



Preliminary Site Investigation

Residential Subdivision (DA1), 381 Anambah
Road, Anambah NSW 2320

Prepared for: DB20 Pty Ltd
EP3487.005_v1 28 May 2025



Preliminary Site Investigation

Residential Subdivision (DA1), 381 Anambah Road, Anambah NSW 2320

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28 May 2025

Our Ref: EP3487.005

LIMITATIONS

This Preliminary Site Investigation was conducted on the behalf of DB20 Pty Ltd for the purpose/s stated in **Section 1**.

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Executive Summary

Introduction

EP Risk was engaged by DB20 Pty Ltd to undertake a Preliminary Site Investigation (PSI) for the proposed Development Application (DA) 1 at a Site located at 381 Anambah Road, Anambah NSW 2320. It is understood the client requires a PSI for the development application package for a proposed residential subdivision development and associated works (Proposed Development) as required in State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021. The Site comprises Part Lot 1 and Part Lot 2 in Deposited Plan (DP) 1110433 and Lot A in DP 431640.

Objective

The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk under the proposed residential land use.

Summary of Findings

The summary of findings of the Preliminary Site Investigation are as follows:

- Based on the review of the historical information, the Site had been cleared and used as farmland / grazing land.
- As of 25th January 2024, surrounding land uses comprised vacant agricultural land and residential lots beyond.
- The refined CSM identified two main Areas of Environmental Concern (AEC):
 - AEC 1 - Clearing of land (entire Site).
 - AEC 2 - Rural agricultural land use (entire Site).
- The Assessment consisted of the advancement of 16 test pit to a maximum depth of 4.0 metres below ground level (m BGL).
- In general, the subsurface conditions comprised:
 - TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to medium grained sand / FILL: Sandy CLAY: low plasticity, grey, fine to medium grained sand.
 - RESIDUAL: Silty CLAY: grey, brown / Sandy CLAY: low to medium plasticity, pale brown, yellow, fine to coarse grained sand, with chips of Sandstone.
 - EXTREMELY WEATHERED ROCK: Recovered as Silty CLAY, medium to high plasticity, brown and grey with fine to coarse sand.
- There were no exceedances to the adopted health or ecological criteria in all analytical soil samples across the Site. Minimal FILL was identified in any sampling locations across the Site with the potential for offsite migration of contaminants considered to be low. The PSI met the adopted data quality objectives and is therefore considered sufficient for the purposes of assessing contamination related to historical land use.
- Overall, based on this assessment and the conceptual site model for the proposed development there are no complete source-pathway-receptor linkages within these AECs, and the Site is considered suitable for the proposed residential development.

Conclusion and Recommendations

Based on the results of the Site history review, site inspection and analytical results, the Site is considered to present a low risk of contamination and is considered to be suitable for the proposed residential development, subject to the implementation of the unexpected finds protocol (attached as **Appendix E**) during redevelopment.

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1 Introduction

EP Risk Management Pty Ltd (EP Risk) was engaged by DB20 Pty Ltd (DB20) to undertake a Preliminary Site Investigation (PSI) for a property located at 321 Anambah Road, Anambah, New South Wales (NSW) (the Site). It is understood the client requires a PSI for the development application package for a proposed residential subdivision development as required in State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021.

1.1 Site Identification

The Site identification details are presented in **Table 1**.

Table 1 – Site Identification	
Item	Description
Address	Anambah Road, Anambah, NSW 2320 (Figure 1).
Legal description	The Site is legally described as Part Lot 1 and Part Lot 2 in deposited plan (DP) 1110433, Part Lot A in DP 431640.
Approximate Area	Approximately 22.8 hectares (ha).
Municipality	Maitland City Council (Council).
Zoning	The Maitland Local Environment Plan (LEP) 2011 identifies the Site as R1 – General Residential.

1.2 Proposed Development

The Proposed Development comprises a residential subdivision in stages with 173 residential lots and 2 development lots, with associated works including earthworks, stormwater, new roads, utilities, and landscaping. Plans of the Proposed Development are shown in **Appendix A**.

1.3 Objective

The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk under the proposed land use.

1.4 Scope of Work

Based upon a review of the historical information, EP Risk proposed the following scope of work, which was based upon being undertaken in conjunction with the Proposal for a Geotechnical Investigation prepared by EP Risk¹:

- Prepare all the work health and safety documentation and procure before you dig information available for the Site.
- Undertake a desktop site history review including:
 - Aerial photographs.
 - Historical Site proprietors search (based upon information provided in Geotech solutions report);

¹ EP Risk (2023) Proposal for Geotechnical Investigation, Western Link Road and Adjacent Developments DA1, DA2 & DA3, Anambah, NSW, 2320, dated 13 December 2023 (ref: EP17482v01).

- Regulatory searches, including NSW Environment Protection Authority (EPA) Notified, Contaminated and Investigation Sites; and
- Geological and hydrogeological information.
- Undertake a Site visit to observe onsite and offsite conditions and identify any areas of environmental concern.
- Collection of soil samples from 16 test pit locations² to a maximum depth of 4.0 meters below ground level (m BGL) (or prior refusal).
- Collection of soil samples from the top 0.1, 0.5, 1.0 and every meter at each location, or prior to refusal.
- Analytical testing of the soil samples by a National Association of Testing Authorities (NATA) accredited laboratory.
- Identify potentially contaminating activities that have occurred at the Site, areas of environmental concern (AECs) and develop a preliminary conceptual site model (CSM).
- Preparation of the Preliminary Site Investigation (PSI) report for DA1 in accordance with the NSW EPA (2020) *Guideline for Consultants Reporting on Contaminated Sites* and the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM 2013).

1.5 Technical Framework

The PSI was conducted in general accordance with:

- ASC NEPM (2013).
- AS 4482.2-1999: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances.
- Department of Urban Affairs and Planning and Environment Protection Authority (EPA) (1998) *Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land*.
- Friebe, E & Nadebaum, P 2011, Health Screening Levels for Petroleum Hydrocarbons in soil and Groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment (CRC CARE), Adelaide, Australia.
- Protection of the Environment Operations (POEO) Act 1997.
- NSW EPA (2017) Guidelines for the NSW Auditor Scheme (3rd Edition) (NSW Auditor Guidelines).
- NSW EPA (2020) Contaminated Land Guidelines – Consultants Reporting on Contaminated Sites.
- NSW EPA (2022) *Contaminated Land Guidelines: Sampling Design part 1 – application*.
- NSW EPA (2021) Position Statement – WA Guidelines for asbestos contaminated sites.
- State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)
- The Maitland LEP (2011).
- United State Environment Protection Agency (USEPA) (2006) Guidance on Systematic Planning Using the Data Quality Objectives Process, ref: EPA QA/G-4.
- Western Australian (WA) Department of Health (DOH) (2020) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (DOH 2020).

² The minimum sampling density prescribed in the NSW EPA (2022) Sampling Design Guidelines for a site 22.8 ha. in size is 276 sampling locations. The proposed sampling frequency of 16 locations is considered appropriate based upon the preliminary nature of the assessment.

2 Site Condition and Surrounding Environment

The majority of information provided in the following sections was obtained from Lotsearch Environmental Risk and Planning Report (Lotsearch, 2024³) which was obtained for the Site.

2.1 Land Use and Layout

The Site comprises of a large irregular shaped portion of land, approximately 22.8 Ha. An Environmental Scientist from EP Risk attended the Site between the 22nd - 25th January 2024 to undertake a site walkover, visual inspection, and soil sampling. General site features observed are summarised below:

- A creek is located along the northern boundary of the Site.
- A pile of animal bones was identified in a southern portion of the Site.
- Smaller, empty dams were identified across the whole Site.
- Rural wired and timber fencing along the boundaries of the Site.
- Unlocked access gate on the eastern boundary of the Site.

Photographs of the Site are attached as **Appendix B**.

2.2 Surrounding Land Use

As of 25th January 2024, surrounding land uses comprised:

- North: Vacant agricultural land currently zoned as R1- General Residential.
- South: Vacant agricultural land currently zoned as R1- General Residential and the area of Windella beyond zoned as R5- Large Lot Residential.
- East: Vacant agricultural land currently zoned as R1- General Residential and floodplain zoned as C4 Environmental Living with Anambah Road beyond.
- West: Vacant agricultural land currently zoned as R1- General Residential and land zoned as C4- Environmental Living.

2.3 Environmental Setting

A summary of the information accessible through publicly available records is summarised in **Table 2** below.

³ Lotsearch (2024) Lotsearch, 381 Anambah Road, Anambah, NSW, 2320; dated 17 January 2024; ref: LS051680 EP.

Table 2 – Environmental Setting

Record	Findings
Topography and Hydrology	The majority of the Site is undulating and gently to moderate slopes to the southwest to the northeast at an elevation of approximately 28 to 42 m AHD. The Site drainage is considered to consist of surface runoff migrating across the Site following surface contours as overland flow towards the small dams and creeks to beyond the north and northeast of the Site. A plan showing the topographical contours of the Site is provided within the Extent of Work Plan attached as Appendix A.
Geology	Based on the geological data sourced from the NSW Department of Industry, Resources and Energy (Lotsearch, 2024) the Site is underlain by the Lochinvar Formation comprising Permian aged Basalts, siltstone, and sandstones.
Soil Landscapes	Based on the soil landscapes data sourced from the NSW OEH (Lotsearch, 2024) the Site is located within the Kurosol soil order and the Tenosol. The soil landscapes are the Branxton Soil Landscape for the western portion of the Site and the Rothbury Soil Landscape for the northwestern corner of the Site. The Branxton Soil Landscape covers undulating low hills and rises with many small creek flats, extending over a large area between Singleton and Cessnock. The main soils are Yellow Podzolic Soils on midslopes with Red Podzolic soils on crests. The Rothbury Soil Landscape covers undulating and rolling low hills south and south-east of Singleton. Red Podzolic Soils occur on upper slopes with Yellow Podzolic Soils on midslopes. Yellow Solodic Soils and brown Soloths occur on lower slopes. There are Prairie Soils in the drainage lines.
Hydrogeology	A search of the NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation undertaken by Lotsearch (2024) indicated there were no registered groundwater bores located onsite. However, two registered groundwater bores were located within 2 km of the Site, standing water levels or salinity were not reported on the bore report. The groundwater bore information is listed below: - The authorised purpose of bore 101375991 was unknown and the depth was 5.50 m BGL. - The authorised purpose of bore 10092209 was for monitoring and the depth was unknown. Review of the Hydrogeology Map of Australia, Lotsearch (2024) identified porous and extensive highly productive aquifers on the Site. Groundwater flow direction is considered to be in an easterly direction towards the down-gradient Hunter River.
Natural Occurring Asbestos Potential	No reported naturally occurring asbestos potential has been identified within 1 km of the Site.
Acid Sulfate Soils	Based upon a review of the Maitland LEP (2011), the Site is located within a class 5 Acid Sulfate Soils zone. Works within 500m of adjacent Class 1, 2, 3 or 4 land that is below 5 meters AHD and by which the watertable is likely to be lowered below 1 meter AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk. With reference to the CSIRO Atlas of Australian Acid Sulfate Soil, the Site is located in a Class C zone with an extremely low probability of occurrence.
Dryland Salinity	With reference to the Dryland Salinity Data sourced from Lotsearch (2024), the Site is located within a high hazard or risk defined for all years of dryland salinity potential.
Bushfire Prone Area	The Site was listed as a bush fire prone area within a vegetation category 3 prone area. The surrounding land also fall predominantly in the vegetation category 3 zone with small patches of vegetation category 1 and vegetation category 2 to the north and west and with vegetation buffers surrounding man-made features.

Table 2 – Environmental Setting	
Record	Findings
Ecology	According to NSW Office of Environment and Health (OEH), the Site has no ecological constraints. However, ecological constraints consisting of freshwater and forested wetlands were located on adjacent parcels of land. Groundwater dependant ecosystems (GDEs) were not identified on the Site but were located on adjacent parcels of land. No RAMSAR wetlands existed onsite or within 1km of the Site.
Waste Management Facilities	No waste management facilities were identified within 1 km of the Site.
National Liquid Fuel Facilities	No national liquid fuel facilities were identified within 1 km of the Site.
Mining Subsidence	With reference to the Mining Subsidence District Data sourced from Lotsearch (2024), the Site is not located within a mining subsidence district.
Mining and Exploration Titles	A total of five (5) Historical Mining and Exploration Titles exist within the boundaries of the Site, identified for petroleum resources. The most recent end date for the titles was 07/06/2015 for Sydney Oil Co Pty Ltd Australia, Base Resources LTD, Seahawk Oil Australia and Reading & Bates. The remaining end dates are noted between 1981 and 1993.
Cattle Dips	No records of cattle dips were recorded at or within 1 km of the Site according to a search of the Department of Primary Industries Data Base and visual observations of the Site.
Former Gasworks	No former gasworks have been identified at or within 1 km of the Site.

2.4 Regulatory Searches

A summary of the regulatory searches performed by Lotsearch (2024) are summarised in **Table 3**.

Table 3 – Regulatory Searches

Search	Results
Contaminated Land	The Site was not listed as contaminated under the Contaminated Land Management Act (CLM Act) 1997. As of 08.02.24 the Site was not listed on the NSW Environment Protection Authority (NSW EPA) Record for Contaminated Sites notified to the NSW EPA in accordance with the CLM Act 1997. No sites notified to the NSW EPA were located within 1 km of the Site.
Licensed Activities under the Under the Protection of the Environment Operations Act 1997	Licensed activities under the POEO Act at or within 1 km of the Site are: • Maitland City Council, all waterbodies in the Maitland local government area for other activities, onsite. • Ditton Properties Pty Ltd, for all land-based extractive activity, 690 m north of the Site. The licensed activities are considered to present a low risk of contamination based upon the nature of the activities, which are common to most waterways in NSW.
Former Licensed Activities under the POEO Act 1997, now revoked or surrendered	There were four (4) records of Former Licensed Activities under the POEO Act 1997, now surrendered, located at or within 1 km of the Site boundary. They are as follows: • Luhrmann Environment Management Pty Ltd, for waterways throughout NSW, surrendered for other activities / non-scheduled activity – application of herbicides, surrendered on the 06/09/2000. • Robert Orchard, for various waterways throughout NSW, surrendered for other activities / non-scheduled activity – application of herbicides, surrendered on the 07/09/2000. • Sydney Weed and Pest Management Pty Ltd, for waterways throughout NSW – Prospect NSW, 2148, surrendered for other activities / non-scheduled activity – application of herbicides, surrendered on the 09/11/2000. • State of New South Wales (Department of Primary Industries – Land), for soil conservation service, waterways within the Hunter Valley Flood Mitigation Scheme, Maitland, surrendered for other activities – application of herbicide. The former licensed activities are considered to present a low risk of contamination based upon the nature of the activities, which are common to most waterways in NSW.
Delicensed Activities Still Regulated by the NSW EPA	No delicensed activities still regulated by the NSW EPA were identified at or within 1 km of the Site.
NSW EPA per- and poly-fluoroalkyl substances (PFAS) Investigation and Management Programs	No sites under the NSW PFAS Investigation Program, Defence PFAS Investigation Program, Defence PFAS Management Program or Airservices Australian National PFAS Management Program were identified at or within 1 km of the Site.
Defence 3 Year Regional Contamination Investigation Program	No sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program were identified within 1 km of the Site.
Heritage	No Environmental Planning Instrument (EPI) heritage items were identified within 1km of the Site which were considered to pose a risk to the Site or impacted by potential contamination at the Site.

3 Previous Investigations

Previous investigation undertaken at the Site include:

- Coffey Geotechnics (2006) Urban Capability Assessment, Stockland Developments Pty Ltd, dated 17th November 2006 (ref: GEOTSGTE20124AA-AB).
- Geotech Solutions (2012) Supplementary Urban Capability Assessment, Anambah Release Area – Anambah, dated 31 January 2012 (ref: GS347-012/0).

