



**REPORT TO
DEPARTMENT OF EDUCATION**

**ON
SUPPLEMENTARY INVESTIGATION**

**FOR
NORTHERN RIVERS FLOOD RECOVERY –
RICHMOND RIVER HIGH CAMPUS
REDEVELOPMENT**

**AT
163-170 ALEXANDRA PARADE, NORTH LISMORE,
NSW**

Date: 18 July 2025

Ref: E36134PT3rpt2-SI

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Executive Summary

Department of Education ('the client') commissioned JK Environments (JKE) to undertake a Supplementary Investigation for the Northern Rivers Flood Recovery – Richmond River High Campus Redevelopment, at 163-170 Alexandra Parade, North Lismore, NSW ('the site'). The purpose of the investigation is to make a detailed assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the nominated site boundaries as shown on Figure 2 attached in the appendices.

This report has been prepared to support the Review of Environmental Factors (REF) for the Richmond River High Campus– Flood Recovery Relocation, with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021 (formerly known as SEPP55).

A geotechnical investigation was undertaken in conjunction with this Supplementary Investigation by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Project ref: 36314UOR). This report should be read in conjunction with the JKG report.

A Sampling Analysis Quality Plan (SAQP) was prepared for this investigation (Ref: E36314PT3rpt-SAQP, dated 16 May 2025). The SAQP is attached in Appendix G.

JKE has previously undertaken a Preliminary (Desktop) Site Investigation (PSI) and Detailed Site Investigation (DSI) of a section of the north of the site and the wider property. A summary of relevant information is included in Section 3. This Supplementary Investigation is required to address data gaps as a result of the proposed site location being relocated within the wider property.

The primary aim of the Supplementary Investigation, were to provide additional data to establish whether the site is consistent with expectations with reference to the conceptual site model (CSM) and findings of the DSI undertaken previously. Secondary aims of the investigation were to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The Supplementary Investigation objectives were to: assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program that considers the potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) identified in the PSI; document an iteration and review of the CSM; assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment); provide a preliminary waste classification for off-site disposal of soil; assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and assess whether further intrusive investigation and/or remediation is required.

The scope of work included the following: review of site information, including background and site history information from various sources outlined in the report; preparation of a CSM; design and implementation of a SAQP. The SAQP was prepared prior to the commencement of the Supplementary Investigation and is attached in Appendix G; interpretation of the analytical results against the adopted Site Assessment Criteria (SAC); Data Quality Assessment; and preparation of a report including a Tier 1 risk assessment.

Soil sampling was undertaken from four boreholes, 27 test pits, groundwater sampling from four monitoring wells, and surface water and sediment sampling from the offsite creek and creek line. The boreholes/test pits encountered fill/topsoil materials to depths of approximately 0.1m below ground level (BGL) to 0.6mBGL, underlain by clayey and gravelly alluvial, colluvial and residual soils and siltstone and basalt bedrock. The fill/topsoil typically comprised silty clay, with inclusions of basalt cobbles, basalt and siltstone and igneous gravel, organics, ash, sand, roots and root fibres. Fibre cement sheeting was also encountered at the ground surface just to the west of the site boundary, in dumped materials adjacent to the residence.

A selection of soil, groundwater and surface water samples were analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC in the samples analysed. Asbestos was detected in the surface material sample. However, this material is noted to be included in the Hazardous Building Materials Assessment for the site and wider property and it is not an in-ground contamination issue.



Based on the Tier 1 risk assessment, JKE is of the opinion that potential risks associated with the CoPC at the site are low and the data collected during the investigation suggests that significant and widespread contamination issues are unlikely to be encountered. Removal and management of hazardous building materials, including the identified ACM in sample 'Surf Mat1', should be undertaken in accordance with the Hazardous Building Materials Assessment report recommendations.

Further investigation and/or remediation is not considered to be required and the site is considered to be suitable for the activity outlined in Section 1, from a contamination viewpoint. Due to archaeological constraints which prevented sampling in some areas, we recommend that a robust unexpected finds protocol be prepared by a suitably qualified environmental consultant and that this protocol be implemented during the development/construction phase of the project. The protocol is to include provisions for inspections and further soil sampling beneath the buildings, post-demolition, together with robust unexpected finds procedures.

Preliminary waste classifications are discussed in Section 9.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.



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Appendix E: Report Explanatory Notes
Appendix F: Data (QA/QC) Evaluation
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Appendix H: Guidelines and Reference Documents



Abbreviations

Asbestos Fines/Fibrous Asbestos	AF/FA
Ambient Background Concentrations	ABC
Added Contaminant Limits	ACL
Asbestos Containing Material	ACM
Australian Drinking Water Guidelines	ADWG
Area of Environmental Concern	AEC
Australian Height Datum	AHD
Acid Sulfate Soil	ASS
Before You Dig Australia	BYDA
Below Ground Level	BGL
Benzo(a)pyrene Toxicity Equivalent Factor	BaP TEQ
Bureau of Meteorology	BOM
Benzene, Toluene, Ethylbenzene, Xylene	BTEX
Cation Exchange Capacity	CEC
Contaminated Land Management	CLM
Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Data Quality Indicator	DQI
Data Quality Objective	DQO
Detailed Site Investigation	DSI
Ecological Investigation Level	EIL
Ecological Screening Level	ESL
Environment Protection Authority	EPA
Electric vehicle	EV
Fibre Cement Fragment(s)	FCF
Health Investigation Level	HIL
Health Screening Level	HSL
Health Screening Level-Site Specific Assessment	HSL-SSA
International Organisation of Standardisation	ISO
JK Environments	JKE
JK Geotechnics	JKG
Lab Control Spike	LCS
Light Non-Aqueous Phase Liquid	LNAPL
Map Grid of Australia	MGA
National Association of Testing Authorities	NATA
National Environmental Protection Measure	NEPM
Organochlorine Pesticides	OCP
Organophosphate Pesticides	OPP
Polycyclic Aromatic Hydrocarbons	PAH
Polychlorinated Biphenyls	PCB
Per- and Polyfluoroalkyl Substances	PFAS
Photo-ionisation Detector	PID
Protection of the Environment Operations	POEO
Practical Quantitation Limit	PQL
Quality Assurance	QA
Quality Control	QC
Review of Environmental Factors	REF
Relative Level	RL
Relative Percentage Difference	RPD
Richmond River High Campus	RRHC
Site Assessment Criteria	SAC
Sampling, Analysis and Quality Plan	SAQP



State Environmental Planning Policy	SEPP
Site Specific Assessment	SSA
Source, Pathway, Receptor	SPR
Specific Contamination Concentration	SCC
Standard Penetration Test	SPT
Standing Water Level	SWL
Trip Blank	TB
Toxicity Characteristic Leaching Procedure	TCLP
Total Recoverable Hydrocarbons	TRH
Trip Spike	TS
Upper Confidence Limit	UCL
United States Environmental Protection Agency	USEPA
Virgin Excavated Natural Material	VENM
Volatile Organic Compounds	VOC
World Health Organisation	WHO
Units	
Litres	L
Metres BGL	mBGL
Metres	m
Millivolts	mV
Millilitres	ml or mL
Milliequivalents	meq
micro Siemens per Centimetre	$\mu\text{S}/\text{cm}$
Micrograms per Litre	$\mu\text{g}/\text{L}$
Milligrams per Kilogram	mg/kg
Milligrams per Litre	mg/L
Parts Per Million	ppm
Percentage	%
Percentage weight for weight	%w/w

1 CLIENT SUPPLIED INTRODUCTION

This supplementary investigation has been prepared to support a Review of Environmental Factors (REF) for the rebuild of Richmond River High Campus (the activity) (RRHC). The REF has been prepared to support an approval for the RRHC development under Section 68 of the NSW Reconstruction Authority Act 2022 (RA Act).

The purpose of this report is to make an assessment of site contamination to establish whether remediation is required.

1.1 Client Provided Site Description

The site is located at Dunoon Road, North Lismore, also known as 163 and 170 Alexandra Parade, North Lismore. The site comprises of three separate lots, located to the north of Alexandra Parade, with Dunoon Road running parallel to the eastern boundary of the site.

The site is legally described as:

- Lot 1 DP 539012
- Lot 2 DP 539012
- Lot 1 DP 376007

The site area is approximately 33.53 hectares. The proposed activity will be undertaken mainly within the south-eastern portion of the site. The site is outlined in Figure 1 below.



Figure 1 Aerial image of site (Source: Nearmap)

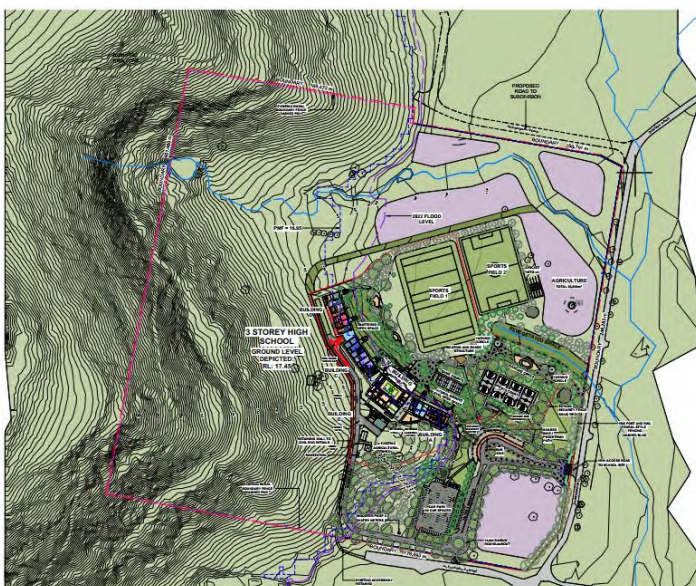
1.2 Proposed Activity Description

The proposed activity comprises the relocation and rebuild of the Richmond River High Campus from its existing temporary location alongside The Rivers Secondary College Lismore High Campus at East Lismore to the site at 163 and 170 Alexandra Parade, North Lismore.

The school will be delivered in one stage. A detailed description of the proposal is as follows:

1. Demolition of existing features including existing buildings, cattle drinking well, cattle sheds, and wire fencing, and removal of trees to accommodate school development.
2. Construction of new 3 storey buildings on the southeastern portion of the site for the proposed public secondary school including:
 - a. General and Specialist Learning Spaces, and Workshops.
 - b. Administration, and Staff facilities.
 - c. Library, Hall, and Movement Studio.
 - d. Construction, Hospitality, and Agricultural Learning Facilities.
 - e. Amenity, Plant, Circulation, and Storage areas.
 - f. Outdoor Learning Spaces and play spaces.
3. Landscaping including tree planting.
4. Public domain works comprising:
 - Access road off Dunoon Road, comprising a separate shared bicycle/pedestrian pathway, and internal access roundabout.
 - Kiss and ride drop-off and pick up zones.
 - Bus transport arrangements with a separate bus zone.
5. Outdoor spaces including assembly zones, agricultural spaces, sports fields, games courts, dancing circles, yarning and dancing circles, seating and shade structures.
6. On-site carparking, including accessible spaces and provision for EV charging spaces.

Figures 2 below shows the scope of works.



2 SUPPLEMENTARY INVESTIGATION INTRODUCTION

Department of Education ('the client') commissioned JK Environments (JKE) to undertake a Supplementary Investigation for the Northern Rivers Flood Recovery – Richmond River High Campus Redevelopment, at 163-170 Alexandra Parade, North Lismore, NSW ('the site'). The purpose of the investigation is to make a detailed assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the nominated site boundaries as shown on Figure 2 attached in the appendices.

This report has been prepared to support the REF for the Richmond River High Campus– Flood Recovery Relocation, with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021¹ (formerly known as SEPP55).

A geotechnical investigation was undertaken in conjunction with this Supplementary Investigation by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Project ref: 36314UOR). This report should be read in conjunction with the JKG report.

A Sampling Analysis Quality Plan (SAQP) was prepared for this investigation (Ref: E36314PT3rpt-SAQP, dated 16 May 2025)². The SAQP is attached in Appendix G.

JKE has previously undertaken a Preliminary (Desktop) Site Investigation (PSI) and Detailed Site Investigation (DSI) of a section of the north of the site and the wider property. A summary of relevant information is included in Section 3. This Supplementary Investigation is required to address data gaps as a result of the proposed site location being relocated within the wider property.

2.1 Aims and Objectives

The primary aim of the Supplementary Investigation, were to provide additional data to establish whether the site is consistent with expectations with reference to the conceptual site model (CSM) and findings of the DSI undertaken previously. Secondary aims of the investigation were to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The Supplementary Investigation objectives were to:

- Assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program that considers the potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) identified in the PSI;
- Document an iteration and review of the conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and

¹ State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW) (referred to as SEPP Resilience and Hazards 2021)

² JKE, (2025). *Report to Department of Education, on Sampling, Analysis and Quality Plan (SAQP) for Supplementary Investigation for Richmond River High Campus – Flood Recovery Rebuild at 163-170 Alexandra Parade, North Lismore, NSW.* (Report ref: E36314PT3rpt-SAQP, dated 16 May 2025) (referred to as SAQP)

- Assess whether further intrusive investigation and/or remediation is required.

2.2 Scope of Work

The investigation was undertaken generally in accordance with the Scope of Services (SI-07798-25) as provided by the client in an email of 2 May 2025, and the agreement dated 15 May 2025.

The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- Preparation of a CSM;
- Design and implementation of a SAQP. The SAQP was prepared prior to the commencement of the Supplementary Investigation and is attached in Appendix G;
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)³, other guidelines made under or with regards to the Contaminated Land Management Act (1997)⁴ and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

³ National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)

⁴ Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

3 SITE INFORMATION

3.1 Background

JKE previously undertook a PSI across the site and wider school property in December 2023⁵. The PSI included a review of historical information and other relevant information for the site and preparation of a preliminary CSM. It is acknowledged that at the time of the PSI, the area that was investigated included the wider property including all of Lots 1 & 2 in DP539012 and Lot 1 in DP376007 (see Figure 1 in Appendix A). A summary of this information, including the site history is included in the attached SAQP (refer to Appendix G).

Subsequent to the PSI, JKE was engaged to undertake a DSI in part of the northern and central sections of the wider property (refer to Figures 1 and 2 in Appendix A). The DSI included soil sampling from 37 boreholes, 31 test pits, groundwater sampling from five of six monitoring wells (it is noted one monitoring well did not make water), and surface water sampling from the onsite dam and creek.

Elevated concentrations of the CoPC were not encountered above the adopted SAC in fill/soil. Copper, nickel and zinc were reported above the ecological SAC in surface and groundwater however, these results were considered to be a regional issue and risks were assessed to be low.

Further investigation and/or remediation was not considered to be required and the DSI site was considered to be suitable for the proposed high school development, from a contamination viewpoint. Development and implementation of an unexpected finds protocol was recommended.

Since completion of the DSI, the proposed site for the high school development has been moved to the south (referred to as 'the site' within the SAQP, and as shown on Figures 1 and 2 in Appendix A). There is only a small overlap between the site and the DSI site area, so additional data collection was required to establish whether the site conditions are consistent with expectations with reference to the CSM and findings of the DSI undertaken previously.

3.2 Site Identification

Table 3-1: Site Identification

Site Owner (certificate of title from PSI):	Fiona Janice Murray (Lot 2 in DP 539012) (as at October 2023) Craig Kenneth Murray (Lot 1 in DP539012) (as at October 2023)
Site Address:	163-170 Alexandra Parade, North Lismore, NSW
Lot & Deposited Plan:	Part of Lots 1 & 2 in DP539012
Current Land Use:	Rural residential and agricultural (grazing)
Proposed Land Use:	High school
Local Government Area:	Lismore City Council

⁵ JKE, (2023). *Report to School Infrastructure New South Wales on Contamination - Preliminary (Desktop) Site Investigation for Due Diligence – Flood Recovery at 163-170 Alexandra Parade, North Lismore, NSW*. (Ref: E36314PTrpt, dated 18 December 2023) (referred to as PSI)

Current Zoning:	RU1 Primary Production
Site Area (m²) (approx.):	87,200
RL (AHD in m) (approx.):	10-40
Geographical Location (decimal degrees) (approx.):	Latitude: -28.7950695 Longitude: 153.2664283
Site Plans:	Appendix A

3.3 Site Description

The site is located in a mixed use (rural residential/recreational/commercial) area of North Lismore and the wider property is bound by Dunoon Road to the east and Alexandra Parade to the south. The site is located approximately 830m to the north-west of Wilsons River at its closest point.

The site is located at a transition between undulating topography with rolling hills generally sloping down at approximately 5° to 15°, associated with the North Lismore Plateau, and the relatively level floodplain around Wilsons River and Leicester Creek.

The most recent inspection of the site was undertaken by JKE on 29 May 2025 as part of the Supplementary Investigation. The findings of the inspection were generally similar to the previous inspection and have been summarised below:

- The main residence and associated outbuildings of the southern property (No.163 Alexandra Parade) was located in the central west of the site. The buildings were generally constructed on grade with timber and/or metal walls, metal rooves, and on concrete slab. The buildings were of an age indicative of housing hazardous building materials. JKE understand that GHD were engaged to undertake a hazardous building materials survey of the buildings/structures at the site and wider property;
- A second residence (No. 170 Alexandra Parade) was located to the immediate west of the site boundary and comprised a main residence and several smaller sheds and outbuildings. During the site inspection, cement sheet backing to a tiled splashback dumped with metal sink, were observed next to the main residence. This material was sampled as Surf Mat1, and analysed for asbestos. The material was confirmed to contain asbestos, with further discussion of the results in Section 10.1;
- Both properties within the site and wider property were accessed via an unpaved driveway off Alexandra Parade to the south;
- The site predominantly comprised grassed paddocks with sparse tree cover in the eastern portion;
- The revegetated swale in the north-east corner of the site was dry at the time of the site inspection, however to the north of the site on the wider property two dams were visible along a creek which extended in an east-west direction to the north of the site; and
- All vegetation inspected appeared to be in good condition with no obvious evidence of phyto-toxic stress or die back; and

3.4 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds of the wider property:

- North – rural residential and agricultural properties;
- South – Alexandra Parade with residential, agricultural (including cattle/sheep loading areas/yards) and commercial (Boral Concrete and a landscape supplies store) properties beyond;
- East – Dunoon Road with Lismore Showground and kart racing track/club beyond; and
- West – undeveloped scrubland and/or agricultural land.

