOC	Total Organic Carbon

5.5.2 Soil Vapour

Samples were transported in Silonite Mini-Cans under full chain-of-custody documentation to ALS, a laboratory accredited with the National Association of Testing Authorities (NATA) for each analytical method used. Samples were submitted for analysis of TO15 VOCs (83 analytes) and BTEX

6 Site Assessment Criteria

The site assessment criteria (SAC) was developed as per the following environmental legislation, guidelines, code of practices and industrial advice:

- NEPC. (2013). The National Environmental Protection Measure (NEPM), 2013 Amendment (ASC NEPM, 2013)
- NSW EPA, Waste Classification Guidelines. Part 1: Classifying Waste (NSW EPA, 2014)
- HEPA, PFAS National Environmental Management Plan (NEMP) v2.0 (HEPA, 2020)

Based on the ongoing use of the investigation area as a primary school, the Tier 1 screening criteria for a land use scenario under NEPM (2013) for a "residential with garden access, including primary schools (HIL A)" were adopted to be most protective of the identified sensitive receptors.. This report applies the relevant criteria investigation levels to identify contaminants and/or areas of contamination that potentially pose a risk to human or environmental health.

6.1 Soil Assessment Criteria

6.1.1 Health Investigation Levels (HILs)

The NEPM (2013) guidelines describes four broad land-use settings to assess potential human health risks for a broad range of metals and organic substances. These four HIL categories are used to assess human health risk via all relevant pathways of exposure for the following broad land use categories:

- **HIL-A - Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, no poultry, also includes children's day-care centres, preschools and primary schools)**
- HIL-B - Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats
- HIL-C - Public open space such as parks, playgrounds, playing fields (e.g., ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves), which should be subject to a Site-specific assessment where appropriate, and
- HIL-D - Commercial/industrial such as shops, offices, factories and industrial sites.

Based on the available information, which includes the current land use as primary school, the HIL-A criterion has been adopted for screening purposes. A summary of the applicable HILs for soil is presented within **Table 10.**

Table 10: Health Investigation Levels for Soil Contaminants

Analyte	HIL A (mg/kg)
Arsenic (total)	100
Cadmium	20
Chromium (VI)	100
Copper	6,000
Lead	300
Mercury (inorganic)	40
Nickel	400
Zinc	7,400
Carcinogenic PAHs (as BaP TEQ[1])	3

Analyte	HIL A (mg/kg)
Total PAHs	300
Total PCBs	1
DDT+DDE+DDD	240
Aldrin and Dieldrin	6
Chlordane	50
Endosulfan	270
Endrin	10
Heptachlor	6
Hexachlorobenzene	10
Methoxychlor	300
Chlorpyrifos	160
Cyanide (free)	250
Phenols	3,000

Notes

1. Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF, given in the Table below, and summing these products.

Table 11: Health Investigation Levels for Soil Contaminants - PAH species

PAH species	TEF	PAH species	TEF
Benzo(a)anthracene	0.1	Benzo(g,h,i)perylene	0.01
Benzo(a)pyrene	1	Chrysene	0.01
Benzo(b+j)fluoranthene	0.1	Dibenz(a,h)anthracene	1
Benzo(k)fluoranthene	0.1	Indeno(1,2,3-c,d)pyrene	0.1

6.1.2 Health Screening Levels (HSLs)

Health screening levels (HSLs) have been developed for selected petroleum compounds and fractions and apply to human health risk assessment via inhalation and direct contact pathways. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. The soil texture for applications of HSLs at the investigation area is “sand”.

ASC NEPM (2013).presents Tier 1 screening criteria for BTEX, naphthalene, TRH fractions C6-C10 and C10-C16 for vapour intrusion. Values for sand with depth criterion to < 1 metres was used. The HSL criteria are summarised in **Table 12**.

Table 12. Health screening levels for soil contaminants

Analyte	HIL A (mg/kg)
Benzene	0.5
Toluene	160
Ethylbenzene	55
Xylene	40
Naphthalene	3
TRH: C6 – C10(F1)[1]	45
TRH: C10 – C16 (F2)	110

Notes

1. To obtain F1, subtract the sum of BTEX from the C_6-C_{10} fraction.

6.1.3 Asbestos

NEPM (2013) provides specific guidance for the assessment of asbestos in soils, based on the WA DoH (2009). The DoH Guidelines identify three groups of asbestos contamination:

- **ACM**: asbestos which is bound in a matrix and cannot pass through a 7mm x 7mm sieve;
- **FA**: Friable asbestos material, such as severely weathered ACM and loose fibrous material such as insulation products. FA is defined as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure; and
- **AF**: includes free fibres of asbestos, small fibre bundles and ACM fragments that pass through a 7mm x 7mm sieve.

The analysis of asbestos samples must be undertaken by a NATA accredited laboratory in accordance with the analytical method outlined in Australian Standard (AS) 4964-2004, *Method for the qualitative identification of asbestos in bulk samples.* The health screening levels adopted for the purpose of this investigation are presented in **Table 13.**

Table 13. Health screening levels for asbestos contamination in soil

Analyte	HIL A (mg/kg)
Bonded ACM[1]	0.01% w/w
FA and AF (friable asbestos)[2]	0.001% w/w
All forms of asbestos	No visible asbestos for surface soil

Notes

1. ACM – Bonded asbestos containing material
2. FA – Fibrous asbestos; AF – Asbestos fines

6.1.4 PFAS

The Heads of EPAs Australia and New Zeeland (HEPA) PFAS National Environmental Management Plan Version 2.0 (2020) provides guidance on the management of PFAS impacted soils. The classes of soil criteria defined in the HEPA (2020) for human HILs are presented in **Table 14**.

Table 14. Summary of the adopted assessment criteria for PFAS in soil

Soil Criteria (Human Health)	PFOS + PFHxS (mg/kg)	PFOA (mg/kg)
Residential with accessible gardens (HIL-A)	0.01	0.1

6.1.5 Management Limits

In accordance with section 2.9 of schedule B1 of the ASC NEPM (2013), consideration of Management Limits for petroleum hydrocarbons will be undertaken to assess whether the reported soil conditions have the potential to pose a risk to buried infrastructure, or the formation of non-aqueous phase liquid (NAPL). Values for coarse grained soils from Table 1 B (7) of Schedule B1 will be adopted as a conservative approach.

A summary of the adopted TRH management limits for this investigation area is provided in **Table 15**.

Table 15. Management limits for TRH fraction in soil

Chemical	Management Limits for TRH (mg/kg dry soil) Residential, parklands and public open space (coarse texture)
F1 C6-C10	700
F2 C10-C16	1,000
F3 >C16-C34	2,500
F4 >C34-C40	10,000

6.2 Aesthetics

The ASC NEPM (2013) guidelines requires that aesthetic quality of accessible soils be considered even if analytical testing demonstrates that concentrations of CoPC are within the SAC.

It should be noted that there are no quantifiable guidelines in determining if soils are appropriately aesthetic. However, NEPM 2013 does indicate that professional judgement with regard to quantity, type, and distribution of foreign materials and/or odours in relation to the specific land use should be employed.

The following examples would trigger further aesthetic assessment:

- Hydrocarbon/organic sheen on surface water.
- Significant intrusion of foreign materials throughout the soil
- Anthropogenic soil staining; and
- Odorous soils (i.e. hydrocarbon or hydrogen sulphide odours).

6.3 Waste Classification Guidelines

Assessment criteria for soil which may be removed and disposed off-site during the proposed activity of the investigation area are outlined in the NSW EPA Waste Classification Guidelines Part 1: Classifying Waste (2014) and the NSW EPA Addendum to the Waste Classification Guidelines (2014) – Part 1: Classifying Waste (2016) ('the Waste guidelines").

In order to provide preliminary waste classification advice, chemical results from this DSI will be compared against the maximum values of specific contamination concentration (SCC) for classification without toxicity leaching (TCLP) for the contaminant threshold value for General Solid Waste (GSW) (≤CT1) and contaminant threshold value for restricted solid waste (≤CT2)Values are summarised in **Table 16** below.

Table 16: NSW EPA (2014) Waste Classification Guidelines

Contaminant	Maximum values of specific contaminant concentration (SCC) for classification without TCLP General Solid Waste CT1 (mg/kg)	Restricted Solid Waste CT2 (mg/kg)
Metals		
Arsenic	100	400
Cadmium	80	20
Chromium (VI)[1]	100	400
Lead	100	400
Mercury	4	16
Nickel	40	160
PAHs		
PAHs total[2]	200	800
Benzo(a)pyrene	0.8	3.2
BTEX		
Benzene	10	40
Toluene	288	1,152
Ethyl-benzene	600	2,400
Xylenes **(total)**	1,000	4,000
TRH		
C_6 – C_9 TPH	650	2,600
C_{10} – C_{36} TPH	10,000	40,000
OCP/OPP		
Endosulfan[1]	60	240
Chlorpyrifos	4	16
PCBs		
PCBs total	<50	<50
PFAS		
PFOS+PFHxS[3]	1.8	
PFOA[3]	18	

Notes

1- These limits apply to chromium in the +6 oxidation state only 2
2- Endosulfan means the total of Endosulfan I, Endosulfan II and Endosulfan sulfate
3- SCC1 values as per Addendum 1 of NSW EPA 2014 Waste Classification Guidelines.

6.4 Statistical Treatment

Analytical results from the soil sampling program are statistically analysed to determine their applicability to the assessment and recommendation of remedial actions in the event of SAC exceedances. The statistical analysis will be applied on a zone basis, if required.

A contaminant concentration in the soil will be deemed a non-exceedance if:

- The maximum concentration of all samples meets the specified acceptance criteria; or
- The 95% upper confidence limit (UCL) of the mean is below the acceptance criteria considering the following:
    - No individual exceedance is greater than 2.5 times the acceptance criteria; and
    - The standard deviation of the results should be less than 50% of the relevant investigation or screening level.

If the 95% UCL of the arithmetic mean of a contaminant concentration is above the acceptance criteria outlined in the NEPM (NEPC, 2013), then the soil will be classified as contaminated and will require further assessment, remediation, removal or management.

If the 95% UCL of the arithmetic average concentrations is below the acceptance criteria, and no concentrations are at a hotspot level, slight elevations above the acceptance criteria may be considered to pose an insignificant human health or environmental risk. The location will hence be considered a non-exceedance requiring no further assessment, remediation, removal or management. The statistical analysis for the assessment of ACM is not considered appropriate.

6.5 Soil Vapour Assessment Criteria

As an initial screening tool, the soil vapour results were screened against the interim soil vapour HILs for volatile chlorinated hydrocarbons (VHCs) (Table 1a(2)) and the soil vapour HSLs for vapour intrusion for non-chlorinated volatile organic compounds (VOCs) (Table 1A(5)) outlined in Schedule B1 of the ASC NEPM (2013).

Table 17 outlines the interim soil vapour HILs that were adopted for VCHs, which are independent of the depth of sampling. **Table 18** outlines the soil vapour HSLs for vapour intrusion that were adopted for VOCs (not including VCHs) which are dependent upon sampling depth. Results were screened against low to high density residential land use criteria for sands 0 m to <2 m depth.

The criteria for a sand lithology was selected as sandy soils was present within the soil profile.

Table 17: Adopted ASC NEPM (2013) Interim Soil vapour HILs

CoPC	Interim Soil Vapour HIL – Residential A (mg/m^3)
Tetrachloroethene (PCE)	2
Trichloroethene (TCE)	0.02
Cis-1,2-DCE	0.08
Vinyl Chloride	0.03
1,1,1-trichloroethane (1,1,1-TCA)	60

Table 18: Adopted ASC NEPM (2013) HSL for Vapour Intrusion

CoPC	Soil Vapour HSLs Low– high density residential, sand, 0 m to <1 m (mg/m^3)	Soil Vapour HSLs Low– high density residential, sand, 1 m to <2 m (mg/m^3)
Toluene	1,300	3,800
Ethylbenzene	330	1,100
Xylenes	220	750
Naphtalene	0.8	3
Benzene	1	3
F1 C6-C10[1]	180	640
F2 C10-C16[2]	130	560

Notes
1- To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction
2- To obtain F2 subtract naphthalene from the >C10-C16 fraction.

7 Results

7.1 Field observations

7.1.1 Features

Photographs of the investigation area and the subsurface conditions are presented in **Appendix B** with **Figure 2** presenting investigation area features and sampling locations. At the time of the initial borehole investigation on 12 January 2024, the investigation area was covered with asphalt and used as part of a playground and a demountable classroom on brick piers was present in the southeastern portion of the investigation area (**Photograph 1**).

Whilst the surrounding topography was seen to be sloping downwards in a northerly direction the investigation area and surrounding hard stand playground and adjacent building was engineered level (**Photograph 2**).

There were no indications of visual / olfactory contamination or potential asbestos containing materials (ACM) noted upon the surface at the investigation area. There was also no indication or evidence of potential sources of contamination (e.g., bulk fuel/ chemical storage).

During the subsequent intrusive investigations on 24 and 26 April 2024, the demountable building was removed.

7.1.2 Soil profile

In general, similar lithologies were encountered at the bore hole and test pit locations.

The boreholes were advanced to between 1.0 and 1.5 m BGL. Below a generally thin layer of asphalt (0.05m) *In-situ* shallow soils across the investigation area generally consisted of compacted mixed small to large angular gravels combined with coarse sand, dark grey/ brown overlaying sand (Fill) with mixed gravels. Natural sand / clayey sand was encountered between 0.3 and 0.6 mBGL with extremely weathered sandstone generally encountered from between 0.6 and 1.0 mBGL.

See **Table 19** for summary of the soil lithology across the investigation area and **Appendix C** for detailed lithological bore logs.

Table 19. Ground Model

Lithology	Approximate Depth Range (m BGL)	Material Description
Asphalt layer (FILL)	0-0.05	Asphalt
Road base (FILL)	0.05—0.2	Mixed small to large angular gravels combined with coarse sand, dark grey / brown
SAND (FILL)	0.2—0.3	Fill SAND: Fine to medium grained, brown with red sandstone gravels.
Natural Clayey SAND	0.3—0.6	SAND: fine to medium grained, pale brown with red, with clay.
SANDSTONE	> 0.6	SANDSTONE: Fine to medium, red / pale grey, extremely weathered, extremely low strength.

During the soil vapour bore installation, groundwater seepage was encountered at location SV03 at 1.45 m.

All soil samples returned PID readings at background levels (below 1 ppm) which is not indicative of hydrocarbon/ volatile impact. Refer to bore logs in **Appendix C** for PID values and **Appendix E** for the PID calibration certificate.

7.2 Soil Analytical Results

7.2.1 Site Assessment Criteria

Tabulated laboratory results compared to the adopted SAC are presented in **Appendix F** with laboratory certificates of analysis provided in **Appendix G**.

A summary of the reported results compared to SAC has been listed below.

- Low concentrations of heavy metals below adopted SAC with some below the laboratory's limit of reporting (LOR).
- Low concentrations of PAH below adopted SAC with some below the laboratory's limit of reporting (LOR).
- BTEX compounds were reported below the LOR in all samples.
- Low detections of middle to heavy end TRH with maximum reported concentration of TRH >C_{16}-C_{34} of 113 mg/kg and TRH >C_{34}-C_{40} of 175 mg/kg, all concentrations were below SAC.
- Reported concentrations of OCP/ OPP and PCB were below the LOR.
- Reported concentrations of PFAS were below the LOR.
- Asbestos/ asbestos containing material was not detected in any soil samples submitted for laboratory analysis.

7.2.2 Waste Classification

Chemical results compared to the waste classification guidelines are presented in **Table E3** in **Appendix F**.

The reported concentrations of analytes were below the maximum threshold concentrations for GSW except for nickel (threshold of 40 mg/kg) at 4 sampling locations and for Benzo(a)pyrene (B(a)P) (threshold of 0.8 mg/kg) at one location. All samples with exceedances were collected from the fill (road base material) encountered immediately below the asphalt. Concentrations of all other analytes were below CT1 criteria for all samples analysed.

Refer to **Table 20** below for samples exceeding the CT1 criteria for General Solid Waste.

Table 20: Exceedances for CT1 criteria for general solid waste

Borehole location	Matrix	Sample ID	Matrix	Exceedances (mg/kg)	CT1 criteria for GSW (mg/kg)
BH01	Fill (road base)*	C_BH01_0.2-0.3	FILL - Road base	Nickel: 57.4	Nickel: 40
				B(a)P: 0.96	B(a)P: 0.8
BH03	Fill (road base)*	C_BH03_0.2-0.3	FILL - Road base	Nickel: 53.0	Nickel: 40
BH04	Fill (road base)*	C_BH04_0.2-0.3	FILL - Road base	Nickel: 65.8	Nickel: 40
BH05	Fill (road base)*	C_BH05_0.2-0.3	FILL - Road base	Nickel: 41.2	Nickel: 40

*Mixed small to large angular gravels combined with coarse sand, dark grey / brown

7.3 Soil Vapour Analytical Results

The soil vapour analytical results are presented in **Table E4** in **Appendix E**. Laboratory soil vapour analysis reported concentrations below the SAC at the three sampling locations assessed. Limited detections of volatile hydrocarbons were identified within the samples as presented in **Table 21** below.

Table 21: Soil Vapour Results above Reporting Limits

Soil vapour bore	PID purge reading (min-max)	Toluene		Hexane		Propene	
		ppmv	mg/m^3	ppmv	mg/m^3	ppmv	mg/m^3
SV01	**0 - 0.7**	**0.0267**	**0.236**	<LOR	<LOR	<LOR	<LOR
SV02	**0 – 2.9**	<LOR	<LOR	**0.138**	**0.486**	**3.63**	**6.24**
SV03	**0 – 8.0**	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

The detections of air phase volatile hydrocarbons are further discussed below:

- **Toluene**. Trace detections of toluene were detected above the LOR (0.19 mg/m^3) at location SV01 at 0.24 mg/m^3, which is more than 3 times the order of magnitude below the adopted SAC (Soil Vapour HSL Criteria for Vapour Intrusion) of 1,300 mg/m^3. TRH C7-C8 was also present within SV01 at similar concentrations to toluene. It is understood that the TRH C7-C8 fraction identified represents the toluene (a C7 hydrocarbon).
- **Hexane**. One detection of hexane (0.486 mg/m^3) was detected above the LOR (0.18 mg/m^3) at location SV02. Hexane is a component of SAC for TRH F1. On the basis that concentrations of TRH F1 (20 mg/m^3) were below SAC (640 mg/m^3), no further evaluation of hexane is considered warranted.
- **Propene**. One detection of propene (6.24 mg/m^3) was detected above the LOR (0.09 mg/m^3) at location SV02. Whilst no SAC was presented for propene, it is noted that that the US EPA Regional Screening Levels (US EPA RSL) provide a value of 3 mg/m^3 for propene. The two other locations (SV01 and SV03) did not show the presence of propene above the LOR, indicating the presence of propene is likely to be localised and low in concentration. On this basis, further evaluation of propene is not considered warranted.

The following was also noted in relation to the soil vapour:

- all three samples were collected in relatively close proximity (<10m between all three locations), with no consistent detections of analytes.
- the detections are not consistent with UPSS and petroleum hydrocarbons sources. For example, generic contaminants of petroleum hydrocarbon fuel would be expected in soil vapour associated with a hydrocarbon plume, such as benzene, ethylbenzene, xylenes and volatile shorter-chained hydrocarbons such as F1 C_6-C_{10} and F2 C_{10}-C_{16}.

The detections of the hydrocarbons found in the soil vapour samples may be due asphalt which contains bituminous products, which may realise air phase hydrocarbons. The sampling of soil vapour did not indicate the presence of air phase volatile petroleum hydrocarbons and further soil vapour sampling is not considered warranted.

7.4 Quality Assurance and Quality Control

For the purposes of this report, the Quality Assurance / Quality Control (QA/QC) program adopted includes an assessment of laboratory QA/QC and field QA/QC comprising of intra-laboratory and inter-laboratory duplicates. Further details and information regarding the QA/QC program can be referred to in **Appendix H** and the calculated relative percentage difference (RPDs) between the primary and the intra- and interlaboratory duplicates are presented in **Appendix I.**

The results of the data quality assessment conclude that the analytical results are representative of the conditions of the sampling locations at the time of sampling and are directly usable for the purpose of this assessment.

8 Discussion and Revised Conceptual Site Model

The conceptual site model has been updated to reflect the findings of the recent environmental investigation, including soil and soil vapour analytical data, and is presented in the sections below.

8.1 Aesthetics

During the intrusive investigation, no visual or olfactory evidence of contamination was noted. There were no signs of uncontrolled fill present in any of the sampling locations.

The lithology across the investigation area was consistent across the investigation area with shallow fill consisting of asphalt, sub-base gravels and gravelly sand overlaying natural sand / clayey sand with extremely weathered sandstone generally encountered between from approximately 0.6 mBGL.

8.2 Soil

No significant sources of soil contamination were identified. Laboratory analysis supported visual observations with concentrations of CoPC reported below SAC criteria for all samples analysed. Asbestos was not detected in any samples during the initial borehole investigation in January 2024 or in April 2024. No fragments of PACM were noted at surface or within soil profile during fieldwork.

Analytical results were compared to the waste classification guidelines for GSW. There were marginal exceedances of the CT1 criteria for GSW of Nickel in 4 samples and in one sample for B(a)P, all collected from the fill layer (road base) immediately below the asphalt. Concentrations of all other analytes were below CT1 criteria for all samples analysed.

Whilst the road base is currently chemically classified as restricted solid waste, if this material needs to be disposed offsite, a Toxicity Characteristic Leaching Procedure (TCLP) is recommended which can revise the classification to GSW pending the samples return leachable concentrations below the TCLP1 criteria assigned for GSW.

8.3 Soil Vapour

As presented in **Section 7.3**, limited detections of air phase hydrocarbons were identified. The concentrations were found to be below SAC or at concentrations not warranting further consideration. The limited detections of hydrocarbons were not found to be consistent with a petroleum hydrocarbon source.

8.4 Revised Risk Linkage Evaluation

Based upon the results and findings of this assessment, there were no completed risk linkages identified within the CSM evaluation.

9 Conclusion and Recommendations

ADE was engaged by DoE to undertake a targeted DSI to investigate the nature and extent of potential contamination (if any) within a portion of land subject to proposed activity within Cammeray Public School (the 'site').

The DSI is required to fulfill due diligence requirements to determine whether contamination exists within the footprint of a proposed new building (investigation area) at levels that warrant additional investigation or necessitate future management actions to ensure suitability for the proposed activity.

The intrusive investigation was undertaken between 12 January 2024 and 26 April 2024 and comprised advancement of 5 bore holes and 5 test pits across the investigation area to assess the subsurface conditions and collect samples for laboratory assessment of contaminants of potential concern. The results of the soil assessment were also used to provide indicative advice regarding the offsite management of material which may be surplus to requirements in accordance with the Waste Guidelines.

A soil vapour assessment was also undertaken to close out any potential off-site source of contamination from a nearby service station.

Based upon the results of the investigation, the following conclusions are made:

- There were no uncontrolled fill present at the investigation with the soil encountered in the investigation area generally described as fill consisting of a thin layer of asphalt overlaying mixed graves (road base) and sand with gravel inclusions. Natural sand / clayey sand was encountered between 0.3 and 0.6 mBGL with extremely weathered sandstone generally encountered from between 0.6 and 1.0 mBGL.
- The results of the soil investigation revealed no exceedances of Site Assessment Criteria.
- Marginal exceedances of the CT1 criteria for General Solid Waste (GSW) was recorded in the road base fill material for Nickel at four locations and for Benzo(a)pyrene in one location. If material requires offsite disposed of during the proposed activity, a material classification assessment needs to be undertaken for the surplus material.
- The results of the soil vapour investigation revealed that the offsite service station is unlikely to have impacted the area beneath the investigation area and that soil vapour detections are not representative of a contamination risk to receptors

Based on the analytical results collected from soil samples analysed across the investigation area, the soils present a low risk of contamination and are considered chemically suitable for the proposed activity and ongoing land-use as a primary school. The soil vapour assessment confirmed that there was no soil vapour risk from the UPSS within the nearby service station.

ADE considers the investigation area suitable for the proposed activity with no further investigation needed.

10 Mitigation Measures

The potential project environmental risks and recommended mitigation measures have been summarised in **Table 22**.

Table 22: Summary of Potential Risks and Mitigation Measures

Potential Risk	Mitigation Measure
Unexpected finds during the proposed activity.	Develop and prepare an unexpected finds protocol to be implemented during the demolition and construction phase of the activity.
Erosion and Sediment.	Develop and prepare a soil and water management plan/ sub-plan to prevent erosion and generation of sediment.
Environmental harm during construction.	Develop and prepare a construction environmental management plan to be implemented during the course of demolition and construction phase of the activity.
Disposal of waste soils generated by construction.	Ensure all soil to be removed from the investigation area as waste is classified in accordance with NSW EPA (2014) prior to leaving the investigation area. Where possible, attempts to beneficially re-use waste either on site or off-site subject to application of the Resource Recovery Framework outline within the POEO Act.

11 Limitations and Disclaimer

This report has been prepared for the exclusive use of the client and is limited to the scope of the work agreed in the terms and conditions of contract (including assumptions, limitations and qualifications, circumstances, and constraints). ADE has relied upon the accuracy of information and data provided to it by the client and others.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia. No other warranty, expressed or implied, is made or intended. No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendixes and attachments. The report is an integral document and must be read in its entirety.

To the fullest extent permitted by law, ADE does not accept or assume responsibility to any third party (other than the client) for the investigative work, the report or the opinions given.

The scope of work conducted, and report herein may not meet the specific needs (of which ADE is not aware) of third parties. ADE cannot be held liable for third party reliance on this document. Any third party who relies upon this report does so at its own risk.

The subsurface environment can present substantial uncertainty due to it complex heterogeneity. The conclusions presented in this report are based on limited investigation of conditions at specific sampling locations chosen to be as representative as possible under the given circumstances. However, it is possible that this investigation may not have encountered all areas of contamination at the site due to the limited sampling and testing program undertaken.