3.1 Coffey Geotechnics – Urban Capability Assessment (2006)

Coffey Geotechnics were engaged by Stockland Developments Pty Ltd to prepare an Urban Capability Assessment for a proposed land development for a larger parcel of land that included the Site. The scope of the report included:

- Initial site visit and overall appraisal of site conditions.
- The excavation of 1 test pit with a 4.5 tonne mini excavator to a maximum depth of 2 m.
- Desktop study involving review of geological and topographical maps and aerial photographs, as well as reports on nearby sites held within Coffey archives.

Results of the desktop study showed the property had historically operated as grazing land.

Based on this initial assessment Coffey concluded that further soil testing should be undertaken prior to the construction of the residential development.

3.2 Geotech Solutions – Supplementary Urban Capability Assessment (2012)

Geotech Solutions were engaged by Stockland Developments Pty Ltd to prepare a Supplementary Urban Capability Assessment for a proposed residential development at the larger parcel of land that included the Site. The scope of the report includes a desktop study of the available data and a site inspection to supplement the existing data on the overall site surface and subsurface conditions.

During the Site inspection the following areas of environmental concern (AEC) were identified:

- AEC 4: Herbicide and pesticide use within pastures and along fence lines.

The results of the preliminary assessment identified minor potential contamination issues with the risk of gross contamination to be low. It was considered that no identified potential contamination issue would restrict the potential residential development of the Site.

4 Site History

The Site history sources utilised during the review included:

- Historical aerial photography.
- Historical business directories.
- Historical title search information.

4.1 Review of Historical Aerial Photos

Aerial photographs (Lotsearch 2024) from 1938, 1950, 1961, 1970, 1976, 1984, 1994, 2004, 2007, 2010, 2015, 2020 and 2023 were reviewed to identify past land uses of the Site and surroundings. **Table 4** provides a summary of the review.

Table 4 – Historical Aerial Photograph Review	
Year	Description
1938	Site: The Site is predominantly cleared of vegetation. A dam is present in the southern portion of the Site and a creek line runs across the northern portion of the Site. Surroundings: The Site is surrounded by cleared agricultural and Anambah Road runs along the eastern boundary of the Site.
1950	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
1961	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
1970	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
1976	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
1984	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
1994	Site: No significant changes have occurred. Surroundings: Anambah road has been tarred.
2004	Site: Whole site has been irrigated, noticeable difference in the colour of the vegetation compared to surrounding areas and previous aerials. Surroundings: No significant changes have occurred.
2007	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
2010	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
2015	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
2020	Site: No significant changes have occurred. Surroundings: No significant changes have occurred.
2023	Site: No significant changes have occurred.

Table 4 – Historical Aerial Photograph Review

Year	Description
	Surroundings: No significant changes have occurred.

4.2 Business Directory Search

No business activities were recorded at the Site or within 1km of the Site. No records of garages or dry cleaners were recorded onsite or matched to the area or roads.

4.3 Summary of Site History

Based on the review of the historical information, the Site was formerly and currently being used as cleared farmland / grazing land. A previous investigation (Geotech Solutions, 2012) identified one (1) AEC within the Site boundary as herbicide and pesticide use within pastures and along fence lines. No farming sheds, machinery or rural properties were noted on site. The surrounding land use comprised rural / agricultural land use.

5 Sampling and Analysis

5.1 Data Quality Objectives

To assess whether an appropriate sampling strategy was adopted for the PSI, EP Risk adopted the data quality objectives (DQOs) planning process as:

- Recommended in the ASC NEPM 2013.
- Required within the NSW EPA (2017), *Guidelines for the NSW Site Auditors Scheme (3rd edition)*.
- With consideration to technical details outlined in US EPA (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process*, ref: EPA QA/G-4 and AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*.

Step 1 - State the Problem

Preliminary Conceptual Site Model based on the Site history review:

- **Sources** – Former agricultural usage, dilapidation of structures, former chemical wastes and drums and potential fly tipping.
- **Contaminants** – potentially metals (As, Cd, Cr, Cu, Pb, Ni and Zn⁴), organics (TRHs, TPH, BTEX, PAHs and OCPs/OPPs⁵), and asbestos fibres/fragments.
- **Media** – The current potential affected media at the Site include soil, surface water and groundwater. Based on the targeted nature of this assessment for due diligence purposes, sampling and reporting is limited to soils onsite.
- **Receptors** – Site maintenance workers and trespassers, as the Site is fenced. If developed, site workers (surface and sub-surface), residents and visitors (adults and children).
- **Pathways** – dermal contact, inhalation of dust and ingestion have been identified as the pathways of concern. Further assessment of groundwater and/or soil gas will be considered based on the findings of this investigation.

The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk under the proposed land use.

Step 2, 3 and 5 - Goals of the Study, Required Inputs and Analytic Approach

Given the Site is to be redeveloped into a low-density residential development, the decision-making process for urban redevelopment sites provided by the NSW EPA (2017) was considered in the development of the following decisions that need to be addressed.

The decision-making process for assessing urban redevelopment sites was adopted and summarised in **Table 5**

The inputs required to make the decision are presented in **Table 6**

The Tier 1 assessment criteria for the contaminants of concern are presented in **Table 6**. These criteria have been adopted to determine whether additional assessment is required and/or whether the Site is suitable for the proposed land use.

⁴ Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, and Zinc.

⁵ Total Recoverable Hydrocarbons, Total Petroleum Hydrocarbons, Benzene, Toluene, Ethylbenzene and Xylene, Polynuclear Aromatic Hydrocarbons, Polychlorinated Biphenyls, Organochlorine Pesticides and Organophosphorus Pesticides.

Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison to adopted assessment criteria as undertaken by assessment of quality assurance / quality control (QA/QC) as per the data quality indicators (DQIs) established in **Section 4.2**.

Step 4 - Define the Boundaries of the Study

The spatial boundaries of the PSI comprised 381 Anambah Road, Anambah, NSW. The legal description of the Site is Part Lot 1 and Part Lot 2 in DP 1110433 and Part Lot A DP 431640 and covers an area approximately 22.8 ha. The maximum proposed depth for the investigation set at 4.0 m BGL for soil. The approximate boundaries are shown in **Figure 1**.

Due to the project objectives, seasonality was not assessed as part of this investigation. Data was therefore representative of the timing and duration of the current investigation.

Table 5 - Goals of the Study, Required Inputs and Analytical Approach				
Decision	Rule	Inputs/Media	Associated AECs	CoPCs
Has soil been assessed against relevant health investigation levels (HILs) and health screening levels (HSLs), and has potential for migration of contamination been considered?	The nature and extent of soil impacts will be assessed, and analytical data will be compared against the adopted health and ecological criteria. The following statistical criteria was adopted with respect to soils and groundwater: Either: the reported concentrations are all below the adopted site criteria; Or: the average site concentration for each analyte must be below the adopted site criterion; no single analyte concentration exceeds 250% of the adopted site criterion; and the standard deviation of the results must be less than 50% of the site criteria. And: the 95% upper confidence limit ('UCLmean') of the average concentration for each analyte must be below the adopted site criterion. If the statistical criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks then there is no potential for migration of contamination. Otherwise, there is potential for migration of contamination and further assessments may be required to determine the risk at the Site.	Soil sampling and analysis and site observations.	AEC 1 - Rural agricultural land use. AEC 2 - Clearing of land.	Soil – TRH, TPH, BTEX, PAH, PCB, OCP, OPP, heavy metals, asbestos.
Are there any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed in the Site assessment report(s)?	If the 95% UCL of natural soils, that are considered to not be impacted by potential sources of contamination, exceed adopted health and ecological criteria. Otherwise, additional assessment of background concentrations will be required.			
Are there impacts of chemical mixtures?	Is more than one chemical within a group of contaminants considered to have a similar mode of action present which increase the risk of harm? If there is, a hazard quotient (HQ) and Hazard Index (HI) should be calculated from the analytical results for each sample in accordance with NEPM 2013. If the HI is calculated to be greater than 1. Otherwise, there are impacts of chemical mixtures that will require additional assessment.			
Are there any potential ecological risks? If yes, have these been assessed?	Soil impacts will be assessed, and data will be compared to the adopted criteria. The decisions will be made based on Decisions 1 and 2 above.			
Are there any potential human health risks to the identified Site receptors?	And: If the reported concentrations are all below the adopted site criteria and an assessment of risk indicates no unacceptable risks. Otherwise, potential ecological and human health risks have been adequately assessed.			
Is there any evidence of, or potential for, migration of contaminants from the Site? Has this been appropriately addressed, including potential risks to offsite receptors, and reported to the Site owner or occupier?	Are chemical contaminants present within natural soil at concentrations exceeding the adopted site criteria? And: is there a potential transport pathway/mechanism If yes, then there is the potential for offsite migration that will require additional assessment.			
Are there any aesthetics issues in fill at the site?	If there are any unacceptable staining, odours, or significant amounts of anthropogenic fill materials then additional assessment or management will be required.			
Is there sufficient information to accurately characterise the site contamination?	If the total number of samples collected is greater than or equal to the recommended number of sample points in accordance with NSW EPA (2022) Sampling Design Guidelines; And: the likelihood of onsite soil contamination impacting, groundwater, surface water and offsite receptors is considered unlikely. And: no areas which exceeded the adopted criteria require further characterisation. Then sufficient information to accurately characterise the Site contamination has been provided.			
Is further investigation required?	Where indicated in by the answers to any of the above decisions above, further investigation may be required to be developed.			
Is a site management strategy required?	Where indicated in by the answers to any of the above decisions above a management strategy may be required to be developed.			

Step 6 – Specify Performance or Acceptance Criteria

As per EPA (2022) Step 6 of the DQOs process establishes quantitative criteria known as performance or acceptance criteria:

- for decision problems, these are typically tolerable limits on the probability or chance (risk) of the collected data leading to making an erroneous decision (e.g. confidence levels)
- for estimation problems, these are typically an acceptable uncertainty, for example, the width of an uncertainty band or interval, associated with a point estimate at a desired level of statistical confidence (e.g. confidence intervals).

Specify probability limits for false rejection and false acceptance of decision errors.

- Specify the decision rule as a statistical hypothesis test – The null hypothesis is that the material is contaminated and exceeds the adopted criteria. The alternative hypothesis is that the material is not contaminated above the adopted criteria.
- Examine consequences of making incorrect decisions from the test:
 - the material being accepted as suitable for a HIL-A land use when it is not, thereby potentially risking human health or environmental impacts.
 - unnecessary disposal of the material offsite, imposing needless financial and resource burdens on the development project and resulting in an inappropriate waste classification.
- Place acceptable limits on the likelihood of making decision errors, including acceptable alpha (α) and beta (β) risk levels for the hypotheses:
 - null hypothesis (H_0): the 95% UCL, and other requirements, are $>$ the action level.
 - alternate hypothesis (H_A): the 95% UCL, and other requirements, are $\leq$ the action level.
 - Potential outcomes include Type I and Type II errors:
 - Type I error of determining the material is acceptable for the proposed HIL-A land use when it is not (wrongly rejects true H_0).
 - Type II error of determining the material is unacceptable for the proposed HIL-A land use when it is acceptable (wrongly accepts false H_0).
 - For performance criteria, the acceptable limits on the likelihood of making decision errors to be applied are:
 - alpha risk (Type I error) of $\alpha = 0.05$
 - beta risk (Type II error) of $\beta = 0.2$.

No previously collected data are available for use, therefore acceptance criteria are not required.

Step 7 – Sampling Design and Methodology

Various strategies for developing a statistically based sampling plan are identified in EPA (2022)⁶, including judgemental, random, systematic, and stratified sampling patterns. Random sampling is not considered appropriate. The specific scope is discussed below.

⁶ NSW EPA (2022) *Sampling Design Guidelines part 1*.

EP Risk used Australian Laboratory Services (ALS) and Envirolab as the primary and secondary laboratories, both of which are NATA accredited for the required analysis. The laboratory analysis was undertaken in accordance with Table 7.

Soil Sampling

The minimum recommended sampling density in Table 2 of NSW EPA (2022) is 336 soil samples to assess an area of 22.8 ha. The proposed sampling frequency of 16 sampling locations is considered appropriate based upon the preliminary nature of the assessment. The main potential contamination is inferred to be usage of pesticides and herbicides across the Site. However, it should be noted that depending upon the results of the assessment, additional sampling and testing may be required to comprehensively delineate contamination, which is outside the scope of work provided for a preliminary assessment.

Proposed soil sampling locations are provided as **Figure 1** attached and the scope is detailed in **Table 6** below.

Table 6 – Sampling and Analysis Plan and Methodology

Media	Scope of Work (Inputs)	Number of Sampling Locations	Samples and Analysis	Adopted Tier 1 Criteria																	
Soil	The methodology for soil sampling was as follows: - Soil samples were collected from 16 test pit locations. - Collection of soil samples from 0.1 m BGL, 0.5 m BGL, 1.0 m BGL and every 1.0 m thereafter until a target depth of 4.0 m BGL or refusal (whichever is encountered first). - Test pits were advanced via a 23.5-tonne excavator fitted with a 400 mm bucket to a maximum depth of 4.0 m BGL or prior rock refusal. - Soils were logged for type, colour, texture, other characteristics, and indications of contamination as presented in the test pit logs attached as Appendix C. - Screening of soil samples using a photoionisation detector (PID). - A dedicated pair of nitrile gloves was used for each sample to prevent cross contamination. - Sufficient soil samples were collected and placed into laboratory prepared sampling jars with a unique sample ID added to the label on each jar. - The sample jars were preserved on ice immediately after sampling and during shipment to a NATA accredited laboratories for analysis. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.	16 Test Pits	Analytical testing by a National Association Testing Authorities (NATA) accredited laboratory for a maximum of 17 samples for the following: - Heavy metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc) / Organochlorine pesticides (OCP) / Organophosphorus pesticides (OPP) – 17 - Total Recoverable Hydrocarbons (TRH) / Benzene, toluene, xylene, ethylbenzene, Naphthalene (BTEXN) / Polyaromatic Hydrocarbons (PAH) / Polychlorinated biphenyls (PCB) – 6 - Asbestos w/w % - 3 - NEPM Screen for Soil Classification – 1 QA/QC Samples as follows: - Duplicates / triplicates (as per primary) – 2 - Rinsate (as per primary) – 1 - Metals, TRH, PAH, BTEX, PAHs - 1 - Trip Blank and Spike- BTEX, TRH C6-C9 - 1	For the purposes of assessing the results of analytical testing of soil at the Site, the following guidelines will be considered: Health-based Criteria for the current and proposed land use: ASC NEPM 2013 Health-based Investigation Levels (HILs) and Health Based Screening Levels (HSLs) for residential land and the CRC Care (2011) HSLs for intrusive maintenance workers (shallow trench) and direct contact. Ecological Criteria: ASC NEPM 2013 Ecological-based Investigation Levels (EILs) and Ecological based Screening Levels (ESLs) for urban residential. Management Limits: ASC NEPM 2013 management limits are based upon the physical properties of petroleum hydrocarbons to form observable light non-aqueous phase liquid (LNAPL); create fire and explosion hazards or penetrate or damage underground services. The management limits for residential land based on coarse/fine soil have been adopted. Aesthetics: The consultant should also consider the need for remediation based on the ‘aesthetic’ contamination as outlined in Schedule B (1) of the ASC NEPM 2013 that states that ‘there are no numeric Aesthetic Guidelines however site assessment requires balanced consideration of the quality, type and distribution of foreign materials or odours in relation to the specific land use and its sensitivity’. Soil odour, discolouration and the presence of anthropogenic materials will need to be assessed during the assessment. The adopted soil criteria for the Site are presented below: <table><tr><th>Guidelines</th><th>COPC</th><th>Adopted Criteria</th></tr><tr><td rowspan="5">ASC NEPM 2013</td><td>Heavy metals/OCP/PCB/ Phenols</td><td> - HIL A (residential land) </td></tr><tr><td>Heavy metals/OCP/PAH</td><td> - EIL (urban residential); < 2 m </td></tr><tr><td>TRH and BTEXN</td><td> - Vapour intrusion HSL A (residential land); 0 - <1m; silt/clay - ESLs (urban residential); <2m </td></tr><tr><td>TRH</td><td> - Management limits (urban residential); fine and coarse soil. </td></tr><tr><td>AF/FA and Bonded Asbestos</td><td> - HSL A bonded ACM; 0.01% - FA and AF Res A; 0.001% </td></tr><tr><td>CRC Care (2011)</td><td>TRH and BTEXN</td><td> - Direct contact and intrusive maintenance workers HSLs. - Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench). </td></tr></table>	Guidelines	COPC	Adopted Criteria	ASC NEPM 2013	Heavy metals/OCP/PCB/ Phenols	HIL A (residential land)	Heavy metals/OCP/PAH	EIL (urban residential); < 2 m	TRH and BTEXN	- Vapour intrusion HSL A (residential land); 0 - <1m; silt/clay - ESLs (urban residential); <2m	TRH	Management limits (urban residential); fine and coarse soil.	AF/FA and Bonded Asbestos	- HSL A bonded ACM; 0.01% - FA and AF Res A; 0.001%	CRC Care (2011)	TRH and BTEXN	- Direct contact and intrusive maintenance workers HSLs. - Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench).
Guidelines	COPC	Adopted Criteria																			
ASC NEPM 2013	Heavy metals/OCP/PCB/ Phenols	HIL A (residential land)																			
	Heavy metals/OCP/PAH	EIL (urban residential); < 2 m																			
	TRH and BTEXN	- Vapour intrusion HSL A (residential land); 0 - <1m; silt/clay - ESLs (urban residential); <2m																			
	TRH	Management limits (urban residential); fine and coarse soil.																			
	AF/FA and Bonded Asbestos	- HSL A bonded ACM; 0.01% - FA and AF Res A; 0.001%																			
CRC Care (2011)	TRH and BTEXN	- Direct contact and intrusive maintenance workers HSLs. - Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench).																			