JKE did not observe any obvious land uses in the immediate surrounds that were identified as potential contamination sources for the site.

3.5 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

4 SUMMARY OF REGIONAL GEOLOGY AND HYDROGEOLOGY

Table 4-1: Summary of Regional Geology and Hydrogeology From PSI

Regional Geology:	The western section the site is underlain by Lismore Basalt which typically consists of predominantly tholeiitic with occasional alkaline types of formations. The eastern section of the site is underlain by Quaternary aged alluvial floodplain deposits, which typically consists of silt, very fine- to medium grained lithic to quartz-rich sand, and clay. A sliver through the central section of the site is underlain by Quaternary aged alluvial fan deposits, which typically consists of fluvially-deposited quartz-lithic sand, silt, gravel, and clay.
Soil Landscapes of Central and Eastern NSW:	The site is located within the Coolamon, Disputed Plain and Leycester soil landscapes. Coolamon soils are generally characterised by moderate erodibility, and high to very high shrink-swell capacity. Disputed Plains soils are generally characterised by high erodibility. Leycester soils are generally characterised by moderate erodibility with some higher local occurrences, and high dispersivity.
Dryland Salinity – National Assessment:	There was no dryland salinity national assessment data for the site.
Acid Sulfate Soil (ASS) Risk and Planning:	The site is not located in an ASS risk area.
Regional aquifer and registered bores:	The regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive highly productive aquifers. There was a total of 38 registered bores within the report buffer of 2,000m. In summary: • The nearest registered bore was located approximately 630m to the south and down-gradient of the site and was registered for irrigation purposes; • A number of the bores were registered for irrigation, water supply, and stock and domestic purposes; and • The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1m-11.3m, underlain by basalt bedrock. Standing water levels (SWLs) in the bores ranged from 0.6m below ground level (BGL) to 45mBGL.
Inferred groundwater flow and direction:	Considering the local topography and surrounding land features, JKE anticipate groundwater to generally flow towards the south-east overall. However, groundwater flows locally in the vicinity of the hillside (western part of the site) are expected to be in sympathy with the topography.
Receiving water bodies:	An unnamed tributary of Leycester Creek usually flows through the north-east corner of the site in an east-west orientation, commencing onsite. This water body was dry at the time of the site inspection. There is also another creek in the northern section of the wider property. Leycester Creek is located approximately 100m to the east of the site.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
<u>Fill material</u> – The site may have been historically filled to achieve the existing levels, particularly around the existing buildings and structures. The fill may have been imported from various sources and could be contaminated. Although there was no obvious evidence of this in the aerial photographs, localised waste burial may have occurred as this is relatively common on large rural properties in our experience. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works. The boreholes and test pits from the DSI that were within the northern portion of the site identified fill to depths in the order of 0.1-0.5mBGL (but generally 0.2mBGL or less). Samples collected and analysed from these locations were not impacted by the CoPC at concentrations that exceeded the SAC.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
<u>Agricultural use</u> – The site has been used for agricultural (farming and grazing) purposes. This could have resulted in contamination across the site via use of machinery, application of pesticides and building/demolition of various structures.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos. JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
<u>Use of pesticides</u> – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs.
<u>Hazardous Building Material</u> – Hazardous building materials may be present as a result of former building and demolition activities and in the existing buildings/structures on the site.	Asbestos, lead and PCBs. It is noted that GHD have prepared a Hazardous Building Materials Assessment for the site and wider property (2025)⁶.

⁶ GHD, (2025). Report to NSW Department of Education, Hazardous Building Materials Assessment, Northern Rivers Flood Recovery – Richmond River High Campus Redevelopment. (Ref: 1264091_REP-RRHS Hazmat Assessment, dated 21 May 2025) (referred to as GHD report or Hazardous Building Materials Assessment)

Source / AEC	CoPC
Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	
<u>Off-site cattle dip</u> – The site information reviewed indicated that two cattle dips were located within approximately 55m of the site to the south and may represent sources of contamination for the site. Groundwater information from the DSI indicated that the cattle dip is likely to be down-gradient of the site. However, this needs to be further assessed as a consequence of the site boundary changes.	Heavy metals (notably arsenic) and OCPs. Once the groundwater flow direction is understood, this AEC may be reassessed.

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include ‘top-down’ impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried industrial infrastructure) is present, although this is considered to be the least likely mechanism for contamination. The mechanisms for contamination from off-site sources could have occurred via ‘top down’ impacts and spills, or sub-surface release. Impacts to the site could occur via the migration of contaminated groundwater.
Affected media	Soil, creek sediment, surface water and groundwater have been identified as the potentially affected media.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, groundwater users and recreational water users in the creeks and river. Ecological receptors include terrestrial organisms and plants within unpaved areas (including any proposed landscaped areas), freshwater ecology in the onsite creeks and down-gradient water bodies.
Potential exposure pathways	Dermal absorption, ingestion and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary/direct contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens/playground areas, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings.

	Potential exposure pathways to groundwater (for human receptors) would be via vapour intrusion, or potential primary/secondary contact with groundwater during construction or if groundwater migrates into the river which could be utilised for recreational purposes. Exposure to ecological receptors could also occur in this water body. Sporadic use of groundwater for drinking purposes may also occur in the region (as suggested by the registered water supply bores in the vicinity), although it is assumed there is a town water supply and there are no water supply bores registered in the immediate vicinity.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into proposed buildings (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; • Contact with groundwater/surface water during construction activities; • Migration of groundwater/surface water into nearby water bodies, including aquatic ecosystems and recreational water bodies; and • Potential consumption of groundwater, or primary/secondary contact during activities such as irrigation.
Presence of preferential pathways for contaminant movement	None identified to date.

6 SAMPLING, ANALYSIS AND QUALITY PLAN

JKE prepared a stand-alone SAQP for the Supplementary Investigation which is attached in Appendix G. The SAQP and the Supplementary Investigation works are summarised as follows:

- Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 2.1;
- Soil samples were obtained from four borehole locations (BH211, BH212, BH214 and BH215) and 27 test pit locations (TP201 to TP210, TP216, TP217 and TP301 to TP315), generally spread across the site, as shown in Figure 2 and Figure 3 in Appendix A;
- Soil samples were obtained using a combination of drill rig equipped with spiral flight augers (150mm diameter), and a mechanical excavator fitted with a 300mm bucket attachment, between 19 and 30 May 2025;
- Three new monitoring wells were installed at the site between 27 and 30 May 2025 in BH206 (MW206), BH212 (MW212), and BH214 (MW214) during the Supplementary Investigation, as shown in Figure 2 and 3 in Appendix A. The wells were generally positioned to provide site coverage;
- The monitoring well construction details are documented on the borehole logs for BH206, BH212, and BH214 attached in the appendices;
- Existing monitoring well MW62 (installed during the DSI), and new monitoring wells MW206, MW212, and MW214 were developed between 28 and 30 May 2025. All wells were developed (i.e. water was pumped out) until they were effectively dry using a submersible electrical pump;
- The monitoring wells were allowed to recharge for between 24 and 72 hours after development. Groundwater samples for the Supplementary Investigation were obtained between 30 and 31 May 2025 from the existing monitoring well MW62 and from the three new monitoring wells MW206, MW212, and MW214 (refer to Figure 2 and 3);
- A creek water sample (sample Creek 1) and two creek sediment samples (samples Creek 1 and Creek2) also obtained for the Supplementary Investigation on 29 May 2025. The collection point of the creek sample is shown on Figure 2 and 3 in Appendix A;
- The field monitoring records and calibration data are attached in the appendices; and
- The relative heights for the new monitoring wells were surveyed using a GPS unit on 28 May 2025. This information is documented on the borehole logs and groundwater sampling field sheets attached in the appendices.

6.1 Deviations to SAQP

The following deviations to the SAQP are noted:

- The intent was to, where practicable, position the sampling locations on a judgemental plan based on the proposed building, structures and road locations, and other areas of disturbance. However, due to access, archaeological and/or time constraints onsite, numerous locations were repositioned including BH218, TP303, TP304, TP305, TP306 and TP315;
- Asbestos bulk quantification/field screening was not undertaken for all surficial soil/fill profiles. The lack of sample was due in part to direction from the archaeologists;
- The depth of investigation at locations TP303, TP304, TP305, TP306 was also limited to 0.2mBGL due to archaeological constraints;

- The intent was to install two of the new groundwater monitoring wells in BH213 and BH215, however, due to a mixture of access and archaeological constraints, the monitoring wells were installed in BH206 (MW206), and BH214 (MW214);
- Due to time constraints, the well installation at BH214/MW214 was undertaken on 30 May 2025. Soil sampling did not occur in this location at the borehole was not logged/sampled by JKG until 4 June 2025 as per the date on the log attached in the appendices;
- The creek sediment and creek surface water samples were obtained from the creek and creek line to the north of the site on the wider property. This was due to there being no flowing creek or observed creek line onsite during the site inspection; and
- The sample of fibre cement sheeting (Surf Mat1) was obtained marginally outside the site boundary, to the west of the site. It is noted that this material is also captured under the Hazardous Building Materials Assessment.

Please refer to the SAQP attached in the appendices for further information.

6.2 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 6-1: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	381579, 382348, 382356, 382346, and 382346-A
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	MGE0492 and MGF0097

It is noted that Envirolab reports 382346 and 382346-A include additional groundwater data relevant to the surface and groundwater impact assessment. These items have not been discussed in this Supplementary Investigation report and are to be reported under a separate cover.

7 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

7.1 Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below. We have also compared the sediment data to these SAC rather than sediment guidelines as the creek bed is not expected to support benthic organisms in the context of the proposed development.

7.1.1 Human Health

- Health Investigation Levels (HILs) for ‘public open spaces; secondary schools; and footpaths’ exposure scenario (HIL-C);
- Health Screening Levels (HSLs) for a ‘low-high density residential’ exposure scenario (HSL-A & HSL-B), were adopted as land use type C does not consider vapour intrusion for buildings and structures. HSLs were calculated based on conservative assumptions including a ‘sand’ type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)⁷; and
- Asbestos was assessed against the HSL-C criteria. A summary of the asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-C criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)⁸. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.02% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (kg)}}{\text{Soil volume (L)} \times \text{soil density (kg/L)}}$ However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams):

⁷ Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

⁸ Western Australian (WA) Department of Health (DoH), (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2021)

Guideline	Applicability
	$\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (g)}}{\text{Soil weight (g)}}$

7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines⁹;
- ESLs were adopted based on the soil type;
- With the exception of the sample Creek2, EILs for selected metals were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)¹⁰. This method is considered to be adequate for the Tier 1 screening; and
- For the Creek2 sample, EILs for selected metals were calculated based on the site-specific CEC value of 27cmolc/kg for fine soil texture. This method is also considered to be adequate for the Tier 1 screening.

7.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

7.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)¹¹ as outlined in the following table:

Table 7-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.
Hazardous Waste	• If SCC > CT2 then TCLP must be undertaken to classify the soil as hazardous waste; and • If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.

⁹ Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

¹⁰ Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

¹¹ NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. (referred to as Waste Classification Guidelines 2014)

Category	Description
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

7.2 Groundwater

Groundwater data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)¹². Environmental values for this investigation include aquatic ecosystems, human uses (incidental contact and recreational water use), and human-health risks in non-use scenarios (vapour intrusion). Consumption of groundwater at the site is not expected to occur, however, we have also screened the groundwater and surface water data against the drinking water guidelines for completeness.

7.2.1 Human Health

- HSLs for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). HSLs were calculated conservatively based on a 'sand' type and a 2-4m depth to groundwater. These are the most conservative criteria whereby HSLs can be calculated;
- The ADWG 2011 were used as screening criteria for groundwater consumption; and
- The ADWG 2011 were multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater and surface water (e.g. within down-gradient water bodies, or with bore water used for irrigation, water supply and/or stock and domestic purposes). These have been deemed as 'recreational' SAC.

7.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of freshwater species were adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)¹³. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist.

¹² NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination*.

¹³ Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)

8 RESULTS

8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

8.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the borehole/test pit logs attached in the appendices for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Fill/Topsoil (surface soils)	Fill or topsoil was encountered at the surface in all boreholes and test pits and extended to depths of approximately 0.1mBGL to 0.6mBGL. TP307 was terminated in the fill material at a maximum depth of 0.2mBGL. The fill/topsoil typically comprised silty clay, with inclusions of basalt cobbles, basalt and siltstone and igneous gravel, organics, ash, sand, roots and root fibres. No odours or staining were recorded in the fill material during field work. FCF/ACM was not encountered in the fill material during fieldwork.
Natural Soil (subsoil)	Natural alluvial, colluvial and residual clayey or gravelly soils were encountered beneath the fill/topsoil in all locations and extended to depths of approximately 0.6m to 4.0mBGL. Neither odours nor staining were recorded in the natural soil during fieldwork.
Bedrock	Siltstone or basalt bedrock was encountered beneath the natural soils in TP202, TP205, TP206, TP207, TP209, TP210, TP216, TP217, and TP302 from depths of between 0.3mBGL to 4.0mBGL. Neither odours nor staining were recorded in the bedrock during fieldwork.
Groundwater	Groundwater seepage was encountered in TP202, TP210 TP303, TP306, TP308, TP309, TP310, TP311 and TP312 at depths of between 0.1mBGL to 2.6mBGL This was likely a result of recent rains.

8.3 Field Screening

A summary of the field screening results is presented in the following table:

Table 8-2: Summary of Field Screening

Aspect	Details																				
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. The results ranged from 0ppm to 5.5ppm equivalent isobutylene. These results indicate that the soil samples contained relatively low concentrations of PID detectable VOCs. Samples with elevated PID readings were generally analysed for TRH and BTEX.																				
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report Table S5. All results were below the SAC. There was no FCF/ACM identified in any of the samples.																				
Groundwater Depth & Flow	SWLs measured in the monitoring wells installed at the site ranged from 2.37mBGL to 6.78mBGL. The relative heights for all monitoring wells were surveyed using a GPS unit on 28 May 2025. Groundwater RLs calculated on these measurements ranged from 11.29mAHD to 17.29mAHD. The groundwater RLs indicate that excavation for the proposed buildings on the western side of the site may intercept groundwater. <table><tr><th>MW reference</th><th>Reduced Level (mAHD)</th><th>SWL</th><th>SWL RL (mAHD)</th></tr><tr><td>MW62</td><td>18.61</td><td>6.78</td><td>11.83</td></tr><tr><td>MW206</td><td>17.80</td><td>2.37</td><td>15.43</td></tr><tr><td>MW212</td><td>22.22</td><td>4.93</td><td>17.29</td></tr><tr><td>MW214</td><td>14.58</td><td>3.29</td><td>11.29</td></tr></table> A contour plot was prepared for the groundwater levels using Surfer v8.08 (Surface Mapping Program) as shown on Figure 4. Groundwater flow generally occurs in a down gradient direction perpendicular to the groundwater elevation contours. The contour plot indicates that groundwater generally flows towards the north-east which is generally in sympathy with the topography (in the vicinity of the monitoring wells) and expectations.	MW reference	Reduced Level (mAHD)	SWL	SWL RL (mAHD)	MW62	18.61	6.78	11.83	MW206	17.80	2.37	15.43	MW212	22.22	4.93	17.29	MW214	14.58	3.29	11.29
MW reference	Reduced Level (mAHD)	SWL	SWL RL (mAHD)																		
MW62	18.61	6.78	11.83																		
MW206	17.80	2.37	15.43																		
MW212	22.22	4.93	17.29																		
MW214	14.58	3.29	11.29																		
Groundwater Field Parameters	Field measurements recorded during sampling were as follows: - pH ranged from 7.0 to 7.67; - EC ranged from 321.7µS/cm to 3,661µS/cm; - Eh ranged from -98.9mV to 107.1mV; and - DO ranged from 1.23mg/L to 5.28mg/L. The PID readings in the monitoring well headspace recorded during sampling ranged between 0.1ppm in MW62 to 44.4ppm in MW214. Hydrocarbon odours were recorded during development and sampling of MW214. The strength of the odours reduced from the time of development to sampling and no sheen or LNAPL was identified during development or sampling. The odours were considered to be the result of a mechanical breakdown of the drill rig and minor fuel/hydraulic oil leak which was able to be well contained, but which had minor unavoidable impacts locally at the work location.																				
LNAPLs petroleum hydrocarbons	Phase separated product (i.e. LNAPL) was not detected using the interphase probe during groundwater sampling.																				