ADE does not verify the accuracy or completeness of, or adopt as its own, the information or data supplied by others and excludes all liability with respect to such information and data. To the extent that conditions differ from assumptions set out in the report, and to the extent that information provided to ADE is inaccurate or incomplete or has changed since it was provided to ADE, the opinions expressed in this report may not be valid and should be reviewed.

ADE's professional opinions are based upon its professional judgement, experience, training, and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited its investigation to the scope agreed upon with its client.

This Limitation and Disclaimer must accompany every copy of this report.

12 References

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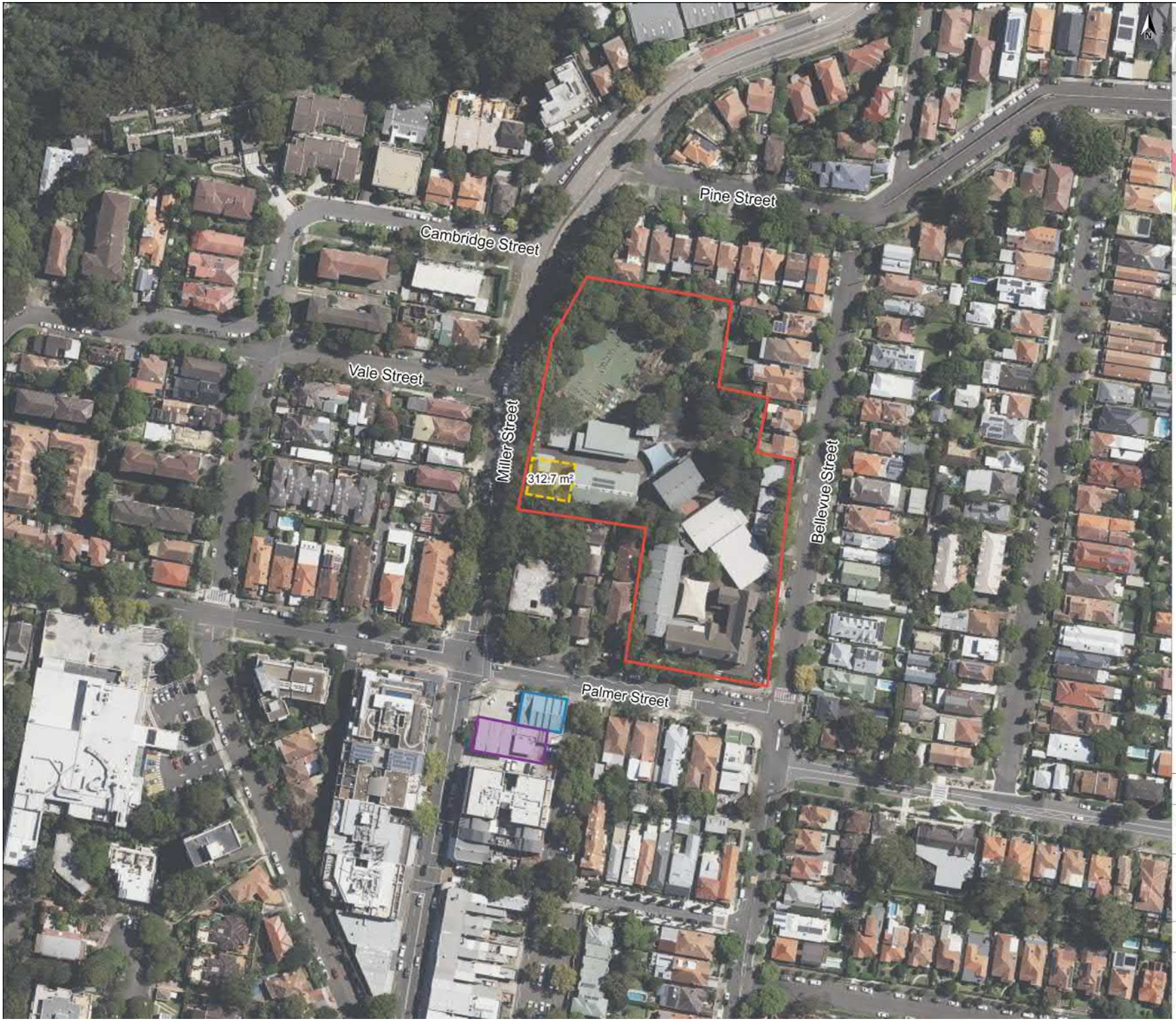
Figures



Legend

- Service Station
- Motor vehicle repair shop
- Outline of proposed development
- School Boundary

0 25 m 50 m

ADE CONSULTING GROUP

Produced by **Datanest.earth**

Title: Site Locality		
Client: School Infrastructure NSW		Size: A3
Project: Cammeray Public School	Drawn: KA	Figure No.: 1
Date: 15-05-2024	Checked: EG	
Proj No: A101023.0722 (Cammeray)	Scale: 1:1600	Version: 1

Legend

- Geotechnical / Environmental boreholes - January 2024
- Test pit locations - April 2024
- Soil Vapour Wells - April 2024
- Outline of proposed development

0 2.5 m 5 m

ADE CONSULTING GROUP

Produced by Datanest.earth

Title: Investigation locations		
Client: School Infrastructure NSW		Size: A3
Project: Cammeray Public School	Drawn: KA	Figure No.: 2
Date: 15-05-2024	Checked: EG	
Proj No: A101023.0722 (Cammeray)	Scale: 1:170	Version: 1

Appendix A: Proposed Building Footprint

Proposed development plans (as received by SINSW) Proposed new building highlighted in yellow and purple.

Appendix B: Photographs

Service locating – 09 January 2024

Photograph 1: The site and location of proposed development – facing south. Demountable classroom to the left of the photograph. Photograph taken during service locating – 09 January 2024.

Photograph 2: Facing west from site towards Miller Street showing natural topography sloping north on Miller Street with levelled site surface in foreground of photograph. Photograph taken during service locating – 09 January 2024.

Photograph 3: Borehole BH02. Natural residual soil consisting of brown to red clayey sand material encountered from 0.3 m BGL.

Photograph 4: Soil lithologies of fill and natural (left side) alongside bedrock material shown as pink highly weathered sandstone.

Photograph 5: Bore hole BH03 - Road base material consisting of mixed small to large angular gravels combined with coarse sand.

Photograph 6: Bore hole BH03. Weathered, medium grained, red and pale grey sandstone encountered from 0.5 m BGL.

Soil vapour bore installation – 24 April 2024

Photograph 7: Soil vapour well installation

Photograph 8: Soil vapour well installation

Photograph 9: Soil vapour well installation

Photograph 10: Soil vapour bore installation completed with flush covers concreted into the ground and secured with bolts to prevent tampering and to allow sampling at a later date.

Photograph 11: Test pit location TP02.

Photograph 12: Location TP02 with asphalt overlaying shallow fill (gravelly sand) with sand at 0.15 mBGL and natural sandy clay encountered from 0.3 mBGL (TP02)

Photograph 13: Test pit location TP05, located within footprint of previous demountable classroom.

Photograph 14: Refusal on sandstone at 0.4 mBGL (TP05)

Photograph 15: Asbestos assessment included field screening of 10 Litre samples at all test pit locations.

Photograph 16: Re-instatement including compaction and asphalting undertaken at the completion of the investigation.

Photograph 17: Soil vapour sampling set-up.

Appendix C: Borehole and Test Pit Logs

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH01

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Cammeray Public School
LOCATION : 68 Palmer Street, Cammeray NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER :

DATE STARTED : 12/1/2024 DATE COMPLETED : 12/1/2024 DATE LOGGED : 12/1/2024 LOGGED BY : MCM CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/T	(Not encountered)				0.0			Asphalt 0.05m			PAVEMENT
								Roadbase material	D		
								0.15m FILL SAND: fine to medium grained, brown with red. with sandstone gravels.			FILL PID 0.2 ppm
					0.2				M	L	
					0.4			0.50m			
								SAND: fine to medium grained, pale brown and yellow, with clay.			RESIDUAL SOIL PID - 0.1ppm
				0.70m SPT 1 20/80mm HB N=R	0.6		SP-SC		M	D	
					0.8			0.80m SANDSTONE: fine to medium, red pale grey. extremely weathered, extremely low strength.			BEDROCK
					1.0				D to M		
					1.2						
					1.4			1.50m Hole Terminated at 1.50 m TC bit refusal			
					1.6						
					1.8						
					2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH02.

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Cammeray Public School
LOCATION : 68 Palmer Street, Cammeray NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER :

DATE STARTED : 12/1/2024 DATE COMPLETED : 12/1/2024 DATE LOGGED : 12/1/2024 LOGGED BY : MCM CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			Asphalt			PAVEMENT
								0.05m Roadbase material	D		
								0.15m FILL SAND: fine to medium grained, brown with red. with sandstone gravels.	M	L	FILL PID - 0 ppm
					0.2			0.30m SAND: fine to medium grained, pale brown with red, with clay.			RESIDUAL SOIL PID - 0 ppm
				0.50m SPT 1 5,7,9 N=16	0.4		SP-SC			MD	
AD/T	(Not encountered)				0.6				M		
								0.70m SAND: fine to medium grained, pale brown with red. with sandstone fragments.			
				0.95m	0.8		SW			MD	
					1.0			1.00m SANDSTONE: fine to medium, red pale grey. extremely weathered, extremely low strength.	D to M		BEDROCK
								1.20m Hole Terminated at 1.20 m TC bit refusal			
					1.2						
					1.4						
					1.6						
					1.8						
					2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH03

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Cammeray Public School
LOCATION : 68 Palmer Street, Cammeray NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER :

DATE STARTED : 12/1/2024 DATE COMPLETED : 12/1/2024 DATE LOGGED : 12/1/2024 LOGGED BY : MCM CHECKED BY :

DRILLING						MATERIAL						
PROGRESS												
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/T	(Not encountered)			0.50m SPT 1 HB N=R	0.0			Asphalt 0.05m			PAVEMENT
								Roadbase material	D		
								0.15m FILL SAND: fine to medium grained, brown with red. with sandstone gravels.	M		FILL PID: 0 ppm
					0.2			0.30m SAND: fine to medium grained, pale brown with red, with clay.	M	MD	RESIDUAL SOIL PID: 0 ppm
					0.4		SP-SC	0.50m SANDSTONE: fine to medium, red pale grey. extremely weathered, extremely low strength.	D to M		BEDROCK
					0.6						
					0.8						
					1.0			1.00m SANDSTONE: fine to medium, pale white. extremely weathered, extremely low strength.			
					1.2			1.20m Hole Terminated at 1.20 m TC bit refusal			
					1.4						
					1.6						
					1.8						
					2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH04

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Cammeray Public School
LOCATION : 68 Palmer Street, Cammeray NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER :

DATE STARTED : 12/1/2024 DATE COMPLETED : 12/1/2024 DATE LOGGED : 12/1/2024 LOGGED BY : MCM CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/T	(Not encountered)				0.0			Asphalt 0.10m	D		PAVEMENT
								Roadbase material 0.20m			
					0.2			FILL SAND: fine to medium grained, brown with red. with sandstone gravels. 0.30m	M		FILL PID : 0 ppm
				0.40m SPT 1 10/20mm HB N=R	0.4		SP-SC	SAND: fine to medium grained, pale brown with red, with clay. 0.50m	M	MD	RESIDUAL SOIL PID: 0.3 ppm
					0.6			SANDSTONE: fine to medium, red pale grey. extremely weathered, extremely low strength.	D to M		BEDROCK
					0.8						
					1.0			Hole Terminated at 1.00 m TC bit refusal			
					1.2						
					1.4						
					1.6						
					1.8						
					2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH05

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Cammeray Public School
LOCATION : 68 Palmer Street, Cammeray NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Track CONTRACTOR : Matrix Drilling DRILLER :

DATE STARTED : 12/1/2024 DATE COMPLETED : 12/1/2024 DATE LOGGED : 12/1/2024 LOGGED BY : MCM CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/T	(Not encountered)			0.50m SPT 1 11,10/20mm HB N=R	0.0			Asphalt 0.05m			PAVEMENT
								Roadbase materials	D		
								0.15m FILL SAND: fine to medium grained, brown with red. with sandstone gravels.	M		FILL PID : 0.1 ppm PID : 0.3 ppm
					0.2			0.25m SANDSTONE: fine to medium, red pale grey. extremely weathered, extremely low strength.	D to M		BEDROCK
					0.4						
					0.6						
					0.8						
					1.0						
					1.2			1.20m Hole Terminated at 1.20 m TC bit refusal			
					1.4						
					1.6						
					1.8						
					2.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

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BORE HOLE NUMBER: SV01

CLIENT School Infrastructure NSW
PROJECT NAME Detailed Site Investigation - Cammeray Public School
PROJECT NUMBER A101023.0722
PROJECT LOCATION 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24
R.L. SURFACE **DATUM**
DRILLING CONTRACTOR FICO GROUP
SLOPE -90° **BEARING** ---
EQUIPMENT Truck-mounted drill rig
COORDINATES
HOLE DIAMETER **LOGGED BY** AS **CHECKED BY** KA
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
							ASPHALT	D				Concrete (well details)
						SP	**FILL**: Gravelly SAND, coarse grained, brown, poorly graded	M				
							FILL: SAND, coarse grained, yellow-brown, with gravel					
				0.5			**SANDSTONE**: weathered, white, yellow and brown					Bentonite (well details)
				1.0			**SANDSTONE**: Competent, white					3-5 mm graded sand (well details)
				1.5			SV01 terminated at 1.5m					SV Probe (well details)
				2.0								

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BORE HOLE NUMBER: SV02

CLIENT School Infrastructure NSW
PROJECT NAME Detailed Site Investigation - Cammeray Public School
PROJECT NUMBER A101023.0722
PROJECT LOCATION 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24
R.L. SURFACE **DATUM**
DRILLING CONTRACTOR FICO GROUP
SLOPE -90° **BEARING** ---
EQUIPMENT Truck-mounted drill rig
COORDINATES
HOLE DIAMETER
LOGGED BY AS **CHECKED BY** KA
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
						SP	**ASPHALT**					Concrete (well details)
							FILL: Gravelly SAND, coarse grained, brown, poorly graded, dry	D M				
							SAND: coarse grained, yellow-brown, with gravel					Bentonite (well details)
				0.5			**SANDSTONE**: competent, white, yellow and brown					
				1.0								3-5 mm graded sand (well details)
												SV Probe (well details)
				1.5			SV02 terminated at 1.4m					
				2.0								

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BORE HOLE NUMBER: SV03

CLIENT School Infrastructure NSW **PROJECT NAME** Cammeray Public School

PROJECT NUMBER A101023.0722 **PROJECT LOCATION** 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** **DATUM**

DRILLING CONTRACTOR FICO GROUP **SLOPE** -90° **BEARING** ---

EQUIPMENT Truck-mounted drill rig **COORDINATES**

HOLE DIAMETER **LOGGED BY** AS **CHECKED BY** KA

NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
							ASPHALT	D				Concrete (well details)
						SP	**FILL**: coarse grained, brown, poorly graded					
							FILL: Gravelly SAND, coarse grained, yellow-brown, with gravel	M				Bentonite (well details)
				0.5			**SANDSTONE**: Weathered, white, yellow and brown					
				1.0			**SANDSTONE**: Competent, white and brown					3-5 mm graded sand (well details) SV Probe (well details)
	▼ 1.45mBGL			1.5								Backfilled with sand from 1.5m to 1.3m (well details)
							SV03 terminated at 1.5m					
				2.0								

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TEST PIT NUMBER TP1

CLIENT School Infrastructure NSW **PROJECT NAME** Cammeray Public School

PROJECT NUMBER A101023.0722 **PROJECT LOCATION** 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** --- **DATUM** ---

EXCAVATION CONTRACTOR Brefni **SLOPE** --- **BEARING** ---

EQUIPMENT Excavator **COORDINATES** ---

TEST PIT DIAMETER 0.5m **LOGGED BY** AS **CHECKED BY** KA

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**ASPHALT**	D	H			-
E						**FILL:** Gravelly SAND, coarse grained, brown, poorly graded, dry	D	Vst			
E					SP	**SAND:** coarse grained, yellow-brown, with gravel, moist	M	MD		TP1_0.2-0.3	Asbestps field screening of 10L of material undertaken
E			0.5		CL	**NATURAL:** Sandy CLAY: Low plasticity, yellow-brown and red/orange colour, fine grained, moist	M	MD		TP1_0.6-0.7	
			1.0			TP1 terminated at 0.8m					
			1.5								
			2.0								

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TEST PIT NUMBER TP2

CLIENT School Infrastructure NSW
PROJECT NAME Cammeray Public School
PROJECT NUMBER A101023.0722
PROJECT LOCATION 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** **DATUM**
EXCAVATION CONTRACTOR Brefni **SLOPE** --- **BEARING** ---
EQUIPMENT Excavator **COORDINATES**
TEST PIT DIAMETER 0.5m **LOGGED BY** AS **CHECKED BY** KA
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**ASPHALT**	D	H			
E						**FILL:** Gravelly SAND, coarse grained, brown, poorly graded, dry	D	Vst			
E					SP	**SAND:** coarse grained, yellow-brown, with gravel and cobbles, moist	M	MD		TP2_0.2-0.3	
E			0.5		CL	**Sandy CLAY:** Low plasticity, yellow-brown and red/orange colour, fine grained, moist	M	MD			
E					CH	**CLAY:** medium plasticity, yellow-brown in colour	M	F		TP2_0.6-0.7	
			1.0			TP2 terminated at 0.8m					
			1.5								
			2.0								

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TEST PIT NUMBER TP3

CLIENT School Infrastructure NSW **PROJECT NAME** Cammeray Public School

PROJECT NUMBER A101023.0722 **PROJECT LOCATION** 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Brefni **SLOPE** --- **BEARING** ---

EQUIPMENT Excavator **COORDINATES** _____

TEST PIT DIAMETER 0.5m **LOGGED BY** AS **CHECKED BY** KA

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**ASPHALT**	D	H			
E						**FILL:** Gravelly SAND, coarse grained, brown, poorly graded, dry	D	Vst			
E					SP	**SAND:** coarse grained, dark brown, with gravel, moist	M	MD		TP3_0.2-0.3	
E					CL	**Sandy CLAY:** Low plasticity, brown and orange colour, fine grained, moist	M	MD		TP3_0.4-0.5	
			0.5								
E						TP3 terminated at 0.5m	M	St			Refusal at 0.5m on Sandstone.
			1.0								
			1.5								
			2.0								

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TEST PIT NUMBER TP4

CLIENT School Infrastructure NSW **PROJECT NAME** Cammeray Public School

PROJECT NUMBER A101023.0722 **PROJECT LOCATION** 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** --- **DATUM** ---

EXCAVATION CONTRACTOR Brefni **SLOPE** --- **BEARING** ---

EQUIPMENT Excavator **COORDINATES** ---

TEST PIT DIAMETER 0.5m **LOGGED BY** AS **CHECKED BY** KA

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**ASPHALT**	D	H			
E						**FILL:** Gravelly SAND, coarse grained, brown, poorly graded, dry	D	Vst			
E					SP	**SAND:** coarse grained, dark brown, with gravel, moist	M	MD		TP4_0.2-0.3	
E			0.5			TP4 terminated at 0.3m	M	H			Refusal at 0.3m on Sandstone.
			1.0								
			1.5								
			2.0								

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TEST PIT NUMBER TP5

CLIENT School Infrastructure NSW
PROJECT NAME Cammeray Public School
PROJECT NUMBER A101023.0722
PROJECT LOCATION 68 Palmer Street, Cammeray NSW

DATE STARTED 26/4/24 **COMPLETED** 26/4/24 **R.L. SURFACE** **DATUM**
EXCAVATION CONTRACTOR Brefni **SLOPE** --- **BEARING** ---
EQUIPMENT Excavator **COORDINATES**
TEST PIT DIAMETER 0.5m **LOGGED BY** AS **CHECKED BY** KA
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**ASPHALT**	D	H			
E						**FILL:** Gravelly SAND, coarse grained, brown, poorly graded, dry	D	Vst			
E					CH	**CLAY:** fine grained, medium plasticity, white and red/orange in colour	M	F		TP5_0.2-0.3	
E			0.5			TP5 terminated at 0.4m	M	H			Refusal at 0.4m on Sandstone.
			1.0								
			1.5								
			2.0								

Appendix D: Soil Vapour Field Records

Soil Vapour Sampling

Project No: 23.0722 Task No: Sampler: SG/HA Project Manager: KA

Date: 2/5/24 Location: Cammeray Weather: Overcast, warm slight ~~sh~~ drizzle Time: 9:30 - 11:00

Mood: Good!

Location ID→			SV03	SV02	SV01
Canister ID			14249	996	1238
Initial Canister Pressure		(PSI)	-30	-30	-29
Leak Test IPA		(Yes/No)	Yes	Yes	
Leak Test He		(Yes/ No)	No	No	
Flow Restrictor setting		(ml/min)	60		
Purge time		(min)	30 sec	20 sec	30 sec
Purge Volume		(ml)			
PID Purge rate		(ml/min)			
Start Canister Pressure		(PSI)	-30	-30	-29
Start Time			10:16	10:15	10:29
Final Canister Pressure		(PSI)	-8	-8	-8
Finish Time			10:31	10:37	10:50
PID Shroud (min-max)		(ppm)	770	770	770
PID Purge (min-max)		(ppm)	0 - 8	0 - 2.9	0 - 0.7
Flow Controller Serial No.			211	310	027
Only If gas analyser is being used	CH_4	(%)			
	CO_2	(%)			
	O_2	(%)			
	CO	(%)			
	H_2S	(%)			
	Balance				
	Relative Pressure	(PSI)			
	Flow rate	(ml/min)			
Comments			~~[illegible]~~	Damaged gatic but bolts gone	removed from bolt to seal SV02.

Appendix E: PID Calibration Certificate

AES
sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) F	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater NSW 2128	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	03.03.2023
Phone:	1300796922	**Network ID:**	-	**Job #:**	152491
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID 3

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	P	>450ml/min	
Filter	Filter, fitting, etc	x	Dirty, replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P	V2.22A Fumigation	
Datalogger	Operation	P		
Monitor Housing	Condition	P	Cleaned	
Case	Condition / Type	-		
Sensors				
PID	Lamp	P	Cleaned	
PID	Sensor	P	Cleaned	
THP	Sensor	P		

Engineer's Report

Cleaned lamp, lamp housing and sensor electrode
Checked moisture sensitivity
Checked flowrate and stall values
Checked unit settings and PC configuration
Unit serviced and calibrated.

AES sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) F	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater NSW 2128	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	03.03.2023
Phone:	1300796922	**Network ID:**	-	**Job #:**	152491
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID 3

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	050-0000-004, 10.6EV 1/2 INCH LAMP	S023060055TC/1062R012710	Isobutylene	100ppm	WO371138-58		0	100.0
Battery	059-3051-000, MINIRAE 3000 LI-ION BATTERY	159TCW0532						
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								
Toxic 6	PGM-7350							

Calibrated/Repaired by: JERRY JI Date: 21.07.2023 Next Due: 21.01.2024

AES
sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) F	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater NSW 2128	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	21.07.2023
Phone:	1300796922	**Network ID:**	-	**Job #:**	158433
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID'S/INF

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	050-0000-004. 10.6EV 1/ 2 INCH LAMP	S023060055TC/1062R01 2710	Isobutylene	100ppm	WO414472-7		0.0	100.0
Battery	059-3051-000. MINIRAE 3000 LI-ION BATTERY	159TCW0532						
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								
Toxic 6	PGM-7350							

Calibrated/Repaired by: JERRY JI Date: 19.01.2024 Next Due: 19.07.2024

AES
sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) P	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater NSW 2128	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	21.07.2023
Phone:	1300796922	**Network ID:**	-	**Job #:**	158433
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID'S/INF

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	P	>450ml/min	
Filter	Filter, fitting, etc	x	Replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P	V2.22A Fumigation	
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	-		
Sensors				
PID	Lamp	P	Cleaned	
PID	Sensor	P	Cleaned	
THP	Sensor	P		

Engineer's Report

Cleaned lamp, lamp housing and sensor electrode; checked moisture sensitivity
Checked flowrate and stall values
Checked unit settings and PC configuration
Unit serviced and calibrated.