5.2 Data Quality Indicators

The acceptable limit of error for sampling techniques and laboratory analysis was defined by the DQIs as follows:

Precision

A measure of the reproducibility of on measurements under a given set of conditions. The relative percent difference (RPD) has been adopted to assess the precision of data between duplicate sample pairs according to the following equation.

$$RPD\% = \frac{[C_p - C_d]}{C_p + C_d} \times 200$$

Where:

C_p = Primary sample

C_d = Duplicate Sample

An acceptance criterion of ±50% had been adopted for inorganic field duplicates and triplicates and ±50% for organic field duplicates and triplicates. However, it should be noted that exceedances of these criteria are common for heterogeneous soil or fill or for low analyte concentrations.

Accuracy

A measure of the bias in the analytical results and can often be attributed to field contamination; insufficient preservation or sample preparation; or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples and laboratory spikes.

The DQOs, requirements and indicators for the assessment are presented in **Table 7**.

Representativeness

Expresses the accuracy and precision with which sample data represents an environmental condition. Data representativeness was achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures.

Completeness

Refers to, the percentage of data that can be considered valid data. Sufficient data was required to enable an assessment of the Decision Rules.

Comparability

A qualitative comparison of the confidence with which one data set can be compared to another. This was achieved through consistent sampling and analytical testing and reporting techniques.

Table 7 – DQI and Requirements		
DQI	Requirement	Data Quality Assessment (DQA) Criteria
Precision		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines	Meet requirement
Field duplicates	1 per 20 samples	RPDs < 50%
Field triplicates	1 per 20 samples	RPDs < 50%
Laboratory duplicates	Minimum of 1 per batch per analyte	RPDs < 50%
Accuracy		
Laboratory matrix spikes	1 per batch per volatile/semi-volatile analyte	Recoveries 50% to 150%
Laboratory surrogate spikes	1 per volatile/semi-volatile analyte sample (as appropriate)	Recoveries 70% to 130%
Laboratory control samples	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
Representativeness		
Sampling methodology - preservation	Appropriate for the sample type and analytes	Meet requirement
Decontamination procedures	All sampling equipment to be decontaminated between each sample	Meet requirement
Samples extracted and analysed within holding times	Specific to each analyte	Meet requirement
Laboratory method blanks	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
Trip blanks	1 per lab batch for volatile analytes	Result < laboratory reporting limit
Trip spikes	1 per lab batch for volatile analytes	Recoveries 60-100%
Rinsate	1 per lab batch for volatile analytes	Result < laboratory reporting limit
Comparability		
Sampling approach	Consistent for each sample	Meet requirement
Analysis methodology	Consistent methodology for each sample	Meet requirement
Handling conditions and sampler	Consistent for each sample	Meet requirement

Table 7 – DQI and Requirements		
DQI	Requirement	Data Quality Assessment (DQA) Criteria
Field observations and analytical	Field observations to support analytical results	Meet requirement
Consistent laboratory reporting limit	Consistent between primary and secondary laboratories	Meet requirement
Completeness		
Sample receipt acknowledgement	Provided	Yes
Laboratory reports	Provided	Yes
Sampling staff	Consistent sampling staff used.	Meet requirement
Laboratory accreditation	NATA Accredited laboratory for methods used	Meet requirement
Accredited methods	NATA accredited methods used appropriate for each analyte.	Meet requirement
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013).	Meet requirement
Laboratory reporting limit	Laboratory reporting limit consistent and appropriate	Meet requirement
Consistent weather / field conditions	Consistent	Meet requirement
Chain of custody documentation	Appropriately completed	Meet requirement
Field sampling documentation	Appropriately completed	Meet requirement
Overall data set quality	95% of the data must satisfy the DQIs of both field and laboratory data.	

6 Quality Assurance and Quality Control (QA/QC)

An assessment of the field and laboratory DQI results is presented in **Table 8**.

Table 8 – DQI Results Summary		
DQI	Requirement	DQA
Precision		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines.	Yes
Field duplicates	1 per 20 samples; and - RPDs < 50%.	Yes Yes ⁷
Field triplicates	1 per 20 samples; and - RPDs < 50%.	Yes Yes ⁸
Laboratory duplicates	- Minimum of 1 per batch per analyte; - RPDs < 50%; and >10%, laboratory specified.	Yes Yes ⁹ Yes
Accuracy		
Laboratory matrix spikes	1 per batch per volatile/semi-volatile analyte; and - Recoveries >70% to 130%	Yes Yes ¹⁰
Laboratory surrogate spikes	1 per volatile/semi-volatile analyte sample (as appropriate); and - Recoveries 70% to 130%	Yes Yes
Laboratory control samples	- At least 1 per batch for analyte tested; and 70-130%	Yes Yes
Representativeness		
Sample methodology - preservation	Appropriate for the sample type and analytes	Yes
Decontamination procedures	All sampling equipment to be decontaminated between each sample	Yes
Samples extracted and analysed within holding times	Specific to each analyte	Yes ¹¹
Laboratory Method Blanks	At least 1 per batch per analyte tested for; and	Yes

⁷ A soil duplicate analyte exceeds the adopted quality control criteria for Benzo(a)pyrene TEQ calc (zero). The exceedances are attributed to the heterogenous nature of the soil samples. It is considered that these exceedances of the quality control criteria have not affected the usability of the data set collected in this soil investigation.

⁸ Two soil triplicate analytes exceeded the adopted quality control criteria. The exceedances are attributed to the heterogenous nature of the soil samples. It is considered that these exceedances of the quality control criteria have not affected the usability of the data set collected in this investigation.

⁹ Two soil laboratory duplicates exceeded the adopted quality control criteria for copper and zinc, and two water laboratory duplicates exceed the adopted quality control criteria for PAH/Phenols and TRH. The soil exceedances are attributed to the heterogenous nature of the soil samples. The water exceedances are attributed to only the Rinsate samples which reported no results above the LOR and thus is considered a minor exceedance. It is considered that these exceedances of the quality control criteria have not affected the usability of the data set collected in this investigation.

¹⁰ Matrix spike outliers for soil exist for organic matter and total organic carbon, based on these analytes not being compared against criteria this is considered to have not influenced the results in a negative way. Matrix spike outliers for water exist for PAH/phenols and TRH, based on these analytes not being compared against criteria this is considered to have not influenced the results in a negative way.

¹¹ The trip blank exceeded the prescribed holding time for sample extraction (1 day breach) and analysis (4-day breach) for TPH and TRH. The Trip Spike and Trip Spike Control exceeded the prescribed holding time for sample extraction (1- day breach) and analysis for BTEXN (4-day breach).

Table 8 – DQI Results Summary		
DQI	Requirement	DQA
	Result < laboratory reporting limit	Yes
Trip blanks	1 per field laboratory reporting limit - Recoveries 70-130%	Yes Yes
Trip spikes	1 per field batch for volatile analytes; and - Recoveries 70-130%	Yes Yes
Rinsate	1 per field batch for volatile analytes; and - Result < laboratory reporting limit	Yes Yes ¹²
Comparability		
Sampling approach	Consistent sampling approach used	Yes
Analysis methodology	Consistent methodology for each sample	Yes
Handling conditions and sampler	Consistent of each sample	Yes
Field observations and analytical	Field observations to support analytical results	Yes
Consistent laboratory reporting limits	Consistent between primary and secondary laboratories	Yes
Completeness		
Sample receipt acknowledgement	Provided	Yes
Laboratory reports	Provided	Yes
Sampling staff	Consistent sampling staff used	Yes
Laboratory accreditation	NATA Accredited laboratory for methods used.	Yes
Accredited methods	NATA accredited methods used appropriate for each analyte	Yes
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013)	Yes
Laboratory reporting limits	Laboratory reporting limit consistent and appropriate	Yes
Consistent weather / field data	Consistent	Yes
Chain of custody documentation	Provided	Yes
Field sampling documentation	Provided	Yes
Overall data set quality	95% of the data must satisfy the DQIs of both field and laboratory data	Yes

On the basis of the information provided in **Table 8**, EP Risk considers that the DQIs for the project have been met and the data is appropriate for the purposes of this assessment.

¹² One Rinsate exceedance for zinc exists. There were no exceedances of zinc in the soil results and therefore it is not considered to influence the results in a negative way.

7 Results

7.1 Subsurface Conditions

The subsurface conditions encountered in the test pits across the Site are detailed in the attached test pit logs. These should be read in conjunction with the general notes proceeding them, which explain the descriptive terms and classification methods used in the report. In general, the subsurface conditions in the test pits can be summarised as follows:

- TOPSOIL: Silty CLAY, low to medium plasticity, grey and Sandy CLAY, low to medium plasticity, grey and fine to coarse grained sand.
- RESIDUAL SOIL: Silty CLAY, low to medium plasticity, grey with chips of lime, fine to coarse grained sand and Sandy CLAY, low to medium plasticity, brown, fine to coarse grained sand.
- EXTREMELY WEATHERED ROCK: SILTSTONE, recovered as silty CLAY, medium to high plasticity, white and brown, fine to coarse grained sand; SANDSTONE, recovered as Sandy CLAY, low to medium plasticity, white and grey, fine to coarse grained sand with limestone chips; and SANDSTONE, recovered as clayey SAND, fine to coarse grained sand, brown and yellow, low to medium plasticity.
- BEDROCK: SILTSTONE and SANDSTONE, thinly to medium bedded, stained and coated and SANDSTONE, thinly bedded, brown, fine to coarse grained.

Groundwater was not observed in any of the test pits at the time of the investigation. It should be noted the groundwater conditions may vary with seasonal and weather conditions along with construction related site conditions. Detailed soil profile logs are attached as **Appendix C**.

Soil Vapour Screening

No signs of visual staining or odours were observed in any sample collection with PID readings all recorded at <1 ppm.

7.2 Soil Analytical Testing

The results of soil analytical testing are contained in the analytical summary tables section at the rear of the report and the laboratory Certificates of Analysis (COA) are attached as **Appendix D**.

Bonded Asbestos Containing Material (ACM)

Soil samples collected from three sampling locations were screened through a 7mm screen and reported bonded (non-friable) ACM concentrations of the soil samples below the adopted health-based soil criteria HSL (0.05% w/w).

Friable Asbestos (AF / FA)

Soil samples were obtained from three soil samples within the upper topsoil/fill profile to assess the presence of friable asbestos. No friable asbestos fibres were identified above the limit of reporting and no exceedances of the adopted asbestos HSL was reported.

Visual Asbestos on Site

During the Site walkover and intrusive investigation, no asbestos was observed on the Sites surface or in test pit locations.

Metals / BTEXN / PAH / OCP / OPP / TPH

All BTEXN / PAH / OCP / OPP / Metals and TPH concentrations of the soil samples analysed were reported below the adopted human health and ecological criteria and / or laboratory limit of reporting (LOR).

TRH

All TRH concentrations of the soil samples analysed were reported below the adopted human health and ecological criteria and / or laboratory LOR.

Aesthetics

No anthropogenic materials were present in the soil profile and no significant fill was identified across the Site.

8 Discussion

Based on the decision-making process for assessing urban redevelopment sites detailed in EPA (2017) and present in **Table 5**, the decisions required to be made are detailed below.

Has soil been assessed against relevant health investigation levels (HILs) and health screening levels (HSLs), and has potential for migration of contamination been considered?

The results of the soil analytical testing have been compared against the relevant health-based criteria and there were no exceedances to the adopted criteria.

Are there any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed in the Site assessment reports?

No background soil concentration issues were identified at the Site.

Are there impacts of chemical mixtures?

No visual or olfactory impacts were identified across the Site and within test pit / borehole locations. All analytical sample results were recorded below health and ecological criteria.

Are there potential ecological risks? If yes, have these been assessed?

There were no ecological risks identified, therefore no assessment was required.

Are there any potential human health risks to the identified site receptors?

There were no human health risks for site receptors identified.

Is there any evidence of, or potential for, migration of contaminants from the Site? Has this been appropriately addressed including potential risks to offsite receptors, and reported to the site owner or occupier?

The potential for migration of contaminants in fill materials offsite is considered low, on account of minimal fill materials being observed onsite.

Are there any aesthetics issues in fill at the Site?

Minimal fill was reported across the Site and there were no observed stockpiles of anthropogenic materials.

Is there sufficient information to accurately characterise the Site contamination?

Yes, EP Risk has adopted a preliminary assessment and based on the historical land use the Site presents a low risk of soil contamination. The PSI met the adopted data quality objectives and is therefore considered sufficient for the purposes of assessing contamination associated with the historical land use.

Is Further Investigation Required?

Based on the proposed future Residential A land use for the development, with all analytical sample results recorded below the health and ecological criteria, no further investigation is required with respect to contamination.

Is a Site Management Strategy Required?

While contamination at a level warranting management or remediation was not identified, it is recommended that an unexpected finds protocol (**Appendix E**) should be implemented during redevelopment to address any unidentified contamination that may be encountered during the proposed redevelopment works.

9 Refined Conceptual Site Model

A refined conceptual site model (CSM) has been developed based upon the information provided in previous sections of this report.

Contaminating activities based on the Site inspection and review of historical records, the following activities have occurred at the Site which may have resulted in the potential for contamination. These activities are summarised as follows:

- AEC 1 - Rural agricultural land use.
- AEC 2 - Clearing of land with potential use of herbicides and pesticides.

9.1 Affected Media

The potential affected media at the Site are considered to be soil.

9.2 Human and Ecological Receptors

Sensitive receptors identified at and near the Site were considered to be:

- Future recreational users at the Site including potential users of residential buildings (ASC NEPM 2013 HIL A and HSL A).
- Future construction and sub-surface maintenance workers at the Site (ASC NEPM 2013 HIL D and HSL D – commercial/industrial; CRC CARE 2011 Direct contact and intrusive maintenance workers HSLs and Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)).
- Terrestrial fauna and flora at the Site and on adjoining land (ASC NEPM EIL and ESLs).
- Ecosystems dependant on the downgradient Creeks and Rivers

9.3 Potential and Complete Exposure Pathways

An analysis of the potential exposure pathways between the COPC and the identified human and ecological receptors are presented in **Table 9**.

Overall, based on this assessment and the conceptual site model for the proposed development there are no complete source-pathway-receptor linkages.