8.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

8.4.1 Human Health and Environmental (Ecological) Assessment

Table 8-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	41	12.3	0	0	-
Cadmium	41	1	0	NSL	-
Chromium (total)	41	41	0	0	-
Copper	41	24	0	0	-
Lead	41	25	0	0	-
Mercury	41	0.1	0	NSL	-
Nickel	41	39	0	0	-
Zinc	41	150	0	0	-
Total PAHs	41	0.67	0	NSL	-
Benzo(a)pyrene	41	0.2	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	41	<0.5	0	NSL	-
Naphthalene	41	<1	0	NSL	-
DDT+DDE+DDD	34	<0.1	0	NSL	-
DDT	34	<0.1	NSL	0	-
Aldrin and dieldrin	34	<0.1	0	NSL	-
Chlordane	34	<0.1	0	NSL	-
Heptachlor	34	<0.1	0	NSL	-
Chlorpyrifos (OPP)	34	<0.1	0	NSL	-
PCBs	34	<0.1	0	NSL	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
TRH F1	41	<25	0	0	-
TRH F2	41	<50	0	0	-
TRH F3	41	260	0	0	-
TRH F4	41	160	0	0	-
Benzene	41	<0.2	0	0	-
Toluene	41	<0.5	0	0	-
Ethylbenzene	41	<1	0	0	-
Xylenes	41	<1	0	0	-
Asbestos (in soil) (%w/w)	29	<0.01%w/w ACM <0.001%w/w AF/FA	0	NA	Asbestos was not detected in any of the soil samples analysed.
Asbestos in fibre cement	1	Detected	NA	NA	Asbestos was detected in the material sample Surf Mat 1. This was collected from the ground surface just beyond the western site boundary.

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 7.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 8-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	41	0	0	-
Cadmium	41	0	0	-
Chromium	41	0	0	-
Copper	41	NSL	NSL	-
Lead	41	0	0	-
Mercury	41	0	0	-

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Nickel	41	0	0	-
Zinc	41	NSL	NSL	-
TRH (C ₆ -C ₉)	41	0	0	-
TRH (C ₁₀ -C ₃₆)	41	0	0	-
BTEX	41	0	0	-
Total PAHs	41	0	0	-
Benzo(a)pyrene	41	0	0	-
OCPs & OPPs	34	0	0	-
PCBs	34	0	0	-
Asbestos (in soil)	29	-	-	Asbestos was not detected in any of the soil samples analysed.
Asbestos (material)	1	-	-	Asbestos was detected in the material sample Surf Mat 1.

N: Total number (primary samples)

NSL: No set limit

8.5 Surface and Groundwater Laboratory Results

The surface and groundwater laboratory results were assessed against the SAC presented in Section 7.2. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

Table 8-5: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	5	<1	0	0	-
Cadmium	5	<0.1	0	0	-
Chromium (total)	5	<1	0	0	-
Copper	5	<1	0	0	-
Lead	5	<1	0	0	-
Mercury	5	<0.05	0	0	-
Nickel	5	4	0	0	-



Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Zinc	5	8	0	0	-
PAHs Naphthalene Acenaphthylene Fluorene	5	0.4 0.1 0.3	NSL NSL NSL	0 NSL NSL	-
OCPs	5	<0.2	0	0	-
TRH F1	5	41	0	NSL	-
TRH F2	5	450	0	NSL	-
TRH F3	5	110	NSL	NSL	-
TRH F4	5	<100	NSL	NSL	-
Benzene	5	<1	0	0	-
Toluene	5	9	0	0	-
Ethylbenzene	5	<1	0	0	-
m+p-Xylene	5	3	0	0	-
o-Xylene	5	3	0	0	-
Total Xylenes	5	6	0	0	-
pH	5	7.4	0	0	-
EC	5	3,700	NSL	NSL	-
Turbidity	5	550	5	0	The reported results of between 420NTU and 550NTU in MW206, MW212, and the creek, exceeded the drinking water SAC of 5NTU.

Notes:

^: Primary samples

N: Total number

NSL: No set limit

NL: Not limiting

9 WASTE CLASSIFICATION ASSESSMENT

Surf Mat1 encountered on the site surface in the vicinity of the residence was found to contain asbestos (refer to Figures 2 and 3). The ACM was encountered as cement sheet backing to a tiled sink splashback dumped with metal sink, next to the northern residence just north of the site boundary on the wider property. The cement sheet was considered to be in good condition and could not be broken by hand pressure. No other surficial ACM were observed on the site surface during the inspection or fieldwork. Further discussion is provided in Section 10.1.

9.1 Preliminary Waste Classification of Fill

Based on the results of the waste classification assessment, and at the time of reporting, the 'fill' material at the site is given a preliminary classification of **General Solid Waste (non-putrescible)** for off-site disposal purposes. Additional testing should be undertaken during development works to confirm the waste classification, prior to any off-site disposal of waste. It will be imperative in the context of the final waste classification that any hazardous building materials from surface sources are appropriately managed/removed to ensure there is no cross-contamination impacts to soils.

Waste fill should be disposed of to a facility that is appropriately licensed by the NSW EPA to receive the waste stream (or re-used in accordance with a resource recovery order/exemption where applicable). The facility (or receiving property, where applicable) should be contacted to obtain the required approvals prior to commencement of excavation.

Given the relatively low contaminant concentrations reported for fill samples, it may be economical to pursue alternative classification of the fill under the resource recovery framework (e.g. an Excavated Natural Material [ENM] classification), to facilitate off-site re-use of the fill, should there be a surplus of material.

9.2 Classification of Natural Soils and Bedrock

Based on the scope of work undertaken for this assessment, and at the time of reporting, JKE is of the opinion that the topsoil, underlying natural soil and bedrock at the site meets the definition of **VENM** for off-site disposal or re-use purposes. VENM is considered suitable for re-use on-site (from a contamination viewpoint), or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material.

When considering re-use options for site-won soils such, any materials containing organic materials such as roots/grass etc should not be buried deeply due to the potential for the organic component to break down and generate gasses such as methane and carbon dioxide. Reference should also be made to the JKG report for further recommendations regarding root affected soils, from a geotechnical perspective.

10 DISCUSSION

10.1 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

10.1.1 Soil

Surf Mat1 encountered on the site surface in the vicinity of the northern residence was found to contain asbestos (refer to Figures 2 and 3). The ACM was encountered as cement sheet backing to a tiled splashback dumped with metal sink, next to the northern residence just to the north of the site on the wider property (refer to Figure 2 and 3). At the time of the Supplementary Investigation fieldwork, the ACM had not impacted the fill soil at the site and was contained to the surficial dumped material. This ACM is noted to be included in the existing Hazardous Building Materials Assessment prepared for the site and wider property. No other surficial ACM were observed on the site surface during the inspection or fieldwork. Removal and management of this ACM should be undertaken in accordance with the GHD Hazardous Building Materials Assessment.

Asbestos was not detected in any of the soil samples analysed and there were no widespread indicators for asbestos observed in or on soils at the site. Considering these lines of evidence, the potential for widespread asbestos impacts at the site is considered to be low. Implementation of an unexpected finds protocol would be an appropriate mechanism to manage any localised issues should these be encountered during future works.

Elevated concentrations of the CoPC were not encountered above the adopted SAC in the soil samples analysed and therefore the CoPC not consider to pose a risk to the receptors as there are no complete SPR linkages. Whilst sampling did not occur in some areas due to archaeological constraints or the presence of buildings, we consider that these areas would likely have similar conditions to the surrounds and therefore implementation of an unexpected finds protocol would be an appropriate mechanism to manage any localised issues should these be encountered during future works.

10.1.2 Groundwater and Surface Water

Elevated concentrations of the CoPC were not encountered above the adopted SAC in the groundwater or surface water samples analysed and therefore unacceptable risks to the receptors have not been identified to date.

The turbidity of the surface and groundwater samples was generally above the drinking water criterion. This is not considered to be a site-specific issue and consumption of groundwater is not expected to occur as part of the activity.

It is noted that the results of the surface water sample from the creek were included in the HSL assessment (Table G4) for completeness, although this data is not relevant to surface water.

Trace concentrations of TRH F1, TRH F2, toluene, xylenes, naphthalene and acenaphthylene were reported in the surface and groundwater samples during the DSI. It is noted that the drill rig developed a minor fuel/hydraulic oil leak during fieldwork due to a mechanical issue. Although the fuel/hydraulic oil leak was able to be well contained, there were minor unavoidable impacts locally at some work locations. These impacts are not of concern from a contamination risks perspective given that all reported hydrocarbon concentrations were below the health based and ecological SAC, the investigation did not identify any on-site contamination sources for surface or groundwater and the soils were also not impacted to the extent that persistent contaminant migration to groundwater was expected to occur.

Where temporary construction dewatering is required, it is expected that the management of such water would occur in accordance with the regulatory requirements so that no unacceptable construction-phase risks occur.

10.2 Decision Statements

The decision statements are addressed below:

Are any results above the SAC?

Yes, refer to Section 10.1

Do potential risks associated with contamination exist, and if so, what are they?

There were no complete SPR linkages and no unacceptable contamination risks identified. The ACM identified is to be managed under the recommendations of the Hazardous Building Materials Assessment and demolition requirements for the project. The occurrence of PAHs and TRH in groundwater is not considered to be associated with on-site contamination. Notwithstanding, management of any water discharged during construction will be needed, as per regulatory requirements.

Is remediation required?

The Supplementary Investigation did not identify a trigger for remediation and the investigation has confirmed that there is a low potential for contamination due to historical activities. Further investigation is not considered to be required provided potential risks are managed via the development and implementation of a robust unexpected finds protocol.

Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

JKE is of the opinion that the site is suitable for the activity as described in Section 1.2 and will remain suitable subject to the development and implementation of a robust unexpected finds protocol.

10.3 Review of CSM and Data Gaps

An assessment of data gaps is provided in the following table:

Table 10-1: Review of CSM and Data Gap Assessment

Source/AEC or Data Gap	Assessment
Fill material	Fill/topsoil ranging in depth between approximately 0.1mBGL and 0.5mBGL was encountered across the site. Contaminated fill/topsoil was not identified. Whilst some spatial sampling data gaps remain, potential risks in these areas can be managed via an unexpected finds process.
Historical Agricultural Land use	Based on the reported results to date, and at the time of reporting, risks associated with this AEC are considered to be low and do not require further assessment.
Use of pesticides	Based on the reported results to date, and at the time of reporting, risks associated with this AEC are considered to be low. Sampling has not occurred under the existing building.
Hazardous Building Material	A Hazardous Building Materials Assessment has been undertaken by GHD for the site and wider property. Removal and management of hazardous building materials, including Surf Mat1, should be undertaken in accordance with the GHD report. In regards to hazardous building materials impacting the fill soil at the site, based on the site history, field work observations and soil results reported to date at the time of reporting, risks associated with this AEC are considered to be low. Potential risks can be managed via an unexpected finds process.
Off-site cattle dip	It is noted that trace levels of pesticides in surface groundwater were not analysed by the laboratory due to a transcription error. However, based on the indicative direction of groundwater flow (to the east), the location of this off-site source, reported results to date and at the time of reporting, risks associated with this AEC are considered to be low and do not require further assessment.

11 CONCLUSIONS AND RECOMMENDATIONS

The Supplementary Investigation included a review of existing project information, a site inspection, soil sampling from four boreholes, 27 test pits, groundwater sampling from four monitoring wells, and surface water and sediment sampling from the offsite creek and creek line.

The boreholes/test pits encountered fill/topsoil materials to depths of approximately 0.1mBGL to 0.6mBGL, underlain by clayey and gravelly alluvial, colluvial and residual soils and siltstone and basalt bedrock. The fill/topsoil typically comprised silty clay, with inclusions of basalt cobbles, basalt and siltstone and igneous gravel, organics, ash, sand, roots and root fibres. Fibre cement sheeting was also encountered at the ground surface just to the west of the site boundary, in dumped materials adjacent to the residence.

A selection of soil, groundwater and surface water samples were analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC in the samples analysed. Asbestos was detected in the surface material sample. However, this material is noted to be included in the Hazardous Building Materials Assessment for the site and wider property and it is not an in-ground contamination issue.

Based on the Tier 1 risk assessment, JKE is of the opinion that potential risks associated with the CoPC at the site are low and the data collected during the investigation suggests that significant and widespread contamination issues are unlikely to be encountered. Removal and management of hazardous building materials, including the identified ACM in sample Surf Mat1, should be undertaken in accordance with the Hazardous Building Materials Assessment.

Further investigation and/or remediation is not considered to be required and the site is considered to be suitable for the activity outlined in Section 1, from a contamination viewpoint. Due to archaeological constraints which prevented sampling in some areas, we recommend that a robust unexpected finds protocol be prepared by a suitably qualified environmental consultant and that this protocol be implemented during the development/construction phase of the project. The protocol is to include provisions for inspections and further soil sampling beneath the buildings, post-demolition, together with robust unexpected finds procedures.

Preliminary waste classifications are discussed in Section 9.

JKE consider that the report objectives outlined in Section 2.1 have been addressed.

11.1 Mitigation Measures – REF Requirement

JKE was requested by the client to include a table to support the contamination-related risk mitigation measures to be included in the REF. Mitigation measures to avoid, minimise, rectify and/or reduce or eliminate over time the adverse environmental impacts identified in the Supplementary Investigation are outlined in the table below:

Table 11-1: Mitigation Measures Relating to Supplementary Investigation Findings

Mitigation Number / Name	Aspect / Section	Mitigation Measure	Reason for Mitigation Measure
Planning of demolition works	Prior to demolition.	The mitigation measures should align with Table 6.1 of the GHD Hazardous Building Materials Assessment.	Disturbance of hazardous building materials.
Unexpected Finds Protocol	For development / construction phase.	Preparation of an unexpected finds protocol. The protocol is to include provisions for inspections and further soil sampling beneath the buildings, post-demolition, together with robust unexpected finds procedures.	To compensate for the reduced sampling density completed for the Supplementary Investigation, a robust unexpected finds protocol is to be prepared by a suitably qualified environmental consultant and this protocol implemented during the development/ construction phase of the project.

11.2 Evaluation of Environmental Impacts – REF Requirement

It is considered that the environmental impacts as identified in the Supplementary Investigation can be adequately mitigated through the above recommended measures.

A robust unexpected finds protocol must be prepared and implemented during the development/ construction phase of the project to compensate for the reduced sampling density. Further investigation and/or remediation is not considered to be required and the site is considered to be suitable for the activity outlined in Section 2, from a contamination viewpoint.

12 LIMITATIONS

The report limitations are outlined below:

- The Supplementary Investigation was limited to the nominated boundaries (the site) as shown on Figures 1 and 2 in Appendix A;
- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors

This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data

Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations

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

Misinterpretation of Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

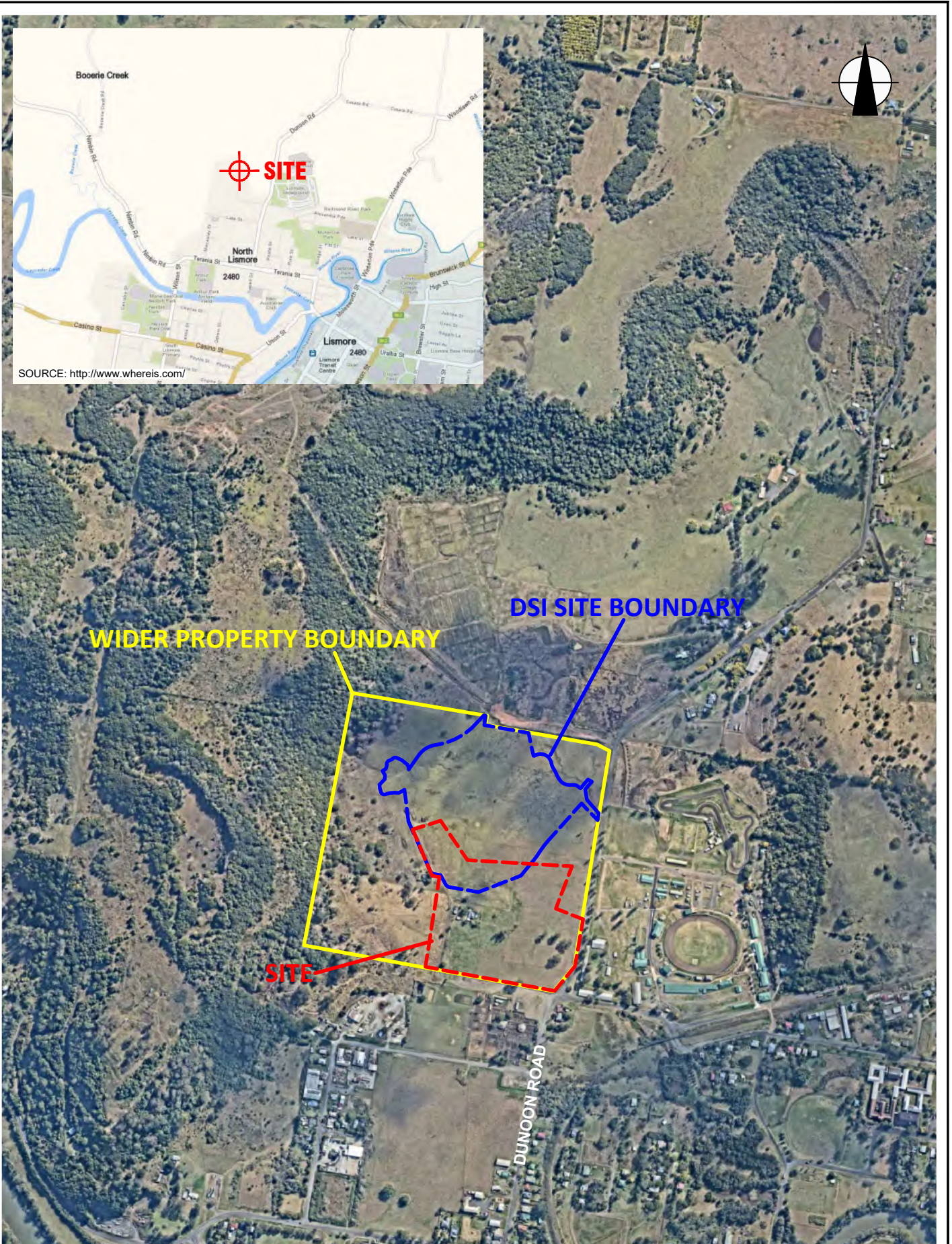
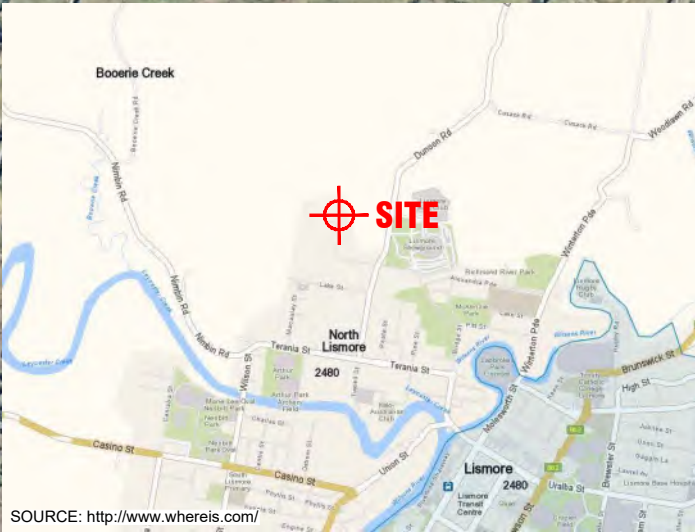
To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information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