Appendix F: Results Summary Tables

	Asbestos			Physical		Organic	Inorganics						Metals							
	Asbestos Detected (Y/N)[1]	Bonded ACM (>7 mm)	FA and AF (Fribrous Asbestos)[2]	Moisture Content	Electrical Conductivity (Non Compensated)	TOC %	pH 1:5 soil:water	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Cation Exchange Capacity	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
	Y/N	%	%	%	µS/cm	mg/kg	-	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil													**100**	**20**	**100**	**6,000**	**300**	**40**	**400**	**7,400**
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m																				
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																				
Field ID	**Date**	**Matrix Description**																		
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**5.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.43**	**26.6**	**41.6**	**9.7**	<0.10	**57.4**	**51.8**
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	N	NT	NT	**7.5**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.32**	**19.2**	<5.0	**9.0**	<0.10	<1.0	**9.8**
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**5.8**	NT	NT	NT	NT	NT	NT	NT	NT	**5.4**	**0.42**	**23.8**	**17.0**	**13.9**	<0.10	**15.9**	**19.5**
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	N	NT	NT	**3.4**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**11.4**	**5.0**	**22.8**	<0.10	**1.8**	**16.7**
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**3.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.31**	**18.1**	**41.1**	**17.7**	<0.10	**53.0**	**56.8**
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	N	NT	NT	**7.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**9.9**	<5.0	**8.3**	<0.10	**2.4**	**24.5**
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**4.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**19.7**	**64.0**	**7.8**	<0.10	**65.8**	**70.0**
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	N	NT	NT	**4.1**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**12.1**	**12.4**	**18.6**	<0.10	**12.2**	**16.6**
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**6.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**11.7**	**40.0**	**7.4**	<0.10	**41.2**	**39.9**
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	N	NT	NT	**5.3**	**26**	**1,300**	**5.8**	**1.7**	**1.3**	**0.1**	<0.1	**3.1**	<5.0	<0.30	**5.4**	<5.0	**32.3**	<0.10	**4.2**	**5.2**
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	N	NT	NT	**5.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**15.3**	**45.3**	**11.8**	<0.10	**52.9**	**55.8**
SR	**12 Jan 2024**	**FILL**	N	NT	NT	**4.9**	NT	NT	NT	NT	NT	NT	NT	NT	<4	<0.4	**11**	**56**	**11**	<0.1	**42**	**33**
Statistics																				
Minimum Concentration			N	0	0	**3.4**	**26**	**1,300**	**5.8**	**1.7**	**1.3**	**0.1**	**<0.1**	**3.1**	**<4**	**<0.3**	**5.4**	**5**	**7.4**	**<0.1**	**<1**	**5.2**
Maximum Concentration			N	0	0	**7.9**	**26**	**1,300**	**5.8**	**1.7**	**1.3**	**0.1**	**<0.1**	**3.1**	**5.4**	**0.43**	**26.6**	**64**	**32.3**	**<0.1**	**65.8**	**70**

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Res A Soil

2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre

mg/kg - milligrams per kilo

meq/100g - millequivalents per 100 grams of soil

BR - Intra-laboratory duplicate

SR - Inte-laboratory duplicate of

Notes:

1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

			BTEX								PAH												
			Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene (VOC)	Total BTEX	Acenaphthene	Acenaphthylene	Anthracene	Benzo(b+j+k)fluoranthene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil																							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m			0.5	160	55			40	3														
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																							
Field ID	**Date**	**Matrix Description**																					
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.95**	**0.51**	**0.96**	**0.64**	**0.88**	<0.30	**0.84**	<0.30	**0.34**
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.71**	**0.52**	<0.30	<0.30	**1.02**	<0.30	**0.99**	<0.30	<0.30
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.31**	<0.30	**0.32**	<0.30	**0.31**	<0.30	**0.47**	<0.30	<0.30
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.44**	**0.35**	**0.50**	<0.30	**0.50**	<0.30	<0.30	<0.30	<0.30
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	<0.50	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
SR	**12 Jan 2024**	**FILL**	<0.2	<0.5	<1	<2	<1	<1	<1	NT	<0.1	<0.1	<0.1	<0.2	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																							
Minimum Concentration			**<0.2**	**<0.5**	**<1**	**<2**	**<1**	**<1**	**<1**	**<2**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<0.05**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Maximum Concentration			**<0.5**	**<0.5**	**<1**	**<2**	**<1**	**<2**	**<1**	**<2**	**<0.3**	**<0.3**	**<0.3**	**0.95**	**0.52**	**0.96**	**0.64**	**1.02**	**<0.3**	**0.99**	**<0.3**	**0.34**

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil				3	3	3	300
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m	3						
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil							

Field ID	Date	Matrix Description							
C_BH01_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	1.08	1.31	1.46	1.16	6.20
C_BH01_0.5-0.6	12 Jan 2024	NATURAL	<0.30	0.44	1.30	0.45	0.77	<0.30	4.98
C_BH02_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
C_BH02_0.3-0.4	12 Jan 2024	NATURAL	<0.30	<0.30	0.48	0.54	0.72	0.35	1.89
C_BH03_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
C_BH03_0.5-0.6	12 Jan 2024	NATURAL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
C_BH04_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
C_BH04_0.4-0.5	12 Jan 2024	NATURAL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
C_BH05_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	0.32	0.75	0.92	0.58	2.11
C_BH05_0.3-0.4	12 Jan 2024	NATURAL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
TP1_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT
BR	12 Jan 2024	FILL	<0.30	<0.30	<0.30	0.35	0.70	<0.30	<0.30
SR	12 Jan 2024	FILL	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05

Statistics							
Minimum Concentration	<0.1	<0.1	<0.1	0.35	<0.5	<0.3	<0.05
Maximum Concentration	<0.3	0.44	1.3	1.31	1.46	1.16	6.2

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

			PCBs								TRH							TPH				
			Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil										1												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m												45		110								
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil											700		1,000		2,500	10,000						
Field ID	**Date**	**Matrix Description**																				
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	**113**	**151**	**264**	<25	<50	<100	**173**	**173**
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	<100	<100
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	**103**	**103**
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	<100	<100
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	**175**	**175**	<25	<50	<100	**162**	**162**
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	<100	<100
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	**159**	**159**	<25	<50	<100	**147**	**147**
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	**111**	**111**	<25	<50	<100	**122**	**122**
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	<100	<100
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	<100	<100	<100	<25	<50	<100	<100	<100
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<35	<35	<50	NT	**139**	**225**	**364**	<25	<50	<100	**239**	**239**
SR	**12 Jan 2024**	**FILL**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<25	<50	<50	**200**	**420**	**620**	<25	<50	<100	**280**	**280**
Statistics																						
Minimum Concentration			**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<25**	**<25**	**<50**	**<50**	**<100**	**<100**	**<100**	**<25**	**<50**	**<100**	**<100**	**<100**
Maximum Concentration			**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.1**	**<35**	**<35**	**<50**	**<50**	**200**	**420**	**620**	**<25**	**<50**	**<100**	**280**	**280**

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

			Organochlorine Pesticides																				
			4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Fenamiphos	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil					6							240	6				10					6	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m																							
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																							
Field ID	**Date**	**Matrix Description**																					
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10
SR	**12 Jan 2024**	**FILL**	<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	NT	<0.1	<0.1	<0.1	<0.1
Statistics																							
Minimum Concentration			**<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**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Maximum Concentration			**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.2**	**<0.1**	**<0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

					Organophosphorous Pesticides																			
			Methoxychlor	Mirex	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Tribuphos	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Parathion
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil			300	10			160																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m																							
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																							
Field ID	**Date**	**Matrix Description**																					
C_BH01_0.2-0.3	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH01_0.5-0.6	12 Jan 2024	NATURAL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH02_0.2-0.3	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH02_0.3-0.4	12 Jan 2024	NATURAL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH03_0.2-0.3	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH03_0.5-0.6	12 Jan 2024	NATURAL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH04_0.2-0.3	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH04_0.4-0.5	12 Jan 2024	NATURAL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH05_0.2-0.3	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
C_BH05_0.3-0.4	12 Jan 2024	NATURAL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
TP1_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	12 Jan 2024	FILL	<0.10	NT	NT	NT	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT
SR	12 Jan 2024	FILL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	<0.1	<0.1	<0.1	<0.1	<0.1	NT	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																							
Minimum Concentration			<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	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Concentration			<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	<0.1	<0.1	<0.1	<0.1	<0.1

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

					Halogenated Benzenes	Other
			Phorate	Ronnel	Hexachlorobenzene	Phosalone
			mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs Res A Soil					10	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m						
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil						
Field ID	**Date**	**Matrix Description**				
C_BH01_0.2-0.3	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
C_BH01_0.5-0.6	12 Jan 2024	NATURAL	NT	<0.10	<0.10	NT
C_BH02_0.2-0.3	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
C_BH02_0.3-0.4	12 Jan 2024	NATURAL	NT	<0.10	<0.10	NT
C_BH03_0.2-0.3	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
C_BH03_0.5-0.6	12 Jan 2024	NATURAL	NT	<0.10	<0.10	NT
C_BH04_0.2-0.3	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
C_BH04_0.4-0.5	12 Jan 2024	NATURAL	NT	<0.10	<0.10	NT
C_BH05_0.2-0.3	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
C_BH05_0.3-0.4	12 Jan 2024	NATURAL	NT	<0.10	<0.10	NT
TP1_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT
TP2_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT
TP3_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT
TP4_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT
TP5_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT
BR	12 Jan 2024	FILL	NT	<0.10	<0.10	NT
SR	12 Jan 2024	FILL	<0.1	<0.1	<0.1	<0.1
Statistics						
Minimum Concentration			<0.1	<0.1	<0.1	<0.1
Maximum Concentration			<0.1	<0.1	<0.1	<0.1

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil

µS/cm - Micro Siemens per centimetre
mg/kg - milligrams per kilo
meq/100g - millequivalents per 100 grams of soil
BR - Intra-laboratory duplicate
SR - Inte-laboratory duplicate of

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method" polarised Light Microscopy with dispersion staining.

	Perfluoroalkane Sulfonic Acids					Perfluoroalkane Carboxylic Acids										
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)			**0.01**		**0.01**					**0.1**						

Field ID	Date																
BR	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH01_0.2-0.3	12 Jan 2024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH01_0.5-0.6	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH02_0.2-0.3	12 Jan 2024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH02_0.3-0.4	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH03_0.2-0.3	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH03_0.5-0.6	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH04_0.2-0.3	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH04_0.4-0.5	12 Jan 2024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH05_0.2-0.3	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH05_0.3-0.4	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH05_0.3-0.4	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SR	12 Jan 2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Statistics

Minimum Concentration	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**
Maximum Concentration	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**
Average Concentration *	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)

mg/kg - milligrams per kilo

	Asbestos			Physical		Organic	Inorganics						Metals								
	Asbestos detected (Y/N)[1]	Bonded ACM (>7mm)	FA and AF (Fibrous Asbestos)[2]	Moisture Content	Electrical Conductivity (Non Compensated)	TOC %	pH 1:5 soil:water	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Cation Exchange Capacity	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzene
	Y/N	%	%	%	µS/cm	mg/kg	-	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)													**100**	**20**			**100**	**4**	**40**		**10**
NSW 2014 General Solid Waste SCC1 (with leached)													**500**	**100**			**1,500**	**50**	**1,050**		**18**
NSW 2014 Restricted Solid Waste CT2 (No Leaching)													**400**	**80**			**400**	**16**	**160**		**40**
NSW 2014 Restricted Solid Waste SCC2 (with leached)													**2,000**	**400**			**6,000**	**200**	**4,200**		**72**
Field ID	**Date**	**Matrix Description**																			
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**5.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.43**	**26.6**	**41.6**	**9.7**	<0.10	**57.4**	**51.8**	<0.50
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	N	NT	NT	**7.5**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.32**	**19.2**	<5.0	**9.0**	<0.10	<1.0	**9.8**	<0.50
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**5.8**	NT	NT	NT	NT	NT	NT	NT	NT	**5.4**	**0.42**	**23.8**	**17.0**	**13.9**	<0.10	**15.9**	**19.5**	<0.50
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	N	NT	NT	**3.4**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**11.4**	**5.0**	**22.8**	<0.10	**1.8**	**16.7**	<0.50
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**3.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	**0.31**	**18.1**	**41.1**	**17.7**	<0.10	**53.0**	**56.8**	<0.50
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	N	NT	NT	**7.9**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**9.9**	<5.0	**8.3**	<0.10	**2.4**	**24.5**	<0.50
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**4.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**19.7**	**64.0**	**7.8**	<0.10	**65.8**	**70.0**	<0.50
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	N	NT	NT	**4.1**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**12.1**	**12.4**	**18.6**	<0.10	**12.2**	**16.6**	<0.50
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	N	NT	NT	**6.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**11.7**	**40.0**	**7.4**	<0.10	**41.2**	**39.9**	<0.50
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	N	NT	NT	**5.3**	**26**	**1.300**	**5.8**	**1.7**	**1.3**	**0.1**	<0.1	**3.1**	<5.0	<0.30	**5.4**	<5.0	**32.3**	<0.10	**4.2**	**5.2**	<0.50
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	NT	NT	NT	**5.6**	NT	NT	NT	NT	NT	NT	NT	NT	<5.0	<0.30	**15.3**	**45.3**	**11.8**	<0.10	**52.9**	**55.8**	<0.50
SR	**12 Jan 2024**	**FILL**	NT	NT	NT	**4.9**	NT	NT	NT	NT	NT	NT	NT	NT	<4	<0.4	**11**	**56**	**11**	<0.1	**42**	**33**	<0.2
Statistics																					
Number of Results			**10**	**5**	**5**	**13**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Number of Detects			**0**	**0**	**0**	**13**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**1**	**1**	**4**	**12**	**9**	**12**	**0**	**11**	**12**	**0**
Minimum Concentration			**0**	**0**	**0**	**3.4**	**26**	**1,300**	**5.8**	**1.7**	**1.3**	**0.1**	**<0.1**	**3.1**	**<4**	**<0.3**	**5.4**	**5**	**7.4**	**<0.1**	**<1**	**5.2**	**<0.2**
Maximum Concentration			**0**	**0**	**0**	**7.9**	**26**	**1,300**	**5.8**	**1.7**	**1.3**	**0.1**	**<0.1**	**3.1**	**5.4**	**0.43**	**26.6**	**64**	**32.3**	**<0.1**	**65.8**	**70**	**<0.5**
Standard Deviation *						**1.3**									**0.86**	**0.11**	**6.2**	**23**	**7.5**	**0**	**25**	**21**	**0.043**
95% UCL (Student's-t) *						**6.146**									**3.147**	**0.285**	**18.58**	**39.31**	**18.08**	**0.05**	**42.14**	**44.3**	**0.26**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:

1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

			BTEX							PAH														
			Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene (VOC)	Total BTEX	Acenaphthene	Acenaphthylene	Anthracene	Benzo(b+j+k)fluoranthene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)			288	600			1,000								0.8								
NSW 2014 General Solid Waste SCC1 (with leached)			518	1,080			1,800								10								
NSW 2014 Restricted Solid Waste CT2 (No Leaching)			1,152	2,400			4,000								3.2								
NSW 2014 Restricted Solid Waste SCC2 (with leached)			2,073	4,320			7,200								23								
Field ID	**Date**	**Matrix Description**																					
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.95**	**0.51**	**0.96**	**0.64**	**0.88**	<0.30	**0.84**	<0.30	**0.34**	<0.30	<0.30
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.71**	**0.52**	<0.30	<0.30	**1.02**	<0.30	**0.99**	<0.30	<0.30	<0.30	**0.44**
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.31**	<0.30	**0.32**	<0.30	**0.31**	<0.30	**0.47**	<0.30	<0.30	<0.30	<0.30
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	**0.44**	**0.35**	**0.50**	<0.30	**0.50**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	<0.50	<1.0	<2.0	<1.0	<2.0	NT	<2.00	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
SR	**12 Jan 2024**	**FILL**	<0.5	<1	<2	<1	<1	<1	NT	<0.1	<0.1	<0.1	<0.2	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																							
Number of Results			**12**	**12**	**12**	**12**	**12**	**1**	**11**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**3**	**1**	**4**	**0**	**3**	**0**	**1**	**0**	**1**
Minimum Concentration			**<0.5**	**<1**	**<2**	**<1**	**<1**	**<1**	**<2**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<0.05**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Maximum Concentration			**<0.5**	**<1**	**<2**	**<1**	**<2**	**<1**	**<2**	**<0.3**	**<0.3**	**<0.3**	**0.95**	**0.52**	**0.96**	**0.64**	**1.02**	**<0.3**	**0.99**	**<0.3**	**0.34**	**<0.3**	**0.44**
Standard Deviation *			**0**	**0**	**0**	**0**	**0.14**	**<1**	**0**	**0.029**	**0.029**	**0.029**	**0.27**	**0.15**	**0.25**	**0.15**	**0.32**	**0.029**	**0.31**	**0.029**	**0.064**	**0.029**	**0.091**
95% UCL (Student's-t) *			**0.25**	**0.5**	**1**	**0.5**	**1.033**		**1**	**0.157**	**0.157**	**0.157**	**0.437**	**0.299**	**0.381**	**0.259**	**0.482**	**0.157**	**0.455**	**0.157**	**0.191**	**0.157**	**0.213**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:

1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

					PCBs							Halogenated Benzenes	TPH								
			Pyrene	PAHs (Total)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Hexachlorobenzene	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)	4,4-DDE	a-BHC	Aldrin	b-BHC
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)				200								50		650				10,000				
NSW 2014 General Solid Waste SCC1 (with leached)				200								50		650				10,000				
NSW 2014 Restricted Solid Waste CT2 (No Leaching)				800								50		2,600				40,000				
NSW 2014 Restricted Solid Waste SCC2 (with leached)				800								50		2,600				40,000				
Field ID	**Date**	**Matrix Description**																				
C_BH01_0.2-0.3	12 Jan 2024	FILL	1.08	6.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	173	173	<0.10	<0.10	<0.10	<0.10
C_BH01_0.5-0.6	12 Jan 2024	NATURAL	1.30	4.98	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	<100	<100	<0.10	<0.10	<0.10	<0.10
C_BH02_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	103	103	<0.10	<0.10	<0.10	<0.10
C_BH02_0.3-0.4	12 Jan 2024	NATURAL	0.48	1.89	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	<100	<100	<0.10	<0.10	<0.10	<0.10
C_BH03_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	162	162	<0.10	<0.10	<0.10	<0.10
C_BH03_0.5-0.6	12 Jan 2024	NATURAL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	<100	<100	<0.10	<0.10	<0.10	<0.10
C_BH04_0.2-0.3	12 Jan 2024	FILL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	147	147	<0.10	<0.10	<0.10	<0.10
C_BH04_0.4-0.5	12 Jan 2024	NATURAL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	122	122	<0.10	<0.10	<0.10	<0.10
C_BH05_0.2-0.3	12 Jan 2024	FILL	0.32	2.11	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	<100	<100	<0.10	<0.10	<0.10	<0.10
C_BH05_0.3-0.4	12 Jan 2024	NATURAL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	<100	<100	<0.10	<0.10	<0.10	<0.10
TP1_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	26 Apr 2024	FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	12 Jan 2024	FILL	<0.30	<0.30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	<0.10	<25	<50	<100	239	239	<0.10	<0.10	<0.10	<0.10
SR	12 Jan 2024	FILL	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	280	280	<0.1	<0.1	<0.1	<0.1
Statistics																						
Number of Results			12	12	12	12	12	12	12	12	12	1	12	12	12	12	12	12	12	12	12	12
Number of Detects			4	4	0	0	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0
Minimum Concentration			<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<100	<0.1	<0.1	<0.1	<0.1
Maximum Concentration			1.3	6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<25	<50	<100	280	280	<0.1	<0.1	<0.1	<0.1
Standard Deviation *			0.41	2.1	0.058	0.058	0.058	0.058	0.058	0.058	0.058		0	0	0	0	80	80	0	0	0	0
95% UCL (Student's-t) *			0.568	2.453	0.263	0.263	0.263	0.263	0.263	0.263	0.263		0.05	12.5	25	50	164.3	164.3	0.05	0.05	0.05	0.05

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:

1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

	Organochlorine Pesticides																				
	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Fenamiphos	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Mirex	Azinophos methyl	Bromophos-ethyl
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)																					
NSW 2014 General Solid Waste SCC1 (with leached)																					
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																					
NSW 2014 Restricted Solid Waste SCC2 (with leached)																					
Field ID **Date** **Matrix Description**																					
C_BH01_0.2-0.3 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH01_0.5-0.6 12 Jan 2024 NATURAL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH02_0.2-0.3 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH02_0.3-0.4 12 Jan 2024 NATURAL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH03_0.2-0.3 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH03_0.5-0.6 12 Jan 2024 NATURAL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH04_0.2-0.3 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH04_0.4-0.5 12 Jan 2024 NATURAL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH05_0.2-0.3 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
C_BH05_0.3-0.4 12 Jan 2024 NATURAL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
TP1_0.2-0.3 26 Apr 2024 FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3 26 Apr 2024 FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3 26 Apr 2024 FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3 26 Apr 2024 FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3 26 Apr 2024 FILL	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR 12 Jan 2024 FILL	<0.10	<0.10	<0.10	<0.10	<0.10	NT	<0.10	<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	NT	<0.10	<0.10	<0.10	<0.10	NT	NT	NT
SR 12 Jan 2024 FILL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																					
Number of Results	12	12	12	12	12	1	12	12	12	12	12	12	11	1	12	12	12	12	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<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	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Standard Deviation *	0	0	0	0	0		0	0.014	0.014	0	0.014	0	0		0	0	0	0			
95% UCL (Student's-t) *	0.05	0.05	0.05	0.05	0.05		0.05	0.103	0.103	0.05	0.103	0.05	0.05		0.05	0.05	0.05	0.05			

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

			Organophosphorous Pesticides																			Other	
			Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Tribuphos	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Parathion	Phorate	Ronnel	Phosalone	Perfluorobutane sulfonic acid (PFBS)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)			4																				
NSW 2014 General Solid Waste SCC1 (with leached)			7.5																				
NSW 2014 Restricted Solid Waste CT2 (No Leaching)			16																				
NSW 2014 Restricted Solid Waste SCC2 (with leached)			30																				
Field ID	**Date**	**Matrix Description**																					
C_BH01_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	<0.005
C_BH01_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH02_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	<0.005
C_BH02_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH03_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH03_0.5-0.6	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH04_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH04_0.4-0.5	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	<0.005
C_BH05_0.2-0.3	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
C_BH05_0.3-0.4	**12 Jan 2024**	**NATURAL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
TP1_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3	**26 Apr 2024**	**FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR	**12 Jan 2024**	**FILL**	<0.10	<0.10	NT	<0.10	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	NT	<0.10	NT	NT	NT	<0.10	NT	NT
SR	**12 Jan 2024**	**FILL**	<0.1	<0.1	<0.1	NT	<0.1	<0.1	<0.1	<0.1	<0.1	NT	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NT
Statistics																							
Number of Results			**12**	**12**	**1**	**11**	**12**	**1**	**1**	**1**	**1**	**11**	**1**	**1**	**1**	**1**	**12**	**1**	**1**	**1**	**12**	**1**	**3**
Number of Detects			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration			**<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**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.005**
Maximum Concentration			**<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**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.005**
Standard Deviation *			**0**	**0**		**0**	**0**					**0**					**0**				**0**		**0**
95% UCL (Student's-t) *			**0.05**	**0.05**		**0.05**	**0.05**					**0.05**					**0.05**				**0.05**		**0.0025**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:
1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

	Perfluoroalkane Sulfonic Acids				Perfluoroalkane Carboxylic Acids										
	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW 2014 General Solid Waste CT1 (No Leaching)															
NSW 2014 General Solid Waste SCC1 (with leached)									18						
NSW 2014 Restricted Solid Waste CT2 (No Leaching)															
NSW 2014 Restricted Solid Waste SCC2 (with leached)									72						
Field ID **Date** **Matrix Description**															
C_BH01_0.2-0.3 **12 Jan 2024** **FILL**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH01_0.5-0.6 **12 Jan 2024** **NATURAL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH02_0.2-0.3 **12 Jan 2024** **FILL**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH02_0.3-0.4 **12 Jan 2024** **NATURAL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH03_0.2-0.3 **12 Jan 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH03_0.5-0.6 **12 Jan 2024** **NATURAL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH04_0.2-0.3 **12 Jan 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH04_0.4-0.5 **12 Jan 2024** **NATURAL**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C_BH05_0.2-0.3 **12 Jan 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_BH05_0.3-0.4 **12 Jan 2024** **NATURAL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP1_0.2-0.3 **26 Apr 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP2_0.2-0.3 **26 Apr 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP3_0.2-0.3 **26 Apr 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP4_0.2-0.3 **26 Apr 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP5_0.2-0.3 **26 Apr 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BR **12 Jan 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SR **12 Jan 2024** **FILL**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Statistics															
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**
Maximum Concentration	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NSW EPA, November 2014, NSW 2014 General Solid Waste CT1 (No Leaching)
NSW EPA, November 2014, NSW 2014 General Solid Waste SCC1 (with leached)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste CT2 (No Leaching)
NSW EPA, November 2014, NSW 2014 Restricted Solid Waste SCC2 (with leached)

Notes:

1. Analysis and ID of Bulk Samples for Asbestos as per AS4964.
2. Analytical method: Polarised Light Microscopy with dispersion staining.