Table 9 – Source-Pathway-Receptor Linkages							
Sources				Pathways	Receptors	Linkages	Summary of Findings and Comments
Primary	Secondary	Contaminants	Affected Media	Exposure Pathways			
AEC 1 - Clearing of land	Potential use of herbicides and pesticides	OCP and OPP	Soil	<u>Human Health</u> • Dermal contact • Incidental ingestion	• Future construction and sub-surface maintenance workers. • Future residential/recreational users.	Not complete.	All results recorded below health and ecological criteria.
				<u>Ecological:</u> • Uptake by flora and fauna	• Terrestrial fauna and flora at the Site and on adjoining land. • Ecosystems dependant on the downgradient Creeks and Rivers		
AEC 2 - Rural agricultural land use	Use of machinery and storage of equipment	TRH, BTEX, PAH and heavy metals	Soil	<u>Human Health</u> • Dermal contact • Incidental ingestion	• Future construction and sub-surface maintenance workers. • Future residential/recreational users.	Not complete.	All results recorded below health and ecological criteria.
				<u>Ecological:</u> • Uptake by flora and fauna	• Terrestrial fauna and flora at the Site and on adjoining land. • Ecosystems dependant on the downgradient Creeks and Rivers		

10 Conclusion and Recommendations

EP Risk was engaged by DB20 Pty Ltd to undertake a PSI for a Site located at 381 Anambah Road, Anambah, New South Wales (NSW) (the Site). It is understood the client requires a PSI for the development application package for a proposed residential subdivision development as required in SEPP (Resilience and Hazards) 2021.

The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk under the proposed land use.

Potentially contaminating activities identified to have been undertaken at the Site include clearing of land with potential use of herbicides and pesticides, rural agricultural land use.

During the site walkover and intrusive investigation no evidence of anthropogenic waste or asbestos containing materials were observed at the sampling locations. The Site comprised a large area of vacant grassland, a large dam was in the western portion of the Site, and a creek is located along the northern boundary of the Site.

Based on the review of the historical information, the Site was formerly and currently being used as cleared farmland / grazing land. The surrounding land use comprised rural / agricultural land use.

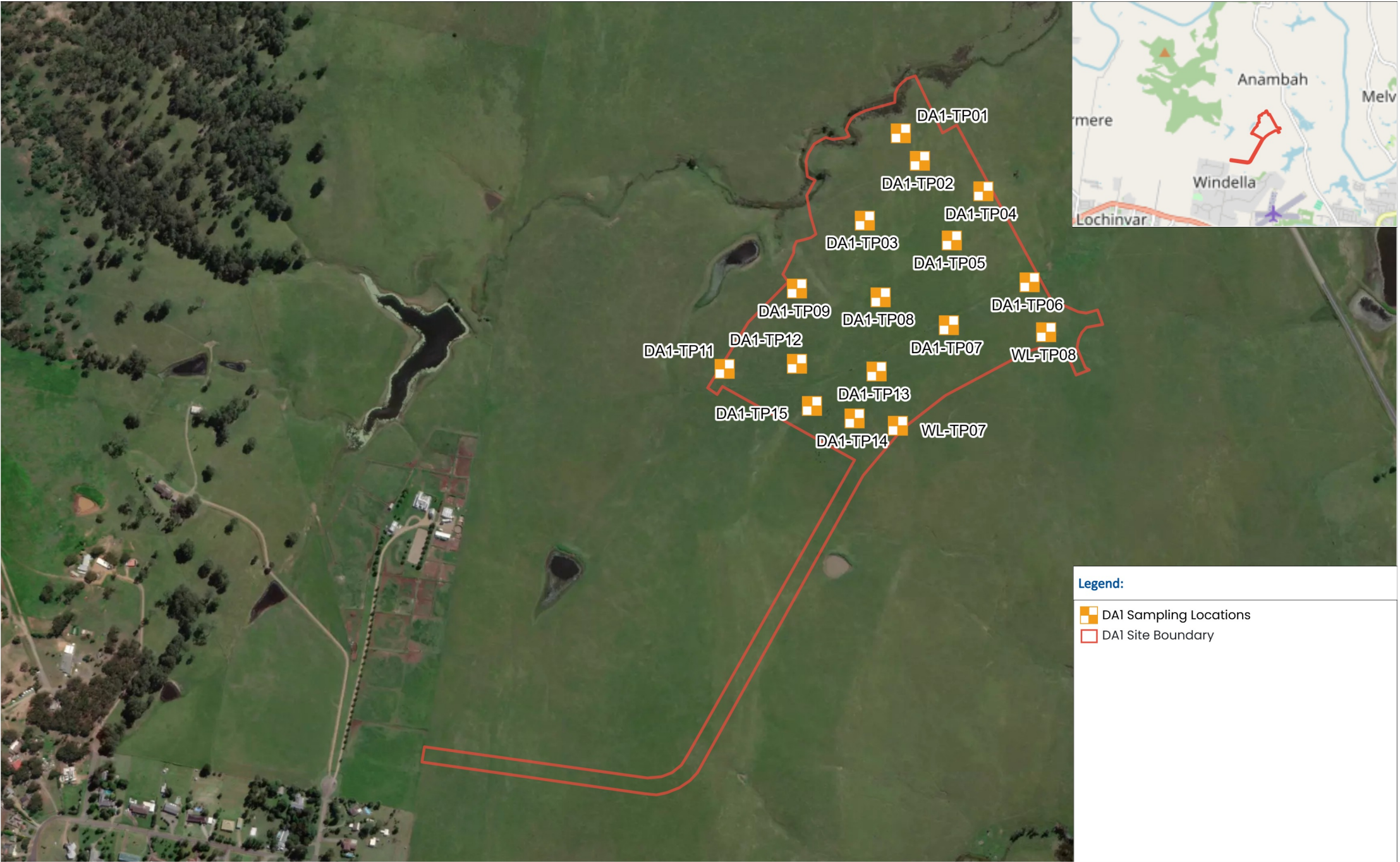
The collection and analysis of 17 soil samples from 16 test pits advanced to a maximum depth of 4.0 m BGL (or prior refusal) was undertaken.

Overall, based on this assessment and the conceptual site model for the proposed development there are no complete source-pathway-receptor linkages, subject to the recommended implementation of an unexpected finds protocol. Therefore, the Site is considered to pose a low risk of contamination to the proposed future land users and is considered suitable for the proposed residential development.

While contamination at a level warranting remediation was not identified, the following is recommended to meet industry best practice during development activities:

- Implementation of the unexpected finds protocol (attached as **Appendix E**) during redevelopment.

Figures

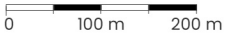


Legend:

- DA1 Sampling Locations
- DA1 Site Boundary

Preliminary Site Investigation - DA1
Anambah Road, Anambah NSW, Australia

Figure 1 - Site and Sampling Locations



Approximate Scale Only



Analytical Tables

Table 1A - Soil Analytical Summary

	BTEX								TRH							TPH					Inorganics																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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g/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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
NEPM, 2013, NEPM 2013 Table 7 Res A HSL for Asbestos in Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil

Table 1A - Soil Analytical Summary

Metals										PCBs	PAH																					
Asenic	Cadmium	Chromium (III+VI)	Chromium (VI)	Copper	Lead	Mercury	Nickel	Zinc	PCBs (Sum of total)	Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Indene[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo[a]pyrene TEQ (a,b)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	Benzo[a]pyrene TEQ (b,a)	
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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EOL	5	1	2	2	5	0.1	2	5	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20		100	6,000	300	40	400	7,400	1																						
NEPM 2013 Table 7 Res A HSL for Asbestos in Soil																																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																
>>0m, <1m																																
>>1m, <2m																																
>>2m, <4m																																
>>4m																																
NEPM 2013 Table 1B(5) Site Specific EQL - Urban Res & Public Open Space	100		640	640	210	1100		170	480																							
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil															0.7																	
>>0m, <2m															0.7																	
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																
Field ID	Date	Depth																														
DAI-TP01_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	55	-	14	17	<0.1	16	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP02_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	52	-	14	14	<0.1	17	27	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DAI-TP03_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	55	-	31	5	<0.1	52	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP04_0-0.1	25 Jan 2024	0 - 0.1	12	<1	56	-	10	16	<0.1	16	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP05_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	106	4.0	38	6	<0.1	60	31	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DAI-TP06_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	82	-	40	30	<0.1	60	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP07_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	113	4.0	38	5	<0.1	58	26	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DAI-TP08_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	91	-	34	6	<0.1	49	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP09_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	140	4.0	44	6	<0.1	79	47	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DAI-TP09_1.0	25 Jan 2024	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP11_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	143	4.0	48	<5	<0.1	97	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP12_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	133	4.0	54	<5	<0.1	77	41	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DAI-TP13_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	122	4.0	41	6	<0.1	62	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP14_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	127	4.0	40	<5	<0.1	74	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DAI-TP15_0-0.1	25 Jan 2024	0 - 0.1	<5	<1	92	-	25	7	<0.1	44	40	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
WL-TP07_0-0.1	22 Jan 2024	0 - 0.1	8	<1	61	-	54	<5	<0.1	32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WL-TP08_0-0.1	22 Jan 2024	0 - 0.1	<5	<1	108	3.9	41	13	<0.1	39	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
NEPM, 2013, NEPM 2013 Table 7 Res A HSL for Asbestos in Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil

Environmental Standards
 2013, NEPM 2013 Table 1A(1) Hills Res A Soil
 NEPM, 2013, NEPM 2013 Table 7 Res A HSL for Asbestos in Soil
 2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
 2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
 NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil

[illegible]

[illegible]

Table 1C - Soil Analytical Summary Trip Blank

	BTEX								TRH		TPH
	Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C6-C9
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.2	0.5	0.5	0.5	0.5	0.5	0.2	10	10	10
Field ID	Date	Depth									
TB	15 Jan 2024	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10

Table 1D- Soil Analytical Summary Trip Spike

			BTEX							
			Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	0.2	0.5	0.5	0.5	0.5	0.5	0.2
Trip Spike Control 21	15 Jan 2024		<1	<0.2	3.4	4.3	4.4	2.0	6.4	14.1
TS21	15 Jan 2024		<1	<0.2	2.4	3.4	3.6	1.9	5.5	11.3
Spike Recovery (%)			-	-	70.59	79.07	81.82	95.00	85.94	80.14

[illegible]

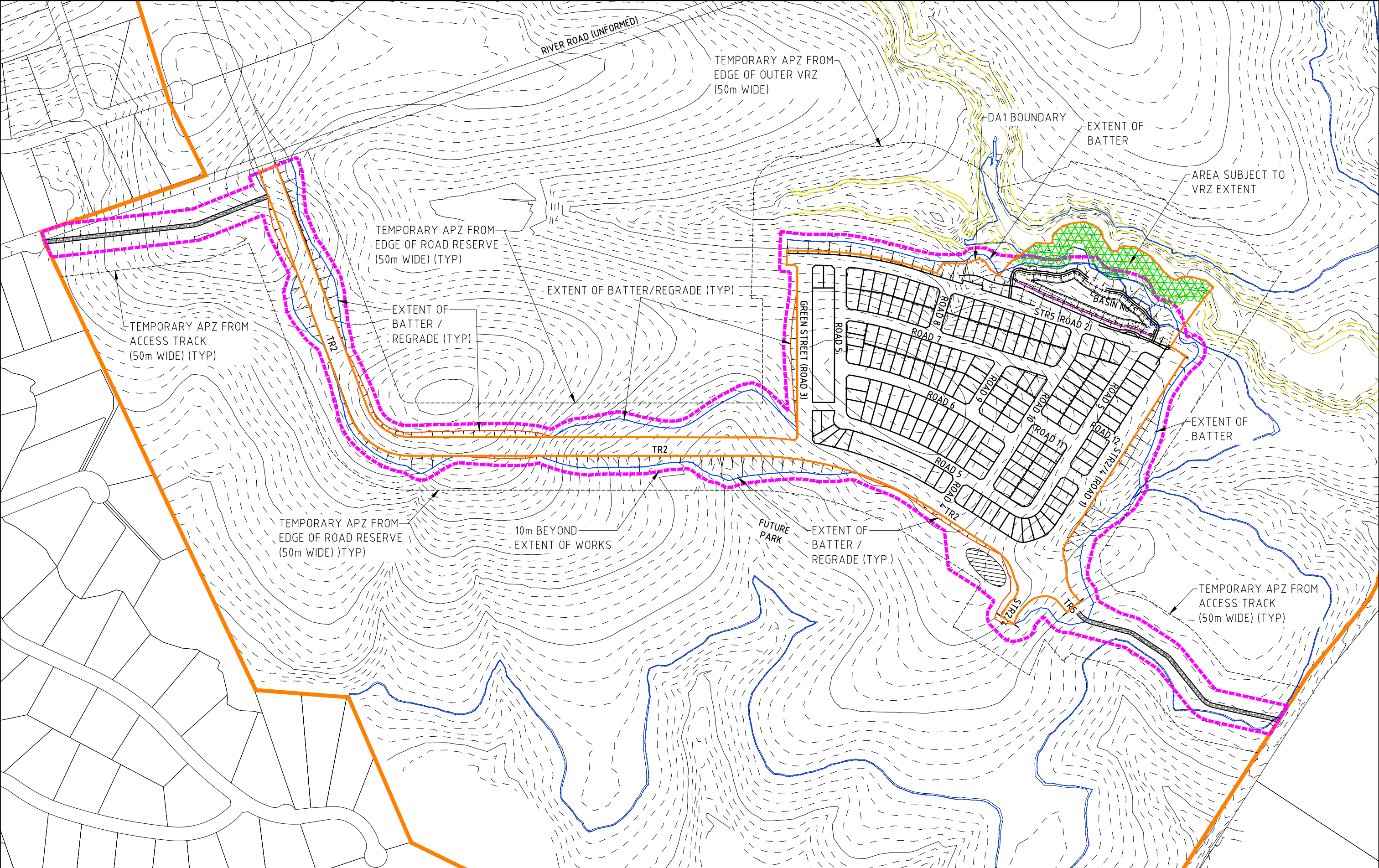
Table 1F Bonded Asbestos Analytical Summary