Read Responsibility Clauses Closely

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



Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

Title: SITE LOCATION PLAN	
Location: 163 & 170 ALEXANDRA PARADE, NORTH LISMORE, NSW	
Report Ref: E36314PT3	Figure No: 1
JKEnvironments	

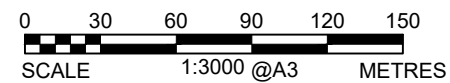
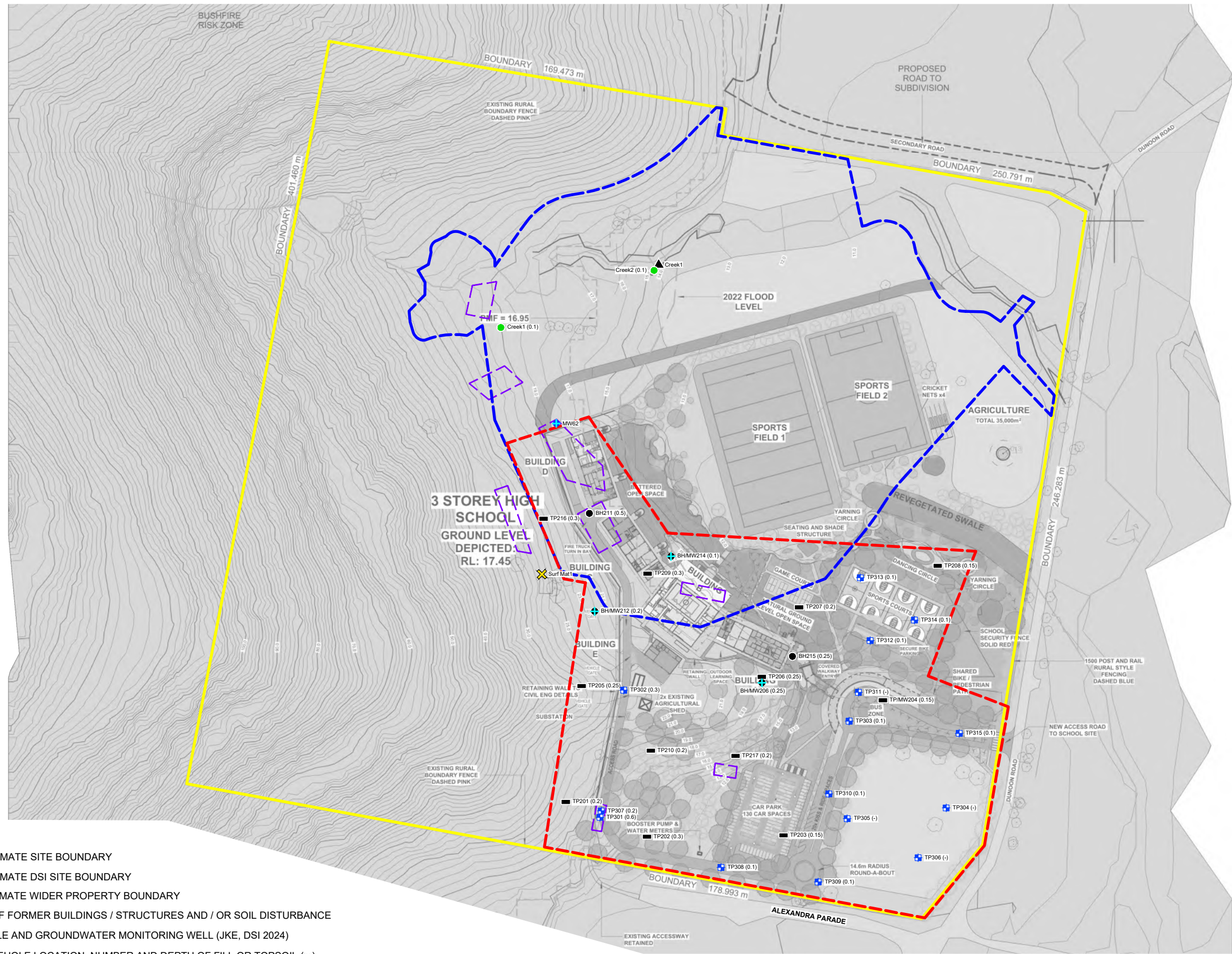


This plan should be read in conjunction with the Environmental report.

PLOT DATE: 16/07/2025 9:04:49 AM DWG FILE: K:\SC EIS JOBS\36007\SE36314PT LISMORE (SHOWGROUND)\CAD\E36314PT3.DWG

LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE DSI SITE BOUNDARY
- APPROXIMATE WIDER PROPERTY BOUNDARY
- AREAS OF FORMER BUILDINGS / STRUCTURES AND / OR SOIL DISTURBANCE
- MW62 BOREHOLE AND GROUNDWATER MONITORING WELL (JKE, DSI 2024)
- BH211 JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- BH/MW212 JKG BOREHOLE AND GROUNDWATER MONITORING WELL (m)
- TP201 JKG TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- TP301 JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- ▲ SURFACE WATER SAMPLE LOCATION
- Surf Mat1 (SURFACE) FIBRE CEMENT SHEETING LOCATION, NUMBER AND DEPTH
- Creek1 SEDIMENT SAMPLE LOCATION (m)



This plan should be read in conjunction with the Environmental report.

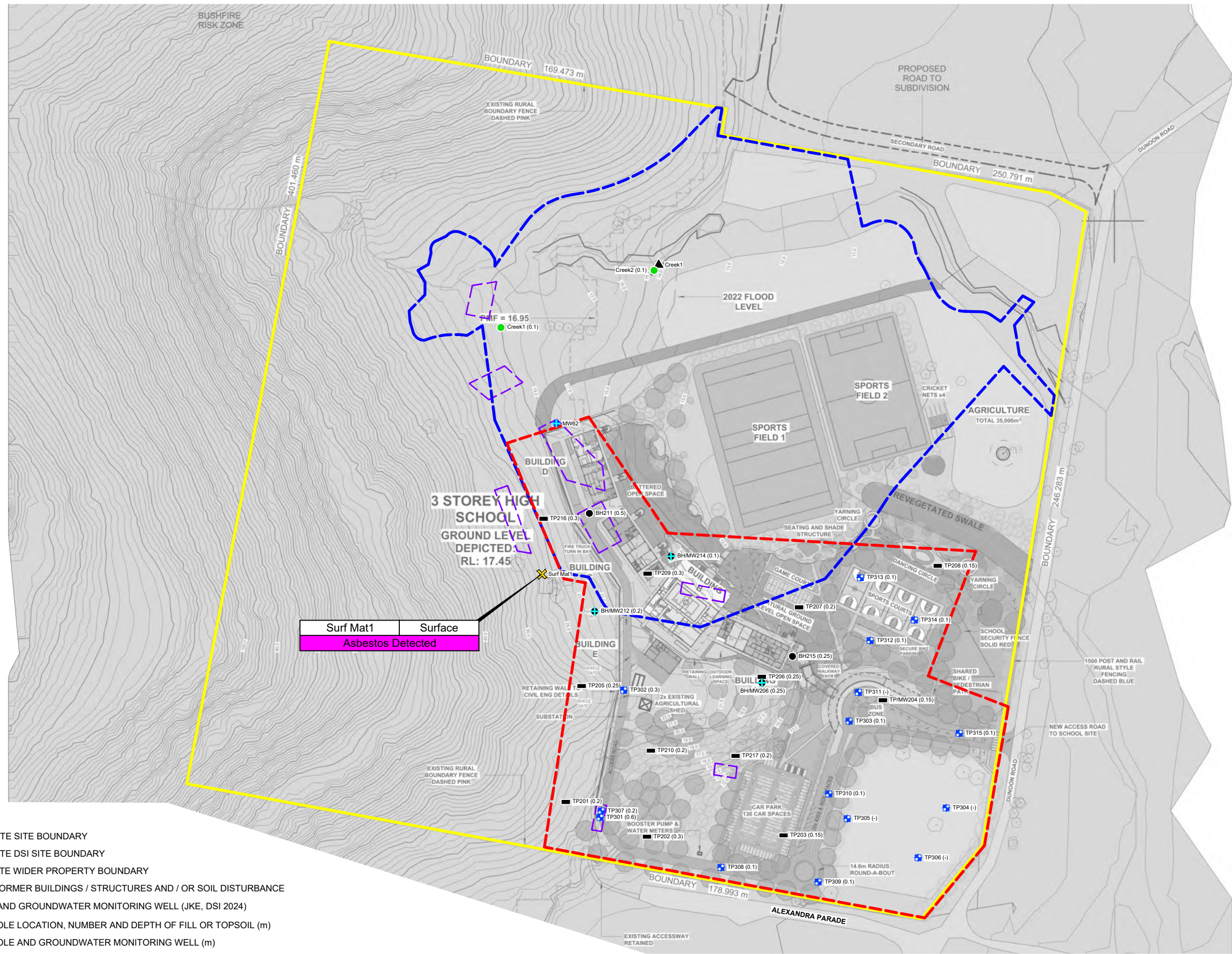
Title: SAMPLE LOCATION PLAN	
Location: 163 & 170 ALEXANDRA PARADE, NORTH LISMORE, NSW	
Report Ref: E36314PT3	Figure No: 2
JKEnvironments	



PLOT DATE: 16/07/2025 9:04:32 AM DWG FILE: K:\SIC EIS JOBS\36007\SE36314PT LISMORE (SHOWGROUND)\CAD\E36314PT3.DWG

LEGEND

- APPROXIMATE SITE BOUNDARY
 - APPROXIMATE DSI SITE BOUNDARY
 - APPROXIMATE WIDER PROPERTY BOUNDARY
 - AREAS OF FORMER BUILDINGS / STRUCTURES AND / OR SOIL DISTURBANCE
 - MW62 BOREHOLE AND GROUNDWATER MONITORING WELL (JKE, DSI 2024)
 - BH211 JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
 - BH/MW212 JKG BOREHOLE AND GROUNDWATER MONITORING WELL (m)
 - TP201 JKG TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
 - TP301 JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
 - ▲ SURFACE WATER SAMPLE LOCATION
 - Surf Mat1 (SURFACE) FIBRE CEMENT SHEETING LOCATION, NUMBER AND DEPTH
 - Creek1 SEDIMENT SAMPLE LOCATION (m)
- | SAMPLE ID | DEPTH (metres) | SOIL/SURFACE SAMPLE EXCEEDANCE |
|-----------|-------------------|--------------------------------|
| CHEMICAL | CONCENTRATION | |
| | ASBESTOS DETECTED | |



0 30 60 90 120 150

SCALE 1:3000 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: SAC EXCEEDANCE PLAN

Location: 163 & 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

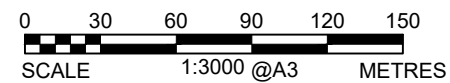
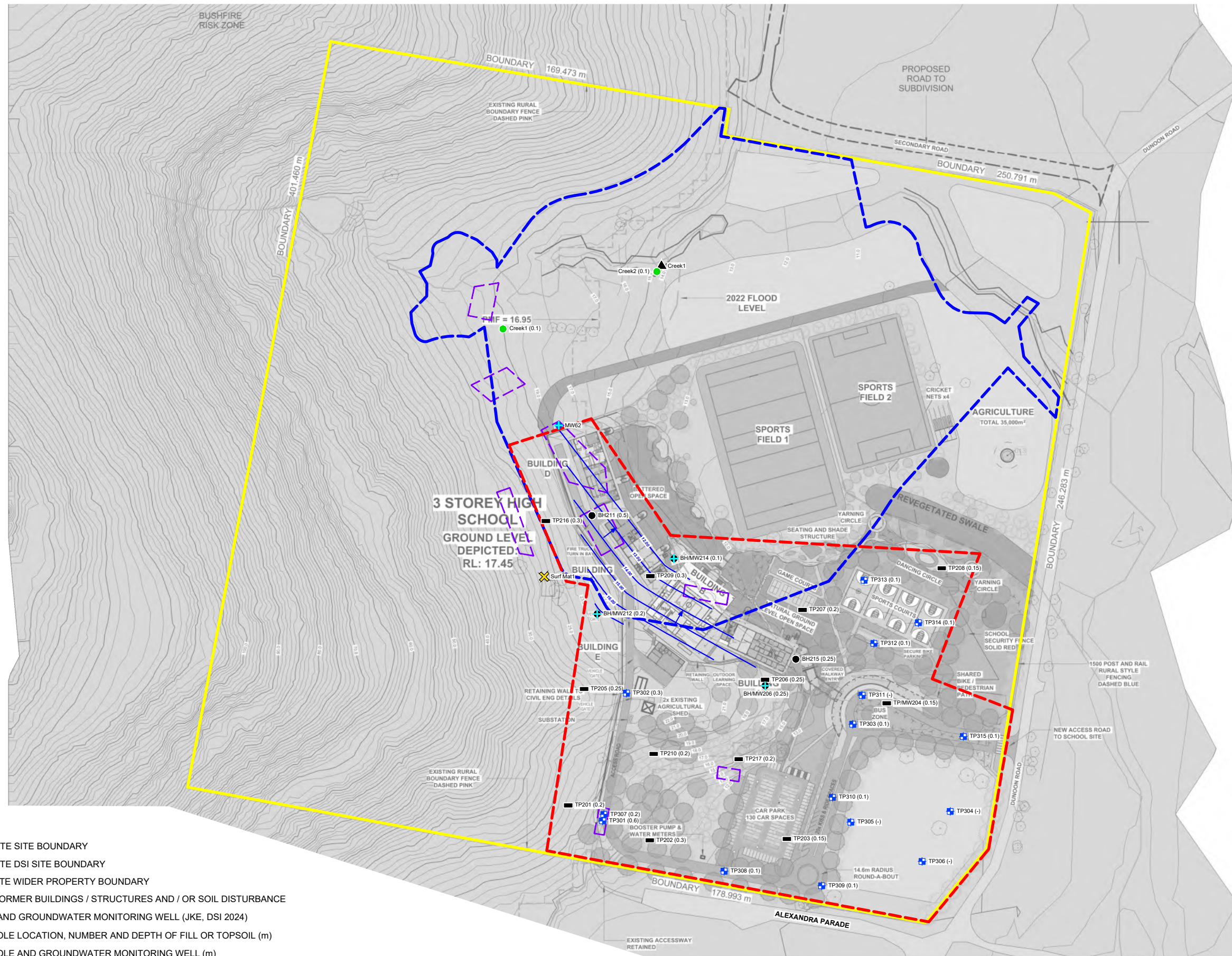
Report Ref: E36314PT3

Figure No: 3

PLOT DATE: 16/07/2025 9:03:00 AM DWG FILE: K:\SC EIS JOBS\36007\SE36314PT LISMORE (SHOWGROUND)\CAD\E36314PT3.DWG

LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE DSI SITE BOUNDARY
- APPROXIMATE WIDER PROPERTY BOUNDARY
- AREAS OF FORMER BUILDINGS / STRUCTURES AND / OR SOIL DISTURBANCE
- MW62 BOREHOLE AND GROUNDWATER MONITORING WELL (JKE, DSI 2024)
- BH211 JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- BH/MW212 JKG BOREHOLE AND GROUNDWATER MONITORING WELL (m)
- TP201 JKG TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- TP301 JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL OR TOPSOIL (m)
- ▲ SURFACE WATER SAMPLE LOCATION
- Surf Mat1 (SURFACE) FIBRE CEMENT SHEETING LOCATION, NUMBER AND DEPTH
- Creek1 SEDIMENT SAMPLE LOCATION (m)
- 14.00 GROUNDWATER CONTOUR INTERVALS (m)
- INFERRED GROUNDWATER FLOW DIRECTION



This plan should be read in conjunction with the Environmental report.