	Unit	EQL	NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs	NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand >=0m, <1m	NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand >=1m, <2m	SV01 02 May 2024	SV02 02 May 2024	SV03 02 May 2024	Number of Detects	Maximum Conc.
Inorganics										
Temperature as Received	°C	0.1				21.0	21.0	21.0	3	21
Pressure										
Vacuum - As received	Inches Hg	0.03				9.66	8.89	2.01	3	9.66
Pressure - As received	kPa	0.1				67.9	70.4	93.7	3	93.7
Pressure - Laboratory Atmosphere	kPa	0.1				100	100	100	3	100
BTEX										
Benzene	ppmv	0.03				<0.0300	<0.0300	<0.0300	0	<0.03
	mg/m3	0.1		1	3	<0.100	<0.100	<0.100	0	<0.1
Toluene	ppmv	0.05				0.0627	<0.0500	<0.0500	1	0.0627
	mg/m3	0.19		1,300	3,800	0.236	<0.190	<0.190	1	0.236
Ethylbenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.22		330	1,100	<0.220	<0.220	<0.220	0	<0.22
Xylene (m & p)	ppmv	0.1				<0.100	<0.100	<0.100	0	<0.1
	mg/m3	0.43				<0.430	<0.430	<0.430	0	<0.43
Xylene (o)	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.22				<0.220	<0.220	<0.220	0	<0.22
Xylene Total	mg/m3	0.65		220	750	<0.650	<0.650	<0.650	0	<0.65
MAH										
1,2,4-trimethylbenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.24				<0.240	<0.240	<0.240	0	<0.24
1,3,5-trimethylbenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.24				<0.240	<0.240	<0.240	0	<0.24
1-methyl-4 ethyl benzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.24				<0.240	<0.240	<0.240	0	<0.24
Styrene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
Styrene	mg/m3	0.21				<0.210	<0.210	<0.210	0	<0.21
PAH										
Naphthalene	ppmv	0.019				<0.0190	<0.0190	<0.0190	0	<0.019
Naphthalene	mg/m3	0.1		0.8	3	<0.100	<0.100	<0.100	0	<0.1
Halogenated Benzenes										
1,2,4-trichlorobenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.37				<0.370	<0.370	<0.370	0	<0.37
1,2-dichlorobenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.3				<0.300	<0.300	<0.300	0	<0.3
1,3-dichlorobenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.3				<0.300	<0.300	<0.300	0	<0.3
1,4-dichlorobenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.3				<0.300	<0.300	<0.300	0	<0.3
2-chlorotoluene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.26				<0.260	<0.260	<0.260	0	<0.26
Chlorobenzene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
Chlorobenzene	mg/m3	0.23				<0.230	<0.230	<0.230	0	<0.23
Chlorinated Hydrocarbons										
Vinyl chloride	ppmv	0.002				<0.0020	<0.0020	<0.0020	0	<0.002
	mg/m3	0.0051	0.03			<0.0051	<0.0051	<0.0051	0	<0.0051
Dichloromethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.17				<0.170	<0.170	<0.170	0	<0.17
cis-1,2-dichloroethene	ppmv	0.005				<0.0050	<0.0050	<0.0050	0	<0.005
	µg/m3	20	80			<20.0	<20.0	<20.0	0	<20
1,1-dichloroethene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	µg/m3	200				<200	<200	<200	0	<200
trans-1,2-dichloroethene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
1,2-dichloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
Chloroform	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.24				<0.240	<0.240	<0.240	0	<0.24
Trichloroethene	ppmv	0.001				<0.0010	<0.0010	<0.0010	0	<0.001
	mg/m3	0.0054	0.02			<0.0054	<0.0054	<0.0054	0	<0.0054
1,1,1-trichloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.27	60			<0.270	<0.270	<0.270	0	<0.27
1,1,2-trichloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.27				<0.270	<0.270	<0.270	0	<0.27
Carbon tetrachloride	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.31				<0.310	<0.310	<0.310	0	<0.31
Tetrachloroethene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.34	2			<0.340	<0.340	<0.340	0	<0.34
1,1,2,2-tetrachloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.34				<0.340	<0.340	<0.340	0	<0.34
Hexachlorobutadiene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.53				<0.530	<0.530	<0.530	0	<0.53
1,1-dichloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
1,2-dichloropropane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.23				<0.230	<0.230	<0.230	0	<0.23
Benzyl chloride	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.26				<0.260	<0.260	<0.260	0	<0.26
Bromodichloromethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.34				<0.340	<0.340	<0.340	0	<0.34
Bromoform	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.52				<0.520	<0.520	<0.520	0	<0.52
Chlorodibromomethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.43				<0.430	<0.430	<0.430	0	<0.43
Chloroethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.13				<0.130	<0.130	<0.130	0	<0.13
Chloromethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.1				<0.100	<0.100	<0.100	0	<0.1
cis-1,3-dichloropropene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.23				<0.230	<0.230	<0.230	0	<0.23
trans-1,3-dichloropropene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
trans-1,3-dichloropropene	mg/m3	0.23				<0.230	<0.230	<0.230	0	<0.23
Halogenated Hydrocarbons										
1,2-dibromoethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.38				<0.380	<0.380	<0.380	0	<0.38
Bromomethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.19				<0.190	<0.190	<0.190	0	<0.19
Dichlorodifluoromethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.25				<0.250	<0.250	<0.250	0	<0.25
Trichlorofluoromethane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
Trichlorofluoromethane	mg/m3	0.28				<0.280	<0.280	<0.280	0	<0.28

	Unit	EQL	NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs	NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand >=0m, <1m	NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand >=1m, <2m	SV01 02 May 2024	SV02 02 May 2024	SV03 02 May 2024	Number of Detects	Maximum Conc.
TPH										
C6-C9 Fraction	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	20				<20.0	<20.0	<20.0	0	<20
C10-C14 Fraction	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	35				<35.0	<35.0	<35.0	0	<35
Aliphatic >C10-C12	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	30				<30.0	<30.0	<30.0	0	<30
Aliphatic >C10-C16	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	37				<37.0	<37.0	<37.0	0	<37
Aliphatic >C5-C6	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	16.5				<16.5	<16.5	<16.5	0	<16.5
Aliphatic >C6-C10	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	20				<20.0	<20.0	<20.0	0	<20
Aliphatic >C6-C8	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	20				<20.0	<20.0	<20.0	0	<20
Aliphatic >C8-C10	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	25				<25.0	<25.0	<25.0	0	<25
Aromatic >C10-C12	ppmv	0.5				<0.500	<0.500	<0.500	0	<0.5
	mg/m3	2.5				<2.50	<2.50	<2.50	0	<2.5
Aromatic >C10-C16	ppmv	0.2				<0.200	<0.200	<0.200	0	<0.2
	mg/m3	1.4				<1.40	<1.40	<1.40	0	<1.4
Aromatic >C5-C7	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.16				<0.160	<0.160	<0.160	0	<0.16
Aromatic >C6-C10	ppmv	0.7				<0.700	<0.700	<0.700	0	<0.7
	mg/m3	3				<3.00	<3.00	<3.00	0	<3
Aromatic >C7-C8	ppmv	0.05				**0.0580**	<0.0500	<0.0500	1	0.058
	mg/m3	0.19				**0.218**	<0.190	<0.190	1	0.218
Aromatic >C8-C10	ppmv	0.25				<0.250	<0.250	<0.250	0	<0.25
Aromatic >C8-C10	mg/m3	1.25				<1.25	<1.25	<1.25	0	<1.25
TRH										
C6-C10 Fraction (F1)	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	20				<20.0	<20.0	<20.0	0	<20
C6-C10 (F1 minus BTEX)	ppmv	5				<5.00	<5.00	<5.00	0	<5
	mg/m3	20		180	640	<20.0	<20.0	<20.0	0	<20
>C10-C16 Fraction (F2)	ppmv	5				<5.00	<5.00	<5.00	0	<5
	µg/m3	40,000				<40,000	<40,000	<40,000	0	<40,000
>C10-C16 Fraction (F2 minus	ppmv	5				<5.00	<5.00	<5.00	0	<5
Naphthalene)	mg/m3	40		130	560	<40.0	<40.0	<40.0	0	<40
Aromatic >C6-C10 minus BTEX (F1	ppmv	0.4				<0.400	<0.400	<0.400	0	<0.4
Aromatic)	mg/m3	1.4				<1.40	<1.40	<1.40	0	<1.4
Aromatic >C10-C16 minus Naphthalene (F2 Aromatic)	ppmv	0.15				<0.150	<0.150	<0.150	0	<0.15
Aromatic >C10-C16 minus Naphthalene (F2 Aromatic)	mg/m3	1.4				<1.40	<1.40	<1.40	0	<1.4
VOCs										
Vinyl bromide (bromoethene)	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.22				<0.220	<0.220	<0.220	0	<0.22
Freon 113	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
Freon 113	mg/m3	0.38				<0.380	<0.380	<0.380	0	<0.38
Solvents										
1,3-Butadiene	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.11				<0.110	<0.110	<0.110	0	<0.11
1,4-Dioxane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.18				<0.180	<0.180	<0.180	0	<0.18
Methyl Ethyl Ketone	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.15				<0.150	<0.150	<0.150	0	<0.15
2-hexanone (MBK)	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
4-Methyl-2-pentanone	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
Acetone	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.12				<0.120	<0.120	<0.120	0	<0.12
Allyl chloride	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.16				<0.160	<0.160	<0.160	0	<0.16
Carbon disulfide	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.16				<0.160	<0.160	<0.160	0	<0.16
Cyclohexane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.17				<0.170	<0.170	<0.170	0	<0.17
Ethyl acetate	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.18				<0.180	<0.180	<0.180	0	<0.18
Heptane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.2				<0.200	<0.200	<0.200	0	<0.2
Hexane	ppmv	0.05				<0.0500	**0.138**	<0.0500	1	0.138
	mg/m3	0.18				<0.180	**0.486**	<0.180	1	0.486
MTBE	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.18				<0.180	<0.180	<0.180	0	<0.18
2-Propanol	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.12				<0.120	<0.120	<0.120	0	<0.12
Tetrahydrofuran	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.15				<0.150	<0.150	<0.150	0	<0.15
Vinyl acetate	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
Vinyl acetate	mg/m3	0.18				<0.180	<0.180	<0.180	0	<0.18
NA										
2,2,4-Trimethylpentane	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.23				<0.230	<0.230	<0.230	0	<0.23
Freon 114	ppmv	0.05				<0.0500	<0.0500	<0.0500	0	<0.05
	mg/m3	0.35				<0.350	<0.350	<0.350	0	<0.35
Propene	ppmv	0.05				<0.0500	**3.63**	<0.0500	1	3.63
Propene	mg/m3	0.09				<0.0900	**6.24**	<0.0900	1	6.24

Notes:

Inches HG: Inches of mercury (refers to the height of a column of mercury measured in hundredths of inches) It is a non-SI unit of measurement for pressure

°C: Degrees Celcius

kPa: kilopascal

ppmv: parts per million by volume

mg/m3: milligrams per cubic metre

Statistics

* A Non Detect Multiplier of 1 has been applied.

Appendix G: Analytical Reports and Chain of Custody

Sydney Laboratory Services

A division of A. D. Envirotech Australia Pty Ltd
A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

CLIENT DETAILS

Client	ADE Consulting Group
Contact	Karin Azzam
Samplers	Mitchell TrembatH, Andrew Carmichael

SAMPLE RECEIPT DETAILS

Project Number	A101023.0722.00/004/L05		
SLS Reference	2400058		
Number of samples	11		
Date samples received	12.01.2024		
Time samples received	4:00 PM		
Samples Received By	Natalie Chambers		
Temperature upon receipt (°C)	16°C	**Thermometer Ref No.**	T46
Turn Around Time requested	5 Working Days		
Expected Report Date	**22.01.2024**		

CONDITION OF SAMPLES UPON RECEIVAL

No errors in COC provided.	X
All samples were received in good condition.	✓
Evidence of chilling for samples.	✓
Appropriate use of sample containers have been used.	✓
Samples were delivered within holding time of analysis requested.	✓
Samples to be tested for volatiles received with zero headspace.	✓
Custody Seal intact (if used)	N/A

COMMENTS

This Report Contains:

Sample receipt non-conformities.
Summary of samples and requested analysis.
Requested report deliverables.

No asbestos sample received for BR

Sample BH03 1.0-1.1 received, not on COC

CONTACT US FOR ANY QUERIES

If you have any questions with respect to these samples please contact:

Email	sls@ade.group	**Contact**	Krista Johnston
Phone	(+61) 0451 524 289	**Signed**	

Date Printed: 12/01/2024

$0.5

Document Revision Date: 22/08/2022

ESA-F-02 COC - Chain Of Custody (Internal: Sydney Laboratory Services)

ADE CONSULTING GROUP

FULL PROJECT NUMER (E.G., : A201021.1725.05)	A101023.0722.00
PROJECT PHASE (E.G.,: C01)	2
PROJECT TASK (E.G.,: C11)	L05
SAMPLES DELIVERED BY:	Andrew Carmichael
SAMPLERS:	Andrew Carmichael, Ankita Saxena
TURNAROUND (BUSINESS DAY - BD):	Standard TAT
	12.01.2023
AFTER TEST STORAGE:	ROOM TEMP: ☐ FRIDGE: ☐ FREEZER: XXX > >4 WEEKS: ☐ OTHER: ☐
REPORT FORMAT:	HARD COPY: ☐ E-MAIL: X
CONSULTANTS SIGNATURE:	CONSULTANTS EMAIL: andrew.carmichael@ade.group, mitchel.trembath@ade.group
PROJECT MANAGERS SIGNATURE:	Karin.Azzam@ade.group Digitally signed by Karin Azzam DN: cn=Karin Azzam, c=AU, o=ADE group, ou=Environmental, email=karin.azzam@ade.group Date: 2024.01.12 13:58:36 +11'00'

LABORATORY REFERENCE NO. (Lab use ONLY):	A101023·0722-00/2 /L05
RECEIVED BY:	SIGNATURE:
SAMPLES: 11 CHILLED: ☑	PRESERVED: ☐ PRESERVATION METHOD: ☐ CUSTODY SEAL INTACT: ☐
MINIMAL HEADSPACE : ☑	WITHIN HOLDING TIME: ☑
DATE: 12/1/23	TIME: 4:00PM TEMPERATURE UPON RECEIPT: 16 °C T46
LIMS LOT NO. 24000058	LIMS/EXCEL SIGNATURE: COMMENTS: BH03 1.0-1.1 rec'd, not on CoC

SAMPLE DATA				CONTAINER DATA		ANALYSES REQUIRED																NOTES
LIMS Sample ID (Lab Use)	Sample ID (ADE)	MATRIX	SAMPLE DATE	TYPE & PRESERVATIVE	NO. OF SAMPLE CONTAINERS	SL01 (standard suite)	OH02 265g asbestos	PS03 PFAS short suite	Hold (PFAS)													POTENTIAL HAZARDOUS CONTAMINANTS: ☐ ASBESTOS ☐ HYDROCARBONS ☐ LEAD/ARSENIC ☐ NO KNOWN CONTAMINATION ☐ OTHER:
2024000																						LAB PLEASE *EMAIL COC RECEIPT: ☐
368	C_BH01_0.2-0.3	SOIL	12.01.2024	Jar, asb bag,PFAS	3	X	x	x														Sample Comments: Hold tray #48
369	C_BH01_0.5-0.6	SOIL	12.01.2024	Jar, asb bag	2	x	x															
370	C_BH02_0.2-0.3	SOIL	12.01.2024	Jar, asb bag,PFAS	3	x	x	x														
371	C_BH02_0.3-0.4	SOIL	12.01.2024	Jar, asb bag	2	x	x															
372	C_BH03_0.2-0.3	SOIL	12.01.2024	Jar, asb bag, PFAS, 500mL bag	3	x	x		X													
373	C_BH03_0.5-0.6	SOIL	12.01.2024	Jar, asb bag	2	x	x															
374	C_BH04_0.2-0.3	SOIL	12.01.2024	Jar, asb bag, PFAS	3	x	x		X													
375	C_BH04_0.4-0.5	SOIL	12.01.2024	Jar, asb bag, PFAS	3	x	x	x	X													
376	C_BH05_0.2-0.3	SOIL	12.01.2024	Jar, asb bag, PFAS	3	x	x		X													
377	C_BH05_0.3-0.4	SOIL	12.01.2024	Jar, asb bag, PFAS	3	x	x		X													
378	BR	SOIL	12.01.2024	Glass Jar	1	x.	~~x~~															

Sample Comments:
please put noted PFAS on hold for additional PFAS

6 x PFAS on Hold

NO ASB recieved

Comments:

Container Type and Preservative: P = Unpreserved Plastic; PN = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; PNA = Sodium Hydroxide Preserved Plastic; PC = HCl preserved Plastic; VC = Vial HCl Preserved; SP = Sulfuric Preserved Plastic; VB = Vial Sodium Bisulphate Preserved; VS = Vial Sulfuric Preserved; V = Unpreserved Vial; G = Amber Glass Unpreserved; SG = Sulfuric Preserved Amber Glass; F = Formaldehyde Preserved Glass; HS = HCl preserved Speciation bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; J = Unpreserved Glass Jar; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag.

22/01/24

Sydney Laboratory Services

A division of A. D. Envirotech Australia Pty Ltd
A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

INFORMATION SUMMARY

SLS Reference	2400058
Project Number	A101023.0722.00/004/L05
Client	ADE Consulting Group
Contact	Karin Azzam
Samplers	Mitchell TrembatH, Andrew Carmichael

ANALYSIS UNDERWAY - Details of the following samples

			SUMMARY OF SAMPLES AND ANALYSIS REQUESTED			
Laboratory Sample ID	Sampling Date	Client Sample ID	SL01	OH02	PS02	HOLD PFAS
2024000368	12.01.2024	C_BH01_0.2-0.3	X	X	X	
2024000369	12.01.2024	C_BH01_0.5-0.6	X	X		
2024000370	12.01.2024	C_BH02_0.2-0.3	X	X	X	
2024000371	12.01.2024	C_BH02_0.3-0.4	X	X		
2024000372	12.01.2024	C_BH03_0.2-0.3	X	X		X
2024000373	12.01.2024	C_BH03_0.5-0.6	X	X		
2024000374	12.01.2024	C_BH04_0.2-0.3	X	X		X
2024000375	12.01.2024	C_BH04_0.4-0.5	X	X	X	
2024000376	12.01.2024	C_BH05_0.2-0.3	X	X		X
2024000377	12.01.2024	C_BH05_0.3-0.4	X	X		X
2024000378	12.01.2024	BR	X			

Batch Number : 2400058

Report Number : A101023.0722.00 (368-378)

Sydney Laboratory Services

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A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

Accreditation No.14664
Accredited for compliance with ISO/IEC 17025 - Testing.

This certificate of analysis contains General Comments and Analytical Results. Quality Control Report and Laboratory Quality Acceptance Criteria have been issued separately.

This report supersedes any previous report(s) with this reference. This document shall not be reproduced, except in full.

This report has been electronically signed by authorised signatories below.

Authorised By

Kaiyu Li

General Comments

Samples are analysed on as received basis. Sampling is not covered by NATA accreditation.

Where moisture determination has been performed, results are reported on dry weight basis.

Where the PQL of reported result differs from standard PQL, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Samples were analysed within holding time described by laboratory internal procedures if not stated otherwise. If samples delivered do not meet required analytical criteria, results will be marked with ^.

However surrogate standards are added to samples, results are not corrected for standards recoveries.

Analysis of VOC in water samples are performed on unfiltered waters (as received) spiked with surrogates and injection standards only.

Results for the analysis of metals is only for acid soluble trace metals unless indicated otherwise.

SLS is responsible for all the information in the report, except that provided by the customer.

All sampling information included in the report has been provided by customer.

Information provided by the customer can affect the validity of the results.

Certificate of Analysis

Contact:	Karin Azzam	**Date Reported:**	19/01/2024
Customer:	ADE Consulting Group	**No. of Samples:**	11
Address:	Unit 6 7 Millennium Court Silverwater NSW	**Date Received:**	15/01/2024
		Date of Analysis:	15/01/2024

Cust Ref: A101023.0722.00 2 L05

Glossary:

*NATA accreditation does not cover the performance of this service
ND-not detected,
NT-not tested
INS-Insufficient material to perform the test
LCS-Laboratory Control Sample
RPD-Relative Percent Difference
N/A-Not Applicable
< less than
> greater than
PQL- Practical Quantitation Limit
^Analytical result might be compromised due to sample condition or holding time requirements
Reaction rate 1 = Slight
Reaction rate 2 = Moderate
Reaction rate 3 = High
Reaction rate 4 = Vigorous

Batch Number : 2400058

Report Number : A101023.0722.00 (368-378)

Certificate of Analysis

	Sample ID:	2024000368	2024000369	2024000370	2024000371	2024000372	2024000373	2024000374	2024000375	2024000376	2024000377	2024000378
	Sample Name	C_BH01_0.2-0.3	C_BH01_0.5-0.6	C_BH02_0.2-0.3	C_BH02_0.3-0.4	C_BH03_0.2-0.3	C_BH03_0.5-0.6	C_BH04_0.2-0.3	C_BH04_0.4-0.5	C_BH05_0.2-0.3	C_BH05_0.3-0.4	BR
Parameter	Units	PQL	Sample Date: 12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024
ESA-P-ORG7 & ORG8													
Benzene	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
m.p Xylene	mg/kg	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
o Xylene	mg/kg	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sum of BTEX	mg/kg	2	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Total Xylenes	mg/kg	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Fluorobenzene (Surr.)	%		70	73	74	76	75	76	73	78	69	70	72
C6-C10	mg/kg	35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35
C6-C10 minus BTEX	mg/kg	35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35
C6-C9	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
ESA-MP-01,ICP-01													
Arsenic	mg/kg	5	<5.0	<5.0	5.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	mg/kg	0.3	0.43	0.32	0.42	<0.30	0.31	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chromium	mg/kg	1	26.6	19.2	23.8	11.4	18.1	9.9	19.7	12.1	11.7	5.4	15.3
Copper	mg/kg	5	41.6	<5.0	17.0	5.0	41.1	<5.0	64.0	12.4	40.0	<5.0	45.3
Lead	mg/kg	5	9.7	9.0	13.9	22.8	17.7	8.3	7.8	18.6	7.4	32.3	11.8
Mercury	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1	57.4	<1.0	15.9	1.8	53.0	2.4	65.8	12.2	41.2	4.2	52.9
Zinc	mg/kg	5	51.8	9.8	19.5	16.7	56.8	24.5	70.0	16.6	39.9	5.2	55.8
ESA-P-12													
% Moisture Content	%		5.9	7.5	5.8	3.4	3.9	7.9	4.6	4.1	6.6	5.3	5.6
ESA-P-ORG(12 - 15)													
Acenaphthene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Acenaphthylene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

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	Sample ID:	2024000368	2024000369	2024000370	2024000371	2024000372	2024000373	2024000374	2024000375	2024000376	2024000377	2024000378
	Sample Name	C_BH01_0.2-0.3	C_BH01_0.5-0.6	C_BH02_0.2-0.3	C_BH02_0.3-0.4	C_BH03_0.2-0.3	C_BH03_0.5-0.6	C_BH04_0.2-0.3	C_BH04_0.4-0.5	C_BH05_0.2-0.3	C_BH05_0.3-0.4	BR
Parameter	Units	PQL	Sample Date: 12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024
Anthracene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[a]anthracene	mg/kg	0.3	0.51	0.52	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.35	<0.30	<0.30
Benzo[a]pyrene	mg/kg	0.3	0.96	<0.30	<0.30	0.32	<0.30	<0.30	<0.30	<0.30	0.50	<0.30	<0.30
Benzo[g,h,i]perylene	mg/kg	0.3	0.64	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[b,k]fluoranthene	mg/kg	0.3	0.95	0.71	<0.30	0.31	<0.30	<0.30	<0.30	<0.30	0.44	<0.30	<0.30
Chrysene	mg/kg	0.3	0.88	1.02	<0.30	0.31	<0.30	<0.30	<0.30	<0.30	0.50	<0.30	<0.30
Dibenzo[a,h]anthracene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluoranthene	mg/kg	0.3	0.84	0.99	<0.30	0.47	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluorene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.3	0.34	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Naphthalene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Phenanthrene	mg/kg	0.3	<0.30	0.44	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Pyrene	mg/kg	0.3	1.08	1.30	<0.30	0.48	<0.30	<0.30	<0.30	<0.30	0.32	<0.30	<0.30
Sum of Positive PAHs	mg/kg	0.3	6.20	4.98	<0.30	1.89	<0.30	<0.30	<0.30	<0.30	2.11	<0.30	<0.30
Benzo(a)pyrene TEQ (Zero)	mg/kg	0.3	1.16	<0.30	<0.30	0.35	<0.30	<0.30	<0.30	<0.30	0.58	<0.30	<0.30
Benzo(a)pyrene TEQ (Half PQL)	mg/kg	0.3	1.31	0.45	0.35	0.54	0.35	0.35	0.35	0.35	0.75	0.35	0.35
Benzo(a)pyrene TEQ (PQL)	mg/kg	0.3	1.46	0.77	0.70	0.72	0.70	0.70	0.70	0.70	0.92	0.70	0.70
p-Terphenyl-d14 (Surr.)	%		107	88	121	127	123	124	120	121	120	115	120
aldrin	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
a-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
b-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
d-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
g-BHC (lindane)	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
cis-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
trans-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

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	Sample ID:	2024000368	2024000369	2024000370	2024000371	2024000372	2024000373	2024000374	2024000375	2024000376	2024000377	2024000378
	Sample Name	C_BH01_0.2-0.3	C_BH01_0.5-0.6	C_BH02_0.2-0.3	C_BH02_0.3-0.4	C_BH03_0.2-0.3	C_BH03_0.5-0.6	C_BH04_0.2-0.3	C_BH04_0.4-0.5	C_BH05_0.2-0.3	C_BH05_0.3-0.4	BR
Parameter	Units	PQL	Sample Date: 12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024
4,4'-DDE	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
dieldrin	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endosulfan I	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endosulfan II	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endosulfan sulfate	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endrin	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endrin aldehyde	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endrin ketone	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
heptachlor	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
heptachlor epoxide	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
hexachlorobenzene	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
methoxychlor	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TCMX (Surr.)	%		130	115	125	131	130	134	133	134	136	133	135
chlorpyrifos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
chlorpyrifos methyl	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
diazinon	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
fenchlorphos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
methyl parathion	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
prophos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
tributylphosphorotrithioite	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1016	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1221	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1232	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1242	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1248	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Certificate of Analysis

	Sample ID:	2024000368	2024000369	2024000370	2024000371	2024000372	2024000373	2024000374	2024000375	2024000376	2024000377	2024000378
	Sample Name	C_BH01_0.2-0.3	C_BH01_0.5-0.6	C_BH02_0.2-0.3	C_BH02_0.3-0.4	C_BH03_0.2-0.3	C_BH03_0.5-0.6	C_BH04_0.2-0.3	C_BH04_0.4-0.5	C_BH05_0.2-0.3	C_BH05_0.3-0.4	BR
Parameter	Units	PQL	Sample Date: 12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024
Aroclor 1254	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1260	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-fluorobiphenyl (Surr.)	%		125	97	132	134	134	138	138	135	137	132	138
ESA-P-ORG16													
PFBA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFPeA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFBS	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFHxA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFPeS	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFHpA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFOA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFHpS	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFOS	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFDA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFUdA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFDoA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFTrDA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFTeDA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFNA	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
PFHxS	ug/kg	5	<5	-	<5	-	-	-	-	<5	-	-	-
MPFBA (Surr.)	%		111	-	113	-	-	-	-	89	-	-	-
M3PFBS (Surr.)	%		106	-	98	-	-	-	-	96	-	-	-
MPFOS (Surr.)	%		100	-	106	-	-	-	-	128	-	-	-
MPFHxA (Surr.)	%		102	-	86	-	-	-	-	90	-	-	-
MPFOA (Surr.)	%		82	-	83	-	-	-	-	94	-	-	-
MPFUdA (Surr.)	%		89	-	100	-	-	-	-	105	-	-	-

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Certificate of Analysis

	Sample ID:	2024000368	2024000369	2024000370	2024000371	2024000372	2024000373	2024000374	2024000375	2024000376	2024000377	2024000378
	Sample Name	C_BH01_0.2-0.3	C_BH01_0.5-0.6	C_BH02_0.2-0.3	C_BH02_0.3-0.4	C_BH03_0.2-0.3	C_BH03_0.5-0.6	C_BH04_0.2-0.3	C_BH04_0.4-0.5	C_BH05_0.2-0.3	C_BH05_0.3-0.4	BR
Parameter	Units	PQL	Sample Date: 12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024	12/01/2024
ESA-P-ORG(3,8)													
>C10-C16	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
>C16-C34	mg/kg	100	113	<100	<100	<100	<100	<100	<100	<100	<100	<100	139
>C34-C40	mg/kg	100	151	<100	<100	<100	175	<100	159	111	<100	<100	225
>C10-C40 (Sum of total)	mg/kg	100	264	<100	<100	<100	175	<100	159	111	<100	<100	364
>C10-C14	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
>C15-C28	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C29-C36	mg/kg	100	173	<100	103	<100	162	<100	147	122	<100	<100	239
>C10-C36 (Sum of total)	mg/kg	100	173	<100	103	<100	162	<100	147	122	<100	<100	239

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Silverwater 2128
Ph: (02) 9648-6669

A.B.N. 52 093 452 950

Analysis report: A101023.0722.00
Laboratory LOT NO: 2400058

Date Received: 12.01.2024
Date Analysed: 16.01.2024
Report Date: 16.01.2024
Client: ADE Consulting Group
Analytical method: ABI-P-01: Procedure for the Analysis and ID of Bulk Samples for Asbestos

Analysis performed by:

Grace (Weichen) Jia
Approved asbestos identifier

Results Authorised By:

Grace (Weichen) Jia
Approved Signatory

This report supersedes all previous reports with the same reference. This report shall not be reproduced except in full

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025 - Testing.