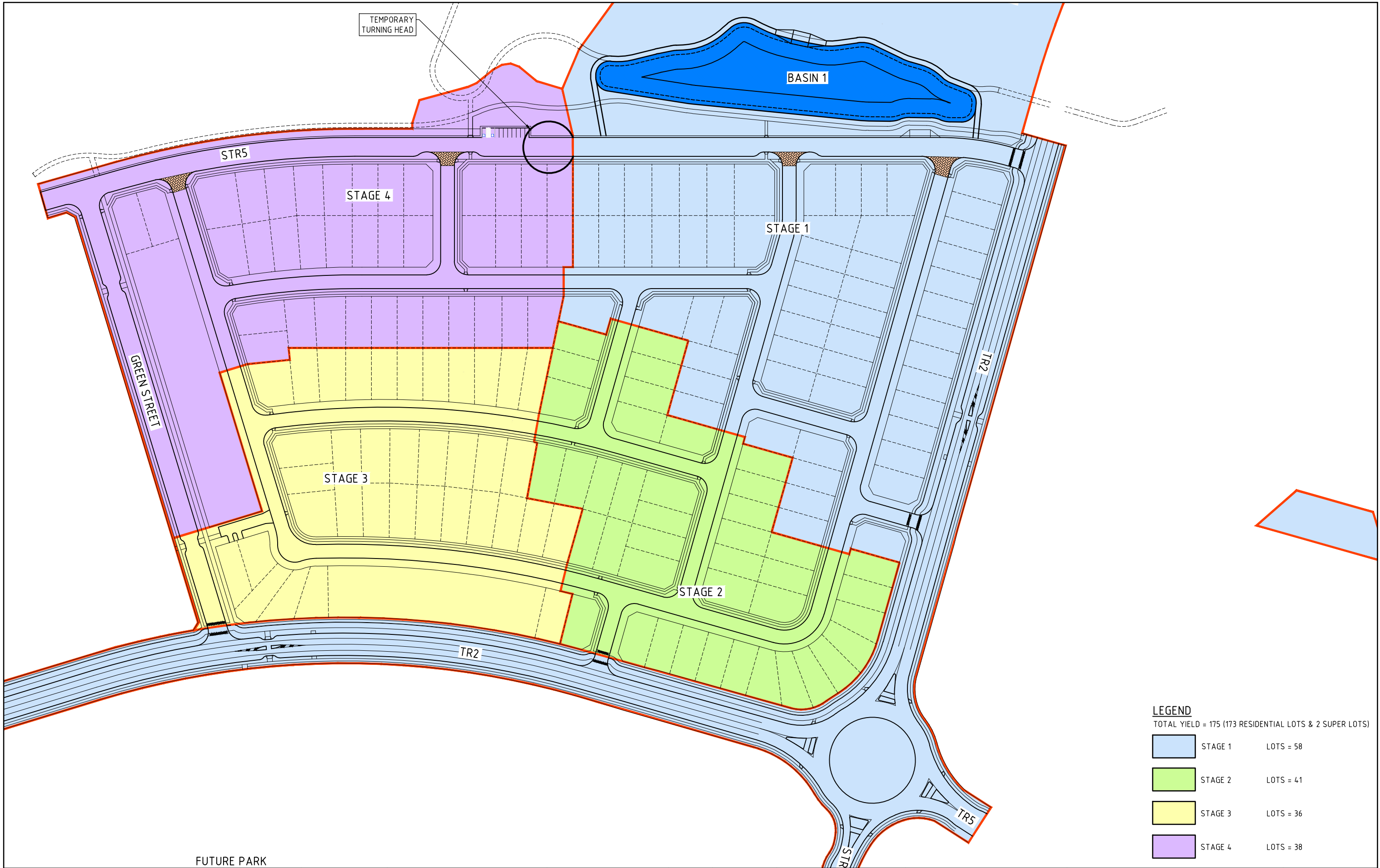
Location	Profile	Litres of Soil	Soil (kg)	ACM (kg)	Asbestos Content (kg)	% w/w Asbestos	Variables	Adopted Factors
							Specific gravity	1.8
							Asbestos content	0.00%
DA1-TP02_0-0.1		10	18	0	0	0.000		
DA1-TP07_0-0.1		10	18	0	0	0.000		
DA1-TP15_0-0.1		10	18	0	0	0.000		

Appendix A

PROPOSED DEVELOPMENT PLANS



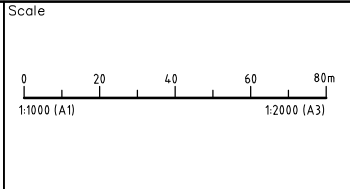
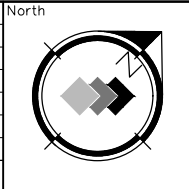
				North		Scale		COPYRIGHT		Designed		Scale		Client		 A.B.N. 92 086 017 745 1 HARTLEY DRIVE, THORNTON NSW 2322 PO BOX 3337, THORNTON NSW 2322 PHONE: (02) 4964 1811		ANAMBAH URBAN RELEASE AREA ANAMBAH ROAD ANAMBAH – DA1 EXTENT OF WORKS PLAN		Project No			
								Copyright in the drawings, information and data recorded hereon is the property of Geoff Craig & Associates Pty Ltd and may not be used, copied or reproduced in whole or part for any purpose other than that for which it is supplied without the prior consent of Geoff Craig & Associates Pty Ltd.		AM		1:2500								22311C			
4				CLIENT COMMENTS		AM		I.H.		14.05.25										Drawing No		Revision	
3				GENERAL AMENDMENTS		AM		I.H.		13.05.25										E01		4	
2				CLIENT COMMENTS		AM		I.H.		05.05.25													
1				ORIGINAL ISSUE		AM		I.H.		01.05.25													
REVISION				Description		Drawn		App'd		Date								A1 SHEET					



LEGEND
TOTAL YIELD = 175 (173 RESIDENTIAL LOTS & 2 SUPER LOTS)

	STAGE 1	LOTS = 58
	STAGE 2	LOTS = 41
	STAGE 3	LOTS = 36
	STAGE 4	LOTS = 38

REVISION	Description	Drawn	App'd	Date
5	CLIENT COMMENTS	DB	IH	13.05.25
4	REVISED STAGING	DB	IH	12.05.25
3	GENERAL REVISION	DB	IH	17.04.25
2	REVISED STAGING	DB	IH	04.04.25
1	ORIGINAL ISSUE	DB	IH	25.03.25



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Designed DB	Scale 1:1000
Cad Reference 22311LD LD1031 r5	
Project Approval IAN HILL (B.E) Consulting Civil Engineer	



GCA
ENGINEERING SOLUTIONS

A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

ANAMBAH URBAN RELEASE AREA
ANAMBAH ROAD
ANAMBAH
DA1 - STAGING PLAN

Project No 22311LD	
Drawing No LD1031	Revision 5
A1 SHEET	

Appendix B

SITE PHOTOGRAPHS

 24 Jan 2024 at 5:21:24 pm -32.688209,+151.487803 316° NW Anambah NSW 2320 Australia EP3487 DA1-TP18	Plate 1 Description: The site facing NW. Date: 24/01/24
 24 Jan 2024 at 5:39:53 pm -32.688604,+151.485767 243° SW Anambah NSW 2320 Australia EP3487 DA1-TP17	Plate 2 Description: The site facing SW. Date: 24/01/24

	Plate 3 Description: The site facing NW. Date: 25/01/24
	Plate 4 Description: The site facing SW. Date: 25/01/24

	Plate 5 Description: DA1 – TP07 Date: 25/01/24
	Plate 6 Description: DA1 – TP08. Date: 25/01/24

	Plate 6 Description: The site facing SE. Date: 25/01/24
	Plate 6 Description: The site facing NE. Date: 25/01/24

Appendix C

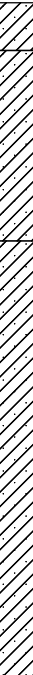
SOIL LOGS

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487							
Project		Anambah Western Link Road (DA1)				Logged By		AN							
Location		Anambah NSW 2320				Checked By		OP							
Started Excavation		25.1.24		Northing		6383096.00		Slope		90°					
Completed Excavation		25.1.24		Easting		358523.00		Bearing		---					
Equipment		23T Excavator				Ground Level		20 AHD							
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION							
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)				
E	Not Encountered	19	1		CL-CI	TOPSOIL: Silty CLAY: low to medium plasticity, grey	<PL	F	2	ES	TOPSOIL DA1-TP01_0-0.1 0 ppm				
					CL-CI	Silty CLAY: low to medium plasticity, brown, with chips of lime			2						
									2			ES U50	DA1-TP01_0.5 0.1 ppm		
									4						
									5						
									4						
									3						
									4						
									4						
									3						
									2					ES	DA1-TP01_1.0 0.1 ppm
									3						
									3						
									3						
									4						
									4						
									4						
									4						
									10			ES	EXTREMELY WEATHERED ROCK DCP:-/20mm HB		
									6						
		18	2		ES	DA1-TP01_2.0 0.1 ppm									
		17	3		B										
		16	4				ES	DA1-TP01_3.0 0.5 ppm Target depth							
Remarks:															

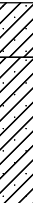
EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:06 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487							
Project		Anambah Western Link Road (DA1)				Logged By		AN							
Location		Anambah NSW 2320				Checked By		OP							
Started Excavation		25.1.24		Northing		6383054.00		Slope		90°					
Completed Excavation		25.1.24		Easting		358553.00		Bearing		---					
Equipment		23T Excavator				Ground Level		23 AHD							
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION							
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)				
E	Not Encountered	19	22		CL-CI	TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to coarse grained sand	<PL		4	ES	TOPSOIL DA1-TP02_0-0.1 0 ppm				
					CL-CI	Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand			5						
					<PL	St to VSt	4	ES	RESIDUAL SOIL DA1-TP02_0.5 0.2 ppm						
							5								
							4								
							8								
							9								
					<<PL	H	25	ES	EXTREMELY WEATHERED ROCK DCP:-HB DA1-TP02_1.0 0.1 ppm						
														ES	BEDROCK DA1-TP02_2.0 0 ppm
														ES	DA1-TP02_2.8 0 ppm Target depth
					Test Pit TP02 Terminated at 2.80 m										
Remarks:															

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN GPJ <<DrawingFile>> 21/02/2024 13:06 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

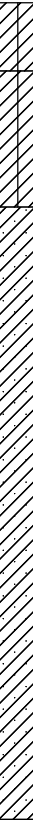
Client		Roche Group				Project No.		EP3487							
Project		Anambah Western Link Road (DA1)				Logged By		AN							
Location		Anambah NSW 2320				Checked By		OP							
Started Excavation		25.1.24		Northing		6382954.00		Slope		90°					
Completed Excavation		25.1.24		Easting		358463.00		Bearing		---					
Equipment		23T Excavator				Ground Level		38 AHD							
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION							
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)				
E	Not Encountered	37	1		CL-CI	TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to coarse grained sand	<PL	F to St	3	ES	TOPSOIL DA1-TP03_0-0.1 0.1 ppm RESIDUAL SOIL				
					CL-CI	Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand			3						
									2						
									6						
									6						
								VSt	11	ES	DA1-TP03_0.5 0.1 ppm EXTREMELY WEATHERED ROCK DCP:-HB				
									25						
														ES	DA1-TP03_1.0 0.1 ppm
														ES	DA1-TP03_2.0 0.3 ppm
									ES	DA1-TP03_3.0 0.1 ppm Target depth					
Test Pit TP03 Terminated at 3.10 m															
Remarks:															

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:06 10.03.00.09 Developed by Datgel

EP LIB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA 1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:06 10.03.00.09 Developed by Datgel

Remarks:

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487							
Project		Anambah Western Link Road (DA1)				Logged By		AN							
Location		Anambah NSW 2320				Checked By		OP							
Started Excavation		25.1.24		Northing		6382922.00		Slope		90°					
Completed Excavation		25.1.24		Easting		358612.00		Bearing		---					
Equipment		23T Excavator				Ground Level		32.3 AHD							
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION							
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)				
E	Not Encountered	32			CL-CI	TOPSOIL: Silty CLAY: low to medium plasticity, grey	<PL	F	1	ES	TOPSOIL DA1-TP05_0-0.1 0 ppm				
									2						
					CL-CI	Silty CLAY: low to medium plasticity, grey	<PL	St to VSt	3	ES	RESIDUAL SOIL DA1-TP05_0.5 0 ppm EXTREMELY WEATHERED ROCK				
									4						
									8						
									8						
									12						
							15					ES	DA1-TP05_1.0 0 ppm		
							18								
							1								
							31								
							2								
							30								
							3								
		29													
		4													
Remarks:															

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

EP LIB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgeol

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487								
Project		Anambah Western Link Road (DA1)				Logged By		AN								
Location		Anambah NSW 2320				Checked By		OP								
Started Excavation		25.1.24		Northing		6382780.00		Slope		90°						
Completed Excavation		25.1.24		Easting		358609.00		Bearing		---						
Equipment		23T Excavator				Ground Level		37.4 AHD								
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION								
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)					
E	Not Encountered	37			CL-CI	TOPSOIL: Silty CLAY: low to medium plasticity, grey	<PL		3	ES	TOPSOIL DA1-TP07_0-0.1 0 ppm					
					CL-CI	Silty CLAY: low to medium plasticity, brown			5							
					CL-CI				7							
											<PL	St to VSt	6	ES	RESIDUAL SOIL DA1-TP07_0.5 0 ppm DCP:-HB	
													6			
													4			
													7			
													15			
											<<PL	H		ES	EXTREMELY WEATHERED ROCK DA1-TP07_1.0 0 ppm	
							2				Extremely weathered Sandstone recovered as Sandy CLAY, low to medium plasticity, brown, fine to coarse grained sand				ES	
											Test Pit TP07 Terminated at 2.00 m				ES	DA1-TP07_2.0 0 ppm Target depth
							35									
		3														
		34														
		4														
Remarks:																

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

[illegible]

EEP LIB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Remarks:

Engineering Log - Test Pit

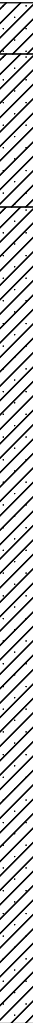
Client		Roche Group				Project No.		EP3487														
Project		Anambah Western Link Road (DA1)				Logged By		AN														
Location		Anambah NSW 2320				Checked By		OP														
Started Excavation		25.1.24		Northing		6382713.00		Slope		90°												
Completed Excavation		25.1.24		Easting		358358.00		Bearing		---												
Equipment		23T Excavator				Ground Level		38.3 AHD														
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION														
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)											
E	Not Encountered	38			CL-CI	TOPSOIL: Silty CLAY: low to medium plasticity, grey	<PL	F	2	ES	TOPSOIL DA1-TP12_0-0.1 0.1 ppm											
					CL-CI	Silty CLAY: low to medium plasticity, grey and brown		VSt	6			RESIDUAL SOIL										
									6													
									10													
							1		CL-CI	Extremely weathered Sandstone recovered as Sandy CLAY, medium to high plasticity, brown and white, fine to coarse grained sand	<<PL		H	9	ES	EXTREMELY WEATHERED ROCK DA1-TP12_0.5 0 ppm; DCP:-HB						
														19								
							37								ES	DA1-TP12_1.0 0 ppm						
		2																				
		36				Test Pit TP12 Terminated at 2.00 m					D ES	DA1-TP12_2.0 0 ppm Target depth										
		3																				
		35																				
		4																				
Remarks:																						

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

EEP LIB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Remarks:

Engineering Log - Test Pit

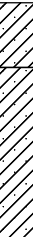
Client		Roche Group				Project No.		EP3487					
Project		Anambah Western Link Road (DA1)				Logged By		AN					
Location		Anambah NSW 2320				Checked By		OP					
Started Excavation		25.1.24		Northing		6382630.00		Slope		90°			
Completed Excavation		25.1.24		Easting		358452.00		Bearing		---			
						Equipment		23T Excavator					
						Ground Level		37.7 AHD					
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION					
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)		
E	Not Encountered	37	1		CL- CI	TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to coarse grained sand	<PL	VSt	6	ES	TOPSOIL DA1-TP14_0-0.1 0 ppm RESIDUAL SOIL		
					CL- CH	Sandy CLAY: medium to high plasticity, grey and brown, fine to coarse grained sand			6				
									8				
									6				
									6				
									9				
							CL- CI	Extremely weathered Sandstone recovered as Sandy CLAY, medum to high plasticity, brown, with ferrugious cementations 50-100mm			11	ES	DA1-TP14_0.5 0.1 ppm EXTREMELY WEATHERED ROCK DCP:-HB
									16				
		36	2							ES	DA1-TP14_1.0 0 ppm		
		35								ES	DA1-TP14_2.0 0 ppm		
		3								ES	DA1-TP14_3.0 0 ppm Target depth		
		34											
		4											
Remarks:													

EP LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

EP LIB 05.GLB Log C'W NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487						
Project		Anambah Western Link Road (DA1)				Logged By		AN						
Location		Anambah NSW 2320				Checked By		OP						
Started Excavation		24.1.24		Northing		6382436.00		Slope		90°				
Completed Excavation		24.1.24		Easting		358037.00		Bearing		---				
Equipment		23T Excavator		Ground Level		30.7 AHD								
EXCAVATION			MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION					
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)			
E	Not Encountered	30	1		CL-CI	TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to medium grained sand	<PL		3	ES	TOPSOIL DA1-TP17_0-0.1 0 ppm			
					CL-CI	Sandy CLAY: low to medium plasticity, grey, fine to coarse grained sand			3					
					CL-CI	Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand			F and St	3	4	B ES	RESIDUAL SOIL DA1-TP17_1.0 0 ppm	
											5			
											4			
											3			
											3			
							3							
							3							
					29	2		CL-CI	Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand	<<PL		3	ES	DA1-TP17_2.0 0 ppm
												3		
												2		
												3		
												2		
												4		
												4		
												4		
												5		
												5		
					28	3		SC	Extremely weathered Sandstone recovered as Clayey SAND, fine to coarse grained, brown and yellow	D	VD	5	ES	EXTREMELY WEATHERED ROCK DCP:-HB DA1-TP17_3.0 0.1 ppm Target depth
5														
7														
5														
VSt	5													
6														
10														
6														
7														
27	4						19							
Test Pit TP17 Terminated at 3.10 m														
Remarks:														