Title:		GROUNDWATER CONTOUR PLOT	
Location:		163 & 170 ALEXANDRA PARADE, NORTH LISMORE, NSW	
Report Ref:		E36314PT3	Figure No: 4
JKEnvironments			





Appendix B: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration	PCBs:	Polychlorinated Biphenyls
ACM:	Asbestos Containing Material	PCE:	Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
ADWG:	Australian Drinking Water Guidelines	pH_{KCL}:	pH of filtered 1:20, 1M KCL extract, shaken overnight
AF:	Asbestos Fines	pH_{ox}:	pH of filtered 1:20 1M KCL after peroxide digestion
ANZG:	Australian and New Zealand Guidelines	PQL:	Practical Quantitation Limit
B(a)P:	Benzo(a)pyrene	RS:	Rinsate Sample
CEC:	Cation Exchange Capacity	RSL:	Regional Screening Levels
CRC:	Cooperative Research Centre	RSW:	Restricted Solid Waste
CT:	Contaminant Threshold	SAC:	Site Assessment Criteria
EILs:	Ecological Investigation Levels	SCC:	Specific Contaminant Concentration
ESLs:	Ecological Screening Levels	S_{Cr}:	Chromium reducible sulfur
FA:	Fibrous Asbestos	S_{POS}:	Peroxide oxidisable Sulfur
GIL:	Groundwater Investigation Levels	SSA:	Site Specific Assessment
GSW:	General Solid Waste	SSHSLS:	Site Specific Health Screening Levels
HILs:	Health Investigation Levels	TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
HSLs:	Health Screening Levels	TB:	Trip Blank
HSL-SSA:	Health Screening Level-Site Specific Assessment	TCA:	1,1,1 Trichloroethane (methyl chloroform)
kg/L	kilograms per litre	TCE:	Trichloroethylene (Trichloroethene)
NA:	Not Analysed	TCLP:	Toxicity Characteristics Leaching Procedure
NC:	Not Calculated	TPA:	Total Potential Acidity, 1M KCL peroxide digest
NEPM:	National Environmental Protection Measure	TS:	Trip Spike
NHMRC:	National Health and Medical Research Council	TRH:	Total Recoverable Hydrocarbons
NL:	Not Limiting	TSA:	Total Sulfide Acidity (TPA-TAA)
NSL:	No Set Limit	UCL:	Upper Level Confidence Limit on Mean Value
OCP:	Organochlorine Pesticides	USEPA:	United States Environmental Protection Agency
OPP:	Organophosphorus Pesticides	VOCC:	Volatile Organic Chlorinated Compounds
PAHs:	Polycyclic Aromatic Hydrocarbons	WHO:	World Health Organisation
%w/w:	weight per weight		
ppm:	Parts per million		

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also referred to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with low traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.



TABLE S1 SOIL LABORATORY RESULTS COMPARED TO NEPM 2013. HIL-C: 'Public open space; secondary schools; and footpaths'																							
All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)								OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos			
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100	
Site Assessment Criteria (SAC)			300	90	300	17000	600	80	1200	30000	300	3	10	340	400	10	70	400	10	250	1	Detected/Not Detected	
Sample Reference	Sample Depth	Sample Description																					
TP201	0-0.2	Topsoil/Silty clay	<4	<0.4	14	11	7	<0.1	12	54	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP201 - [LAB_DUP]	0-0.2	Topsoil/Silty clay	<4	<0.4	13	9	7	<0.1	17	56	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP202	0-0.1	Topsoil/Silty clay	<4	<0.4	21	9	18	<0.1	15	70	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP203	0-0.1	Topsoil/Silty clay	<4	0.5	13	19	15	<0.1	14	150	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP204	0-0.1	Topsoil/Silty clay	4	1	26	24	21	0.1	31	77	0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP205	0-0.2	Topsoil/Silty clay	<4	<0.4	41	17	8	<0.1	29	55	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP206	0-0.1	Topsoil/Silty clay	<4	<0.4	12	18	20	<0.1	19	100	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP207	0-0.1	Topsoil/Silty clay	<4	0.4	10	19	25	<0.1	22	130	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP208	0-0.1	Topsoil/Silty clay	<4	0.5	25	13	11	<0.1	15	49	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP209	0-0.1	Topsoil/Silty clay	<4	<0.4	25	11	10	<0.1	21	73	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP210	0-0.1	Topsoil/Silty clay	<4	<0.4	10	17	10	<0.1	17	100	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP210	0.5-0.6	Silty clay	<4	<0.4	7	14	6	<0.1	18	65	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH211	0-0.1	F: Silty clay	<4	<0.4	14	17	10	<0.1	10	110	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
BH211 - [LAB_DUP]	0-0.1	F: Silty clay	<4	<0.4	13	16	10	<0.1	8	100	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
BH212	0.05-0.2	F: Gravel	<4	<0.4	6	17	4	<0.1	21	60	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
BH214	0-0.1	Topsoil/Silty clay	<4	<0.4	28	21	20	<0.1	24	140	0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
BH215	0-0.1	Topsoil/Silty clay	<4	<0.4	9	18	9	<0.1	23	120	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP216	0-0.1	Topsoil/Silty clay	<4	<0.4	26	15	8	<0.1	29	73	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP216 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	<4	0.7	28	15	8	<0.1	30	70	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP217	0-0.1	Topsoil/Silty clay	<8	<0.4	9	22	10	<0.1	25	110	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP301	0-0.1	F: Silty clay	<4	<0.4	17	14	8	<0.1	20	86	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP301	0.9-1	Silty clay	<4	<0.4	10	4	2	<0.1	15	29	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP302	0-0.1	F: Silty clay	<4	<0.4	8	21	14	<0.1	22	120	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP302	0.3-0.4	Basalt	<4	<0.4	4	11	3	<0.1	17	61	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP303	0-0.1	Topsoil/Silty clay	<4	<0.4	19	11	12	<0.1	20	62	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP303	0.1-0.2	Silty clay	<4	<0.4	19	12	12	<0.1	20	62	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP304	0-0.1	Silty clay	<4	<0.4	27	12	8	<0.1	13	35	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP304 - [LAB_DUP]	0-0.1	Silty clay	<4	<0.4	28	11	9	<0.1	14	38	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP305	0-0.1	Silty clay	<4	<0.4	24	14	10	<0.1	12	47	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP306	0-0.1	Silty clay	<4	<0.4	21	13	15	<0.1	13	62	0.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP307	0-0.1	F: Silty clay	<4	<0.4	18	14	8	<0.1	22	76	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP308	0-0.1	Topsoil/Silty clay	<4	<0.4	27	16	13	0.1	31	50	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP308	0.4-0.5	Silty clay	<4	<0.4	34	14	5	0.1	19	31	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP309	0-0.1	Topsoil/Silty clay	<4	<0.4	16	21	10	<0.1	13	80	0.67	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP309	0.4-0.5	Silty clay	<4	<0.4	15	10	6	<0.1	11	28	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP310	0-0.1	Topsoil/Silty clay	<4	<0.4	16	12	9	<0.1	15	57	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP311	0-0.1	Silty clay	<4	<0.4	15	14	6	<0.1	12	46	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP312	0-0.1	Topsoil/Silty clay	<4	<0.4	19	10	8	<0.1	14	44	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected	
TP312 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	<4	<0.4	19	12	7	<0.1	16	44	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	
TP312	0.4-0.5	Silty clay	<4	<0.4	21	14	6	<0.1	15	46	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TP313	0-0.1	Topsoil/Silty clay	<4	<0.4	21	12	11	0.1	23	42	<0.0												

TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₂₄ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					HSL-C: RECREATIONAL							
Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category								
TP201	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP201 - [LAB_DUP]	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
TP202	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.3
TP203	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.5
TP204	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.5
TP205	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.4
TP206	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.5
TP207	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
TP208	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP209	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.8
TP210	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.4
TP210	0.5-0.6	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
BH211	0-0.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH211 - [LAB_DUP]	0-0.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH212	0.05-0.2	F: Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH214	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH215	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP216	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.7
TP216 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
TP217	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.6
TP301	0-0.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.2
TP301	0.9-1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.2
TP302	0-0.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.8
TP302	0.3-0.4	Basalt	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.3
TP303	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.7
TP303	0.1-0.2	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.8
TP304	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.2
TP304 - [LAB_DUP]	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.2
TP305	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.2
TP306	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
TP307	0-0.1	F: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
TP308	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
TP308	0.4-0.5	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.7
TP309	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.5
TP309	0.4-0.5	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.5
TP310	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.6
TP311	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP312	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP312 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP312	0.4-0.5	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1
TP313	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.8
TP314	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1
TP315	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.5
TP315	0.3-0.4	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.4
Creek1	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
Creek2	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
Creek2 - [LAB_DUP]	0-0.1	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUPA	TP204 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
SDUPB	TP210 (0.5-0.6m)	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
SDUPB - [LAB_DUP]	TP210 (0.5-0.6m)	Silty clay	0m to <1m	Sand	NA	NA	<0.5	<0.2	<0.5	NA	<1	-
SDUP301	TP313 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP302	TP310 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP302 - [LAB_DUP]	TP310 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	NA	NA	<0.5	<0.2	<0.5	NA	<1	-
Total Number of Samples					51	51	53	53	53	51	53	44
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	5.5

Concentration above the SAC

VALUE

Concentration above the PQL

Bold

The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA
HSL SOIL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₂₄ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
TP201	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP201 - [LAB_DUP]	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP202	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP203	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP204	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP205	0-0.2	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP206	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP207	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP208	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP209	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP210	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP210	0.5-0.6	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
BH211	0-0.1	F: Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
BH211 - [LAB_DUP]	0-0.1	F: Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
BH212	0.05-0.2	F: Gravel	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
BH214	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
BH215	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP216	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP216 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP217	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP301	0-0.1	F: Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP301	0.9-1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP302	0-0.1	F: Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP302	0.3-0.4	Basalt	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP303	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP303	0.1-0.2	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP304	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP304 - [LAB_DUP]	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP305	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP306	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP307	0-0.1	F: Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP308	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP308	0.4-0.5	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP309	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP309	0.4-0.5	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP310	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP310	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP311	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP312	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP312 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP312	0.4-0.5	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP313	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP314	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP315	0-0.1	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
TP315	0.3-0.4	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
Creek1	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
Creek2	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
Creek2 - [LAB_DUP]	0-0.1	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
SDUPA	TP204 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
SDUPB	TP210 (0.5-0.6m)	Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
SDUPB - [LAB_DUP]	TP210 (0.5-0.6m)	Silty clay	0m to <1m	Sand	NA	NA	NL	NL	NL	NA	NL
SDUPB301	TP213 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
SDUP302	TP310 (0-0.1m)	Topsoil/Silty clay	0m to <1m	Sand	NL	NL	NL	NL	NL	NL	NL
SDUP302 - [LAB_DUP]	TP310 (0-0.1m)	Topsoil/Siltv clay	0m to <1m	Sand	NA	NA	NL	NL	NL	NA	NL

TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C ₁₅ -C ₁₆ (F1) plus BTX	>C ₁₅ -C ₁₆ (F2) plus naphthalene	>C ₁₅ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)
PQL - Envirolabs Services			25	50	100	100
NEPM 2013 Land Use Category			RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE			
Sample Reference	Sample Depth	Soil Texture				
TP201	0-0.2	Fine	<25	<50	<100	<100
TP201 - [LAB_DUP]	0-0.2	Fine	<25	<50	<100	<100
TP202	0-0.1	Fine	<25	<50	<100	<100
TP203	0-0.1	Fine	<25	<50	180	120
TP204	0-0.1	Fine	<25	<50	<100	130
TP205	0-0.2	Fine	<25	<50	<100	<100
TP206	0-0.1	Fine	<25	<50	<100	<100
TP207	0-0.1	Fine	<25	<50	<100	<100
TP208	0-0.1	Fine	<25	<50	110	<100
TP209	0-0.1	Fine	<25	<50	<100	<100
TP210	0-0.1	Fine	<25	<50	<100	<100
TP210	0.5-0.6	Fine	<25	<50	<100	<100
BH211	0-0.1	Fine	<25	<50	100	<100
BH211 - [LAB_DUP]	0-0.1	Fine	<25	<50	150	110
BH212	0.05-0.2	Coarse	<25	<50	<100	<100
BH214	0-0.1	Fine	<25	<50	<100	<100
BH215	0-0.1	Fine	<25	<50	<100	<100
TP216	0-0.1	Fine	<25	<50	<100	<100
TP216 - [LAB_DUP]	0-0.1	Fine	<25	<50	<100	<100
TP217	0-0.1	Fine	<25	<50	<100	<100
TP301	0-0.1	Fine	<25	<50	<100	<100
TP301	0.9-1	Fine	<25	<50	<100	<100
TP302	0-0.1	Fine	<25	<50	<100	<100
TP302	0.3-0.4	Fine	<25	<50	<100	<100
TP303	0-0.1	Fine	<25	<50	<100	<100
TP303	0.1-0.2	Fine	<25	<50	<100	<100
TP304	0-0.1	Fine	<25	<50	<100	<100
TP304 - [LAB_DUP]	0-0.1	Fine	<25	<50	<100	<100
TP305	0-0.1	Fine	<25	<50	<100	<100
TP306	0-0.1	Fine	<25	<50	<100	<100
TP307	0-0.1	Fine	<25	<50	<100	<100
TP308	0-0.1	Fine	<25	<50	<100	<100
TP308	0.4-0.5	Fine	<25	<50	<100	<100
TP309	0-0.1	Fine	<25	<50	260	160
TP309	0.4-0.5	Fine	<25	<50	<100	<100
TP310	0-0.1	Fine	<25	<50	<100	<100
TP311	0-0.1	Fine	<25	<50	<100	<100
TP312	0-0.1	Fine	<25	<50	<100	<100
TP312 - [LAB_DUP]	0-0.1	Fine	<25	<50	<100	<100
TP312	0.4-0.5	Fine	<25	<50	<100	<100
TP313	0-0.1	Fine	<25	<50	<100	<100
TP314	0-0.1	Fine	<25	<50	<100	<100
TP315	0-0.1	Fine	<25	<50	<100	<100
TP315	0.3-0.4	Fine	<25	<50	<100	<100
Creek1	0-0.1	Fine	<25	<50	<100	<100
Creek2	0-0.1	Fine	<25	<50	<100	<100
Creek2 - [LAB_DUP]	0-0.1	Fine	<25	<50	<100	<100
SDUPA	TP204 (0-0.1m)	Fine	<25	<50	140	<100
SDUPB	TP210 (0.5-0.6m)	Fine	<25	<50	<100	<100
SDUPB - [LAB_DUP]	TP210 (0.5-0.6m)	Fine	<25	<50	<100	<100
SDUP301	TP313 (0-0.1m)	Fine	<25	<50	<100	<100
SDUP302	TP310 (0-0.1m)	Fine	<25	<50	<100	<100
SDUP302 - [LAB_DUP]	TP310 (0-0.1m)	Fine	<25	<50	<100	<100
Total Number of Samples			53	53	53	53
Maximum Value			<PQL	<PQL	260	160
Concentration above the SAC			VALUE			
Concentration above the PQL			Bold			

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Soil Texture	C ₁₅ -C ₁₆ (F1) plus BTX	>C ₁₅ -C ₁₆ (F2) plus naphthalene	>C ₁₅ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)
TP201	0-0.2	Fine	700	1000	2500	10000
TP201 - [LAB_DUP]	0-0.2	Fine	700	1000	2500	10000
TP202	0-0.1	Fine	700	1000	2500	10000
TP203	0-0.1	Fine	700	1000	2500	10000
TP204	0-0.1	Fine	700	1000	2500	10000
TP205	0-0.2	Fine	700	1000	2500	10000
TP206	0-0.1	Fine	700	1000	2500	10000
TP207	0-0.1	Fine	700	1000	2500	10000
TP208	0-0.1	Fine	700	1000	2500	10000
TP209	0-0.1	Fine	700	1000	2500	10000
TP210	0-0.1	Fine	700	1000	2500	10000
TP210	0.5-0.6	Fine	700	1000	2500	10000
BH211	0-0.1	Fine	700	1000	2500	10000
BH211 - [LAB_DUP]	0-0.1	Fine	700	1000	2500	10000
BH212	0.05-0.2	Coarse	700	1000	2500	10000
BH214	0-0.1	Fine	700	1000	2500	10000
BH215	0-0.1	Fine	700	1000	2500	10000
TP216	0-0.1	Fine	700	1000	2500	10000
TP216 - [LAB_DUP]	0-0.1	Fine	700	1000	2500	10000
TP217	0-0.1	Fine	700	1000	2500	10000
TP301	0-0.1	Fine	700	1000	2500	10000
TP301	0.9-1	Fine	700	1000	2500	10000
TP302	0-0.1	Fine	700	1000	2500	10000
TP302	0.3-0.4	Fine	700	1000	2500	10000
TP303	0-0.1	Fine	700	1000	2500	10000
TP303	0.1-0.2	Fine	700	1000	2500	10000
TP304	0-0.1	Fine	700	1000	2500	10000
TP304 - [LAB_DUP]	0-0.1	Fine	700	1000	2500	10000
TP305	0-0.1	Fine	700	1000	2500	10000
TP306	0-0.1	Fine	700	1000	2500	10000
TP307	0-0.1	Fine	700	1000	2500	10000
TP308	0-0.1	Fine	700	1000	2500	10000
TP308	0.4-0.5	Fine	700	1000	2500	10000
TP309	0-0.1	Fine	700	1000	2500	10000
TP309	0.4-0.5	Fine	700	1000	2500	10000
TP310	0-0.1	Fine	700	1000	2500	10000
TP311	0-0.1	Fine	700	1000	2500	10000
TP312	0-0.1	Fine	700	1000	2500	10000
TP312 - [LAB_DUP]	0-0.1	Fine	700	1000	2500	10000
TP312	0.4-0.5	Fine	700	1000	2500	10000
TP313	0-0.1	Fine	700	1000	2500	10000
TP314	0-0.1	Fine	700	1000	2500	10000
TP315	0-0.1	Fine	700	1000	2500	10000
TP315	0.3-0.4	Fine	700	1000	2500	10000
Creek1	0-0.1	Fine	700	1000	2500	10000
Creek2	0-0.1	Fine	700	1000	2500	10000
Creek2 - [LAB_DUP]	0-0.1	Fine	700	1000	2500	10000
SDUPA	TP204 (0-0.1m)	Fine	700	1000	2500	10000
SDUPB	TP210 (0.5-0.6m)	Fine	700	1000	2500	10000
SDUPB - [LAB_DUP]	TP210 (0.5-0.6m)	Fine	700	1000	2500	10000
SDUP301	TP313 (0-0.1m)	Fine	700	1000	2500	10000
SDUP302	TP310 (0-0.1m)	Fine	700	1000	2500	10000
SDUP302 - [LAB_DUP]	TP310 (0-0.1m)	Fine	700	1000	2500	10000