Tests not covered by NATA are denoted with *.

General Comments:

Sydney Laboratory Services is responsible for all the information in the report, except that provided by the customer. All sampling information included in the report has been provided by the client.

Sample analysed as received.
Samples are stored for minimum period of 4 weeks, if longer time is not advised by client.
All positive/negative results have been confirmed by polarized light microscopy including dispersion staining.
ABI-P-01: Qualitative Identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques as per AS4964.

Accreditation No.14664.
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Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dry Weight (g)	Trace Analysis (> 5 Fibres)	Asbestos ID in Soil (AS4964) >0.1g/kg	Weight Total ACM (g)	Comments
C_BH01_0.2-0.3	2024000368	Granulated dark soil with rocks	168.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH01_0.5-0.6	2024000369	Granulated dark soil with rocks	156.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH02_0.2-0.3	2024000370	Granulated dark soil with rocks	99.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH02_0.3-0.4	2024000371	Granulated dark soil with rocks	146.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH03_0.2-0.3	2024000372	Granulated dark soil with rocks	115.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil

Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dry Weight (g)	Trace Analysis (> 5 Fibres)	Asbestos ID in Soil (AS4964) >0.1g/kg	Weight Total ACM (g)	Comments
C_BH03_0.5-0.6	2024000373	Granulated dark soil with rocks	110.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH04_0.2-0.3	2024000374	Granulated dark soil with rocks	133.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH04_0.4-0.5	2024000375	Granulated dark soil with rocks	128.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH05_0.2-0.3	2024000376	Granulated dark soil with rocks	86.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
C_BH05_0.3-0.4	2024000377	Granulated light soil with rocks	104.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil

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Accreditation No.14664
Accredited for compliance with ISO/IEC 17025 - Testing.

This Quality Control Report contains results of QAQC samples analysis and the Laboratory Acceptance Criteria.

This report supersedes any previous report(s) with this reference. This document shall not be reproduced, except in full.

This report has been electronically signed by authorised signatories below.

Authorised By

Kaiyu Li

General Comments

Duplicate samples and matrix spike may not be prepared on smaller jobs, however are analysed at frequency. QAQC samples shown within the report as e.g. Batch Blank, Batch Matrix Spike were performed on samples not reported on that Certificate of Analysis.

Blank This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in the same manner as for samples.
Duplicate This is the interlaboratory split of a random sample from the processed batch
Matrix Spike A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class.
Surr. (Surrogate Spike) Surrogates are known additions to each sample, blank and matrix spike or LCS in a batch. Surrogates are chosen as a compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Blank shall be < PQL
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals, 60-140% for organics/PFAS is acceptable. Matrix heterogeneity may result in matrix spike analyses falling outside these limits
RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:
Results <10 times the PQL : No Limit
Results between 10-20 times the PQL : RPD must lie between 0-50%
Results >20 times the PQL : RPD must lie between 0-30%
Surrogate Recoveries : Recoveries must lie between 50-150%

SLS is responsible for all the information in the report, except that provided by the customer.

All sampling information included in the report has been provided by customer.

Information provided by the customer can affect the validity of the results.

Quality Control Report

Contact:	Karin Azzam	**Date Reported:**	19/01/2024
Customer:	ADE Consulting Group	**No. of Samples:**	24
Address:	Unit 6 7 Millennium Court Silverwater NSW	**Date Received:**	15/01/2024
		Date of Analysis:	15/01/2024

Cust Ref: A101023.0722.00 2 L05

Glossary:

*NATA accreditation does not cover the performance of this service
ND-not detected,
NT-not tested
INS-Insufficient material to perform the test
LCS-Laboratory Control Sample
RPD-Relative Percent Difference
N/A-Not Applicable
< less than
> greater than
PQL- Practical Quantitation Limit
^Analytical result might be compromised due to sample condition or holding time requirements
Reaction rate 1 = Slight
Reaction rate 2 = Moderate
Reaction rate 3 = High
Reaction rate 4 = Vigorous

Quality Control Report

	Sample ID:	D202400036901	D202400037801
	Sample Name	C_BH01_0.5-0.6	BR

Parameter	Units	PQL		
ESA-P-ORG7 & ORG8				
Benzene			Pass	Pass
Toluene			Pass	Pass
Ethylbenzene			Pass	Pass
m.p Xylene			Pass	Pass
o Xylene			Pass	Pass
Fluorobenzene (Surr.)	%		74	73
C6-C10			Pass	Pass
C6-C9			Pass	Pass

	Sample ID:	D202400036902	D202400037802
	Sample Name	C_BH01_0.5-0.6	BR

Parameter	Units	PQL		
ESA-P-ORG(12 - 15)				
Acenaphthene			Pass	Pass
Acenaphthylene			Pass	Pass
Anthracene			Pass	Pass
Benzo[a]anthracene			Pass	Pass
Benzo[a]pyrene			Pass	Pass
Benzo[g,h,i]perylene			Pass	Pass
Benzo[b,k]fluoranthene			Pass	Pass
Chrysene			Pass	Pass
Dibenzo[a,h]anthracene			Pass	Pass
Fluoranthene			Pass	Pass
Fluorene			Pass	Pass
Indeno(1,2,3-cd)pyrene			Pass	Pass

Naphthalene			Pass	Pass
Phenanthrene			Pass	Pass
Pyrene			Pass	Pass
p-Terphenyl-d14 (Surr.)	%		122	117
aldrin			Pass	Pass
a-BHC			Pass	Pass
b-BHC			Pass	Pass
d-BHC			Pass	Pass
g-BHC (lindane)			Pass	Pass
cis-chlordane			Pass	Pass
trans-chlordane			Pass	Pass
4,4'-DDD			Pass	Pass
4,4'-DDE			Pass	Pass
4,4'-DDT			Pass	Pass
dieldrin			Pass	Pass
endosulfan I			Pass	Pass
endosulfan II			Pass	Pass
endosulfan sulfate			Pass	Pass
endrin			Pass	Pass
endrin aldehyde			Pass	Pass
endrin ketone			Pass	Pass
heptachlor			Pass	Pass
heptachlor epoxide			Pass	Pass
hexachlorobenzene			Pass	Pass
methoxychlor			Pass	Pass
TCMX (Surr.)	%		133	131
chlorpyrifos			Pass	Pass
chlorpyrifos methyl			Pass	Pass
diazinon			Pass	Pass
fenchlorphos			Pass	Pass
methyl parathion			Pass	Pass

prophos			Pass	Pass
tributylphosphorotrithioite			Pass	Pass
Aroclor 1016			Pass	Pass
Aroclor 1221			Pass	Pass
Aroclor 1232			Pass	Pass
Aroclor 1242			Pass	Pass
Aroclor 1248			Pass	Pass
Aroclor 1254			Pass	Pass
Aroclor 1260			Pass	Pass
2-fluorobiphenyl (Surr.)	%		136	132
		Sample ID:	**D202400036903**	**D202400037803**
		Sample Name	**C_BH01_0.5-0.6**	**BR**
Parameter	***Units***	***PQL***		
ESA-P-ORG(3,8)				
>C10-C16			Pass	Pass
>C16-C34			Pass	Pass
>C34-C40			Pass	Pass
>C10-C14			Pass	Pass
>C15-C28			Pass	Pass
>C29-C36			Pass	Pass

		Sample ID:	**D202400036904**	**D202400037804**
		Sample Name	**C_BH01_0.5-0.6**	**BR**
Parameter	***Units***	***PQL***		
ESA-MP-01,ICP-01				
Arsenic			Pass	Pass
Cadmium			Pass	Pass
Chromium			Pass	Pass
Copper			Pass	Pass
Lead			Pass	Pass
Mercury			Pass	Pass
Nickel			Pass	Pass
Zinc			Pass	Pass

Sample ID:	D202400037001
Sample Name	C_BH02_0.2-0.3

Parameter	*Units*	*PQL*	
ESA-P-ORG16			
PFBA			Pass
PFPeA			Pass
PFBS			Pass
PFHxA			Pass
PFPeS			Pass
PFHpA			Pass
PFOA			Pass
PFHpS			Pass
PFOS			Pass
PFDA			Pass
PFUdA			Pass
PFDoA			Pass
PFTrDA			Pass
PFTeDA			Pass
PFNA			Pass
PFHxS			Pass
MPFBA	%		87
M3PFBS	%		115
MPFOS	%		102
MPFHxA	%		78
MPFOA	%		81
MPFUdA	%		93

Sample ID:	**Q2024000088**
Sample Name	

Parameter	*Units*	*PQL*	BTEX Blank - Soil
ESA-P-ORG7 & ORG8			
Benzene	mg/kg	0.5	<0.50
Toluene	mg/kg	0.5	<0.50
Ethylbenzene	mg/kg	1	<1.0
m.p Xylene	mg/kg	2	<2.0
o Xylene	mg/kg	1	<1.0
C6-C10	mg/kg	35	<35
C6-C9	mg/kg	25	<25

Sample ID:	**Q2024000089**
Sample Name	

Parameter	*Units*	*PQL*	BTEX Blank Sp-Soil
ESA-P-ORG7 & ORG8			
Benzene	%		74
Toluene	%		80
Ethylbenzene	%		81
m.p Xylene	%		83
o Xylene	%		81
Fluorobenzene (Surr.)	%		74

Sample ID:	**Q2024000090**
Sample Name	

Parameter	*Units*	*PQL*	PCB Blank - Soil
ESA-P-ORG(12 - 15)			
Acenaphthene	mg/kg	0.3	<0.30
Acenaphthylene	mg/kg	0.3	<0.30
Anthracene	mg/kg	0.3	<0.30
Benzo[a]anthracene	mg/kg	0.3	<0.30

Benzo[a]pyrene	mg/kg	0.3	<0.30
Benzo[g,h,i]perylene	mg/kg	0.3	<0.30
Benzo[b,k]fluoranthene	mg/kg	0.3	<0.30
Chrysene	mg/kg	0.3	<0.30
Dibenzo[a,h]anthracene	mg/kg	0.3	<0.30
Fluoranthene	mg/kg	0.3	<0.30
Fluorene	mg/kg	0.3	<0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.3	<0.30
Naphthalene	mg/kg	0.3	<0.30
Phenanthrene	mg/kg	0.3	<0.30
Pyrene	mg/kg	0.3	<0.30
aldrin	mg/kg	0.1	<0.10
a-BHC	mg/kg	0.1	<0.10
b-BHC	mg/kg	0.1	<0.10
d-BHC	mg/kg	0.1	<0.10
g-BHC (lindane)	mg/kg	0.1	<0.10
cis-chlordane	mg/kg	0.1	<0.10
trans-chlordane	mg/kg	0.1	<0.10
4,4'-DDD	mg/kg	0.1	<0.10
4,4'-DDE	mg/kg	0.1	<0.10
4,4'-DDT	mg/kg	0.1	<0.10
dieldrin	mg/kg	0.1	<0.10
endosulfan I	mg/kg	0.2	<0.20
endosulfan II	mg/kg	0.2	<0.20
endosulfan sulfate	mg/kg	0.1	<0.10
endrin	mg/kg	0.2	<0.20
endrin aldehyde	mg/kg	0.1	<0.10
endrin ketone	mg/kg	0.1	<0.10
heptachlor	mg/kg	0.1	<0.10
heptachlor epoxide	mg/kg	0.1	<0.10
hexachlorobenzene	mg/kg	0.1	<0.10

methoxychlor	mg/kg	0.1	<0.10
chlorpyrifos	mg/kg	0.1	<0.10
chlorpyrifos methyl	mg/kg	0.1	<0.10
diazinon	mg/kg	0.1	<0.10
fenchlorphos	mg/kg	0.1	<0.10
methyl parathion	mg/kg	0.1	<0.10
prophos	mg/kg	0.1	<0.10
tributylphosphorotrithioite	mg/kg	0.1	<0.10
Aroclor 1016	mg/kg	0.5	<0.50
Aroclor 1221	mg/kg	0.5	<0.50
Aroclor 1232	mg/kg	0.5	<0.50
Aroclor 1242	mg/kg	0.5	<0.50
Aroclor 1248	mg/kg	0.5	<0.50
Aroclor 1254	mg/kg	0.5	<0.50
Aroclor 1260	mg/kg	0.5	<0.50

	Sample ID:	Q2024000091
	Sample Name	

Parameter	Units	PQL	PCB Blank Sp - Soil
ESA-P-ORG(12 - 15)			
Acenaphthene	%		117
Anthracene	%		99
Fluoranthene	%		140
Naphthalene	%		138
Phenanthrene	%		132
Pyrene	%		118
p-Terphenyl-d14 (Surr.)	%		117
aldrin	%		138
endrin	%		83
hexachlorobenzene	%		105
TCMX (Surr.)	%		131
chlorpyrifos	%		102
diazinon	%		122
2-fluorobiphenyl (Surr.)	%		131
Aroclor 1016	%		128

	Sample ID:	Q2024000092
	Sample Name	

Parameter	Units	PQL	TRH Blank-Soil
ESA-P-ORG(3,8)			
>C10-C16	mg/kg	50	<50
>C16-C34	mg/kg	100	<100
>C34-C40	mg/kg	100	<100
>C10-C14	mg/kg	50	<50
>C15-C28	mg/kg	100	<100
>C29-C36	mg/kg	100	<100

Sample ID:	**Q2024000093**
Sample Name	

Parameter	*Units*	*PQL*	TRH Blank Spike-Soil
ESA-P-ORG(3,8)			
>C10-C16	%		107
>C10-C14	%		106

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Silverwater 2128
Ph: (02) 9648-6669

Sample ID:	**Q2024000094**
Sample Name	

Parameter	***Units***	***PQL***	PFAS Blank - Soil
ESA-P-ORG16			
PFBA	ug/kg	5	<5
PFPeA	ug/kg	5	<5
PFBS	ug/kg	5	<5
PFHxA	ug/kg	5	<5
PFPeS	ug/kg	5	<5
PFHpA	ug/kg	5	<5
PFOA	ug/kg	5	<5
PFHpS	ug/kg	5	<5
PFOS	ug/kg	5	<5
PFDA	ug/kg	5	<5
PFUdA	ug/kg	5	<5
PFDoA	ug/kg	5	<5
PFTrDA	ug/kg	5	<5
PFTeDA	ug/kg	5	<5
PFNA	ug/kg	5	<5
PFHxS	ug/kg	5	<5
MPFBA (Surr.)	%		76
M3PFBS (Surr.)	%		91
MPFOS (Surr.)	%		109
MPFHxA (Surr.)	%		85
MPFOA (Surr.)	%		121
MPFUdA (Surr.)	%		98

	Sample ID:	Q2024000095
	Sample Name	

Parameter	Units	PQL	PFAS Blank Sp - Soil
ESA-P-ORG16			
PFBA	%		94
PFPeA	%		94
PFBS	%		90
PFHxA	%		90
PFPeS	%		96
PFHpA	%		89
PFOA	%		103
PFHpS	%		128
PFOS	%		87
PFDA	%		80
PFUdA	%		93
PFDoA	%		80
PFTrDA	%		111
PFTeDA	%		94
PFNA	%		129
PFHxS	%		111
MPFBA (Surr.)	%		71
M3PFBS (Surr.)	%		74
MPFOS (Surr.)	%		101
MPFHxA (Surr.)	%		82
MPFOA (Surr.)	%		101
MPFUdA (Surr.)	%		121

Sample ID:	Q2024000096
Sample Name	

Parameter	Units	PQL	Metals Blank - Soil
ESA-MP-01,ICP-01			
Arsenic	mg/kg	5	<5.0
Cadmium	mg/kg	0.3	<0.30
Chromium	mg/kg	1	<1.0
Copper	mg/kg	5	<5.0
Lead	mg/kg	5	<5.0
Mercury	mg/kg	0.1	<0.10
Nickel	mg/kg	1	<1.0
Zinc	mg/kg	5	<5.0

Sample ID:	Q2024000097
Sample Name	

Parameter	Units	PQL	Metals Blank Sp-Soil
ESA-MP-01,ICP-01			
Arsenic	%		100
Cadmium	%		97
Chromium	%		101
Copper	%		100
Lead	%		101
Mercury	%		105
Nickel	%		102
Zinc	%		105

Sample ID:	**S202400036801**
Sample Name	**C_BH01_0.2-0.3**

Parameter	*Units*	*PQL*	
ESA-P-ORG-07 & 08			
Benzene	%		71
Toluene	%		76
Ethylbenzene	%		78
m.p Xylene	%		81
o Xylene	%		78
Fluorobenzene (Surr.)	%		69

Sample ID:	**S202400036802**
Sample Name	**C_BH01_0.2-0.3**

Parameter	*Units*	*PQL*	
ESA-P-ORG(12 - 15)			
Acenaphthene	%		123
Anthracene	%		134
Fluoranthene	%		101
Naphthalene	%		124
Phenanthrene	%		196
Pyrene	%		170
p-Terphenyl-d14 (Surr.)	%		110
aldrin	%		138
endrin	%		90
hexachlorobenzene	%		115
TCMX (Surr.)	%		134
chlorpyrifos	%		138
diazinon	%		125
Aroclor 1016	%		119
2-fluorobiphenyl (Surr.)	%		130

Sample ID:	**S202400036803**
Sample Name	**C_BH01_0.2-0.3**

Parameter	*Units*	*PQL*	
ESA-P-ORG(3,8)			
>C10-C16	%		97
>C10-C14	%		97

Sample ID:	**S202400036804**
Sample Name	**C_BH01_0.2-0.3**

Parameter	*Units*	*PQL*	
ESA-P-ORG16			
PFBA	%		93
PFPeA	%		88
PFBS	%		90
PFHxA	%		93
PFPeS	%		97
PFHpA	%		93
PFOA	%		113
PFHpS	%		128
PFOS	%		80
PFDA	%		95
PFUdA	%		101
PFDoA	%		125
PFTrDA	%		122
PFTeDA	%		81
PFNA	%		123
PFHxS	%		99
MPFBA (Surr.)	%		87
M3PFBS (Surr.)	%		101
MPFOS (Surr.)	%		105
MPFHxA (Surr.)	%		86
MPFOA (Surr.)	%		87
MPFUdA (Surr.)	%		123

Sample ID:	**S202400036805**
Sample Name	**C_BH01_0.2-0.3**

Parameter	*Units*	*PQL*	
ESA-MP-01,ICP-01			
Arsenic	%		97
Cadmium	%		100
Chromium	%		88
Copper	%		109
Lead	%		100
Mercury	%		101
Nickel	%		84
Zinc	%		95

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CHAIN OF CUSTODY FORM - Client

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Client: ADE Consulting group	Client Project Name/Number/Site etc (ie report title):
Contact Person: Karin + Andrew C	
Project Mgr: karin.azzam@ade.group	PO No.:A101023.0722.002
Sampler: AC	Envirolab Quote No. :
Address: 6/7 Millenium Court Silverwater NSW 2128	Date results required:
Andrew.carmichael@ade.group, karin.azzam@ade.group	Or choose: standard
please email these people too.	*Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Phone: n/a Mob: 0490 072 877	Additional report format: esdat /
Email: andrew.carmichael@ade.group, Karin.azzam@ade.group	Lab Comments:

Sample Information					Tests Required															Comments
Envirolab Sample ID	Client Sample ID or Information	Depth	Date sampled	Type of sample	Fe	TOC	CEC	pH	EC	Combination 6										Provide as much information about the sample as you can
1	SR		12/01/2024	soil						x										
2	5 C_BH0#_0.3-0.4		12/01/2024	soil	x	x	x	x	x											

Relinquished by (Company):	ADE Consulting Group	Received by (Company):	ELS SYD	*Lab Use Only*	
Print Name:	Andrew Carmichael	Print Name:	JENNA	Job number: 341485	Cooling: Ice / Ice pack / None
Date & Time:	28.09.2023	Date & Time:	12/1/24, 1630	Temperature: 3°	Security seal: Intact / Broken / None
Signature:		Signature:		TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

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CERTIFICATE OF ANALYSIS 341485

Client Details

Client	ADE CONSULTING GROUP PTY LTD
Attention	Karin Azzam
Address	Unit 6, 7 Millenium Court, Silverwater, NSW, 2128

Sample Details

Your Reference	**A101023.0722.002**
Number of Samples	2 Soil
Date samples received	12/01/2024
Date completed instructions received	12/01/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	19/01/2024
Date of Issue	18/01/2024

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Results Approved By
Clara Fong, Chemist (FAS)
Loren Bardwell, Development Chemist
Steven Luong, Senior Chemist
Tim Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	280
Total +ve TRH (C10-C36)	mg/kg	280
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	200
TRH >C_{34} -C_{40}	mg/kg	420
Total +ve TRH (>C10-C40)	mg/kg	620
Surrogate o-Terphenyl	%	90

PAHs in Soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	101

Organochlorine Pesticides in soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	97

Organophosphorus Pesticides in Soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	97

PCBs in Soil		
Our Reference		341485-1
Your Reference	UNITS	SR
Date Sampled		12/01/2024
Type of sample		Soil
Date extracted	-	15/01/2024
Date analysed	-	16/01/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	99

Acid Extractable metals in soil			
Our Reference		341485-1	341485-2
Your Reference	UNITS	SR	C_BH05_0.3-0.4
Date Sampled		12/01/2024	12/01/2024
Type of sample		Soil	Soil
Date prepared	-	15/01/2024	15/01/2024
Date analysed	-	16/01/2024	16/01/2024
Arsenic	mg/kg	<4	[NA]
Cadmium	mg/kg	<0.4	[NA]
Chromium	mg/kg	11	[NA]
Copper	mg/kg	56	[NA]
Lead	mg/kg	11	[NA]
Mercury	mg/kg	<0.1	[NA]
Nickel	mg/kg	42	[NA]
Zinc	mg/kg	33	[NA]
Iron	mg/kg	[NA]	3,300

Moisture			
Our Reference		341485-1	341485-2
Your Reference	UNITS	SR	C_BH05_0.3-0.4
Date Sampled		12/01/2024	12/01/2024
Type of sample		Soil	Soil
Date prepared	-	15/01/2024	15/01/2024
Date analysed	-	16/01/2024	16/01/2024
Moisture	%	4.9	5.8

Misc Inorg - Soil		
Our Reference		341485-2
Your Reference	UNITS	C_BH05_0.3-0.4
Date Sampled		12/01/2024
Type of sample		Soil
Date prepared	-	15/01/2024
Date analysed	-	15/01/2024
pH 1:5 soil:water	pH Units	5.8
Electrical Conductivity 1:5 soil:water	µS/cm	26
Total Organic Carbon in soil/solids	mg/kg	1,300

CEC		
Our Reference		341485-2
Your Reference	UNITS	C_BH05_0.3-0.4
Date Sampled		12/01/2024
Type of sample		Soil
Date prepared	-	17/01/2024
Date analysed	-	17/01/2024
Exchangeable Ca	meq/100g	1.7
Exchangeable K	meq/100g	0.1
Exchangeable Mg	meq/100g	1.3
Exchangeable Na	meq/100g	<0.1
Cation Exchange Capacity	meq/100g	3.1

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
INORG-137	Total Carbon Nitrogen Sulfur by high temperature catalytic combustion with IR detection.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	15/01/2024	15/01/2024
Date analysed	-			16/01/2024	[NT]	[NT]	[NT]	[NT]	16/01/2024	16/01/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	103	89
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	103	89
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	97	86
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	103	86
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	90
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	105	91
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	93
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	96	80

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	15/01/2024	15/01/2024
Date analysed	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	16/01/2024	16/01/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	126	134
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	126	#
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	126	134
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	126	#
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	#
Surrogate o-Terphenyl	%		Org-020	86	[NT]	[NT]	[NT]	[NT]	109	#

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	1	15/01/2024	15/01/2024		15/01/2024	15/01/2024
Date analysed	-			16/01/2024	1	16/01/2024	16/01/2024		16/01/2024	16/01/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	129
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	124
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	130
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110	108
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	106
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	107
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	126	124
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	122	125
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	96	1	101	98	3	89	92

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	1	15/01/2024	15/01/2024		15/01/2024	15/01/2024
Date analysed	-			16/01/2024	1	16/01/2024	16/01/2024		16/01/2024	16/01/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	124
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	123	119
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	92
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	90
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	97
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	113
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	139	137
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	114
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	106
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	118	127
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	95	1	97	95	2	97	102

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	1	15/01/2024	15/01/2024		15/01/2024	15/01/2024
Date analysed	-			16/01/2024	1	16/01/2024	16/01/2024		16/01/2024	16/01/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	127	134
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	107
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	108
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	123
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	113
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	123
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	119
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	95	1	97	95	2	97	102

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date extracted	-			15/01/2024	1	15/01/2024	15/01/2024		15/01/2024	15/01/2024
Date analysed	-			16/01/2024	1	16/01/2024	16/01/2024		16/01/2024	16/01/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	94	82
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	1	99	96	3	98	103

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	341485-1
Date prepared	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	15/01/2024	15/01/2024
Date analysed	-			16/01/2024	[NT]	[NT]	[NT]	[NT]	16/01/2024	16/01/2024
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	107	95
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	90
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	96
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	106
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	93
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	115	127
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	95
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	93
Iron	mg/kg	10	Metals-020	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	15/01/2024	[NT]
Date analysed	-			15/01/2024	[NT]	[NT]	[NT]	[NT]	15/01/2024	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Total Organic Carbon in soil/solids	mg/kg	100	INORG-137	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			17/01/2024	[NT]	[NT]	[NT]	[NT]	17/01/2024	[NT]
Date analysed	-			17/01/2024	[NT]	[NT]	[NT]	[NT]	17/01/2024	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

TRH Soil C10-C40 NEPM - # Percent recovery for the surrogate/matrix spike is not possible to report as the high concentration of analytes in sample/s 341485-1ms have caused interference.