EP LIB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

Client		Roche Group				Project No.		EP3487								
Project		Anambah Western Link Road (DA1)				Logged By		AN								
Location		Anambah NSW 2320				Checked By		OP								
Started Excavation		24.1.24		Northing		6382265.00		Slope		90°						
Completed Excavation		24.1.24		Easting		358242.00		Bearing		---						
Equipment		23T Excavator				Ground Level		46.7 AHD								
EXCAVATION		MATERIAL DESCRIPTION						TESTING, SAMPLING & OTHER INFORMATION								
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification	Description of Soil (soil type: plasticity/grainsize, colour and other components)	Moisture Condition	Consistency	Tests DCP Results (blows/100mm)	Samples	Additional Comments (material origin, pocket penetrometer values, investigation observations)					
E	Not Encountered	46	1		CL-CI	TOPSOIL: Sandy CLAY: low to medium plasticity, grey, fine to medium grained sand	<PL	St to VSt	3	ES	TOPSOIL DA1-TP18_0-0.1 0 ppm					
					5											
					CL-CI	Sandy CLAY: low to medium plasticity, brown, fine to coarse grained sand			10	B	RESIDUAL SOIL					
					11											
					CI-CH	Extremely weathered Sandstone recovered as Sandy CLAY, medium to high plasticity, brown and white, fine to coarse grained			<<PL	VSt to H	12	ES	EXTREMELY WEATHERED ROCK DA1-TP18_0.5 0.2 ppm			
							10									
							8									
							15									
							11									
					D	VD				ES	DA1-TP18_1.0 0 ppm					
												ES	DA1-TP18_2.0 0 ppm			
														BEDROCK		
					3						ES	DA1-TP18_3.0 0.1 ppm Target depth				
					4											

Remarks:

EP_LUB 05.GLB Log CW NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <<DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datgel

Engineering Log - Test Pit

EP LIB 05.GLB Log C'W NON-CORED BOREHOLE LOG EP3487 ANAMBAH DA1 0.1 AN.GPJ <DrawingFile>> 21/02/2024 13:07 10.03.00.09 Developed by Datge

Appendix D

NATA ACCREDITED LABORATORY REPORTS



CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodport Rd, Smithfield NSW 2164
Ph: 02 9164 8655 E: samples.syd@alsenviro.com
□ Newcastle: 5 Rosagum Rd, Warabrook NSW 2304
Ph: 02 4968 9453 E: samples.newcastle@alsenviro.com

□ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
□ Townsville: 14-15 Deana Ct, Bohle QLD 4818
Ph: 07 4798 0100 E: townsville.environmental@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 8648 9606 E: samples.melbourne@alsenviro.com
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5005
Ph: 08 8358 0800 E: adelaide@alsenviro.com

CLIENT:	EP RISK MANAGEMENT PTY LTD	TURNAROUND REQUIREMENTS:	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	NEWCASTLE	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)		Custody Seal Intact? Yes ☒ No ☐ N/A ☐	
PROJECT:	Anambah PSI - DAI	ALS QUOTE NO.:	ES23EPRISK0002	Free ice / frozen ice bricks present upon receipt? Yes ☒ No ☐ N/A ☐	
ORDER NUMBER:	EP3487			Random Sample Temperature on Receipt: 2.0 °C	
PROJECT MANAGER:	Nathan McGuire	CONTACT PH:	0422937410	Other comment:	
SAMPLER:	Hayley Erskine	SAMPLER MOBILE:	0401855939	RECEIVED BY: [Signature]	
COC emailed to ALS? (YES / NO)	YES	EDD FORMAT (or default):	esdat	DATE/TIME: 29/1/24	
Email Reports to (will default to PM if no other addresses are listed): hayley.erskine@eprisk.com.au, nathan.mcguire@eprisk.com.au		RELINQUISHED BY:	Hayley Erskine	DATE/TIME: 29/1/24	
Email Invoice to (will default to PM if no other addresses are listed): accounts@eprisk.com.au		DATE/TIME:	29/1/24 1:30	DATE/TIME: 29/1/24 1930	

ALS USE ONLY				SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-16	S-2	S-12	EA200F	TRH (F1), BTEXN	W-26	NEPM Screen P-22						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	DAI-TP01-0-0	29/1/24	S	1 Jar	1		X	X										
2	DAI-TP01-0-5																	
3	DAI-TP01-1-0																	
4	DAI-TP01-2-0																	
5	DAI-TP01-3-0																	
6	DAI-TP02-0-0.1			1 jar + 1 bag	2	X			X									
7	DAI-TP02-0-5			1 Jar	1													
8	DAI-TP02-1-0																	
9	DAI-TP02-2-0																	
10	DAI-TP02-3-0																	
11	DAI-TP03-0-0.1						X	X										
12	DAI-TP03-0-5																	
13	DAI-TP03-1-0																	
14	DAI-TP03-2-0																	
15	DAI-TP03-3-0																	
16	DAI-TP04-0-0.1						X	X										
17	DAI-TP04-0-5																	
18	DAI-TP04-1-0																	
19	DAI-TP04-2-0																	
20	DAI-TP05-0-0.1					X												
21	DAI-TP05-0-5																	
22	DAI-TP05-1-0																	
23	DAI-TP05-2-0																	
24	DAI-TP05-3-0																	
TOTAL																		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserv.
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

LAB OF ORIGIN:
NEWCASTLE

E-MAILED

Environmental Division
Sydney
Work Order Reference
ES2402671

Telephone : + 61-2-8784 8655



CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2164
Ph: 02 5754 5555 E: samples.sydney@alsenviro.com
□ Newcastle: 5 Rossignol Rd, Warabrook NSW 2304
Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

□ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 5243 7222 E: samples.brisbane@alsenviro.com
□ Townsville: 14-16 Desma Ct, Bohle QLD 4818
Ph: 07 4796 0563 E: townsville.environment@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 6548 9800 E: samples.melbourne@alsenviro.com
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5095
Ph: 08 5559 0800 E: adelaide@alsenviro.com

CLIENT:	EP RISK MANAGEMENT PTY LTD	TURNAROUND REQUIREMENTS:	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	NEWCASTLE	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT:	Anambah PSI - DAI	ALS QUOTE NO.:	ES23EPRISK0002	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:	EP3487			Random Sample Temperature on Receipt: °C
PROJECT MANAGER:	Nathan McGuire	CONTACT PH:	0422937410	Other comment:
SAMPLER:	Hayley Erskine	SAMPLER MOBILE:	0401855939	RECEIVED BY:
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	esdat	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed):	hayley.erskine@eprisk.com.au, nathan.mcguire@eprisk.com.au	RELINQUISHED BY:	Hayley Erskine	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):	accounts@eprisk.com.au	DATE/TIME:		DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-16	S2	S12	EA200F	TRH (F1), BTEXN	W-26	NEPM Screen P-22	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
25	DAI-TP06-0-0.1	25/11/24	S	1 Jar	1		X	X					Subcon / Forward Lab / Split WO: 3008	
26	DAI-TP06-0.5				1								Lab / Analysis:	
27	DAI-TP06-1.0				1								Organised By / Date:	
28	DAI-TP06-2.0				1								Relinquished By / Date:	
29	DAI-TP07-0-0.1			1 Jar + 1 bag	2	X			X				Connote / Courier:	
30	DAI-TP07-0.5			1 Jar	1								WO No:	
31	DAI-TP07-1.0				1								Attached By PO / Letter of Subst:	
32	DAI-TP07-2.0				1									
33	DAI-TP08-0-0.1				1		X	X						
34	DAI-TP08-0.5				1									
35	DAI-TP08-1.0				1									
36	DAI-TP08-2.0				1									
37	DAI-TP08-3.0				1									
38	DAI-TP09-0-0.1				1	X								
39	DAI-TP09-0.5				1									
40	DAI-TP09-1.0			1 Jar + 1 bag	2							X		
41	DAI-TP09-2.0			1 Jar	1									
42	DAI-TP09-3.0				1									
43	DAI-TP10-0-0.1				1		X	X						
44	DAI-TP10-0.5				1									
45	DAI-TP10-1.0				1									
46	DAI-TP10-2.0				1									
47	DAI-TP11-0-0.1				1		X	X						
48	DAI-TP11-0.5				1									
TOTAL														

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORG = Nitric Preserved ORG; SH = Sodium Hydroxide/Cl Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Special bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ **Sydney:** 277 Woodpark Rd, Smithfield NSW 2164
 Ph: 02 3784 8555 E: samples.sydney@alsenviro.com

☐ **Newcastle:** 5 Rosegum Rd, Warabrook NSW 2304
 Ph: 02 4988 9433 E: samples.newcastle@alsenviro.com

☐ Brisbane: 32 Shand St, Stafford QLD 4053
 Ph: 07 3245 7222 E: samples.brisbane@alsenviro.com

☐ Townsville: 14-16 Desma Ct, Bohle QLD 4818
 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

☐ Melbourne: 2-4 Wessell Rd, Springvale VIC 3171
 Ph 03 8549 9800 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5005
 Ph 08 8359 0800 E: adelaide@alsenviro.com

CLIENT: EP RISK MANAGEMENT PTY LTD		TURNAROUND REQUIREMENTS : Standard TAT (List due date):		FOR LABORATORY USE ONLY (Circle)	
OFFICE: NEWCASTLE		(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):		Custody Seal Intact? Yes No N/A	
PROJECT: Anambah PSI - DA1		ALS QUOTE NO.: ES23EPRISK0002		Free ice / frozen ice bricks present upon receipt? Yes No N/A	
ORDER NUMBER: EP3487				Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: Nathan McGuire		CONTACT PH: 0422937410		Other comment:	
SAMPLER: Hayley Erskine		SAMPLER MOBILE: 0401855939		RECEIVED BY: 	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default): esdat		RELINQUISHED BY: Hayley Erskine	
Email Reports to (will default to PM if no other addresses are listed): hayley.erskine@eprisk.com.au, nathan.mcguire@eprisk.com.au		DATE/TIME:		DATE/TIME:	
Email Invoice to (will default to PM if no other addresses are listed): accounts@eprisk.com.au				RECEIVED BY: 	
				DATE/TIME: 29/11/24	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:					
Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.					



CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2164
Ph: 02 6754 6555 E: samples_sydney@alsenviro.com
□ Newcastle: 5 Rosagun Rd, Warabrook NSW 2304
Ph: 02 4968 9453 E: samples_newcastle@alsenviro.com

□ Brisbane: 32 Shaud St, Stalldale QLD 4053
Ph: 07 3243 7222 E: samples_brisbane@alsenviro.com
□ Townsville: 14-16 Desma Ct, Bohle QLD 4818
Ph: 07 4790 6000 E: townsville_environmental@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 6540 9000 E: samples_melbourne@alsenviro.com
□ Adelaide: 2-1 Burna Rd, Pooraka SA 5005
Ph: 08 8350 0800 E: adelaide@alsenviro.com

CLIENT:	EP RISK MANAGEMENT PTY LTD	TURNAROUND REQUIREMENTS:	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	NEWCASTLE	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	□ Non Standard or urgent TAT (List due date):	Custody Seal intact?	Yes No N/A
PROJECT:	Anambah PSI - DAI	ALS QUOTE NO.:	ES23EPISK0002	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER:	EP3487			Random Sample Temperature on Receipt:	°C
PROJECT MANAGER:	Nathan McGuire	CONTACT PH:	0422937410	Other comment:	
SAMPLER:	Hayley Erskine	SAMPLER MOBILE:	0401855939	RECEIVED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default): esdat		DATE/TIME:	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): hayley.erskine@eprisk.com.au, nathan.mcguire@eprisk.com.au		RELINQUISHED BY:		DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): accounts@eprisk.com.au		DATE/TIME:		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottles required) or Dissolved (field filtered bottle required).							Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-16	S-2	S-12	EA200F	TRH (F1), BTEXN	W-26	NEPM Screen P-22	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
73	DA1-TP16-3.0	25/11/24	S		1								
74	DA1-TP17-0.01	24/11/24					XX						
75	DA1-TP17-0.5												
76	DA1-TP17-1.0												
77	DA1-TP17-2.0												
78	DA1-TP17-3.0												
79	DA1-TP18-0.01						XX						
80	DA1-TP18-0.5												
81	DA1-TP18-1.0												
82	DA1-TP18-2.0												
83	DA1-TP18-3.0												
84	DA1-TP19-0.01						XX						
85	DA1-TP19-0.5												
86	DA1-TP19-1.0												
87	DA1-TP19-2.0												
88	DA1-TP19-3.0												
89	DA1-TP19A-0.01	25/11/24											
90	QC07					XX							
-	QC08					XX							
91	TS21									X			
92	RW04				7						X		
93	TB				1					X			
TOTAL													

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

LAB OF ORIGIN:
NEWCASTLE

E-MAILED

Please send QC08 to
Environment for analysis.



QUALITY CONTROL REPORT

Work Order : **ES2402671**

Page : 1 of 18

Client : **EP RISK MANAGEMENT**
Contact : **MR NATHAN MCGUIRE (EPRISK)**
Address : **3/19 BOLTON STREET**
NEWCASTLE NSW 2300

Laboratory : **Environmental Division Sydney**
Contact : **Jason Dighton**
Address : **277-289 Woodpark Road Smithfield NSW Australia 2164**

Telephone : **+61 02 4913 5650**
Project : **Anambah PSI - DA1**
Order number : **EP3487**
C-O-C number : **----**
Sampler : **Hayley Erskine**
Site : **----**
Quote number : **ES23EPRISK0002 - ES PRIMARY WORK ONLY**
No. of samples received : **93**
No. of samples analysed : **25**

Telephone : **+61-2-8784 8555**
Date Samples Received : **29-Jan-2024**
Date Analysis Commenced : **30-Jan-2024**
Issue Date : **07-Feb-2024**



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) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) 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
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, 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: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5569489)									
ES2402598-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	16	43.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	13	38.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	852	# 537	45.3	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	34	44	26.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	563	# 438	24.9	0% - 20%
		EG005T: Iron	7439-89-6	50	mg/kg	22500	19100	16.5	0% - 20%
ES2402598-011	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	19	12.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	16	22.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	898	863	4.0	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	100	97	3.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	327	320	2.0	0% - 20%
		EG005T: Iron	7439-89-6	50	mg/kg	17200	17800	3.6	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5569592)									
ES2402667-001	Anonymous	EG005T: Nickel	7440-02-0	2	mg/kg	388	355	8.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	6520	6240	4.4	0% - 20%
ES2402667-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	407	466	13.4	0% - 20%