TABLE S4 SOIL LABORATORY RESULTS COMPARED TO DIRECT CONTACT CRITERIA All data in mg/kg unless stated otherwise											
Analyte		C ₆ -C ₁₀	>C ₁₀ -C ₁₆	>C ₁₆ -C ₃₄	>C ₃₄ -C ₄₀	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 - Direct contact Criteria		82,000	62,000	85,000	120,000	1,100	120,000	85,000	130,000	29,000	
Site Use		Intrusive Maintenance Worker - DIRECT SOIL CONTACT									
Sample Reference	Sample Depth										
TP201	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2
TP201 - [LAB_DUP]	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
TP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.3
TP203	0-0.1	<25	<50	180	120	<0.2	<0.5	<1	<1	<1	1.5
TP204	0-0.1	<25	<50	<100	130	<0.2	<0.5	<1	<1	<1	5.5
TP205	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.4
TP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	4.5
TP207	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.1
TP208	0-0.1	<25	<50	110	<100	<0.2	<0.5	<1	<1	<1	0
TP209	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.8
TP210	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.4
TP210	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3
BH211	0-0.1	<25	<50	100	<100	<0.2	<0.5	<1	<1	<1	0
BH211 - [LAB_DUP]	0-0.1	<25	<50	150	110	<0.2	<0.5	<1	<1	<1	0
BH212	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH214	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH215	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP216	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.7
TP216 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
TP217	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	2.6
TP301	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.2
TP301	0.9-1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	2.2
TP302	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.8
TP302	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	2.3
TP303	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.7
TP303	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.8
TP304	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.2
TP304 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.2
TP305	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.2
TP306	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3
TP307	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.1
TP308	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3
TP308	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.7
TP309	0-0.1	<25	<50	260	160	<0.2	<0.5	<1	<1	<1	0.5
TP309	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.5
TP310	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.6
TP311	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2
TP312	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2
TP312 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2
TP312	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1
TP313	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.8
TP314	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1
TP315	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.5
TP315	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	1.4
Creek1	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
Creek2	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
Creek2 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUPA	TP204 (0-0.1m)	<25	<50	140	<100	<0.2	<0.5	<1	<1	<1	0.3
SDUPB	TP210 (0.5-0.6m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.2
SDUPB - [LAB_DUP]	TP210 (0.5-0.6m)	NA	NA	<100	<100	<0.5	<0.2	<0.5	NA	<1	-
SDUP301	TP313 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP302	TP310 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP302 - [LAB_DUP]	TP310 (0-0.1m)	NA	NA	<100	<100	<0.5	<0.2	<0.5	NA	<1	-
Total Number of Samples		51	51	53	53	53	53	53	51	53	44
Maximum Value		<PQL	<PQL	260	160	<PQL	<PQL	<PQL	<PQL	<PQL	5.5
Concentration above the SAC		VALUE									
Concentration above the PQL		Bold									

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-C:Public open space; secondary schools; and footpaths

FIELD DATA															LABORATORY DATA											
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample reference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation % (w/w)	FA and AF Estimation % (w/w)
SAC			No				0.02			0.001			0.001		0.02										0.001	
19/05/2025	TP201	0-0.2	No	10	10,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP201	0-0.2	311.99	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP202	0-0.1	No	10	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP202	0-0.1	348.61	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP203	0-0.1	No	<10	9,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP203	0-0.1	147.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP204	0-0.1	No	10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP204	0-0.1	368.97	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	TP204	0.5-0.6	235.49	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
19/05/2025	TP205	0-0.2	No	10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP205	0-0.2	592.94	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP206	0-0.1	No	<10	9,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP206	0-0.1	315.93	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
21/05/2025	TP207	0-0.1	No	10	10,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP207	0-0.1	231.73	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
21/05/2025	TP208	0-0.1	No	<10	9,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP208	0-0.1	157.19	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
19/05/2025	TP209	0-0.1	No	<10	9,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP209	0-0.1	413.79	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP210	0-0.1	No	<10	9,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP210	0-0.1	299.67	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	BH211	0-0.1	214.16	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	BH212	0.05-0.2	995.23	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	BH214	0-0.1	315.82	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	BH215	0-0.1	340.46	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP216	0-0.1	No	<10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP216	0-0.1	465.78	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
20/05/2025	TP217	0-0.1	No	<10	9,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP217	0-0.1	334.19	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP301	0-0.1	No	10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP301	0-0.1	572.12	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP301	0.1-0.3	NA	10	10,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/05/2025	TP302	0-0.1	No	10	10,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP302	0-0.1	522.41	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP302	0.1-0.3	NA	10	10,560	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/05/2025	TP303	0-0.1	No	10	10,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP303	0-0.1	331.52	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
28/05/2025	TP304	0-0.1	No	10	10,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP304	0-0.1	293.65	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	TP305	0-0.1	305.93	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	382348	TP306	0-0.1	237.56	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
28/05/2025	TP307	0-0.1	No	10	10,560	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP307	0-0.1	599.24	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP308	0-0.1	No	10	10,330	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP308	0-0.1	342.31	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP309	0-0.1	No	10	11,260	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP309	0-0.1	205.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP310	0-0.1	No	10	11,450	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP310	0-0.1	332.09	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/05/2025	TP312	0-0.1	No	10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP312	0-0.1	322.9	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP313	0-0.1	No	10	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP313	0-0.1	251.39	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP314	0-0.1	No	10	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP314	0-0.1	308.35	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
27/05/2025	TP315	0-0.1	No	10	10,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	382348	TP315	0-0.1	265.21	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
Concentration above the SAC			VALUE																							

TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																				
				pH	CEC (cmolc/kg)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs									
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C ₁₀ -C ₁₃ (F1)	>C ₁₀ -C ₁₄ (F2)	>C ₁₅ -C ₁₈ (F3)	>C ₁₉ -C ₂₅ (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P	
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100		0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	8	18	104	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	Sample Depth	Sample Description	Soil Texture																					
TP201	0-0.2	Topsoil/Silty clay	Fine	NA	NA	NA	<4	14	11	7	12	54	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP201 - [LAB_DUP]	0-0.2	Topsoil/Silty clay	Fine	NA	NA	NA	<4	13	9	7	17	56	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP202	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	21	9	18	15	70	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP203	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	13	19	15	14	150	<1	<0.1	<25	<50	180	120	<0.2	<0.5	<1	<1	0.1	
TP204	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	4	26	24	21	31	77	<1	<0.1	<25	<50	<100	130	<0.2	<0.5	<1	<1	<0.05	
TP205	0-0.2	Topsoil/Silty clay	Fine	NA	NA	NA	<4	41	17	8	29	55	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP206	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	12	18	20	19	100	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP207	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	10	19	25	22	130	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP208	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	25	13	11	15	49	<1	<0.1	<25	<50	110	<100	<0.2	<0.5	<1	<1	<0.05	
TP209	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	25	11	10	21	73	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP210	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	10	17	10	17	100	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP210	0.5-0.6	Silty clay	Fine	NA	NA	NA	<4	7	14	6	18	65	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
BH211	0-0.1	F: Silty clay	Fine	NA	NA	NA	<4	14	17	10	10	110	<1	<0.1	<25	<50	100	<100	<0.2	<0.5	<1	<1	<0.05	
BH211 - [LAB_DUP]	0-0.1	F: Silty clay	Fine	NA	NA	NA	<4	13	16	10	8	100	<1	<0.1	<25	<50	150	110	<0.2	<0.5	<1	<1	<0.05	
BH212	0.05-0.2	F: Gravel	Coarse	NA	NA	NA	<4	6	17	4	21	60	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
BH214	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	28	21	20	24	140	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	0.06	
BH215	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	9	18	9	23	120	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP216	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	26	15	8	29	73	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP216 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	28	15	8	30	70	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP217	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<8	9	22	10	25	110	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP301	0-0.1	F: Silty clay	Fine	NA	NA	NA	<4	17	14	8	20	86	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP301	0.9-1	Silty clay	Fine	NA	NA	NA	<4	10	4	2	15	29	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP302	0-0.1	F: Silty clay	Fine	NA	NA	NA	<4	8	21	14	22	120	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP302	0.3-0.4	Basalt	Fine	NA	NA	NA	<4	4	11	3	17	61	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP303	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	19	11	12	20	62	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP303	0.1-0.2	Silty clay	Fine	NA	NA	NA	<4	19	12	12	20	62	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP304	0-0.1	Silty clay	Fine	NA	NA	NA	<4	27	12	8	13	35	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP304 - [LAB_DUP]	0-0.1	Silty clay	Fine	NA	NA	NA	<4	28	11	9	14	38	<1	<0.1	<25	<50	38	9	<100	<0.2	<0.5	<1	<1	<0.05
TP305	0-0.1	Silty clay	Fine	NA	NA	NA	<4	24	14	10	12	47	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP306	0-0.1	Silty clay	Fine	NA	NA	NA	<4	21	13	15	13	62	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	0.07	
TP307	0-0.1	F: Silty clay	Fine	NA	NA	NA	<4	18	14	8	22	76	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP308	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	27	16	13	31	50	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP308	0.4-0.5	Silty clay	Fine	NA	NA	NA	<4	34	14	5	19	31	<1	NA	<25	<50	31	NA	<100	<0.2	<0.5	<1	<1	<0.05
TP309	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	16	21	10	13	80	<1	<0.1	<25	<50	260	160	<0.2	<0.5	<1	<1	0.2	
TP309	0.4-0.5	Silty clay	Fine	NA	NA	NA	<4	15	10	6	11	28	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP310	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	16	12	9	15	57	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP311	0-0.1	Silty clay	Fine	NA	NA	NA	<4	15	14	6	12	46	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP312	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	19	10	8	14	44	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP312 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	19	12	7	16	44	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP312	0.4-0.5	Silty clay	Fine	NA	NA	NA	<4	21	14	6	15	46	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP313	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	21	12	11	23	42	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP314	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	28	12	8	14	41	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP315	0-0.1	Topsoil/Silty clay	Fine	NA	NA	NA	<4	25	17	12	13	53	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
TP315	0.3-0.4	Silty clay	Fine	NA	NA	NA	<4	25	10	9	14	39	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
Creek1	0-0.1	Silty clay	Fine	NA	NA	NA	<4	30	13	10	23	90	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
Creek2	0-0.1	Silty clay	Fine	NA	27	NA	<4	41	19	9	39	79	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
Creek2 - [LAB_DUP]	0-0.1	Silty clay	Fine	NA	NA	NA	<4	32	16	9	29	73	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
SDUPA	TP204 (0-0.1m)	Topsoil/Silty clay	Fine	NA	NA	NA	<4	22	19	14	22	61	<1	<0.1	<25	<50	140	<100	<0.2	<0.5	<1	<1	<0.05	
SDUP8	TP210 (0.5-0.6m)	Silty clay	Fine	NA	NA	NA	<4	8.4	18	5.6	24	90	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
SDUP8 - [LAB_DUP]	TP210 (0.5-0.6m)	Silty clay	Fine	NA	NA	NA	12.3	8.96	21.8	5.82	29.3	89.6	<1	NA	NA	NA	<100	<100	<0.5	<0.2	<0.5	NA	<0.05	
SDUP301	TP313 (0-0.1m)	Topsoil/Silty clay	Fine	NA	NA	NA	<4	21	13	11	25	44	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
SDUP302	TP310 (0-0.1m)	Topsoil/Silty clay	Fine	NA	NA	NA	<4	16	13	9	15	53	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05	
SDUP302 - [LAB_DUP]	TP310 (0-																							

TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS							PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES	
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C ₆ -C ₉	C ₁₀ -C ₁₄	C ₁₅ -C ₂₈	C ₂₉ -C ₃₆	Total C ₁₀ -C ₃₆	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650	NSL			10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650	NSL			10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600	NSL			40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600	NSL			40,000	72	2,073	4,320	7,200	-
Sample Reference	Sample Depth	Sample Description																									
TP201	0-0.2	Topsoil/Silty clay	<4	<0.4	14	11	7	<0.1	12	54	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP201 - [LAB_DUP]	0-0.2	Topsoil/Silty clay	<4	<0.4	13	9	7	<0.1	17	56	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP202	0-0.1	Topsoil/Silty clay	<4	<0.4	21	9	18	<0.1	15	70	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP203	0-0.1	Topsoil/Silty clay	<4	0.5	13	19	15	<0.1	14	150	0.6	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	160	160	<0.2	<0.5	<1	<1	Not Detected
TP204	0-0.1	Topsoil/Silty clay	4	1	26	24	21	0.1	31	77	0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	65	<100	120	185	<0.2	<0.5	<1	<1	Not Detected
TP205	0-0.2	Topsoil/Silty clay	<4	<0.4	41	17	8	<0.1	29	55	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP206	0-0.1	Topsoil/Silty clay	<4	<0.4	12	18	20	<0.1	19	100	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP207	0-0.1	Topsoil/Silty clay	<4	0.4	10	19	25	<0.1	22	130	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP208	0-0.1	Topsoil/Silty clay	<4	0.5	25	13	11	<0.1	15	49	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP209	0-0.1	Topsoil/Silty clay	<4	<0.4	25	11	10	<0.1	21	73	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP210	0-0.1	Topsoil/Silty clay	<4	<0.4	10	17	10	<0.1	17	100	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP210	0.5-0.6	Silty clay	<4	<0.4	7	14	6	<0.1	18	65	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH211	0-0.1	F: Silty clay	<4	<0.4	14	17	10	<0.1	10	110	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	100	100	<0.2	<0.5	<1	<1	Not Detected
BH211 - [LAB_DUP]	0-0.1	F: Silty clay	<4	<0.4	13	16	10	<0.1	8	100	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	150	150	<0.2	<0.5	<1	<1	NA
BH212	0.05-0.2	F: Gravel	<4	<0.4	6	17	4	<0.1	21	60	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH214	0-0.1	Topsoil/Silty clay	<4	<0.4	28	21	20	<0.1	24	140	0.2	0.06	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH215	0-0.1	Topsoil/Silty clay	<4	<0.4	9	18	9	<0.1	23	120	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP216	0-0.1	Topsoil/Silty clay	<4	<0.4	26	15	8	<0.1	29	73	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP216 - [LAB_DUP]	0-0.1	Topsoil/Silty clay	<4	0.7	28	15	8	<0.1	30	70	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP217	0-0.1	Topsoil/Silty clay	<8	<0.4	9	22	10	<0.1	25	110	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP301	0-0.1	F: Silty clay	<4	<0.4	17	14	8	<0.1	20	86	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP301	0.9-1	Silty clay	<4	<0.4	10	4	2	<0.1	15	29	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP302	0-0.1	F: Silty clay	<4	<0.4	8	21	14	<0.1	22	120	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP302	0.3-0.4	Basalt	<4	<0.4	4	11	3	<0.1	17	61	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP303	0-0.1	Topsoil/Silty clay	<4	<0.4	19	11	12	<0.1	20	62	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP303	0.1-0.2	Silty clay	<4	<0.4	19	12	12	<0.1	20	62	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP304	0-0.1	Silty clay	<4	<0.4	27	12	8	<0.1	13	35	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP304 - [LAB_DUP]	0-0.1	Silty clay	<4	<0.4	28	11	9	<0.1	14	38	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP305	0-0.1	Silty clay	<4	<0.4	24	14	10	<0.1	12	47	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP306	0-0.1	Silty clay	<4	<0.4	21	13	15	<0.1	13	62	0.3	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP307	0-0.1	F: Silty clay	<4	<0.4	18																						

TABLE Q1
SOIL QA/QC SUMMARY[illegible]

Result outside of QA/QC acceptance criteria

Rinsate metals results in mg/l

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG:	Australian Drinking Water Guidelines	PCBs:	Polychlorinated Biphenyls
ANZG	Australian and New Zealand Guidelines	PCE:	Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
B(a)P:	Benzo(a)pyrene	PQL:	Practical Quantitation Limit
CRC:	Cooperative Research Centre	RS:	Rinsate Sample
ESLs:	Ecological Screening Levels	RSL:	Regional Screening Levels
GIL:	Groundwater Investigation Levels	SAC:	Site Assessment Criteria
HILs:	Health Investigation Levels	SSA:	Site Specific Assessment
HSLs:	Health Screening Levels	SSHSLs	Site Specific Health Screening Levels
HSL-SSA:	Health Screening Level-Site Specific Assessment	TB:	Trip Blank
NA:	Not Analysed	TCA:	1,1,1 Trichloroethane (methyl chloroform)
NC:	Not Calculated	TCE:	Trichloroethylene (Trichloroethene)
NEPM:	National Environmental Protection Measure	TS:	Trip Spike
NHMRC:	National Health and Medical Research Council	TRH:	Total Recoverable Hydrocarbons
NL:	Not Limiting	UCL:	Upper Level Confidence Limit on Mean Value
NSL:	No Set Limit	USEPA	United States Environmental Protection Agency
OCP:	Organochlorine Pesticides	VOCC:	Volatile Organic Chlorinated Compounds
OPP:	Organophosphorus Pesticides	WHO:	World Health Organisation
PAHs:	Polycyclic Aromatic Hydrocarbons		
ppm:	Parts per million		