ADE CONSULTING GROUP
SOLUTIONS THROUGH INNOVATION

ESA-F-02 COC - Chain Of Custody (Internal: Sydney Laboratory Services)

Document Revision Date: 22/08/2022

FULL PROJECT NUMER (E.G., : A201021.1725.05)	A101023.0722.00
PROJECT PHASE (E.G.,: C01)	002
PROJECT TASK (E.G.,: C11)	L05
SAMPLES DELIVERED BY:	
SAMPLERS:	Ankita Saxena
TURNAROUND (BUSINESS DAY - BD):	Standard TAT
	26.04.2024
AFTER TEST STORAGE:	ROOM TEMP: ☑ FRIDGE: ☐ FREEZER: ☐ >4 WEEKS: ☐ OTHER: ☐
REPORT FORMAT:	HARD COPY: ☐ E-MAIL: X
CONSULTANTS SIGNATURE:	CONSULTANTS EMAIL: ankita.sexena@ade.group
PROJECT MANAGERS SIGNATURE: [signature]	Karin.Azzam@ade.group, please cc ankita.sexena@ade.group and sam.goldsmith

LABORATORY REFERENCE NO. (Lab use ONLY): A101023.0722.00/002/L05

RECEIVED BY: NC | SIGNATURE: [signature]

CUSTODY SEAL INTACT: ☐

SAMPLES: 8 | CHILLED: ☐ | PRESERVED: ☐ | PRESERVATION METHOD: ☐

MINIMAL HEADSPACE: ☐ | WITHIN HOLDING TIME: ☑

DATE: 30/4/24 | TIME: 12:10 PM | TEMPERATURE UPON RECEIPT: N/A °C

LIMS LOT NO. 2401875 | LIMS/EXCEL SIGNATURE: [signature] | COMMENTS:

NOTES

POTENTIAL HAZARDOUS CONTAMINANTS:
☐ ASBESTOS ☐ HYDROCARBONS
☐ LEAD/ARSENIC ☐ NO KNOWN CONTAMINATION
☐ OTHER:______

LAB PLEASE *EMAIL COC RECEIPT: ☐

Sample Comments

SAMPLE DATA				CONTAINER DATA		ANALYSES REQUIRED	
LIMS Sample ID (Lab Use)	Sample ID (ADE)	MATRIX	SAMPLE DATE	TYPE & PRESERVATIVE	NO. OF SAMPLE CONTAINERS	OH07 - Asbestos Soil NEPM guideline	HOLD
2024018513	TP1_0.2-0.3	Soil	26.04.2024	B	1	X	
514	TP1_0.6-0.7	Soil	26.04.2024	B	1		X
515	TP2_0.2-0.3	Soil	26.04.2024	B	1	X	
516	TP2_0.6-0.7	Soil	26.04.2024	B	1		X
517	TP3_0.2-0.3	Soil	26.04.2024	B	1	X	
518	TP3_0.4-0.5	Soil	26.04.2024	B	1		X
519	TP4_0.2-0.3	Soil	26.04.2024	B	1	X	
520	TP5_0.2-0.3	Soil	26.04.2024	B	1	X	

7/5/24

Page 1 of 1

Comments:

Container Type and Preservative: P = Unpreserved Plastic; PN = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; PNA = Sodium Hydroxide Preserved Plastic; PC = HCl preserved Plastic; VC = Vial HCl Preserved; SP = Sulfuric Preserved Plastic; VB = Vial Sodium Bisulphate Preserved; VS = Vial Sulfuric Preserved; V = Unpreserved Vial; G = Amber Glass Unpreserved; SG = Sulfuric Preserved Amber Glass; F = Formaldehyde Preserved Glass; HS = HCl preserved Speciation bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; J = Unpreserved Glass Jar; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag.

Sydney Laboratory Services

A division of A. D. Envirotech Australia Pty Ltd
A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

CLIENT DETAILS

Client	ADE Consulting Group
Contact	Karin Azzam, Sam Goldsmith
Samplers	Ankita Saxena

SAMPLE RECEIPT DETAILS

Project Number	A101023.0722.00/002/L05		
SLS Reference	2401875		
Number of samples	8		
Date samples received	30.04.2024		
Time samples received	12:10 PM		
Samples Received By	Natalie Chambers		
Temperature upon receipt (°C)	N/A	**Thermometer Ref NO.**	N/A
Turn Around Time requested	5 Working Days		
Expected Report Date	**07.05.2024**		

CONDITION OF SAMPLES UPON RECEIVAL

No errors in COC provided.	✓
All samples were received in good condition.	✓
Evidence of chilling for samples.	N/A
Appropriate use of sample containers have been used.	✓
Samples were delivered within holding time of analysis requested.	✓
Samples to be tested for volatiles received with zero headspace.	N/A
Custody Seal intact (if used)	N/A

COMMENTS

This Report Contains:

Sample receipt non-conformities.
Summary of samples and requested analysis.
Requested report deliverables.

CONTACT US FOR ANY QUERIES

If you have any questions with respect to these samples please contact:

Email	sls@ade.group	**Contact**	Natalie Chambers
Phone	(+61) 0451 524 289	**Signed**	

Sydney Laboratory Services

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A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

INFORMATION SUMMARY

SLS Reference	2401875
Project Number	A101023.0722.00/002/L05
Client	ADE Consulting Group
Contact	Karin Azzam, Sam Goldsmith
Samplers	Ankita Saxena

ANALYSIS UNDERWAY - Details of the following samples

			SUMMARY OF SAMPLES AND ANALYSIS REQUESTED	
			OH07	ON HOLD
Laboratory Sample ID	Sampling Date	Client Sample ID		
2024014513	26.04.2024	TP1_0.2-0.3	X	
2024014514	26.04.2024	TP1_0.6-0.7		X
2024014515	26.04.2024	TP2_0.2-0.3	X	
2024014516	26.04.2024	TP2_0.6-0.7		X
2024014517	26.04.2024	TP3_0.2-0.3	X	
2024014518	26.04.2024	TP3_0.4-0.5		X
2024014519	26.04.2024	TP4_0.2-0.3	X	
2024014520	26.04.2024	TP5_0.2-0.3	X	

Sydney Laboratory Services

A division of A. D. Envirotech Australia Pty Ltd
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

A.B.N. 52 093 452 950

Analysis report: A101023.0722.00
Laboratory LOT NO: 2401875

Date Received: 30.04.2024
Date Analysed: 01.05.2024
Report Date: 01.05.2024
Client: ADE Consulting Group
Job Location: As Received
Analytical method: Polarised Light Microscopy with dispersion staining (ADE method ABI)
*Asbestos identification as per "National Environment Protection (Assessment of site contamination) Measure, Schedule B1" and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" is not coverd by NATA scope of accreditation

Analysis performed by:

Grace (Weichen) Jia
Approved asbestos identifier

Results Authorised By:

Grace (Weichen) Jia
Approved Signatory

General Comments:

Sydney Laboratory Services is responsible for all the information in the report, except that provided by the customer. All sampling information included in the report has been provided by the client.

Sample analysed as received.
Samples are stored for minimum period of 1 month if longer time is not advised by client.
Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.01g/kg (0.001% w/w) for friable asbestos and 0.1g/kg (0.01% w/w) for bonded asbestos.
This form of analysis is outside the scope of NATA accreditation.
Bonded asbestos containing material (bonded ACM) : Bonded ACM comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin.This term is restricted to material that cannot pass a 7 mm x 7 mm sieve.
Fibrous asbestos (FA): FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
Asbestos fines (AF): AF includes free fibres, small fibre bundles and also small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.
Note: The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.

Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dimensions (cm) unless stated otherwise	Weight (Dry Weight)	Trace Analysis Completed Y/N	Result	Comments
TP1_0.2-0.3	2024014513	Granulated Dark Soil	500mL	749 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP2_0.2-0.3	2024014515	Granulated Dark Soil	500mL	841 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP3_0.2-0.3	2024014517	Granulated Dark Soil	500mL	661 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP4_0.2-0.3	2024014519	Granulated Dark Soil	500mL	861 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP5_0.2-0.3	2024014520	Granulated Dark Soil	500mL	813 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil

AIR CANISTER CHAIN OF CUSTODY

ALS

If sourced from an ALS Laboratory: please tick →

Client Supplied Canister(s)? Y / N

QBRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

QMELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E:samples.melbourne@alsglobal.com

QNOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

QTOWNSVILLE 13 Carlton Street Kirwan QLD 4817 Ph: 07 47730000 E: ALSEnviro.Townsville@alsglobal.com

QGLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

QMUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

QPERTH 36 Hodgkinson Way Wangara WA 6065 Ph: 08 9405 5500 E: samples.perth@alsglobal.com

QWOLLONGONG 1/19-21 Ralph Black Drive Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

Courier n/c

CLIENT: ADE Consulting Group	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	LABORATORY USE ONLY (Circle) *Receiver to initial and date/time*	
OFFICE: 6/7 Millenium Court, Silverwater NSW 2128	(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Rec Lab Y / N NE Y / N	N/A
PROJECT: Cammeray PS DSI PROJECT NO: 23.0722	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Valves closed on Receipt? Rec Lab Y / N NE Y / N N/A
CANISTER REQUEST NO: PURCHASE ORDER NO.: 23.0722	COUNTRY OF ORIGIN: Australia	COC: 1 2 3 4 5 6 7	Canister/Sampler Complete and Not Damaged Yes No
PROJECT MANAGER: Karin Azzam CONTACT PH: 0490072877		OF: 1 2 3 4 5 6 7	Other comment: Temperature °C: 21.0
SAMPLER: Karin Azzam & Sam Goldsmith SAMPLER MOBILE: 0490072877	RELINQUISHED BY: KA 2/5/24 2:00 pm *Signature and date/time*	RELINQUISHED BY: *Signature and date/time*	RELINQUISHED BY: *Signature and date/time*	RELINQUISHED BY: *Signature and date/time*
COC Emailed to ALS? (YES) / NO) EDD FORMAT (or default):	RECEIVED BY: JN 6-5-24 0900 *Signature and date/time*	RECEIVED BY: *Signature and date/time*	RECEIVED BY: *Signature and date/time*	RECEIVED BY: *Signature and date/time*
Email Reports to (will default to PM if no other addresses are listed): karin.azzam@ade.group				
Email Invoice to (will default to PM if no other addresses are listed): sam.goldsmith@ade.group				

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:

14249

GAS SAMPLE CONTAINER INFORMATION

ALS USE ONLY	CANISTER / SAMPLE DETAILS					Canister Gauge Pressures (PSI)		Refer to Canister Verification Reports and COAs for pressures measured by the Lab					ANALYSES REQUESTED						Additional Information
								Reporting Requirements					Suite Codes must be listed to attract suite price						
								LORs			Units								
LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Pre-Sampling	Post Sampling	Ambient Air	Soil Gas (NEPM)	Other / Indoor	ppbv, µg/m³	ppmv, mg/m³	SG-AH2						Comments on LORs required, potential hazards, likely contaminant levels, or samples requiring specific QC analysis etc. (LOR defaults to routine method LOR after dilution)
	~~SN4~~	211	SV03	10.00am 2/5/24	SG	-30	-8		X		X		X						
	996	310	SV02	10.15am 2/5/24	SG	-30	-8		X		X		X						
	1238	027	SV01	10.30am 2/5/24	SG	-29	-8		X		X		X						

Environmental Division
Newcastle
Work Order Reference
EN2404013

Telephone : +61 2 4014 2500

Job Specific Instructions:

GAS CANISTER SAMPLING EQUIPMENT

DISPATCH RECORD

Enquiries: Client Services - Newcastle, Phone: +61 (02) 4014 2500, E-mail: alsenviro.newcastle@alsglobal.com

		ALS USE ONLY	
Client / Office:	ADE Consulting Group		
Contact:	Sam Goldsmith	Request Received By:	DH
Telephone:		Deliver By:	Asap
ALS Quotation:		Dispatch By:	asap
Delivery Address:	ALS Sydney	Workorder:	
		Agreed Rent Free Period:	**21 days**

Special Instructions: ATTN: SEP AND KHALEDA

Equipment Request

CANISTERS

No	Canister Type	Size	Gauge	Valve	Cap	Rental[1]	Leak Checked	Certified OK
3	Entech Silonite MiniCan™	1.4L	No	QT	Yes	$120 ea	[illegible] 29.4.24	

[1] Analyst's Initials & Date

CONNECTORS AND FLOW CONTROL

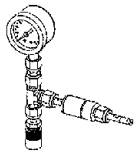
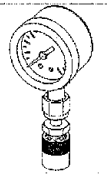
No	Equipment Type	Duration (hrs)	Flow (ml/min)	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection Q Quick Connect S Swagelok	Rental[1]
-	Passive sampler - TWA			No	Yes	Yes	Yes / No	Q	Incl Above
3	Soil gas sampling train - single		60ml/min	No	Yes	Yes	Yes / Yes	Q	Incl Above
-	Soil gas sampling train - duplicate			Yes	Yes	Yes	Yes / Yes	Q	Incl Above
3	Quick-connect fittings - female QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Quick-connect fittings - male QT	-	-	-	-	-	-	Q	$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q	$250 ea. Replacement
-	T-Piece - QT	-	-	Yes	No	No	Yes / Yes	Q	$300 ea. Replacement
-	T-Piece - Swagelok	-	-	Yes	No	No	-	S	$250 ea. Replacement
-	Additional ¼" Swagelok nuts/ferrules	-	-	-	-	-	-	S	$5 ea. Replacement
-	Sampling Kit Case - Soil Gas	-	-	-	-	-	Yes / -	-	$200 Replacement
	Other (Specify)	tubing							

[1] Refer to Acceptance of Terms

3m Tubing

ALS use only:	Clean Certificates Included (Y / N)	Leak Check OK (Y / N)	Recorded by:	Packed by:	
Canister Sampling Guide Included (Y/N)	Blank COC Included (Y/N)	**Dispatch Time / Date:**	29/4/24 SF		
Courier:	—	Consignment Note #:	Internal courier	# Boxes: 1	Dispatched By: KS

ALS Supplied Equipment

Item	Quantity	Item Description	Serial Number(s)
	3	1.4 L Silonite™ MiniCan	996 ✓ 14249 ✓ 12381 ✓
	3	Soil gas sampler - Compact 60ml/min	310 ✓ 211 ✓ 027 ✓
	1	QT vacuum gauge	- 28"Hg 9.130 ✓
	3	Female QT to ¼" tube connector	3 ✓
	1	Male QT to ¼" tube connector	✓

SAMPLER VERIFICATION REPORT

Sampler SN: 211

Certified purpose: USEPA TO15
LORs achievable: Ambient air

Instrument datafile: 240415_10.D
Verification date: 15-Apr-2024
Valid to (at least): 13-May-2024
Analyst: Dale Semple

Sampler type: Soil Gas - Compact
Restrictor type: #3
Sampler valves: QT - Quick Connect
Nominal flowrate: 50-60 mL/min
Gauge[1] on dispatch: -36 "Hg

Approved by: DAS 16-Apr-2024

[1]Gauge is indicative only. Reading varies with atmospheric pressure and may change in transit.

SAMPLER VERIFICATION PROTOCOL

Samplers are assembled with appropriate flow restriction for project-specific requirements and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Soil gas samplers are supplied under vacuum with self-sealing quick-connect fittings, effectively performing a shut-in test.

Each verification involves a check for contamination, leaks and damage to fittings.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

SAMPLER VERIFICATION REPORT

Sampler SN: 310

Certified purpose: USEPA TO15
LORs achievable: Ambient air

Sampler type: Soil Gas - Compact
Restrictor type: #3
Sampler valves: QT - Quick Connect

Instrument datafile: 240411_17.D
Verification date: 11-Apr-2024
Valid to (at least): 09-May-2024
Analyst: Dale Semple

Nominal flowrate: 50-60 mL/min
Gauge[1] on dispatch: -29 "Hg

Approved by: DAS 12-Apr-2024

[1]Gauge is indicative only. Reading varies with atmospheric pressure and may change in transit.

SAMPLER VERIFICATION PROTOCOL

Samplers are assembled with appropriate flow restriction for project-specific requirements and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Soil gas samplers are supplied under vacuum with self-sealing quick-connect fittings, effectively performing a shut-in test.

Each verification involves a check for contamination, leaks and damage to fittings.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

CANISTER VERIFICATION REPORT

Canister SN: 12381

Certified purpose: USEPA TO15
LORs achievable: Ambient air

Canister type: Entech Silonite - 'MiniCan'
Canister volume: 1.4L
Canister valve: QT - Quick Connect

Instrument datafile: 240423_12.D
Verification date: 23-Apr-2024
Valid to (at least): 21-May-2024
Analyst: Dale Semple

Vacuum on dispatch: <0.01 psia
Last stability check: 29-Sep-2023
Next check scheduled: 28-Sep-2025
Approved by: DAS 24-Apr-2024

CANISTER VERIFICATION PROTOCOL

Canisters are supplied under vacuum and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Canisters are leak checked for at least 24 hours prior to dispatch from the laboratory.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed every two years to ensure that all target analytes are completely recovered.

ALS METHOD CODE: EP101

REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

CANISTER VERIFICATION REPORT

Canister SN: 14249

Certified purpose: USEPA TO15
LORs achievable: Ambient air
Instrument datafile: 240423_28.D
Verification date: 24-Apr-2024
Valid to (at least): 22-May-2024
Analyst: Dale Semple

Canister type: Entech Silonite - 'MiniCan'
Canister volume: 1.4L
Canister valve: QT - Quick Connect
Vacuum on dispatch: <0.01 psia
Last stability check: 28-Nov-2022
Next check scheduled: 27-Nov-2024
Approved by: DAS 23-Apr-2024

CANISTER VERIFICATION PROTOCOL

Canisters are supplied under vacuum and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Canisters are leak checked for at least 24 hours prior to dispatch from the laboratory.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed every two years to ensure that all target analytes are completely recovered.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

CANISTER VERIFICATION REPORT

Canister SN: 996

Certified purpose: USEPA TO15
LORs achievable: Ambient air

Instrument datafile: 240422_08.D
Verification date: 22-Apr-2024
Valid to (at least): 20-May-2024
Analyst: Dale Semple

Canister type: Entech Silonite - 'MiniCan'
Canister volume: 1.4L
Canister valve: QT - Quick Connect
Vacuum on dispatch: <0.01 psia
Last stability check: 29-Sep-2022
Next check scheduled: 28-Sep-2024
Approved by: DAS 23-Apr-2024

CANISTER VERIFICATION PROTOCOL

Canisters are supplied under vacuum and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Canisters are leak checked for at least 24 hours prior to dispatch from the laboratory.

Each verification involves a check for contamination, leaks and damage to valves. Stability checks are performed every two years to ensure that all target analytes are completely recovered.

ALS METHOD CODE: EP101

REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

SAMPLER VERIFICATION REPORT

Sampler SN: 027

Certified purpose: USEPA TO15
LORs achievable: Ambient air

Instrument datafile: 240415_08.D
Verification date: 15-Apr-2024
Valid to (at least): 13-May-2024
Analyst: Dale Semple

Sampler type: Soil Gas - Compact
Restrictor type: #3
Sampler valves: QT - Quick Connect
Nominal flowrate: 50-60 mL/min
Gauge[1] on dispatch: -28 "Hg

Approved by: DAS 16-Apr-2024

[1]Gauge is indicative only. Reading varies with atmospheric pressure and may change in transit.

SAMPLER VERIFICATION PROTOCOL

Samplers are assembled with appropriate flow restriction for project-specific requirements and have been individually analysed to certify cleanliness according to the requirements of USEPA method TO15. Soil gas samplers are supplied under vacuum with self-sealing quick-connect fittings, effectively performing a shut-in test.

Each verification involves a check for contamination, leaks and damage to fittings.

ALS METHOD CODE: EP101
REFERENCE METHOD: Compendium Method TO15: Determination of Volatile Organic Compounds (VOCs) in air collected in specially-prepared canisters and analysed by Gas Chromatography/Mass Spectrometry (GC/MS)

Target Compound	Alternate name(s)	Target (ppbv)	Result (ppbv)
1,1,1,2-Tetrachloroethane	R-130a / Acetylidene tetrachloride	0.2	<0.2
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	<0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	<0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	<0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	<0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	<0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	<0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	<0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EN2404013**

Client	: **ADE Consulting Group Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: Karin Azzam	Contact	:
Address	: 6/7 MILLENIUM COURT SILVERWATER NSW 2128	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: karin.azzam@ade.group	E-mail	:
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: 23.0722 Cammeray PS DSI	Page	: 1 of 2
Order number	: 23.0722	Quote number	: EP2023ADENVT0001 (EN/111)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Karin Azzam, SAM GOLDSMITH		

Dates

Date Samples Received	: 06-May-2024 09:00	Issue Date	: 06-May-2024
Client Requested Due Date	: 13-May-2024	Scheduled Reporting Date	: **13-May-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 21.0
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Sample Disposal - Aqueous Chemistry (3 weeks), Aqueous Microbiological (1 week), Solid (2 months ± 1 week) from receipt of samples.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **AIR**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	AIR - CAN-1.4L-SAMPLE Canister Sampling - Field Data (1.4 litre canister)	AIR - SG-AH2 TO15 VOCs + NEPM TRH + TPHCWG - Soil
EN2404013-001	02-May-2024 10:00	SV03 C14249_S211	✓	✓
EN2404013-002	02-May-2024 10:15	SV02 C996_S310	✓	✓
EN2404013-003	02-May-2024 10:30	SV01 C1238_S027	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS ADE

- A4 - AU Tax Invoice (INV)	Email	accounts@ade.group

Karin Azzam

- *AU Certificate of Analysis - NATA (COA)	Email	karin.azzam@ade.group
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	karin.azzam@ade.group
- *AU QC Report - DEFAULT (Anon QC Rep) - USEPA (QC-USEPA)	Email	karin.azzam@ade.group
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	karin.azzam@ade.group
- Chain of Custody (CoC) (COC)	Email	karin.azzam@ade.group
- EDI Format - ENMRG (ENMRG)	Email	karin.azzam@ade.group
- EDI Format - ESDAT (ESDAT)	Email	karin.azzam@ade.group
- EDI Format - XTab (XTAB)	Email	karin.azzam@ade.group