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5569592) - continued									
ES2402667-001	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	14	13	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	3120	3300	5.6	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	168	181	7.7	0% - 20%
		EG005T: Iron	7439-89-6	50	mg/kg	3040	3380	10.7	0% - 20%
ES2402671-043	DA1-TP10_0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	150	149	0.9	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	86	84	1.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	50	50	0.0	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	41	2.9	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	43700	44500	1.7	0% - 20%
		EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5569594)							
ES2402671-090	QC07	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	106	100	5.4	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	82	88	8.0	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	46	14.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	6	25.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	31	40	25.5	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	41900	42200	0.7	0% - 20%
ES2402724-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	8	42.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	6	41.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	16	56.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	96	103	6.9	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	16	22	32.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	56	80	34.8	0% - 50%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 5571326)									
ES2402671-040	DA1-TP09_1.0	EA001: pH (CaCl2)	----	0.1	pH Unit	7.8	7.9	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5569496)									
ES2402464-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.0	6.0	0.0	0% - 20%
ES2402736-004	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.8	5.5	5.5	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5569498)									
ES2402464-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	113	112	0.0	0% - 20%
ES2402733-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	178	171	4.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5569502)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5569502) - continued									
ES2402598-003	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	51.4	50.0	2.8	0% - 20%
ES2402671-040	DA1-TP09_1.0	EA055: Moisture Content	----	0.1	%	15.5	13.8	12.2	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5569596)									
ES2402664-003	Anonymous	EA055: Moisture Content	----	0.1	%	13.2	12.8	3.7	0% - 20%
ES2402671-047	DA1-TP11_0-0.1	EA055: Moisture Content	----	0.1 (1.0)*	%	20.8	21.2	1.9	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5569597)									
ES2402671-090	QC07	EA055: Moisture Content	----	0.1 (1.0)*	%	20.3	18.0	11.8	0% - 20%
ES2402724-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	21.6	21.5	0.0	0% - 20%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 5580671)									
ES2402595-003	Anonymous	ED006: Exchangeable Sodium Percent	----	0.2	%	11.2	11.2	0.0	0% - 20%
		ED006: Exchangeable Calcium	----	0.2	meq/100g	6.1	6.2	0.0	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	3.4	3.5	0.0	0% - 50%
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.6	0.6	0.0	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	1.3	1.3	0.0	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	11.4	11.5	1.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5569593)									
ES2402667-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.5	0.4	0.0	No Limit
ES2402671-043	DA1-TP10_0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5569595)									
ES2402671-090	QC07	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2402724-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 5572640)									
EM2400734-003	Anonymous	EP004: Organic Matter	----	0.5	%	19.9	19.4	2.4	0% - 20%
		EP004: Total Organic Carbon	----	0.5	%	11.5	11.3	2.4	0% - 20%
EM2401102-027	Anonymous	EP004: Organic Matter	----	0.5	%	0.6	<0.5	19.6	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5569314)									
ES2402671-006	DA1-TP02_0-0.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5569311)									
ES2402671-051	DA1-TP12_0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5569311) - continued									
ES2402671-051	DA1-TP12_0-0.1	EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2402671-006	DA1-TP02_0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5569311)									
ES2402671-051	DA1-TP12_0-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5569311) - continued									
ES2402671-051	DA1-TP12_0-0.1	EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2402671-006	DA1-TP02_0-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5569313)									
ES2402671-006	DA1-TP02_0-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5569313) - continued									
ES2402671-006	DA1-TP02_0-0.1	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5567960)									
ES2402724-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5568600)									
ES2402519-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2402671-065	DA1-TP15_0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5569312)									
ES2402671-006	DA1-TP02_0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5567960)									
ES2402724-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5568600)									
ES2402519-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2402671-065	DA1-TP15_0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5569312)									
ES2402671-006	DA1-TP02_0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5567960)									
ES2402724-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5568600)									
ES2402519-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2402671-065	DA1-TP15_0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5575711)									
ES2402653-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.137	0.140	2.1	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.008	0.009	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.009	23.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.242	0.252	4.1	0% - 20%
ES2402729-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5575711) - continued									
ES2402729-001	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.050	0.052	3.3	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5576006)									
EN2400781-013	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2402902-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5574592)									
ES2402671-092	RW04	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2402912-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5574592)									
ES2402671-092	RW04	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2402912-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5574592)									
ES2402671-092	RW04	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
		106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
ES2402912-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
		106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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 term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%)		
Result			Low	High	
<5	121.1 mg/kg	106	88.0	113	
<1	0.74 mg/kg	94.6	70.0	130	
<2	19.6 mg/kg	132	68.0	132	
<5	52.9 mg/kg	111	89.0	111	
<50	31660 mg/kg	108	89.0	112	
<5	60.8 mg/kg	110	82.0	119	
<2	15.3 mg/kg	116	80.0	120	
<5	139.3 mg/kg	99.3	66.0	133	
<5	121.1 mg/kg	104	88.0	113	
<1	0.74 mg/kg	80.8	70.0	130	
<2	19.6 mg/kg	119	68.0	132	
<5	52.9 mg/kg	110	89.0	111	
<50	31660 mg/kg	106	89.0	112	
<5	60.8 mg/kg	100	82.0	119	
<2	15.3 mg/kg	104	80.0	120	
<5	139.3 mg/kg	94.7	66.0	133	
<5	121.1 mg/kg	106	88.0	113	
<1	0.74 mg/kg	90.5	70.0	130	
<2	19.6 mg/kg	122	68.0	132	
<5	52.9 mg/kg	109	89.0	111	
<50	31660 mg/kg	106	89.0	112	
<5	60.8 mg/kg	101	82.0	119	
<2	15.3 mg/kg	104	80.0	120	
<5	139.3 mg/kg	95.7	66.0	133	
----	4 pH Unit	101	98.8	101	
----	7 pH Unit	101	98.8	101	



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010: Conductivity (1:5) (QCLot: 5569498) - continued								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	96.4	92.0	108
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 5580671)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	2.5 meq/100g	103	80.0	110
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	4.17 meq/100g	98.3	80.0	110
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	1.28 meq/100g	105	80.0	110
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	2.17 meq/100g	102	80.0	110
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED006: Exchangeable Sodium Percent	----	0.2	%	<0.2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5569593)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	98.8	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5569595)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	97.7	70.0	125
EP004: Organic Matter (QCLot: 5572640)								
EP004: Organic Matter	----	0.5	%	<0.5	2.53 %	87.4	82.0	98.0
EP004: Total Organic Carbon	----	0.5	%	<0.5	1.46 %	87.7	81.0	99.0
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5569314)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	114	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5569311)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.0	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	69.0	115
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	69.0	121



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 5569311) - continued								
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	62.0	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	93.8	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	106	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5569311)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	75.0	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	106	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	93.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	101	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	101	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5569313)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	92.9	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	93.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	90.9	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.7	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	104	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	128



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5569313) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.2	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	93.2	68.0	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	99.6	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	79.4	61.0	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	81.1	62.0	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	79.7	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5567960)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.1	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5568600)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.1	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5569312)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	89.8	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	99.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.9	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5567960)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.0	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5568600)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.0	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5569312)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	96.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	98.4	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	99.2	63.0	131
EP080: BTEXN (QCLot: 5567960)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.9	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	97.4	77.4	121
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	97.2	78.2	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.6	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.6	78.8	122
EP080: BTEXN (QCLot: 5568600)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	100	76.0	124



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Acceptable Limits (%)
				Concentration		LCS	Low	High
EP080: BTEXN (QCLot: 5568600) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	120	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	117	77.4	121
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	118	78.2	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	107	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.5	78.8	122

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5575711)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.0	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.7	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.9	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	88.4	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.0	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5576006)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.0	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5568000)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	75.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.9	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.9	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	85.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	87.3	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	95.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	95.7	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	94.9	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	89.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	87.0	61.7	119
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	92.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	91.1	59.9	118



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5568000) - continued								
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	89.9	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	92.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5568001)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.7	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	93.3	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	76.9	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5574592)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5568001)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	89.5	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	77.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5574592)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	80.2	75.0	127
EP080: BTEXN (QCLot: 5574592)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.2	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.8	73.8	122
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	99.0	73.0	122
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	109	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Acceptable Limits (%)	
					MS	Low	High
Sample ID	Method: Compound	CAS Number					
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5569489)							
ES2402598-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	96.4	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	110	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5569489) - continued							
ES2402598-001	Anonymous	EG005T: Nickel	7440-02-0	50 mg/kg	104	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	126	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5569592)							
ES2402664-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	99.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	103	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5569594)							
ES2402671-074	DA1-TP17_0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	90.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	118	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	105	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	122	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.1	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5569593)							
ES2402667-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	96.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5569595)							
ES2402671-090	QC07	EG035T: Mercury	7439-97-6	5 mg/kg	99.6	70.0	130
EP004: Organic Matter (QCLot: 5572640)							
EM2400734-003	Anonymous	EP004: Organic Matter	----	3.2 %	# Not Determined	70.0	130
		EP004: Total Organic Carbon	----	1.86 %	# Not Determined	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5569314)							
ES2402671-006	DA1-TP02_0-0.1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	97.8	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5569311)							
ES2402671-006	DA1-TP02_0-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	90.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	104	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	117	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	113	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	101	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	104	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5569311)							
ES2402671-006	DA1-TP02_0-0.1	EP068: Diazinon	333-41-5	0.5 mg/kg	75.0	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	95.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	96.3	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	101	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	86.1	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5569313)							
ES2402671-006	DA1-TP02_0-0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	89.7	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5567960)							
ES2402724-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	81.6	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5568600)							
ES2402519-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.5	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5569312)							
ES2402671-006	DA1-TP02_0-0.1	EP071: C10 - C14 Fraction	----	480 mg/kg	128	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	122	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	122	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5567960)							
ES2402724-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	80.7	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5568600)							
ES2402519-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.0	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5569312)							
ES2402671-006	DA1-TP02_0-0.1	EP071: >C10 - C16 Fraction	----	860 mg/kg	120	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	124	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	107	52.0	132
EP080: BTEXN (QCLot: 5567960)							
ES2402724-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.8	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	79.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.7	67.4	123
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	83.6	66.4	121
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.4	70.7	121
	EP080: Naphthalene	91-20-3	2.5 mg/kg	63.4	61.1	115	
EP080: BTEXN (QCLot: 5568600)							
ES2402519-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	107	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	108	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	67.4	123



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 5568600) - continued								
ES2402519-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	94.4	66.4	121	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	101	70.7	121	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	111	61.1	115	
Sub-Matrix: WATER				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 5575711)								
ES2402671-092	RW04	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.0	70.0	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.6	70.0	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.6	70.0	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	97.3	70.0	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	106	70.0	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	93.1	70.0	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	80.0	70.0	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5576006)								
EN2400781-014	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	89.5	70.0	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5574592)								
ES2402671-092	RW04	EP080: C6 - C9 Fraction	----	325 µg/L	89.2	70.0	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5574592)								
ES2402671-092	RW04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.8	70.0	130	
EP080: BTEXN (QCLot: 5574592)								
ES2402671-092	RW04	EP080: Benzene	71-43-2	25 µg/L	95.5	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	99.1	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.9	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70.0	130	
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130	



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2402671	Page	: 1 of 12
Client	: EP RISK MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR NATHAN MCGUIRE (EPRISK)	Telephone	: +61-2-8784 8555
Project	: Anambah PSI - DA1	Date Samples Received	: 29-Jan-2024
Site	: ----	Issue Date	: 07-Feb-2024
Sampler	: Hayley Erskine	No. of samples received	: 93
Order number	: EP3487	No. of samples analysed	: 25

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

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2402598--001	Anonymous	Copper	7440-50-8	45.3 %	0% - 20%	RPD exceeds LOR based limits
EG005(ED093)T: Total Metals by ICP-AES	ES2402598--001	Anonymous	Zinc	7440-66-6	24.9 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EP004: Organic Matter	EM2400734--003	Anonymous	Organic Matter	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP004: Organic Matter	EM2400734--003	Anonymous	Total Organic Carbon	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved TB - Trip Blank		30-Jan-2024	29-Jan-2024	1	02-Feb-2024	29-Jan-2024	4
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved TB - Trip Blank		30-Jan-2024	29-Jan-2024	1	02-Feb-2024	29-Jan-2024	4
EP080: BTEXN							
Soil Glass Jar - Unpreserved TS21 - Trip Spike 21, Trip Spike Control 21	TB - Trip Blank,	30-Jan-2024	29-Jan-2024	1	02-Feb-2024	29-Jan-2024	4

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
TRH Volatiles/BTEX	EP080	3	31	9.68	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix Spikes (MS)



Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS) - Continued						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

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: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) DA1-TP09_1.0	25-Jan-2024	31-Jan-2024	01-Feb-2024	✓	31-Jan-2024	31-Jan-2024	✓
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) DA1-TP09_1.0	25-Jan-2024	31-Jan-2024	01-Feb-2024	✓	31-Jan-2024	31-Jan-2024	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) DA1-TP09_1.0	25-Jan-2024	31-Jan-2024	01-Feb-2024	✓	31-Jan-2024	28-Feb-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) DA1-TP17_0-0.1, DA1-TP19_0-0.1	24-Jan-2024	----	----	----	30-Jan-2024	07-Feb-2024	✓
Soil Glass Jar - Unpreserved (EA055) DA1-TP01_0-0.1, DA1-TP03_0-0.1, DA1-TP05_0-0.1, DA1-TP07_0-0.1, DA1-TP09_0-0.1, DA1-TP10_0-0.1, DA1-TP12_0-0.1, DA1-TP14_0-0.1, DA1-TP15_0-0.1, DA1-TP16_0-0.1	25-Jan-2024	----	----	----	30-Jan-2024	08-Feb-2024	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H) DA1-TP09_1.0	25-Jan-2024	----	----	----	02-Feb-2024	23-Jul-2024	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA152: Soil Particle Density							
Snap Lock Bag (EA152) DA1-TP09_1.0	25-Jan-2024	----	----	----	02-Feb-2024	23-Jul-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) DA1-TP02_0-0.1, DA1-TP15_0-0.1	25-Jan-2024	----	----	----	30-Jan-2024	23-Jul-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N) DA1-TP02_0-0.1, DA1-TP15_0-0.1	25-Jan-2024	----	----	----	30-Jan-2024	23-Jul-2024	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006) DA1-TP09_1.0	25-Jan-2024	06-Feb-2024	22-Feb-2024	✓	06-Feb-2024	22-Feb-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) DA1-TP17_0-0.1, DA1-TP19_0-0.1	24-Jan-2024	31-Jan-2024	22-Jul-2024	✓	31-Jan-2024	22-Jul-2024	✓
Soil Glass Jar - Unpreserved (EG005T) DA1-TP01_0-0.1, DA1-TP03_0-0.1, DA1-TP05_0-0.1, DA1-TP07_0-0.1, DA1-TP09_0-0.1, DA1-TP10_0-0.1, DA1-TP12_0-0.1, DA1-TP14_0-0.1, DA1-TP15_0-0.1, DA1-TP16_0-0.1	25-Jan-2024	31-Jan-2024	23-Jul-2024	✓	31-Jan-2024	23-Jul-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) DA1-TP17_0-0.1, DA1-TP19_0-0.1	24-Jan-2024	31-Jan-2024	21-Feb-2024	✓	01-Feb-2024	21-Feb-2024	✓
Soil Glass Jar - Unpreserved (EG035T) DA1-TP01_0-0.1, DA1-TP03_0-0.1, DA1-TP05_0-0.1, DA1-TP07_0-0.1, DA1-TP09_0-0.1, DA1-TP11_0-0.1, DA1-TP13_0-0.1, DA1-TP15_0-0.1	25-Jan-2024	31-Jan-2024	22-Feb-2024	✓	01-Feb-2024	22-Feb-2024	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP004: Organic Matter								
Soil Glass Jar - Unpreserved (EP004) DA1-TP09_1.0		25-Jan-2024	01-Feb-2024	22-Feb-2024	✔	01-Feb-2024	22-Feb-2024	✔
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	03-Feb-2024	10-Mar-2024	✔
DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,								
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) DA1-TP17_0-0.1, DA1-TP19_0-0.1		24-Jan-2024	30-Jan-2024	07-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
DA1-TP18_0-0.1,								
Soil Glass Jar - Unpreserved (EP068) DA1-TP01_0-0.1, DA1-TP03_0-0.1, DA1-TP05_0-0.1, DA1-TP07_0-0.1, DA1-TP09_0-0.1, DA1-TP11_0-0.1, DA1-TP13_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
DA1-TP02_0-0.1, DA1-TP04_0-0.1, DA1-TP06_0-0.1, DA1-TP08_0-0.1, DA1-TP10_0-0.1, DA1-TP12_0-0.1, DA1-TP14_0-0.1, QC07, DA1-TP16_0-0.1								
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) DA1-TP17_0-0.1, DA1-TP19_0-0.1		24-Jan-2024	30-Jan-2024	07-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
DA1-TP18_0-0.1,								
Soil Glass Jar - Unpreserved (EP068) DA1-TP01_0-0.1, DA1-TP03_0-0.1, DA1-TP05_0-0.1, DA1-TP07_0-0.1, DA1-TP09_0-0.1, DA1-TP11_0-0.1, DA1-TP13_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
DA1-TP02_0-0.1, DA1-TP04_0-0.1, DA1-TP06_0-0.1, DA1-TP08_0-0.1, DA1-TP10_0-0.1, DA1-TP12_0-0.1, DA1-TP14_0-0.1, QC07, DA1-TP16_0-0.1								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,								