TABLE G1 SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC All results in µg/L unless stated otherwise.													
	PQL Envirolab Services	ANZG 2018 Fresh Waters	SAMPLES										
			MW62	MW62 - [LAB_DUP]	MW206	MW206 - [LAB_DUP]	MW212	MW212 - [LAB_DUP]	MW214	MW214 - [LAB_DUP]	Creek1	GWDUP301	GWDUP302
Inorganic Compounds and Parameters													
pH		6.5 - 8.5	7.1	[NT]	7.3	[NT]	7.4	[NT]	7.1	[NT]	6.6	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	1400	[NT]	340	[NT]	1200	[NT]	3700	[NT]	210	NA	NA
Turbidity (NTU)		NSL	<0.1	[NT]	420	[NT]	540	[NT]	0.1	[NT]	550	NA	NA
Metals and Metalloids													
Arsenic (As III)	1	24	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Cadmium	0.1	0.2	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	[NT]
Chromium (SAC for Cr III adopted)	1	3.3	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Copper	1	1.4	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Lead	1	3.4	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Total Mercury (inorganic)	0.05	0.06	<0.05	[NT]	<0.05	<0.05	<0.05	[NT]	<0.05	[NT]	<0.05	<0.05	[NT]
Nickel	1	11	<1	<1	2	[NT]	3	[NT]	2	[NT]	4	<1	[NT]
Zinc	1	8	<1	<1	1	[NT]	8	[NT]	<1	[NT]	2	<1	[NT]
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)													
Benzene	1	950	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
Toluene	1	180	<1	[NT]	<1	[NT]	3	[NT]	<1	<1	9	<1	<1
Ethylbenzene	1	80	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
m+p-xylene	2	75	<2	[NT]	<2	[NT]	<2	[NT]	3	2	<2	<2	<2
o-xylene	1	350	<1	[NT]	<1	[NT]	<1	[NT]	3	3	<1	<1	<1
Total xylenes	2	NSL	<2	[NT]	<2	[NT]	<2	[NT]	6	5	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)													
Naphthalene	0.2	16	<0.1	<0.1	0.1	[NT]	<0.1	[NT]	0.4	[NT]	<0.1	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.1	[NT]	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.3	[NT]	<0.1	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Organochlorine Pesticides (OCPs)													
alpha-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
HCB	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
beta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
delta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor	0.2	0.01	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor Epoxide	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Aldrin	0.2	0.001	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Dieldrin	0.2	0.01	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-Chlordane	0.2	0.03	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
alpha-Chlordane	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan I	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan II	0.2	0.03	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan Sulphate	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
DDT	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDD	0.2	0.006	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDE	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin	0.2	0.01	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin Aldehyde	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Methoxy-chlor	0.2	0.005	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Concentration above the SAC													
Concentration above the PQL													
GIL >PQL													

TABLE G2 SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO HUMAN CONTACT GILS All results in µg/L unless stated otherwise.													
	PQL Envirolab Services	Recreational (10 x NHMRC ADWG)	SAMPLES										
			MW62	MW62 - [LAB_DUP]	MW206	MW206 - [LAB_DUP]	MW212	MW212 - [LAB_DUP]	MW214	MW214 - [LAB_DUP]	Creek1	GWDUP301	GWDUP302
Inorganic Compounds and Parameters													
pH		6.5 - 8.5	7.1	[NT]	7.3	[NT]	7.4	[NT]	7.1	[NT]	6.6	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	1400	[NT]	340	[NT]	1200	[NT]	3700	[NT]	210	NA	NA
Turbidity (NTU)		NSL	<0.1	[NT]	420	[NT]	540	[NT]	0.1	[NT]	550	NA	NA
Metals and Metalloids													
Arsenic (As III)	1	100	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Cadmium	0.1	20	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	[NT]
Chromium (total)	1	500	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Copper	1	20000	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Lead	1	100	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Total Mercury (inorganic)	0.05	10	<0.05	[NT]	<0.05	<0.05	<0.05	[NT]	<0.05	[NT]	<0.05	<0.05	[NT]
Nickel	1	200	<1	<1	2	[NT]	3	[NT]	2	[NT]	4	<1	[NT]
Zinc	1	30000	<1	<1	1	[NT]	8	[NT]	<1	[NT]	2	<1	[NT]
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)													
Benzene	1	10	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
Toluene	1	8000	<1	[NT]	<1	[NT]	3	[NT]	<1	<1	9	<1	<1
Ethylbenzene	1	3000	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
m+p-xylene	2	NSL	<2	[NT]	<2	[NT]	<2	[NT]	3	2	<2	<2	<2
o-xylene	1	NSL	<1	[NT]	<1	[NT]	<1	[NT]	3	3	<1	<1	<1
Total xylenes	2	6000	<2	[NT]	<2	[NT]	<2	[NT]	6	5	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)													
Naphthalene	0.2	NSL	<0.1	<0.1	0.1	[NT]	<0.1	[NT]	0.4	[NT]	<0.1	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.1	[NT]	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.3	[NT]	<0.1	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Organochlorine Pesticides (OCPs)													
alpha-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
HCB	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
beta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
delta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor	0.2	3	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor Epoxide	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Aldrin	0.2	3	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Dieldrin	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-Chlordane	0.2	20	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
alpha-Chlordane	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan I	0.2	200	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan II	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan Sulphate	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
DDT	0.2	90	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDD	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDE	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin Aldehyde	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Methoxychlor	0.2	3,000	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Concentration above the SAC Concentration above the PQL GIL >PQL													
	VALUE												
	Bold												
	Red												

TABLE G3
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO DRINKING WATER GILS
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NHMRC ADWG 2011	SAMPLES										
			MW62	MW62 - [LAB_DUP]	MW206	MW206 - [LAB_DUP]	MW212	MW212 - [LAB_DUP]	MW214	MW214 - [LAB_DUP]	Creek1	GWDUP301	GWDUP302
Inorganic Compounds and Parameters													
pH		6.5 - 8.5	7.1	[NT]	7.3	[NT]	7.4	[NT]	7.1	[NT]	6.6	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	1400	[NT]	340	[NT]	1200	[NT]	3700	[NT]	210	NA	NA
Turbidity (NTU)		5	<0.1	[NT]	420	[NT]	540	[NT]	0.1	[NT]	550	NA	NA
Metals and Metalloids													
Arsenic (As III)	1	10	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Cadmium	0.1	2	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	[NT]
Chromium (total)	1	50	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Copper	1	2000	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Lead	1	10	<1	<1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	[NT]
Total Mercury (inorganic)	0.05	1	<0.05	[NT]	<0.05	<0.05	<0.05	[NT]	<0.05	[NT]	<0.05	<0.05	[NT]
Nickel	1	20	<1	<1	2	[NT]	3	[NT]	2	[NT]	4	<1	[NT]
Zinc	1	3000	<1	<1	1	[NT]	8	[NT]	<1	[NT]	2	<1	[NT]
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)													
Benzene	1	1	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
Toluene	1	800	<1	[NT]	<1	[NT]	3	[NT]	<1	<1	9	<1	<1
Ethylbenzene	1	300	<1	[NT]	<1	[NT]	<1	[NT]	<1	<1	<1	<1	<1
m+p-xylene	2	NSL	<2	[NT]	<2	[NT]	<2	[NT]	3	2	<2	<2	<2
o-xylene	1	NSL	<1	[NT]	<1	[NT]	<1	[NT]	3	3	<1	<1	<1
Total xylenes	2	600	<2	[NT]	<2	[NT]	<2	[NT]	6	5	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)													
Naphthalene	0.2	NSL	<0.1	<0.1	0.1	[NT]	<0.1	[NT]	0.4	[NT]	<0.1	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.1	[NT]	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	0.3	[NT]	<0.1	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.01	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	<0.1	<0.1	[NT]	<0.1	[NT]	<0.1	[NT]	<0.1	<0.1	<0.1
Organochlorine Pesticides (OCPs)													
alpha-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
HCB	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
beta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
delta-BHC	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor	0.2	0.3	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Heptachlor Epoxide	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Aldrin	0.2	0.3	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Dieldrin	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
gamma-Chlordane	0.2	2	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
alpha-Chlordane	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan I	0.2	20	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan II	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endosulfan Sulphate	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
DDT	0.2	9	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDD	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
pp-DDE	0.2		<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Endrin Aldehyde	0.2	NSL	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2
Methoxychlor	0.2	300	<0.2	<0.2	<0.2	[NT]	<0.2	[NT]	<0.2	[NT]	[NT]	<0.2	<0.2

Concentration above the SAC
Concentration above the PQL
GIL >PQL

VALUE

Bold

Red

TABLE G4 GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs All data in µg/L unless stated otherwise											
				C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services				10	50	1	1	1	2	1	
NEPM 2013 - Land Use Category				HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL							
Sample Reference	Water Depth	Depth Category	Soil Category								
MW62	6.78	4m to <8m	Clay	<10	<50	<1	<1	<1	<2	<1	0.1
MW62 - [LAB_DUP]	6.78	4m to <8m	Clay	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	NA
MW206	2.37	2m to <4m	Clay	12	110	<1	<1	<1	<2	<1	10.7
MW206 - [LAB_DUP]	2.37	2m to <4m	Clay	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	NA
MW212	4.93	4m to <8m	Clay	13	420	<1	3	<1	<2	<1	24.8
MW212 - [LAB_DUP]	4.93	4m to <8m	Clay	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	NA
MW214	3.29	2m to <4m	Clay	41	450	<1	<1	<1	<2	2	44.4
MW214 - [LAB_DUP]	3.29	2m to <4m	Clay	35	[NT]	<1	<1	<1	<2	2	NA
Creek1	surface	0m to <2m	Clay	11	<50	<1	9	<1	<2	<1	NA
GWDUP301	6.78	4m to <8m	Clay	<10	<50	<1	<1	<1	<2	<1	NA
GWDUP302	2.37	2m to <4m	Clay	12	120	<1	<1	<1	<2	<1	NA
Total Number of Samples				8	7	8	8	8	8	8	4
Maximum Value				41	450	<PQL	9	<PQL	<PQL	2	44.4
Concentration above the SAC				VALUE							
Site specific assesment (SSA) required				VALUE							
Concentration above the PQL				Bold							
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below											

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	Water Depth	Depth Category	Soil Category	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW62	6.78	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL
MW62 - [LAB_DUP]	6.78	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL
MW206	2.37	2m to <4m	Clay	NL	NL	5000	NL	NL	NL	NL
MW206 - [LAB_DUP]	2.37	2m to <4m	Clay	NL	NL	5000	NL	NL	NL	NL
MW212	4.93	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL
MW212 - [LAB_DUP]	4.93	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL
MW214	3.29	2m to <4m	Clay	NL	NL	5000	NL	NL	NL	NL
MW214 - [LAB_DUP]	3.29	2m to <4m	Clay	NL	NL	5000	NL	NL	NL	NL
Creek1	surface	0m to <2m	Clay	SSA	SSA	SSA	SSA	SSA	SSA	SSA
GWDUP301	6.78	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL
GWDUP302	2.37	2m to <4m	Clay	NL	NL	5000	NL	NL	NL	NL

TABLE Q2 GROUNDWATER QA/QC SUMMARY																																		
		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j,k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc	
	PQL Envirolab SYD	10	50	100	100	1	1	1	2	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1	1	
	PQL Envirolab VIC	10	50	100	100	1.0	1.0	1.0	2.0	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1	1	
Intra laboratory duplicate	MW62	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	<1	<1	
	GWDUP301	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	<1	<1	
	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	MW206	12	110	<100	<100	<1	<1	<1	<2	<1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	2	1	
	GWDUP302	12	120	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	
	MEAN	12	115	nc	nc	nc	nc	nc	nc	nc	0.1	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %	0%	9%	nc	nc	nc	nc	nc	nc	nc	0%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TB301 31/05/2025	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	<1	<1	
Field Rinsate	FR302-IP 31/05/2025	87	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	310	<1	<0.05	1	11	
Trip Spike	TS301 31/05/2025	-	-	-	-	110%	107%	102%	103%	105%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Result outside of QA/QC acceptance criteria		Value																																



Appendix C: Borehole / Test pit Logs

BOREHOLE LOG

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED HIGH SCHOOL
Location: 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 36314LT **Method:** SPIRAL AUGER **R.L. Surface:** 18.61 m
Date: 11/10/24 **Datum:** AHD
Plant Type: JK309 **Logged/Checked By:** A.G./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING									CH	TOPSOIL: Silty clay, high plasticity, dark brown, with root fibres. Silty CLAY: high plasticity, dark brown, with fine grained, brown and dark grey, rounded basalt gravel, fine grained ironstone gravel, fine grained, grey to light grey quartz gravel, and root fibres.	w>PL	St	110 120 140	SCREEN: 11.65kg 0-0.1m, NO FCF COLLUVIAL HP TESTING ON REMOULDED SAMPLE
					N = 13 3,5,8	18	1					Hd	440 400 500	ORGANIC ODOUR HP TESTING ON REMOULDED SAMPLE
					N = 14 4,7,7	17	2						600 590 >600	
										Gravelly silty CLAY: high plasticity, light brown, fine to coarse grained, dark grey, rounded to sub-rounded basalt gravel, trace of fine grained ironstone gravel.	w<PL		>600 >600 >600	RESIDUAL POSSIBLY COLLUVIAL
					N=SPT 10/ 150mm REFUSAL		3							
						15	4							VERY LOW 'TC' BIT RESISTANCE
						14	5							GROUNDWATER MONITORING WELL INSTALLED TO 11.29m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 7.0m TO 11.29m. CASING 0m TO 7.0m. 2mm SAND FILTER PACK 6.0m TO 11.29m. BENTONITE SEAL 0m TO 6.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GALVANISED MONUMENT.
						13	6							
						12			-	BASALT: fine grained, dark grey.	SW	H		LISMORE BASALT
										REFER TO CORED BOREHOLE LOG				HIGH RESISTANCE

CORED BOREHOLE LOG

Client: SCHOOL INFRASTRUCTURE NSW																		
Project: PROPOSED HIGH SCHOOL																		
Location: 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW																		
Job No.: 36314LT					Core Size: NMLC					R.L. Surface: 18.61 m								
Date: 11/10/24					Inclination: VERTICAL					Datum: AHD								
Plant Type: JK309					Bearing: N/A					Logged/Checked By: A.G./A.B.								
Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX I _s (50)						SPACING (mm)		DEFECT DETAILS		Formation
								VL-0.1	L-0.3	M-1	H-3	VH-10	EH	600	200	60	20	
ON 16/11/24 90% RETURN		12			START CORING AT 6.75m													
		7			BASALT: fine grained, dark grey.	SW	VH											
					NO CORE 0.18m	HW	VH											
					BASALT: fine grained, dark grey.	SW												
		11																
		8				HW	VL - L											
						FR	VH											
		10																
		9																
		9					MW											
					FR													
														</				



ENVIRONMENTAL LOG

Log No.
TP201
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: 22.07m					
Date: 19/5/25				Datum: AHD									
Plant Type: EXCAVATOR				Logged/Checked by: J.T./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE- TION						0			TOPSOIL: Silty clay, medium plasticity, dark brown, with fine to coarse grained sub-angular siltstone and basalt gravel, and root fibres.	w>PL			SCREEN: 10.3kg 0-0.2m, NO FCF
							CI	Gravelly silty CLAY: medium plasticity, grey, fine to coarse grained sub-rounded basalt gravel, trace of root fibres.	w>PL				COLLUVIAL
						0.5	GC	Silty clayey GRAVEL: orange brown and brown, fine to medium grained sand, trace of basalt gravel (some vesicles).					COLLUVIAL
						1			END OF TEST PIT AT 0.9m				
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP202

1/2

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: 13.56m						
Date: 20/5/25			Datum: AHD										
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			TOPSOIL: Silty clay, medium plasticity, dark grey, trace of fine grained sub-rounded basalt gravel, organics and root fibres.	w>PL			SCREEN: 11.1kg 0-0.1m, NO FCF
						0.5		CI	Silty CLAY: medium plasticity, dark grey, trace of basalt gravel, basalt cobbles and root fibres.	w>PL			ALLUVIAL
						1							
						1.5							
						2							
					2.5								
					3				Silty CLAY: medium plasticity, brown, fine to coarse grained sub-angular basalt and ferricrete gravel.	w≈PL			RESIDUAL
					3				Silty CLAY: medium plasticity, orange brown and grey, fine to coarse grained sub-angular basalt gravel and basalt cobbles.	w≈PL			RESIDUAL
					3.5			-	SILTSTONE: as below.				



ENVIRONMENTAL LOG

Log No.
TP202
2/2

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: 13.56m					
Date: 20/5/25								Datum: AHD					
Plant Type: EXCAVATOR				Logged/Checked by: J.T./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▶						4			SILTSTONE: light brown, moderately weathered, thinly laminated, with ferricrete bands, highly fractured.				
						4.5							
						5			END OF TEST PIT AT 4.7m				
						5.5							
						6							
						6.5							
						7							



ENVIRONMENTAL LOG

Log No.
TP203

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION														
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS														
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW														
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: 10.61m							
Date: 20/5/25			Datum: AHD											
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.											
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks	
	ES	ASS	ASB	SAL										DB
DRY ON COMPLE TION						0			TOPSOIL: Silty clay, medium plasticity, dark brown, with root fibres.	w>PL			SCREEN: 9.6kg (<10L)	
						0.5		CI-CH	Silty CLAY: medium to high plasticity, dark grey mottled orange brown, trace of ferricrete gravel and root fibres.	w>PL			0-0.1m, NO FCF ALLUVIAL	
						1								
						1.5								
						2								
						2.5		CI	Silty CLAY: medium plasticity, grey, trace of fine grained sub-rounded and sub-angular ferricrete and basalt gravel.	w≈PL			ALLUVIAL	
						3							SOUTHERN PIT WALL COLLAPSE AT 2.3m	
						3.5			END OF TEST PIT AT 3.4m					



ENVIRONMENTAL LOG

Log No.
TP204
1/1

Environmental logs are not to be used for geotechnical purposes

SDUPA: 0-0.1m

Client:DEPARTMENT OF EDUCATION

Project:NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS

Location:REDEVELOPMENT
163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.:E36314PT3

Date:20/5/25

Plant Type:EXCAVATOR

Method:TEST PIT

Logged/Checked by:J.T./B.P.