SAM GOLDSMITH

- A4 - AU Tax Invoice (INV)	Email	sam.goldsmith@ade.group

CERTIFICATE OF ANALYSIS

Work Order	: **EN2404013**	Page	: 1 of 11
Client	: **ADE Consulting Group Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: Karin Azzam	Contact	:
Address	: 6/7 MILLENIUM COURT SILVERWATER NSW 2128	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 23.0722 Cammeray PS DSI	Date Samples Received	: 06-May-2024 09:00
Order number	: 23.0722	Date Analysis Commenced	: 06-May-2024
C-O-C number	: ----	Issue Date	: 14-May-2024 12:30
Sampler	: Karin Azzam, SAM GOLDSMITH		
Site	: ----		
Quote number	: EN/111		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle, Mayfield West, NSW
Daniel Junek	Senior Organic Chemist	Newcastle - Organics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an absolute pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere.
- CAN-001: Results for Pressure - Gauge As Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure.
- CAN-001: Results for Vacuum - As Received are calculated from the pressures of the canister and laboratory atmosphere at the time of receipt, and are expressed as a measure of the vacuum remaining. A positive value indicates that the canister was below atmospheric pressure upon receipt.
- EP101: ALS quality procedures (QWI-EN/38) permit, for organic trace analysis, that the recoveries of 20% of target compounds may lie outside of established control limits as long as these remain within acceptable ranges defined within referenced USEPA methods.
- EP101, EP103: Results reported in mg/m³ are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)			Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
			Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit	EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
				Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	<0.250	<0.250	<0.250	----	----
Chloromethane	74-87-3	0.100	mg/m³	<0.100	<0.100	<0.100	----	----
Freon 114	76-14-2	0.350	mg/m³	<0.350	<0.350	<0.350	----	----
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	<0.0051	----	----
Bromomethane	74-83-9	0.190	mg/m³	<0.190	<0.190	<0.190	----	----
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	<0.130	----	----
Freon 11	75-69-4	0.280	mg/m³	<0.280	<0.280	<0.280	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	<0.200	----	----
Dichloromethane	75-09-2	0.170	mg/m³	<0.170	<0.170	<0.170	----	----
Freon 113	76-13-1	0.380	mg/m³	<0.380	<0.380	<0.380	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	<0.200	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.0200	<0.0200	----	----
Chloroform	67-66-3	0.240	mg/m³	<0.240	<0.240	<0.240	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	<0.200	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	<0.270	----	----
Benzene	71-43-2	0.100	mg/m³	<0.100	<0.100	<0.100	----	----
Carbon Tetrachloride	56-23-5	0.310	mg/m³	<0.310	<0.310	<0.310	----	----
1.2-Dichloropropane	78-87-5	0.230	mg/m³	<0.230	<0.230	<0.230	----	----
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	<0.0054	<0.0054	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	<0.230	<0.230	<0.230	----	----
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	<0.230	<0.230	<0.230	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	<0.270	----	----
Toluene	108-88-3	0.190	mg/m³	<0.190	<0.190	**0.236**	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	<0.380	<0.380	<0.380	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	<0.340	----	----
Chlorobenzene	108-90-7	0.230	mg/m³	<0.230	<0.230	<0.230	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Ethylbenzene	100-41-4	0.220	mg/m³		<0.220	<0.220	<0.220	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³		<0.430	<0.430	<0.430	----	----
Styrene	100-42-5	0.210	mg/m³		<0.210	<0.210	<0.210	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³		<0.340	<0.340	<0.340	----	----
ortho-Xylene	95-47-6	0.220	mg/m³		<0.220	<0.220	<0.220	----	----
4-Ethyltoluene	622-96-8	0.240	mg/m³		<0.240	<0.240	<0.240	----	----
Total Xylenes	----	0.650	mg/m³		<0.650	<0.650	<0.650	----	----
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³		<0.240	<0.240	<0.240	----	----
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³		<0.240	<0.240	<0.240	----	----
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³		<0.300	<0.300	<0.300	----	----
Benzylchloride	100-44-7	0.260	mg/m³		<0.260	<0.260	<0.260	----	----
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³		<0.300	<0.300	<0.300	----	----
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³		<0.300	<0.300	<0.300	----	----
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³		<0.370	<0.370	<0.370	----	----
Hexachlorobutadiene	87-68-3	0.530	mg/m³		<0.530	<0.530	<0.530	----	----
Acetone	67-64-1	0.120	mg/m³		<0.120	<0.120	<0.120	----	----
Bromodichloromethane	75-27-4	0.340	mg/m³		<0.340	<0.340	<0.340	----	----
1.3-Butadiene	106-99-0	0.110	mg/m³		<0.110	<0.110	<0.110	----	----
Carbon disulfide	75-15-0	0.160	mg/m³		<0.160	<0.160	<0.160	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³		<0.160	<0.160	<0.160	----	----
Cyclohexane	110-82-7	0.170	mg/m³		<0.170	<0.170	<0.170	----	----
Dibromochloromethane	124-48-1	0.430	mg/m³		<0.430	<0.430	<0.430	----	----
1.4-Dioxane	123-91-1	0.180	mg/m³		<0.180	<0.180	<0.180	----	----
Ethylacetate	9002-89-5	0.180	mg/m³		<0.180	<0.180	<0.180	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		<0.200	<0.200	<0.200	----	----
Heptane	142-82-5	0.200	mg/m³		<0.200	<0.200	<0.200	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Hexane	110-54-3	0.180	mg/m³		<0.180	**0.486**	<0.180	----	----
Isooctane	540-84-1	0.230	mg/m³		<0.230	<0.230	<0.230	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³		<0.120	<0.120	<0.120	----	----
2-Butanone (MEK)	78-93-3	0.150	mg/m³		<0.150	<0.150	<0.150	----	----
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³		<0.200	<0.200	<0.200	----	----
2-Hexanone (MBK)	591-78-6	0.200	mg/m³		<0.200	<0.200	<0.200	----	----
Propene	115-07-1	0.0900	mg/m³		<0.0900	**6.24**	<0.0900	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³		<0.180	<0.180	<0.180	----	----
Tetrahydrofuran	109-99-9	0.150	mg/m³		<0.150	<0.150	<0.150	----	----
Bromoform	75-25-2	0.520	mg/m³		<0.520	<0.520	<0.520	----	----
Vinyl Acetate	108-05-4	0.180	mg/m³		<0.180	<0.180	<0.180	----	----
Vinyl bromide	593-60-2	0.220	mg/m³		<0.220	<0.220	<0.220	----	----
Naphthalene	91-20-3	0.100	mg/m³		<0.100	<0.100	<0.100	----	----
2-Chlorotoluene	95-49-8	0.260	mg/m³		<0.260	<0.260	<0.260	----	----
EP101: VOCs by USEPA Method TO15r									
Freon 12	75-71-8	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Chloromethane	74-87-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Freon 114	76-14-2	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Vinyl chloride	75-01-4	0.0020	ppmv		<0.0020	<0.0020	<0.0020	----	----
Bromomethane	74-83-9	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Chloroethane	75-00-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Freon 11	75-69-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Dichloromethane	75-09-2	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Freon 113	76-13-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15r - Continued									
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		<0.0050	<0.0050	<0.0050	----	----
Chloroform	67-66-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Benzene	71-43-2	0.0300	ppmv		<0.0300	<0.0300	<0.0300	----	----
Carbon Tetrachloride	56-23-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.2-Dichloropropane	78-87-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Trichloroethene	79-01-6	0.0010	ppmv		<0.0010	<0.0010	<0.0010	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Toluene	108-88-3	0.0500	ppmv		<0.0500	<0.0500	**0.0627**	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Chlorobenzene	108-90-7	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Ethylbenzene	100-41-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv		<0.100	<0.100	<0.100	----	----
Styrene	100-42-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
ortho-Xylene	95-47-6	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
4-Ethyltoluene	622-96-8	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Benzylchloride	100-44-7	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15r - Continued									
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Hexachlorobutadiene	87-68-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Acetone	67-64-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Bromodichloromethane	75-27-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.3-Butadiene	106-99-0	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Carbon disulfide	75-15-0	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Cyclohexane	110-82-7	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Dibromochloromethane	124-48-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
1.4-Dioxane	123-91-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Ethylacetate	9002-89-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Heptane	142-82-5	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Hexane	110-54-3	0.0500	ppmv		<0.0500	**0.138**	<0.0500	----	----
Isooctane	540-84-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
2-Butanone (MEK)	78-93-3	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
2-Hexanone (MBK)	591-78-6	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Propene	115-07-1	0.0500	ppmv		<0.0500	**3.63**	<0.0500	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Tetrahydrofuran	109-99-9	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Bromoform	75-25-2	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Vinyl Acetate	108-05-4	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Vinyl bromide	593-60-2	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP101: VOCs by USEPA Method TO15r - Continued									
Naphthalene	91-20-3	0.0190	ppmv		<0.0190	<0.0190	<0.0190	----	----
2-Chlorotoluene	95-49-8	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
C10 - C14 Fraction	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	20.0	mg/m³		<20.0	<20.0	<20.0	----	----
C10 - C14 Fraction	----	35.0	mg/m³		<35.0	<35.0	<35.0	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	5.00	ppmv		<5.00	<5.00	<5.00	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	5.00	ppmv		<5.00	<5.00	<5.00	----	----
>C10 - C16 Fraction	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									
C6 - C10 Fraction	C6_C10	20.0	mg/m³		<20.0	<20.0	<20.0	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³		<20.0	<20.0	<20.0	----	----
>C10 - C16 Fraction	----	40.0	mg/m³		<40.0	<40.0	<40.0	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³		<40.0	<40.0	<40.0	----	----
EP103-S: CRCCARE PVI Aliphatic Hydrocarbon Fractions									
Aliphatic C6-C10	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
Aliphatic > C10-C16	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
EP103-S: CRCCARE PVI Aliphatic Hydrocarbon Fractions (Calc Conc)									
Aliphatic C6-C10	----	20.0	mg/m³		<20.0	<20.0	<20.0	----	----
Aliphatic > C10-C16	----	37.0	mg/m³		<37.0	<37.0	<37.0	----	----
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions									

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions - Continued									
Aromatics C6-C10	----	0.700	ppmv		<0.700	<0.700	<0.700	----	----
Aromatics C6-C10 minus BTEX (F1 Aromatic)	----	0.400	ppmv		<0.400	<0.400	<0.400	----	----
Aromatic > C10-C16	----	0.200	ppmv		<0.200	<0.200	<0.200	----	----
Aromatics >C10-C16 minus Naphthalene (F2 Aromatic)	----	0.150	ppmv		<0.150	<0.150	<0.150	----	----
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions (Calc Conc)									
Aromatics C6-C10	----	3.00	mg/m³		<3.00	<3.00	<3.00	----	----
Aromatics C6-C10 minus BTEX (F1 Aromatic)	----	1.40	mg/m³		<1.40	<1.40	<1.40	----	----
Aromatic > C10-C16	----	1.40	mg/m³		<1.40	<1.40	<1.40	----	----
Aromatics >C10-C16 minus Naphthalene (F2 Aromatic)	----	1.40	mg/m³		<1.40	<1.40	<1.40	----	----
EP103-S: TPH CWG Aliphatic Hydrocarbon Fractions									
Aliphatic >C5-C6	----	5.00	ppmv		<5.00	<5.00	<5.00	----	----
Aliphatic >C6-C8	TPHCWG-ALV2	5.00	ppmv		<5.00	<5.00	<5.00	----	----
Aliphatic >C8-C10	TPHCWG-ALV3	5.00	ppmv		<5.00	<5.00	<5.00	----	----
Aliphatic >C10-C12	TPHCWG-ALE1	5.00	ppmv		<5.00	<5.00	<5.00	----	----
EP103-S: TPH CWG Aliphatic Hydrocarbon Fractions (Calc Conc)									
Aliphatic >C5-C6	----	16.5	mg/m³		<16.5	<16.5	<16.5	----	----
Aliphatic >C6-C8	TPHCWG-ALV2	20.0	mg/m³		<20.0	<20.0	<20.0	----	----
Aliphatic >C8-C10	TPHCWG-ALV3	25.0	mg/m³		<25.0	<25.0	<25.0	----	----
Aliphatic >C10-C12	TPHCWG-ALE1	30.0	mg/m³		<30.0	<30.0	<30.0	----	----
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions									
Aromatic >C5-C7	----	0.0500	ppmv		<0.0500	<0.0500	<0.0500	----	----
Aromatic >C7-C8	TPHCWG-ARV2	0.0500	ppmv		<0.0500	<0.0500	**0.0580**	----	----
Aromatic >C8-C10	TPHCWG-ARV3	0.250	ppmv		<0.250	<0.250	<0.250	----	----
Aromatic >C10-C12	TPHCWG-ARE1	0.500	ppmv		<0.500	<0.500	<0.500	----	----
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions (Calc Conc)									

Analytical Results

Sub-Matrix: SOIL GAS (Matrix: AIR)				Sample ID	SV03 C14249_S211	SV02 C996_S310	SV01 C1238_S027	----	----
				Sampling date / time	02-May-2024 10:00	02-May-2024 10:15	02-May-2024 10:30	----	----
Compound	CAS Number	LOR	Unit		EN2404013-001	EN2404013-002	EN2404013-003	--------	--------
					Result	Result	Result	----	----
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions (Calc Conc) - Continued									
Aromatic >C5-C7	----	0.160	mg/m³		<0.160	<0.160	<0.160	----	----
Aromatic >C7-C8	TPHCWG-ARV2	0.190	mg/m³		<0.190	<0.190	**0.218**	----	----
Aromatic >C8-C10	TPHCWG-ARV3	1.25	mg/m³		<1.25	<1.25	<1.25	----	----
Aromatic >C10-C12	TPHCWG-ARE1	2.50	mg/m³		<2.50	<2.50	<2.50	----	----
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**93.7**	**70.4**	**67.9**	----	----
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**100**	**100**	**100**	----	----
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	**21.0**	----	----
Vacuum - As received	----	0.03	Inches Hg		**2.01**	**8.89**	**9.66**	----	----
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		**91.1**	**91.5**	**90.7**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL GAS		Recovery Limits (%)	
Compound	CAS Number	Low	High
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	60	140

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN2404013**	Page	: 1 of 5
Client	: **ADE Consulting Group Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: Karin Azzam	Telephone	: +61 2 4014 2500
Project	: 23.0722 Cammeray PS DSI	Date Samples Received	: 06-May-2024
Site	: ----	Issue Date	: 14-May-2024
Sampler	: Karin Azzam, SAM GOLDSMITH	No. of samples received	: 3
Order number	: 23.0722	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **AIR**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP101: VOCs by USEPA Method TO15r	QC-5778290-002	----	**Bromoform**	75-25-2	69.4 %	70.0-130%	**Recovery less than lower control limit**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP101: VOCs by USEPA Method TO15r							
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) SV03 - C14249_S211	**02-May-2024**	**----**	----	**----**	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	**----**	**13-May-2024**	01-Jun-2024	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SV03 - C14249_S211	**02-May-2024**	**----**	----	**----**	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	**----**	**13-May-2024**	01-Jun-2024	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SV03 - C14249_S211	**02-May-2024**	**----**	----	**----**	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	**----**	**13-May-2024**	01-Jun-2024	✓
EP103-S: CRCCARE PVI Aliphatic Hydrocarbon Fractions							
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV03 - C14249_S211	**02-May-2024**	**----**	----	**----**	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	**----**	**13-May-2024**	01-Jun-2024	✓
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions							
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV03 - C14249_S211	**02-May-2024**	**----**	----	**----**	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	**----**	**13-May-2024**	01-Jun-2024	✓

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP103-S: TPH CWG Aliphatic Hydrocarbon Fractions							
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV03 - C14249_S211	**02-May-2024**	**----**	----	----	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	----	**13-May-2024**	01-Jun-2024	✓
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions							
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV03 - C14249_S211	**02-May-2024**	**----**	----	----	**12-May-2024**	01-Jun-2024	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-S) SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	----	**13-May-2024**	01-Jun-2024	✓
Sampling Quality Assurance							
Gas Canister - ALS Stainless Steel Silonite (CAN-001) SV03 - C14249_S211, SV02 - C996_S310, SV01 - C1238_S027	**02-May-2024**	**----**	----	----	**06-May-2024**	02-May-2025	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
Aliphatic and Aromatic Hydrocarbons in Gaseous Samples	EP103-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
Aliphatic and Aromatic Hydrocarbons in Gaseous Samples	EP103-S	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Aliphatic and Aromatic Hydrocarbons in Gaseous Samples	EP103-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Aliphatic and Aromatic Hydrocarbons in Gaseous Samples	EP103-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	USEPA TO15r VOCs in Air Results recalculated as mass/volume concentrations from volume/volume concentrations at a given temperature and pressure.
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH and TPH/NEPM Schedule B(3) Fractions
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	USEPA TO15r, CRCCARE, MassDEP APH Results recalculated as mass/volume concentrations from volume/volume concentrations at a given temperature, pressure and mid-range molecular weights.
Aliphatic and Aromatic Hydrocarbons in Gaseous Samples	EP103-S	AIR	Aliphatic and Aromatic Hydrocarbons in Gaseous Samples by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH, TPHCWG and CRCCARE PVI Technical Report 23, 2013
Aliphatic and Aromatic Hydrocarbons in Gas Samples (Calc)	EP103-S-MV	AIR	USEPA TO15r, TPHCWG, MassDEP APH Results recalculated as mass/volume concentrations from volume/volume concentrations at a given temperature, pressure and molecular weights (incl. TPHCWG Vol3 Table 8).

QUALITY CONTROL REPORT

Work Order	: **EN2404013**	Page	: 1 of 9
Client	: **ADE Consulting Group Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: Karin Azzam	Contact	:
Address	: 6/7 MILLENIUM COURT SILVERWATER NSW 2128	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: 23.0722 Cammeray PS DSI	Date Samples Received	: 06-May-2024
Order number	: 23.0722	Date Analysis Commenced	: 06-May-2024
C-O-C number	: ----	Issue Date	: 14-May-2024
Sampler	: Karin Azzam, SAM GOLDSMITH		
Site	: ----		
Quote number	: EN/111		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report ; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle, Mayfield West, NSW
Daniel Junek	Senior Organic Chemist	Newcastle - Organics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 5778290)									
EN2404013-001	SV03 C14249_S211	EP101-15X: Freon 12	75-71-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5 (2.0)*	ppbv	<0.0020 ppmv	<2.0	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5 (5.0)*	ppbv	<0.0050 ppmv	<5.0	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5 (30.0)*	ppbv	<0.0300 ppmv	<30.0	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5 (1.0)*	ppbv	<0.0010 ppmv	<1.0	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 5778290) - continued									
EN2404013-001	SV03 C14249_S211	EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexane	110-54-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isooctane	540-84-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 5778290) - continued									
EN2404013-001	SV03 C14249_S211	EP101-15X: Tetrahydrofuran	109-99-9	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5 (19.0)*	ppbv	<0.0190 ppmv	<19.0	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1 (100)*	ppbv	<0.100 ppmv	<100	0.0	No Limit
EN2404022-001	Anonymous	EP101-15X: Freon 12	75-71-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 114	76-14-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5 (2.0)*	ppbv	<0.0020 ppmv	<2.0	0.0	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 11	75-69-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Freon 113	76-13-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5 (5.0)*	ppbv	<0.0050 ppmv	<5.0	0.0	No Limit
		EP101-15X: Chloroform	67-66-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzene	71-43-2	0.5 (30.0)*	ppbv	<0.0300 ppmv	<30.0	0.0	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5 (1.0)*	ppbv	<0.0010 ppmv	<1.0	0.0	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Toluene	108-88-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Styrene	100-42-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 5778290) - continued									
EN2404022-001	Anonymous	EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Acetone	67-64-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Heptane	142-82-5	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Hexane	110-54-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isooctane	540-84-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Propene	115-07-1	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Bromoform	75-25-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5 (19.0)*	ppbv	<0.0190 ppmv	<19.0	0.0	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1 (100)*	ppbv	<0.100 ppmv	<100	0.0	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 5778297)									
EN2404013-001	SV03 C14249_S211	EP103-PC: C6 - C9 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-PC: C10 - C14 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 5778297) - continued									
EN2404022-001	Anonymous	EP103-PC: C6 - C9 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-PC: C10 - C14 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 5778297)									
EN2404013-001	SV03 C14249_S211	EP103-PC: C6 - C10 Fraction	C6_C10	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-PC: >C10 - C16 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EN2404022-001	Anonymous	EP103-PC: C6 - C10 Fraction	C6_C10	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-PC: >C10 - C16 Fraction	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EP103-S: CRCCARE PVI Aliphatic Hydrocarbon Fractions (QC Lot: 5778299)									
EN2404013-001	SV03 C14249_S211	EP103-S: Aliphatic C6-C10	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-S: Aliphatic > C10-C16	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions (QC Lot: 5778299)									
EN2404013-001	SV03 C14249_S211	EP103-S: Aromatics >C10-C16 minus Naphthalene (F2 Aromatic)	----	1.5 (150)*	ppbv	<0.150 ppmv	<150	0.0	No Limit
		EP103-S: Aromatic > C10-C16	----	2 (200)*	ppbv	<0.200 ppmv	<200	0.0	No Limit
		EP103-S: Aromatics C6-C10 minus BTEX (F1 Aromatic)	----	4 (400)*	ppbv	<0.400 ppmv	<400	0.0	No Limit
		EP103-S: Aromatics C6-C10	----	7 (700)*	ppbv	<0.700 ppmv	<700	0.0	No Limit
EP103-S: TPH CWG Aliphatic Hydrocarbon Fractions (QC Lot: 5778299)									
EN2404013-001	SV03 C14249_S211	EP103-S: Aliphatic >C5-C6	----	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-S: Aliphatic >C6-C8	TPHCWG-ALV2	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-S: Aliphatic >C8-C10	TPHCWG-ALV3	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
		EP103-S: Aliphatic >C10-C12	TPHCWG-ALE1	50 (5000)*	ppbv	<5.00 ppmv	<5000	0.0	No Limit
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions (QC Lot: 5778299)									
EN2404013-001	SV03 C14249_S211	EP103-S: Aromatic >C5-C7	----	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP103-S: Aromatic >C7-C8	TPHCWG-ARV 2	0.5 (50.0)*	ppbv	<0.0500 ppmv	<50.0	0.0	No Limit
		EP103-S: Aromatic >C8-C10	TPHCWG-ARV 3	2.5 (250)*	ppbv	<0.250 ppmv	<250	0.0	No Limit
		EP103-S: Aromatic >C10-C12	TPHCWG-ARE1	5 (500)*	ppbv	<0.500 ppmv	<500	0.0	No Limit

Method Blank (MB), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 5778290)											
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	110	110	88.1	117	0.0	----
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	104	103	70.5	130	1.0	----
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	112	112	88.2	118	0.0	----
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	113	113	82.0	120	0.0	----
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	112	112	87.9	116	0.0	----
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	113	112	84.2	118	0.9	----
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	108	108	87.1	117	0.0	----
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	108	109	87.1	115	0.9	----
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	106	105	70.0	129	0.9	----
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	100	101	83.8	121	1.0	----
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	112	112	85.1	116	0.0	----
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	108	108	83.7	119	0.0	----
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	109	109	87.3	113	0.0	----
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	110	109	81.7	117	0.9	----
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	101	102	82.8	116	1.0	----
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	108	108	83.3	114	0.0	----
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	94.1	96.4	82.7	120	2.4	----
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	106	107	83.3	113	0.9	----
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	99.4	99.4	85.1	113	0.0	----
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	100	101	84.0	116	1.0	----
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	89.1	91.2	75.3	121	2.3	----
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	102	103	87.5	116	1.0	----
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	103	103	81.8	120	0.0	----
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	97.4	98.6	84.0	119	1.2	----
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	88.7	89.1	75.7	126	0.4	----
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	98.8	98.8	84.8	118	0.0	----
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	102	103	82.8	116	1.0	----
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	102	103	84.3	118	1.0	----
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	103	103	74.6	125	0.0	----
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	104	105	86.9	120	1.0	----
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	103	104	84.9	120	1.0	----
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	101	102	78.2	125	1.0	----

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 5778290) - continued											
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	102	102	83.3	126	0.0	----
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	101	101	82.1	125	0.0	----
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	89.3	90.6	78.5	124	1.4	----
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	76.1	78.5	70.0	122	3.1	----
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	91.1	91.5	79.0	124	0.4	----
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	91.9	92.6	80.0	125	0.8	----
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	77.6	78.8	70.0	120	1.5	----
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	82.1	82.1	70.0	130	0.0	----
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	106	106	70.0	130	0.0	----
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	108	109	82.3	117	0.9	----
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	115	114	74.0	126	0.9	----
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	109	110	85.0	115	0.9	----
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	97.4	97.8	79.1	128	0.4	----
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	107	107	74.3	122	0.0	----
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	108	109	82.2	113	0.9	----
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	95.9	97.8	78.4	129	2.0	----
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	100	99.9	70.0	130	0.1	----
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	93.0	94.1	70.0	122	1.2	----
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	111	111	82.9	115	0.0	----
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	109	110	80.1	117	0.9	----
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	112	112	76.8	123	0.0	----
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	111	111	77.6	120	0.0	----
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	73.5	74.9	70.0	128	1.9	----
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	107	107	70.0	123	0.0	----
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	101	102	70.0	126	1.0	----
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	92.6	93.4	70.0	130	0.9	----
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	110	115	70.0	130	4.4	----
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	103	104	74.7	125	1.0	----
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	113	112	70.0	130	0.9	----
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	# 69.4	71.9	70.0	130	3.5	----
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	73.4	74.6	70.0	128	1.6	----
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	108	108	83.8	116	0.0	----
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	8.16 ppbv	74.8	76.6	70.0	125	2.4	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 5778297)											
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2700 ppbv	104	105	75.3	124	1.0	25
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	92.4	93.0	80.8	126	0.6	25
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 5778297)											
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	2900 ppbv	101	102	77.5	124	1.0	25
EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<50	500 ppbv	88.4	88.8	79.3	131	0.5	25

Sub-Matrix: **AIR**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP103-S: CRCCARE PVI Aliphatic Hydrocarbon Fractions (QCLot: 5778299)											
EP103-S: Aliphatic C6-C10	----	50	ppbv	<50	----	----	----	----	----	----	----
EP103-S: Aliphatic > C10-C16	----	50	ppbv	<50	----	----	----	----	----	----	----
EP103-S: CRCCARE PVI Aromatic Hydrocarbon Fractions (QCLot: 5778299)											
EP103-S: Aromatics C6-C10	----	7	ppbv	<7.0	----	----	----	----	----	----	----
EP103-S: Aromatics C6-C10 minus BTEX (F1 Aromatic)	----	4	ppbv	<4	----	----	----	----	----	----	----
EP103-S: Aromatic > C10-C16	----	2	ppbv	<2	----	----	----	----	----	----	----
EP103-S: Aromatics >C10-C16 minus Naphthalene (F2 Aromatic)	----	1.5	ppbv	<2	----	----	----	----	----	----	----
EP103-S: TPH CWG Aliphatic Hydrocarbon Fractions (QCLot: 5778299)											
EP103-S: Aliphatic >C5-C6	----	50	ppbv	<50	1000 ppbv	105	105	73.2	125	0.0	25
EP103-S: Aliphatic >C6-C8	TPHCWG-ALV2	50	ppbv	<50	1300 ppbv	102	103	76.0	120	1.0	25
EP103-S: Aliphatic >C8-C10	TPHCWG-ALV3	50	ppbv	<50	200 ppbv	77.0	77.4	54.7	124	0.5	25
EP103-S: Aliphatic >C10-C12	TPHCWG-ALE1	50	ppbv	<50	200 ppbv	77.5	77.7	70.0	128	0.3	25
EP103-S: TPH CWG Aromatic Hydrocarbon Fractions (QCLot: 5778299)											
EP103-S: Aromatic >C5-C7	----	0.5	ppbv	<0.5	100 ppbv	98.2	99.5	83.3	116	1.3	25
EP103-S: Aromatic >C7-C8	TPHCWG-ARV2	0.5	ppbv	<0.5	100 ppbv	98.9	99.7	87.3	114	0.8	25
EP103-S: Aromatic >C8-C10	TPHCWG-ARV3	2.5	ppbv	<2.5	1100 ppbv	98.8	99.7	84.7	122	0.9	25
EP103-S: Aromatic >C10-C12	TPHCWG-ARE1	5	ppbv	<5	300 ppbv	98.6	99.2	83.4	128	0.6	25

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

Appendix H: Data Quality Evaluation

Background

To evaluate a dataset generated by an environmental investigation or assessment, the data quality indicators need to be defined to ensure that the data are of sufficient quantity and quality for the purpose of making a decision. ASC NEPM (2013) identifies five measures to be considered when reviewing the quality assurance and quality control from an investigation or assessment as below:

- Precision: A quantitative measure of the variability or reproducibility of data.
- Accuracy (bias): A quantitative measure of the closeness of reported data to the true value.
- Representativeness: The confidence (expressed qualitatively) that data is representative of each medium present at the site.
- Comparability: The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.
- Completeness: A measure of the amount of useable data (expressed as %) from a data collection activity.