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) TB - Trip Blank		15-Jan-2024	30-Jan-2024	29-Jan-2024	✖	02-Feb-2024	29-Jan-2024	✖
Soil Glass Jar - Unpreserved (EP071) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07 DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
Soil Glass Jar - Unpreserved (EP080) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07 DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	02-Feb-2024	08-Feb-2024	✔
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) TB - Trip Blank		15-Jan-2024	30-Jan-2024	29-Jan-2024	✖	02-Feb-2024	29-Jan-2024	✖
Soil Glass Jar - Unpreserved (EP071) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07 DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	01-Feb-2024	10-Mar-2024	✔
Soil Glass Jar - Unpreserved (EP080) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07 DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	02-Feb-2024	08-Feb-2024	✔
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) TS21 - Trip Spike 21, Trip Spike Control 21 TB - Trip Blank,		15-Jan-2024	30-Jan-2024	29-Jan-2024	✖	02-Feb-2024	29-Jan-2024	✖
Soil Glass Jar - Unpreserved (EP080) DA1-TP02_0-0.1, DA1-TP07_0-0.1, DA1-TP12_0-0.1, QC07 DA1-TP05_0-0.1, DA1-TP09_0-0.1, DA1-TP15_0-0.1,		25-Jan-2024	30-Jan-2024	08-Feb-2024	✔	02-Feb-2024	08-Feb-2024	✔

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RW04	25-Jan-2024	01-Feb-2024	23-Jul-2024	✓	01-Feb-2024	23-Jul-2024	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RW04	25-Jan-2024	----	----	----	05-Feb-2024	22-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) RW04	25-Jan-2024	30-Jan-2024	01-Feb-2024	✓	01-Feb-2024	10-Mar-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) RW04	25-Jan-2024	30-Jan-2024	01-Feb-2024	✓	01-Feb-2024	10-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) RW04	25-Jan-2024	02-Feb-2024	08-Feb-2024	✓	02-Feb-2024	08-Feb-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) RW04	25-Jan-2024	30-Jan-2024	01-Feb-2024	✓	01-Feb-2024	10-Mar-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) RW04	25-Jan-2024	02-Feb-2024	08-Feb-2024	✓	02-Feb-2024	08-Feb-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) RW04	25-Jan-2024	02-Feb-2024	08-Feb-2024	✓	02-Feb-2024	08-Feb-2024	✓



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: **SOIL**

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	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	6	56	10.71	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	37	10.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	7	60	11.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	31	9.68	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification .

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
Analytical Methods		QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS)							
Organic Matter	EP004	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	5.41	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✔	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification .

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
Analytical Methods		QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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
pH in soil using a 0.01M CaCl ₂ extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl ₂ and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).



Analytical Methods	Method	Matrix	Method Descriptions
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl ₂ extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl ₂ and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.



CERTIFICATE OF ANALYSIS

Work Order : **ES2402671**
Client : **EP RISK MANAGEMENT**
Contact : **MR NATHAN MCGUIRE (EPRISK)**
Address : **3/19 BOLTON STREET**
NEWCASTLE NSW 2300
Telephone : **+61 02 4913 5650**
Project : **Anambah PSI - DA1**
Order number : **EP3487**
C-O-C number : **----**
Sampler : **Hayley Erskine**
Site : **----**
Quote number : **ES23EPRISK0002 - ES PRIMARY WORK ONLY**
No. of samples received : **93**
No. of samples analysed : **25**

Page : 1 of 36
Laboratory : Environmental Division Sydney
Contact : Jason Dighton
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 29-Jan-2024 10:33
Date Analysis Commenced : 30-Jan-2024
Issue Date : 07-Feb-2024 15:18



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
- Descriptive 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
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, 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.

- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG020A-T: Positive Zinc results for sample ES2402671 # 092 have been confirmed by redigestion and reanalysis
- EG005T: Poor precision was obtained for Copper and Zinc on sample ES2402598 # 001. Confirmed by re-digestion and reanalysis.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend



- EA200 'Ch' Chrysotile (white asbestos)
 - EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
 - EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
 - EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
 - ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H⁺ + Al³⁺).
 - EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
 - EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
 - EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
-

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	
Compound	CAS Number	LOR	Unit	ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020	
				Result	Result	Result	Result	Result	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	27.2	35.6	21.2	29.6	27.9	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----	
Asbestos Type	1332-21-4	-	--	----	-	----	----	----	
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	----	
Sample weight (dry)	----	0.01	g	----	327	----	----	----	
Synthetic Mineral Fibre	----	-	--	----	No	----	----	----	
Organic Fibre	----	-	--	----	No	----	----	----	
APPROVED IDENTIFIER:	----	-	--	----	B.SCHRADER	----	----	----	
EA200N: Asbestos Quantification (non-NATA)									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	<0.0004	----	----	----	
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	<0.001	----	----	----	
ø Weight Used for % Calculation	----	0.0001	kg	----	0.327	----	----	----	
ø Fibrous Asbestos >7mm	----	0.0004	g	----	<0.0004	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	12	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	55	52	55	56	106	
Copper	7440-50-8	5	mg/kg	14	14	31	10	38	
Lead	7439-92-1	5	mg/kg	17	14	<5	16	6	
Nickel	7440-02-0	2	mg/kg	16	17	52	16	60	
Zinc	7440-66-6	5	mg/kg	18	27	27	36	31	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	<0.1	
EP068A: Organochlorine Pesticides (OC)									



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

EP068B: Organophosphorus Pesticides (OP)



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	<0.5



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	----	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	----	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	----	<50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	70.4	----	----	75.2
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	83.0	84.2	88.1	88.3	87.6
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	89.3	105	95.9	95.8	95.4
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	101	----	----	103
2-Chlorophenol-D4	93951-73-6	0.5	%	----	103	----	----	101
2,4,6-Tribromophenol	118-79-6	0.5	%	----	83.4	----	----	72.1
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	81.2	----	----	83.5
Anthracene-d10	1719-06-8	0.5	%	----	98.3	----	----	102
4-Terphenyl-d14	1718-51-0	0.5	%	----	98.5	----	----	104
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	77.8	----	----	86.5
Toluene-D8	2037-26-5	0.2	%	----	101	----	----	116



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP01_0-0.1	DA1-TP02_0-0.1	DA1-TP03_0-0.1	DA1-TP04_0-0.1	DA1-TP05_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-001	ES2402671-006	ES2402671-011	ES2402671-016	ES2402671-020
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		----	94.1	----	----	102



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
				Result	Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit	----	----	----	----	----	7.8
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	----	----	----	----	----	8.8
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	----	----	156
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%	----	----	----	----	----	15.5
Moisture Content	----	1.0	%	16.5	18.1	20.7	30.6	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%	----	----	----	----	----	54
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	----	----	2.53
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	----	----
Sample weight (dry)	----	0.01	g	----	251	----	----	----	----
Synthetic Mineral Fibre	----	-	--	----	No	----	----	----	----
Organic Fibre	----	-	--	----	No	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	B.SCHRADER	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	<0.0004	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	<0.001	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	----	0.251	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	----	<0.0004	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	----	0.2	meq/100g	----	----	----	----	----	28.2



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
				Result	Result	Result	Result	Result
ED006: Exchangeable Cations on Alkaline Soils - Continued								
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	----	6.2
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	----	1.3
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	----	35.7
Exchangeable Sodium Percent	----	0.2	%	----	----	----	----	3.7
EG005(ED093)T: Total Metals by ICP-AES								
Iron	7439-89-6	0.005	%	----	----	----	----	1.06
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	82	113	91	140	----
Copper	7440-50-8	5	mg/kg	40	38	34	44	----
Lead	7439-92-1	5	mg/kg	30	5	6	6	----
Nickel	7440-02-0	2	mg/kg	60	58	49	79	----
Zinc	7440-66-6	5	mg/kg	48	26	30	47	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	----	----	----	----	<0.5
Total Organic Carbon	----	0.5	%	----	----	----	----	<0.5
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
[^] Total Chlordane (sum)	-----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
[^] Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
[^] Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
[^] Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	1.2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP06_0-0.1	DA1-TP07_0-0.1	DA1-TP08_0-0.1	DA1-TP09_0-0.1	DA1-TP09_1.0
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-025	ES2402671-029	ES2402671-033	ES2402671-038	ES2402671-040
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	79.7	----	77.1	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		77.0	103	115	96.7	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		84.0	111	123	103	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	93.4	----	94.7	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	92.8	----	96.3	----
2,4,6-Tribromophenol	118-79-6	0.5	%		----	68.1	----	73.6	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	81.1	----	80.7	----
Anthracene-d10	1719-06-8	0.5	%		----	98.4	----	95.7	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	98.4	----	99.2	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		----	88.8	----	89.5	----
Toluene-D8	2037-26-5	0.2	%		----	115	----	108	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	99.2	----	95.9	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP10_0-0.1	DA1-TP11_0-0.1	DA1-TP12_0-0.1	DA1-TP13_0-0.1	DA1-TP14_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-043	ES2402671-047	ES2402671-051	ES2402671-055	ES2402671-060
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		28.8	20.8	18.9	18.8	29.9
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		150	143	133	122	127
Copper	7440-50-8	5	mg/kg		50	48	54	41	40
Lead	7439-92-1	5	mg/kg		<5	<5	<5	6	<5
Nickel	7440-02-0	2	mg/kg		86	97	77	62	74
Zinc	7440-66-6	5	mg/kg		40	32	41	31	29
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP10_0-0.1	DA1-TP11_0-0.1	DA1-TP12_0-0.1	DA1-TP13_0-0.1	DA1-TP14_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-043	ES2402671-047	ES2402671-051	ES2402671-055	ES2402671-060
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
[^] Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
[^] Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
[^] Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP10_0-0.1	DA1-TP11_0-0.1	DA1-TP12_0-0.1	DA1-TP13_0-0.1	DA1-TP14_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-043	ES2402671-047	ES2402671-051	ES2402671-055	ES2402671-060
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	1.2	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP10_0-0.1	DA1-TP11_0-0.1	DA1-TP12_0-0.1	DA1-TP13_0-0.1	DA1-TP14_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-043	ES2402671-047	ES2402671-051	ES2402671-055	ES2402671-060
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	----	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	100	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	88.4	105	122	99.4	91.1



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP10_0-0.1	DA1-TP11_0-0.1	DA1-TP12_0-0.1	DA1-TP13_0-0.1	DA1-TP14_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00	25-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-043	ES2402671-047	ES2402671-051	ES2402671-055	ES2402671-060
					Result	Result	Result	Result	Result
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		77.5	111	116	111	97.1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	91.6	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	94.0	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	65.2	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	81.1	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	95.2	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	97.6	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	96.0	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	118	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	100	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	
Compound	CAS Number	LOR	Unit	ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084	
				Result	Result	Result	Result	Result	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	33.1	32.5	20.3	12.1	26.9	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	
Asbestos (Trace)	1332-21-4	-	-	No	----	----	----	----	
Sample weight (dry)	----	0.01	g	338	----	----	----	----	
Synthetic Mineral Fibre	----	-	--	No	----	----	----	----	
Organic Fibre	----	-	--	No	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	----	----	----	
EA200N: Asbestos Quantification (non-NATA)									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----	
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----	
ø Weight Used for % Calculation	----	0.0001	kg	0.338	----	----	----	----	
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	7	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	
Chromium	7440-47-3	2	mg/kg	92	71	174	58	131	
Copper	7440-50-8	5	mg/kg	25	27	42	16	53	
Lead	7439-92-1	5	mg/kg	7	14	<5	12	7	
Nickel	7440-02-0	2	mg/kg	44	34	90	28	72	
Zinc	7440-66-6	5	mg/kg	40	49	31	30	38	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----	
EP068A: Organochlorine Pesticides (OC)									



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

EP068B: Organophosphorus Pesticides (OP)



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time				25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Compound	CAS Number	LOR	Unit	ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		62.0	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		96.9	89.7	95.7	84.4	89.5
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		105	95.6	102	95.1	98.8
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		93.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		94.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		70.3	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		82.7	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		98.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		100	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		90.5	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		99.1	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DA1-TP15_0-0.1	DA1-TP16_0-0.1	DA1-TP17_0-0.1	DA1-TP18_0-0.1	DA1-TP19_0-0.1
Sampling date / time					25-Jan-2024 00:00	25-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Compound	CAS Number	LOR	Unit		ES2402671-065	ES2402671-069	ES2402671-074	ES2402671-079	ES2402671-084
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		91.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				QC07	TS21 Trip Spike 21	TB Trip Blank	Trip Spike Control 21	----
Sampling date / time				25-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2402671-090	ES2402671-091	ES2402671-093	ES2402671-094	-----
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.3	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	106	----	----	----	----
Copper	7440-50-8	5	mg/kg	39	----	----	----	----
Lead	7439-92-1	5	mg/kg	8	----	----	----	----
Nickel	7440-02-0	2	mg/kg	82	----	----	----	----
Zinc	7440-66-6	5	mg/kg	31	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				QC07	TS21 Trip Spike 21	TB Trip Blank	Trip Spike Control 21	----
Sampling date / time				25-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2402671-090	ES2402671-091	ES2402671-093	ES2402671-094	-----
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				QC07	TS21 Trip Spike 21	TB Trip Blank	Trip Spike Control 21	----
Sampling date / time				25-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2402671-090	ES2402671-091	ES2402671-093	ES2402671-094	-----
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				QC07	TS21 Trip Spike 21	TB Trip Blank	Trip Spike Control 21	----
Sampling date / time				25-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2402671-090	ES2402671-091	ES2402671-093	ES2402671-094	-----
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	2.4	<0.5	3.4	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	3.4	<0.5	4.3	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	3.6	<0.5	4.4	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1.9	<0.5	2.0	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	11.3	<0.2	14.1	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	5.5	<0.5	6.4	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	60.6	----	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				QC07	TS21 Trip Spike 21	TB Trip Blank	Trip Spike Control 21	----
Sampling date / time				25-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	15-Jan-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2402671-090	ES2402671-091	ES2402671-093	ES2402671-094	-----
				Result	Result	Result	Result	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	70.1	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	69.4	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	90.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	93.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	64.3	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	81.5	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	93.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	98.6	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	90.9	76.8	82.9	86.5	----
Toluene-D8	2037-26-5	0.2	%	107	76.0	79.9	81.5	----
4-Bromofluorobenzene	460-00-4	0.2	%	102	90.6	100	100	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				RW04	----	----	----	----
Sampling date / time				25-Jan-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2402671-092	-----	-----	-----	-----
				Result	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.023	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
[^] Sum of polycyclic aromatic hydrocarbons	-----	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RW04	----	----	----	----
Sampling date / time					25-Jan-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2402671-092	-----	-----	-----	-----
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	-----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	-----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	-----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	-----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	-----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	-----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	-----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	-----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	-----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	-----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	-----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	-----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	-----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		30.4	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RW04	----	----	----	----
Sampling date / time					25-Jan-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2402671-092	-----	-----	-----	-----
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		58.1	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		48.7	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		67.6	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		81.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		85.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		95.7	----	----	----	----
Toluene-D8	2037-26-5	2	%		91.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		99.4	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL		
Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	DA1-TP02_0-0.1 - 25-Jan-2024 00:00	A soil sample.
EA200: Description	DA1-TP07_0-0.1 - 25-Jan-2024 00:00	A soil sample.
EA200: Description	DA1-TP15_0-0.1 - 25-Jan-2024 00:00	A soil sample.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

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Work Order : ES2402671
Client : EP RISK MANAGEMENT
Project : Anambah PSI - DA1



Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

Appendix E

UNEXPECTED FINDS PROTOCOL

Unexpected Finds Protocol (UFP)