The above five measures are known collectively by the acronym 'PARCC' and are comprised of both field and laboratory QA and QC processes to ensure that a resultant data set is suitable for making a decision.

The quantitative requirements have been outlined in the following sub-section, while the detailed review of the field and laboratory QA and QC is provided in the subsequent sub-sections.

Data Quality Indicators

The DGIs to demonstrate the PARC acceptance criteria were summarised in **Table H1** below.

Table H1: Data Quality Indicators

Data Quality Indicator	Frequency	Data Quality Criteria
Blind replicate (intra-laboratory)	1:20 or 5%	< 50% RPD
Split replicate (inter-laboratory)	1:20 or 5%	< 50% RPD
Trip Blank	1 per laboratory batch	< LOR
Trip Spike	1 per laboratory batch	70 – 130% recovery
Equipment rinsate blanks	N/A	N/A
Field blanks	N/A	N/A
Laboratory surrogate spikes	10% or laboratory discretion	50 – 150% recovery
Laboratory matrix spikes	10% or laboratory discretion	70 – 130% recovery
Laboratory control spikes	10% or laboratory discretion	70 – 130% recovery
Laboratory duplicates (internal)	10% or laboratory discretion	Results <10 times the PQL: No Limit Results between 10-20 times the PQL: RPD must lie between 0-50% Results >20 times the PQL: RPD must lie between 0-30%
Method blanks	Results between 10-20 times the PQL: RPD must lie between 0-50%	<LOR

Field Data Evaluation

Field Staff

ADE provided suitably experienced and qualified environmental consultants to oversee the investigations completed at the site.

Investigation and Sampling Methods

This targeted DSI is required for due diligence purposes to investigate the contamination risk status from current and historical use, prior to the proposed construction of a new building to accommodate new general learning spaces.

A review of available historical information and previous environmental investigations have inferred that the site has a low potential for contamination resulting from past and present land uses. Potential sources of contamination were identified to include; the potential for uncontrolled fill to exist on site, migration of contaminants from offsite sources.

An environmental investigation was therefore undertaken to assess soil conditions within the site. The following data collected was then used to evaluate and characterise the soil condition across the site to inform the need for remediation and further management (if required).

A total of 15 soil samples were collected from 10 locations (5 boreholes and 5 test pits) for analysis of CoPC. Three soil vapour bores were installed and soil vapour sampled from the three bores.

Soil samples were collected in clean glass jars and bags supplied by the laboratory. The jars were filled to capacity to ensure minimal headspace was present and placed directly into a chilled esky for transportation to the laboratory.

The Soil Vapour Bores were purged and sampled in accordance with (DECCW, 2010) Vapour Intrusion: Technical Practice Note and samples were transported in Silonite Mini-Cans to the laboratory.

The investigations and sampling methods adopted for the site remediation works were considered suitable for the identified CoPC. ADE considers that the analytical results are representative of the conditions of the sampling locations at the time of sampling and are directly usable for the purpose of this assessment.

Blind and Split Replicate Samples

Australian Standard 4428.1 and ASC NEPM (2013) specifies the typical Relative Percentage Data (RPD) values for replicate samples to be below 30%. If both samples' values are less than the practical quantification limit (PQL), the RPD is not calculated. RPDs are only calculated when the concentration is greater than 1x the EQL. The acceptable RPDs were specified in the Measurement Data Quality Indicators (MDQIs) from the DQOs (ADE, 2023) and for each EQL multiplier range are:

- Reported result is between 1 - 10 x EQL - 81% (1 - 10 x EQL);
- Reported result is between 10 - 30 x EQL - 50% (10 - 30 x EQL);
- Reported result is > 30 x EQL - 30% (> 30 x EQL).

The RPD is calculated with the following formula:

$$RPD = \frac{|x - y|}{\frac{(x + y)}{2}} \times 100$$

BR1 is an intra-laboratory (blind) duplicate of primary soil sample BH03_0.2-0.3, analysed at SLS. None of the RPD values between SBR1 and the parent sample were noted to be invalid within the adopted criteria (refer to **Appendix I– RPD calculation**).

SR is an inter-laboratory (split) duplicate of primary soil sample BH03_0.2-0.3. Marginal exceedances of the tolerance between SR and the parent sample were observed for TRH fraction sum and Copper and Zinc that can be attributed to the inherent heterogenous nature of fill material.

None of the exceedances affect the overall outcome of the assessment.

Trip/ Field Blank and Trip Spike Samples

Trip blank and trip spike samples are laboratory prepared control samples that are taken into the field and stored with samples collected during the course of any investigation to evaluate the sample handling and storage during collection and transport. The trip blank sample is a degassed/ purged sample that does not contain any BTEX group compounds, hence when analysed should be below the laboratory limit of reporting (LOR). Conversely, the trip spike is spiked with a known concentration of BTEX group compounds and then re-analysed upon return to the laboratory to determine the potential for volatile loss and potential cross contamination.

The trip spike results are compared to the known concentration, or a control analysis conducted prior to the sample being issued by the laboratory. Where the concentrations are below the DQI, there is potential for volatile contaminants to have been lost, and therefore a Type I error (i.e., false negative) may occur or other samples may be cross contaminated and a Type 2 error (i.e., false positive) may occur.

No trip blank or trip spike samples were evaluated during the site assessment.

None of the soil samples reported BTEX concentrations exceeding the SAC and were below the LOR for the laboratory hence the absence of the trip spike and blank will not affect the outcome of this assessment.

The soil laboratory results were consistent with field observations including no odours or PID readings greater than 1.0 ppm.

Equipment Calibration and Decontamination

Equipment used to assess for potential contamination or measure parameters in the field requires calibration in accordance with the manufacturer's requirements to ensure that the results are accurate. All equipment must be calibrated prior to entering the field and should be bump tested as required but at a minimum at the start of each day where sampling is undertaken.

Field equipment requiring calibration included the use of a photo-ionisation detector (PID) during the initial borehole assessment and during the soil vapour sampling. The PID was calibrated by an external qualified technician before the sampling events (refer to **Appendix E** for the calibration certificates used for each event).

Soil samples for chemical and asbestos analysis were collected using dedicated sampling equipment (i.e., disposable nitrile gloves).

Laboratory Data Evaluation

Quality control reports from the laboratories subcontracted for sample analyses were reviewed. Laboratory blank samples, duplicate samples, control samples, spiked samples and method blanks were evaluated.

Accreditation and Documentation
The analytical laboratories utilised during the course of this investigation were suitable accredited by National Association of Testing Authorities (NATA) for the required analysis and adopted approved methodologies. The following laboratories were used in the course of the investigation:

- Primary laboratories:
    - Sydney Laboratory Services Pty Ltd (SLS) - accreditation number 14664
    - Australian Laboratory Services Pty Ltd (ALS) - accreditation number 825
- Secondary laboratory:

- Envirolab Services Pty Ltd (Envirolab) - accreditation number 2901

The laboratory methodologies and the respective accreditations of SLS, ALS and Envirolab were deemed suitable for the required analyses. Refer to **Appendix G – Analytical Reports and Chain of Custody Documentation** for the details of the adopted laboratory analytical methods, their respective accreditations and full laboratory transcripts including:

- Sample Receipt Notification (SRN);
- Certificates of Analysis (CoA);
- Quality Assurance and Quality Control Reports (if any); and
- Chain of Custody documentation.

Australian Standard AS 4482.1 defines the chain-of-custody documentation as the link in the transfer of samples between the time of collection and arrival at the laboratory.

The CoC utilised by ADE included the items recommended by the Standard:

- The person transferred the samples;
- The person who received the samples;
- Date the samples were collected;
- Date the samples were received at the laboratory; and
- Contact name and details for the client.

Preservation, Storage and Holding Times

Sample preservation, storage and recommended holding time requirements aim to prevent the potential for contamination to degrade during the time between sample collection and analysis. In general, samples are required to be stored at <4°C prior to extraction at the analytical laboratory. The preservation and holding time requirements vary depending on the analyte with volatile compounds generally requiring extraction in a short period of time (approximately 7-14 days), while more stable compounds have holding times up to several months. Note that there is no storage or holding time requirements for samples of asbestos or ACM.

Preservatives are generally not added to soil samples but are required for samples of ground or surface water that may be collected during an investigation.

The samples were in proper custody between the field and reaching the laboratory in a good condition, documented in a signed chain of custody form (refer to **Appendix G**)

Samples were properly and adequately preserved and refrigerated, and all primary and QAQC samples collected over the course of the investigation were submitted within the recommended holding times of the required analysis. As such, the holding times of the samples to the final submission to the laboratories used (SLS and Envirolab) meet the recommended holding time criteria, with all samples analysed within 7 days (or specific to an analyte) from the time of collection.

Minimum Detection Limits

To ensure that Type 1 errors (i.e., false negative) do not occur during the analysis of chemical contaminants and that suitable resolution and accuracy to evaluate the risk to receptors are captured, a minimum detection limit (MDL or LOR) should be set as 50% of the relevant criteria threshold as per ASC NEPM (2013).

The LORs were sufficient to accurately quantify detectable contaminants.

Duplicate Samples

Internal laboratory duplicates are completed to assess for the reproducibility between known primary and the duplicate samples via RPD comparison.

All laboratory duplicates were reported to have RPDs within acceptable limits.

Matrix Spikes
Matrix spikes require samples submitted to the analytical laboratory to be spiked with a known concentration of a generally synthetic compound that is similar to those likely to be present within the sample to evaluate the matrix interference on the analyte recoveries. The laboratory limit of 70-130% for inorganics / metals, and 60-140% for organics was used to validate matrix spikes.

All matrix spike results were within acceptable criteria.

Laboratory Control Spikes and Surrogates
Laboratory control spikes are similar to matrix spikes, however, utilise a matrix that is free from interference (e.g., other contaminants) to demonstrate that the analytical system is in control.

The laboratory limit of 70-130% for inorganics / metals, and 60-140% for organics was used to validate laboratory control samples. The laboratory limit of 50-150% was implemented to validate surrogate recoveries for organic analytes.

The recoveries for the laboratory control spikes and the surrogates were within acceptable criteria.

Method Blanks
Method blanks assess for false positives by analysing a blank sample and ensuring that the returned result is below the MDL. No contaminants were found in the blanks analysed by the laboratory.

Summary

The acceptable limits on decision errors to be applied in the investigation and the manner of addressing possible decision errors have been applied. The data is considered suitable for its intended use in operations, decision making and planning as per step 6 of the data quality objectives and assessment.

Appendix I: RPD calculations

			Lab Report Number	A101023.0722.00 (368-378)	A101023.0722.00 (368-378)	
			Field ID	C_BH03_0.2-0.3	BR	
			Date	12 Jan 2024	12 Jan 2024	
			Matrix Type	Soil	Soil	RPD
	Unit	EQL				
Metals						
Arsenic	mg/kg	4		<5.0	<5.0	0
Cadmium	mg/kg	0.3		0.31	<0.30	3
Chromium (III+VI)	mg/kg	1		18.1	15.3	17
Copper	mg/kg	1		41.1	45.3	10
Lead	mg/kg	1		17.7	11.8	40
Mercury	mg/kg	0.1		<0.10	<0.10	0
Nickel	mg/kg	1		53.0	52.9	0
Zinc	mg/kg	1		56.8	55.8	2
BTEX						
Benzene	mg/kg	0.2		<0.50	<0.50	0
Toluene	mg/kg	0.5		<0.50	<0.50	0
Ethylbenzene	mg/kg	1		<1.0	<1.0	0
Xylene (m & p)	mg/kg	2		<2.0	<2.0	0
Xylene (o)	mg/kg	1		<1.0	<1.0	0
Xylene Total	mg/kg	1		<2.0	<2.0	0
Naphthalene (VOC)	mg/kg	1		NT	NT	NT
Total BTEX	mg/kg	2		<2.00	<2.00	0
PAH						
Acenaphthene	mg/kg	0.1		<0.30	<0.30	0
Acenaphthylene	mg/kg	0.1		<0.30	<0.30	0
Anthracene	mg/kg	0.1		<0.30	<0.30	0
Benzo(b+j+k)fluoranthene	mg/kg	0.2		<0.30	<0.30	0
Benz(a)anthracene	mg/kg	0.1		<0.30	<0.30	0
Benzo(a) pyrene	mg/kg	0.05		<0.30	<0.30	0
Benzo(g,h,i)perylene	mg/kg	0.1		<0.30	<0.30	0
Chrysene	mg/kg	0.1		<0.30	<0.30	0
Dibenz(a,h)anthracene	mg/kg	0.1		<0.30	<0.30	0
Fluoranthene	mg/kg	0.1		<0.30	<0.30	0
Fluorene	mg/kg	0.1		<0.30	<0.30	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		<0.30	<0.30	0
Naphthalene	mg/kg	0.1		<0.30	<0.30	0
Phenanthrene	mg/kg	0.1		<0.30	<0.30	0
Pyrene	mg/kg	0.1		<0.30	<0.30	0
PAHs (Sum of positives)	mg/kg	0.05		<0.30	<0.30	0
PCBs						
Arochlor 1016	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1221	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1232	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1242	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1248	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1254	mg/kg	0.1		<0.50	<0.50	0
Arochlor 1260	mg/kg	0.1		<0.50	<0.50	0
PCBs (Sum of total)	mg/kg	0.1		NT	NT	NT
Physical						
Moisture Content	%	0.1		3.9	5.6	36
TRH						
C6-C10 Fraction (F1)	mg/kg	25		<35	<35	0
C6-C10 (F1 minus BTEX)	mg/kg	25		<35	<35	0
>C10-C16 Fraction (F2)	mg/kg	50		<50	<50	0
>C10-C16 Fraction (F2 minus Naphthalene)	mg/kg	50		NT	NT	NT
>C16-C34 Fraction (F3)	mg/kg	100		<100	139	33
>C34-C40 Fraction (F4)	mg/kg	100		175	225	25
>C10-C40 Fraction (Sum)	mg/kg	50		175	364	70
TPH						
C6-C9 Fraction	mg/kg	25		<25	<25	0
C10-C14 Fraction	mg/kg	50		<50	<50	0
C15-C28 Fraction	mg/kg	100		<100	<100	0
C29-C36 Fraction	mg/kg	100		162	239	38
C10-C36 Fraction (Sum)	mg/kg	50		162	239	38
Organochlorine Pesticides						
4,4-DDE	mg/kg	0.1		<0.10	<0.10	0
a-BHC	mg/kg	0.1		<0.10	<0.10	0
Aldrin	mg/kg	0.1		<0.10	<0.10	0
b-BHC	mg/kg	0.1		<0.10	<0.10	0
Chlordane (cis)	mg/kg	0.1		<0.10	<0.10	0
Chlordane (trans)	mg/kg	0.1		<0.10	<0.10	0
d-BHC	mg/kg	0.1		<0.10	<0.10	0
DDD	mg/kg	0.1		<0.10	<0.10	0
DDT	mg/kg	0.1		<0.10	<0.10	0
DDT+DDE+DDD	mg/kg	0.1		NT	NT	NT
Dieldrin	mg/kg	0.1		<0.10	<0.10	0
Endosulfan I	mg/kg	0.1		<0.20	<0.20	0
Endosulfan II	mg/kg	0.1		<0.20	<0.20	0
Endosulfan sulphate	mg/kg	0.1		<0.10	<0.10	0
Endrin	mg/kg	0.1		<0.20	<0.20	0
Endrin aldehyde	mg/kg	0.1		<0.10	<0.10	0
Endrin ketone	mg/kg	0.1		<0.10	<0.10	0
Fenamiphos	mg/kg	0.1		NT	NT	NT
g-BHC (Lindane)	mg/kg	0.1		<0.10	<0.10	0
Heptachlor	mg/kg	0.1		<0.10	<0.10	0
Heptachlor epoxide	mg/kg	0.1		<0.10	<0.10	0
Methoxychlor	mg/kg	0.1		<0.10	<0.10	0
Mirex	mg/kg	0.1		NT	NT	NT
Organophosphorous Pesticides						
Azinophos methyl	mg/kg	0.1		NT	NT	NT
Bromophos-ethyl	mg/kg	0.1		NT	NT	NT
Chlorpyrifos	mg/kg	0.1		<0.10	<0.10	0
Chlorpyrifos-methyl	mg/kg	0.1		<0.10	<0.10	0
Coumaphos	mg/kg	0.1		NT	NT	NT
Tribuphos	mg/kg	0.1		<0.10	<0.10	0
Diazinon	mg/kg	0.1		<0.10	<0.10	0
Dichlorvos	mg/kg	0.1		NT	NT	NT
Dimethoate	mg/kg	0.1		NT	NT	NT
Disulfoton	mg/kg	0.1		NT	NT	NT
Ethion	mg/kg	0.1		NT	NT	NT
Ethoprop	mg/kg	0.1		<0.10	<0.10	0
Fenitrothion	mg/kg	0.1		NT	NT	NT
Fenthion	mg/kg	0.1		NT	NT	NT
Malathion	mg/kg	0.1		NT	NT	NT
Methidathion	mg/kg	0.1		NT	NT	NT
Methyl parathion	mg/kg	0.1		<0.10	<0.10	0
Mevinphos (Phosdrin)	mg/kg	0.1		NT	NT	NT
Parathion	mg/kg	0.1		NT	NT	NT
Phorate	mg/kg	0.1		NT	NT	NT
Ronnel	mg/kg	0.1		<0.10	<0.10	0
Halogenated Benzenes						
Hexachlorobenzene	mg/kg	0.1		<0.10	<0.10	0
Other						
Phosalone	mg/kg	0.1		NT	NT	NT

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 100 (1 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary lal**

			Lab Report Number	A101023.0722.00 (368-378)	341485	
			Field ID	C_BH03_0.2-0.3	SR	
			Date	12 Jan 2024	12 Jan 2024	
			Matrix Type	Soil	Soil	RPD
	Unit	EQL				
Metals						
Arsenic	mg/kg	4		<5.0	<4	0
Cadmium	mg/kg	0.3		0.31	<0.4	0
Chromium (III+VI)	mg/kg	1		18.1	11	49
Copper	mg/kg	1		41.1	56	31
Lead	mg/kg	1		17.7	11	47
Mercury	mg/kg	0.1		<0.10	<0.1	0
Nickel	mg/kg	1		53.0	42	23
Zinc	mg/kg	1		56.8	33	53
BTEX						
Benzene	mg/kg	0.2		<0.50	<0.2	0
Toluene	mg/kg	0.5		<0.50	<0.5	0
Ethylbenzene	mg/kg	1		<1.0	<1	0
Xylene (m & p)	mg/kg	2		<2.0	<2	0
Xylene (o)	mg/kg	1		<1.0	<1	0
Xylene Total	mg/kg	1		<2.0	<1	0
Naphthalene (VOC)	mg/kg	1		NT	<1	NT
Total BTEX	mg/kg	2		<2.00	NT	NT
PAH						
Acenaphthene	mg/kg	0.1		<0.30	<0.1	0
Acenaphthylene	mg/kg	0.1		<0.30	<0.1	0
Anthracene	mg/kg	0.1		<0.30	<0.1	0
Benzo(b+j+k)fluoranthene	mg/kg	0.2		<0.30	<0.2	0
Benz(a)anthracene	mg/kg	0.1		<0.30	<0.1	0
Benzo(a) pyrene	mg/kg	0.05		<0.30	<0.05	0
Benzo(g,h,i)perylene	mg/kg	0.1		<0.30	<0.1	0
Chrysene	mg/kg	0.1		<0.30	<0.1	0
Dibenz(a,h)anthracene	mg/kg	0.1		<0.30	<0.1	0
Fluoranthene	mg/kg	0.1		<0.30	<0.1	0
Fluorene	mg/kg	0.1		<0.30	<0.1	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		<0.30	<0.1	0
Naphthalene	mg/kg	0.1		<0.30	<0.1	0
Phenanthrene	mg/kg	0.1		<0.30	<0.1	0
Pyrene	mg/kg	0.1		<0.30	<0.1	0
PAHs (Sum of positives)	mg/kg	0.05		<0.30	<0.05	0
PCBs						
Arochlor 1016	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1221	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1232	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1242	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1248	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1254	mg/kg	0.1		<0.50	<0.1	0
Arochlor 1260	mg/kg	0.1		<0.50	<0.1	0
PCBs (Sum of total)	mg/kg	0.1		NT	<0.1	NT
Physical						
Moisture Content	%	0.1		3.9	4.9	23
TRH						
C6-C10 Fraction (F1)	mg/kg	25		<35	<25	0
C6-C10 (F1 minus BTEX)	mg/kg	25		<35	<25	0
>C10-C16 Fraction (F2)	mg/kg	50		<50	<50	0
>C10-C16 Fraction (F2 minus Naphthalene)	mg/kg	50		NT	<50	NT
>C16-C34 Fraction (F3)	mg/kg	100		<100	200	67
>C34-C40 Fraction (F4)	mg/kg	100		175	420	82
>C10-C40 Fraction (Sum)	mg/kg	50		175	620	112
TPH						
C6-C9 Fraction	mg/kg	25		<25	<25	0
C10-C14 Fraction	mg/kg	50		<50	<50	0
C15-C28 Fraction	mg/kg	100		<100	<100	0
C29-C36 Fraction	mg/kg	100		162	280	53
C10-C36 Fraction (Sum)	mg/kg	50		162	280	53
Organochlorine Pesticides						
4,4-DDE	mg/kg	0.1		<0.10	<0.1	0
a-BHC	mg/kg	0.1		<0.10	<0.1	0
Aldrin	mg/kg	0.1		<0.10	<0.1	0
b-BHC	mg/kg	0.1		<0.10	<0.1	0
Chlordane (cis)	mg/kg	0.1		<0.10	<0.1	0
Chlordane (trans)	mg/kg	0.1		<0.10	<0.1	0
d-BHC	mg/kg	0.1		<0.10	<0.1	0
DDD	mg/kg	0.1		<0.10	<0.1	0
DDT	mg/kg	0.1		<0.10	<0.1	0
DDT+DDE+DDD	mg/kg	0.1		NT	<0.1	NT
Dieldrin	mg/kg	0.1		<0.10	<0.1	0
Endosulfan I	mg/kg	0.1		<0.20	<0.1	0
Endosulfan II	mg/kg	0.1		<0.20	<0.1	0
Endosulfan sulphate	mg/kg	0.1		<0.10	<0.1	0
Endrin	mg/kg	0.1		<0.20	<0.1	0
Endrin aldehyde	mg/kg	0.1		<0.10	<0.1	0
Endrin ketone	mg/kg	0.1		<0.10	NT	NT
Fenamiphos	mg/kg	0.1		NT	<0.1	NT
g-BHC (Lindane)	mg/kg	0.1		<0.10	<0.1	0
Heptachlor	mg/kg	0.1		<0.10	<0.1	0
Heptachlor epoxide	mg/kg	0.1		<0.10	<0.1	0
Methoxychlor	mg/kg	0.1		<0.10	<0.1	0
Mirex	mg/kg	0.1		NT	<0.1	NT
Organophosphorous Pesticides						
Azinophos methyl	mg/kg	0.1		NT	<0.1	NT
Bromophos-ethyl	mg/kg	0.1		NT	<0.1	NT
Chlorpyrifos	mg/kg	0.1		<0.10	<0.1	0
Chlorpyrifos-methyl	mg/kg	0.1		<0.10	<0.1	0
Coumaphos	mg/kg	0.1		NT	<0.1	NT
Tribuphos	mg/kg	0.1		<0.10	NT	NT
Diazinon	mg/kg	0.1		<0.10	<0.1	0
Dichlorvos	mg/kg	0.1		NT	<0.1	NT
Dimethoate	mg/kg	0.1		NT	<0.1	NT
Disulfoton	mg/kg	0.1		NT	<0.1	NT
Ethion	mg/kg	0.1		NT	<0.1	NT
Ethoprop	mg/kg	0.1		<0.10	NT	NT
Fenitrothion	mg/kg	0.1		NT	<0.1	NT
Fenthion	mg/kg	0.1		NT	<0.1	NT
Malathion	mg/kg	0.1		NT	<0.1	NT
Methidathion	mg/kg	0.1		NT	<0.1	NT
Methyl parathion	mg/kg	0.1		<0.10	<0.1	0
Mevinphos (Phosdrin)	mg/kg	0.1		NT	<0.1	NT
Parathion	mg/kg	0.1		NT	<0.1	NT
Phorate	mg/kg	0.1		NT	<0.1	NT
Ronnel	mg/kg	0.1		<0.10	<0.1	0
Halogenated Benzenes						
Hexachlorobenzene	mg/kg	0.1		<0.10	<0.1	0
Other						
Phosalone	mg/kg	0.1		NT	<0.1	NT

***RPDs have only been considered where a concentration is greater than 1 times**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs f**
*****Interlab Duplicates are matched on a per compound basis as methods vary bboratory**

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