R.L. Surface:10.75m

Datum:AHD

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0		CI-CH	TOPSOIL: Silty clay, medium plasticity, dark brown, with organics and root fibres, trace of ash.	w>PL			SCREEN: 10.1kg 0-0.1m, NO FCF
							0.5			Silty CLAY: medium to high plasticity, grey mottled orange brown, trace of root fibres.	w>PL			ALLUVIAL
							1							
							1.5							
							2							
							2.5			Silty CLAY: medium plasticity, grey.	w≈PL			ALLUVIAL
							3							
							3.5			END OF TEST PIT AT 3.2m				NORTHERN AND SOUTHERN WALL COLLAPSE AT 2.3m



ENVIRONMENTAL LOG

Log No.
TP205

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION														
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS														
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW														
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: 29.32m						
Date: 19/5/25				Datum: AHD										
Plant Type: EXCAVATOR				Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks	
	ES	ASS	ASB	SAL										DB
DRY ON COMPLETION						0			TOPSOIL: Silty clay, medium plasticity, brown, with root fibres and organics, trace of sand.	w>PL			SCREEN: 10.1kg 0-0.2m, NO FCF	
						0.5	CI		Silty CLAY: medium plasticity, brown, with fine grained, sub-rounded and sub-angular siltstone and basalt gravel, trace of root fibres.	w>PL			COLLUVIAL	
						1			Silty CLAY: medium plasticity, brown and orange brown mottled grey, with fine to medium grained, sub-angular basalt gravel and fine to medium grained sand, trace of root fibres.	w>PL			RESIDUAL	
						1.5			Extremely Weathered tuff: sandy GRAVEL, medium to coarse grained, brown, red brown and grey, with low strength bands.	XW				
						2								
						2.5								
						2.9			BASALT: red brown, with fine to medium grained vesicles.	MW				
						3			END OF TEST PIT AT 2.9m					
						3.5								



ENVIRONMENTAL LOG

Log No.
TP206

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT			R.L. Surface: 17.80m							
Date: 20/5/25			Datum: AHD										
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			TOPSOIL: Clayey silt/Silty clay, low to medium plasticity, dark brown, with root fibres, trace of basalt gravel.	w>PL			SCREEN: 9.6kg (<10L) 0-0.1m, NO FCF
						0.5		CI	Silty CLAY: medium plasticity, dark grey, trace of basalt gravel, basalt cobbles, sand, gravelly clay lenses and root fibres.	w<PL			RESIDUAL
						1		-	BASALT: highly weathered, with clay bands, highly fractured.				
									BASALT: dark grey, moderately weathered, fractured blocky.				
						1.5			END OF TEST PIT AT 1.3m				
						2							
						2.5							
						3							
						3.5							

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 17.8 m
Date: 28/5/25 TO 29/5/25 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** A.G./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON COMPLETION OF CORING AUGERING									CI	TOPSOIL: Silty clay, medium plasticity, dark brown, with root fibres.	w>PL			
										Silty CLAY: medium plasticity, dark brown, with fine to coarse grained, sub-angular basalt gravel.	w>PL	St - VSt		RESIDUAL
						17	1		-	BASALT: grey, highly fractured, with numerous clay bands.	HW - MW	L - M		LISMORE BASALT LOW BUCKET RESISTANCE
						16	2			BASALT: dark grey.	MW	H		HIGH 'TC' BIT RESISTANCE
						15	3			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 5.7m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 5.7m TO 1.5m. CASING +1.05m TO 1.5m. 2mm SAND FILTER PACK 5.7m TO 1.0m. BENTONITE SEAL 1.0m TO 0.1m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED MONUMENT.
						14	4							
						13	5							
						12	6							
						11								

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Core Size:** NMLC **R.L. Surface:** 17.8 m
Date: 28/5/25 TO 29/5/25 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK300 **Bearing:** N/A **Logged/Checked By:** A.G./P.R.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX I_p (50)	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
					START CORING AT 2.65m							
			15		BASALT: dark grey.	MW	M - H				(2.85m) J, 90°, C, R, Fe Sn	
			14		NO CORE 0.27m							
			13		BASALT: dark grey.	HW	L - M					
			12				M				(5.62m) XWS, 45°, 2 mm.t (4.42-6.90m) J, 45 - 60°, P, S, Fe Sn, Spaced 10mm-40mm (5.78m) XWS, 45°, 2 mm.t	
			11								(6.26-6.60m) J, 45 - 90°, Ir, R, Fe Sn (6.73m) XWS, 0°, 20 mm.t (6.84m) J, 0°, P, R, Fe Sn	
			10		NO CORE 0.60m							
			9		BASALT: dark grey.	HW	M				(7.69-8.63m) J, 0 - 10°, Ir, R, Fe Sn, Spaced 5mm-50mm (8.42m) J, 90°, Ir, R, Fe Sn (8.52m) J, 65°, P, R, Clay FILLED, 2 mm.t	
			8		NO CORE 0.25m							
			7		BASALT: dark grey.	HW	L - M				(8.87m) XWS, 0°, 70 mm.t	

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Core Size:** NMLC **R.L. Surface:** 17.8 m
Date: 28/5/25 TO 29/5/25 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK300 **Bearing:** N/A **Logged/Checked By:** A.G./P.R.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
80% RETURN			8	✓	BASALT: dark grey. (continued)	HW	L - M	0.30		(9.09m) XWS, 0°, 30 mm.t		Lismore Basalt
			10	✓				0.10		(9.24m) XWS, 0°, 5 mm.t		
				✓						(9.55m) J, 0°, P, R, Fe FILLED		
				✓						(9.85m) XWS, 0°, 10 mm.t		
				✓						(10.11m) XWS, 30°, 8 mm.t		
				✓						(8.88-11.65m) J, 15 - 90°, P or Ir, R, Fe Sn, Spaced 10mm-150mm		
			7	✓				0.70		(8.88-12.95m) Ji, 15 - 90°, Ir, Fe FILLED, Spaced 1mm-50mm		
			11	✓				0.60		(11.12m) J, 5°, Ir, R, Fe Sn		
				✓				0.43		(11.17m) J, 0°, Ir, R, Fe Sn		
				✓				0.33		(11.42m) J, 90°, Un, R, Fe Sn		
80% RETURN			6	✓	NO CORE 0.15m	HW	M	0.60				Lismore Basalt
			12	✓				0.70				
				✓				0.70				
			5	✓				0.70				
			13	✓								
				✓	VOLCANIC BRECCIA: grey and light grey brown, fine to coarse grained angular basalt gravel.	HW	VL - L	0.070		(13.00m) XWS, 0°, 100 mm.t		Lismore Basalt
			4	✓				0.20		(13.19m) XWS, 20°, 18 mm.t		
			14	✓						(13.40m) XWS, 0°, 140 mm.t		
				✓						(14.05m) J, 55°, Ir, R, Fe Sn		
				✓						(14.11m) J, 45°, P, S, Fe Sn		
				✓						(14.15m) J, 45°, P, R, Fe Sn		
				✓						(14.21m) Cr, 0°, 35 mm.t		
				✓						(14.36m) XWS, 70°, 40 mm.t		
				✓						(14.48m) J, 70°, P, R, Clay Vn		
				✓				0.40				
			3		END OF BOREHOLE AT 14.55 m							
			15									
			2									



ENVIRONMENTAL LOG

Log No.
TP207

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: 11.11m					
Date: 21/5/25				Datum: AHD									
Plant Type: EXCAVATOR				Logged/Checked by: J.T./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			TOPSOIL: Silty clay, low to medium plasticity, dark brown, with organics and root fibres.	w>PL			SCREEN: 10.3kg 0-0.1m, NO FCF
						0.5	CI		Silty CLAY: medium plasticity, grey mottled red brown, with fine grained sub-angular ferricrete and basalt gravel, trace of basalt gravel and cobbles, and root fibres.	w>PL			ALLUVIAL
						1			Silty CLAY: medium plasticity, grey mottled red brown, trace of basalt gravel and root fibres.	w>PL			ALLUVIAL
						1.5	-		Extremely Weathered siltstone: gravelly CLAY/clayey GRAVEL, red brown and grey, with lightly weathered, highly fractured ferricrete bands. SILTSTONE: red brown, with high strength ferricrete bands and nodules.				
						2							
						2.5							
						3			END OF TEST PIT AT 2.8m				
						3.5							



ENVIRONMENTAL LOG

Log No.
TP208
1/2

Environmental logs are not to be used for geotechnical purposes

Client:

DEPARTMENT OF EDUCATION

Project:

NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS

Location:

REDEVELOPMENT
163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.:

E36314PT3

Method:

TEST PIT

R.L. Surface:

9.40m

Date:

21/5/25

Datum:

AHD

Plant Type:

EXCAVATOR

Logged/Checked by:

J.T./B.P.



ENVIRONMENTAL LOG

Log No.
TP208
2/2

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: 9.40m						
Date: 21/5/25			Datum: AHD										
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
								CI	Silty CLAY: medium plasticity, grey.	w≈PL			
						4			END OF TEST PIT AT 4.0m				
						4.5							
						5							
						5.5							
						6							
						6.5							
						7							



ENVIRONMENTAL LOG

Log No.
TP209

1/2

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: 16.67m						
Date: 19/5/25			Datum: AHD										
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			TOPSOIL: Silty clay, medium plasticity, dark brown, with organics and root fibres.	w>PL			SCREEN: 9.6kg (<10L) 0-0.1m, NO FCF
						0.5		CI-CH	Silty CLAY: medium to high plasticity, dark brown and grey, trace of ferricrete and basalt gravel and basalt cobbles.	w>PL			ALLUVIAL
						1							
						1.5							
						2			as above, but with fine to coarse grained sub-rounded ferricrete and basalt gravel.	w>PL			ALLUVIAL
						2.5							
						3		-	Extremely Weathered siltstone: clayey gravelly SILT, medium plasticity, orange brown and grey, fine to medium grained siltstone gravel.	w<PL			
						3.5			SILTSTONE: red brown, thinly laminated and lightly fractured, with medium strength ferricrete bands and nodules.				



ENVIRONMENTAL LOG

Log No.
TP209
2/2

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: 16.67m					
Date: 19/5/25				Datum: AHD									
Plant Type: EXCAVATOR				Logged/Checked by: J.T./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
									SILTSTONE: red brown, thinly laminated and lightly fractured, with medium strength ferricrete bands and nodules.				
									END OF TEST PIT AT 3.9m				
						4							
						4.5							
						5							
						5.5							
						6							
						6.5							
						7							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
TP210
1/1

Environmental logs are not to be used for geotechnical purposes

SDUP: 0.5-0.6m

Client: DEPARTMENT OF EDUCATION Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW															
Job No.: E36314PT3			Method: TEST PIT			R.L. Surface: 18.81m									
Date: 20/5/25			Datum: AHD												
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.												
Groundwater Record	ES	ASS	SAMPLES	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
								0		CI	TOPSOIL: Silty clay, low to medium plasticity, dark brown, with organics and root fibres, trace of basalt gravel and basalt cobbles.	w≈PL			SCREEN: 9.15kg (<10L)
								0.5			Silty CLAY: medium plasticity, dark brown, with fine to coarse grained sub-rounded basalt gravel and sub-rounded basalt cobbles, trace of root fibres.	w≈PL			0-0.1m, NO FCF RESIDUAL
								1		-	Extremely Weathered siltstone: clayey GRAVEL/gravelly CLAY, fine to coarse grained siltstone and ferricrete gravel, medium plasticity, highly fractured, very low strength ferricrete bands.				
								1.25			SILTSTONE: red brown, thinly laminated and high strength ferricrete bands and nodules, moderately weathered.				
								1.5			END OF TEST PIT AT 1.25m				
								2							
								2.5							
								3							
								3.5							

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 19.2 m
Date: 4/6/25 TO 5/6/25 **Datum:** AHD
Plant Type: JK309 **Logged/Checked By:** A.G./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING 30 MINS AFTER COMPLETION OF CORING						19				FILL: Silty clay topsoil, high plasticity, dark brown, trace of root fibres. FILL: Silty clay, high plasticity, brown, red brown and dark brown, trace of fine to medium grained ironstone gravel. Silty CLAY: high plasticity, dark brown, trace of ironstone gravel.	w>PL w>PL w>PL			
					N = 3 0,1,2		1		CH			F	70 60 60	ALLUVIAL
					N = 17 3,5,12		2		-	Extremely Weathered basalt, silty gravelly CLAY, low plasticity, grey and brown, fine grained basalt gravel, with very low to low strength basalt bands.	XW	Hd		LISMORE BASALT
					N=SPT 16/ 40mm REFUSAL		3							VERY LOW 'TC' BIT RESISTANCE WITH OCCASIONAL MODERATE TO HIGH BANDS
							4							
							5			BASALT: grey and dark grey, trace of very low strength bands.	MW	M - H		MODERATE TO HIGH RESISTANCE WITH OCCASIONAL VERY LOW BANDS
							6			REFER TO CORED BOREHOLE LOG				

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Core Size:** NMLC **R.L. Surface:** 19.2 m
Date: 4/6/25 TO 5/6/25 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** A.G./P.R.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
		14			START CORING AT 5.50m							
			6		BASALT: grey and dark grey, with brown and red brown staining, with occasional extremely weathered gravel inclusions, rounded.	MW	L - M	0.20 0.30		(5.67m) J x 2, 40°, Fe Ct (5.77m) J, 10°, C, S, Fe Sn (5.81m) J, 85°, Un, R, Cn		
			13			SW	VH	3.1		(6.11m) Jx 2, 45°, P, S, Cn (6.18m) Jx 2, 30 - 60°, Ir, R, Fe Sn (6.27m) J, 30 - 70°, R, Cn		
			7					3.6 3.5		(6.46m) J, 90°, Ir, R, Clay Cn		
			12			HW	VL - L	0.080		(6.85m) J, 90°, Un, R, Clay FILLED, and Fe, Sn		
			8					0.80 1.0		(7.16m) XWS, 0°, 30 mm.t (7.27m) Jx 3, 20 - 80°, P, S, Fe Sn (7.41m) XWS, 0°, 25 mm.t		
			11			SW	M - H	0.80 1.0		(7.57m) J, 10°, P, S, Clay Vn (7.61m) J, 20 - 90°, Fe Sn (7.67m) CS, 0°, 20 mm.t		
			9		as above, but dark grey, with brown and red brown staining, trace of very low strength bands.			0.30		(7.94m) J, 10°, P, S, Clay Vn (8.00m) J, 80°, Ir, R, Fe Sn		
			10			MW	L - M	0.080		(8.32m) Cr, 0°, Fe St, 150 mm.t		
			10					0.90		(8.54m) Jix 3, 80°, Fe Sn (8.69m) J, 70°, C, R, Fe Sn (8.80m) J, 75°, P, S, Fe Sn (8.85m) Cr, 70°, 30 mm.t (8.93m) J, 70 - 80°, C, R, Cn (9.03m) J, 15°, P, R, Fe Sn (9.14m) J, 0°, Ir, R, Fe Sn (9.22m) J, 60°, Ir, S, Fe Sn		
			9			SW	VH	5.4 4.2		(9.38m) J, 75°, P, S, Fe Sn (9.48m) J, 80°, Fe Sn (9.56m) J, 35°, P, S, Cn (9.63m) Jx 2, 20 - 70°, P, S, Fe Sn (9.72m) CS, 0°, 30 mm.t (9.80m) Jx 3 x 2, 75°, P, S, Fe Sn (9.87m) J, 80°, P, S, Cn (9.91m) Cr, 0°, 90 mm.t (10.08m) J, 60°, P, S, Fe Sn (10.13m) J, 30°, P, S, Fe Sn (10.21m) XWS, 0°, 15 mm.t (10.25m) J, 35°, P, S, Fe Sn (10.34m) J, 40°, P, S, Fe Sn (10.45m) XWS, 0°, 20 mm.t		
			11					3.4		(10.58m) J, 30°, P, S, Cn		
			8			HW	L - M	0.50 0.20		(10.82m) J, 0°, P, S, Fe Sn (10.90m) J, 10°, P, S, Clay FILLED		
										(11.11m) J, 10°, P, S, Fe Sn (11.28m) J, 20°, P, S, Fe Sn (11.38m) J, 0°, P, S, Fe Sn (11.46m) J, 10°, P, S, Cn (11.55m) J, 10°, P, S, Fe Sn (11.61m) J, 5°, P, S, Fe Sn (11.70m) J, 20°, C, S, Fe Sn (11.74m) Cr, 0°, 45 mm.t		

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Core Size:** NMLC **R.L. Surface:** 19.2 m
Date: 4/6/25 TO 5/6/25 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** A.G./P.R.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	DEFECT DETAILS		Formation
									SPACING (mm)	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness	
50% RETURN	0-25% RETURN							VL-0.1 L-0.3 M-1 H-3 VH-10 EH	600 200 60 20	Specific General	
		7			BASALT: as above	HW	L - M			(11.79-12.34m) J, 10 - 60°, Fe Sn, Spaced every 5-10mm	Lismore Basalt
					VOLCANIC BRECCIA: brown and orange brown, fine to coarse grained angular basalt gravel and clay inclusions, with tuff matrix.		M			(12.72m) J, 0°, P, S, Clay FILLED	
		6								(13.23m) J, 0°, P, S, Clay FILLED	
										(13.35m) Highly Fractured Zone, 510 mm.t	
					END OF BOREHOLE AT 13.86 m						
		14									
		5									
		15									
		4									
		16									
		3									
		17									
		2									
		18									
		1									

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 22.2 m
Date: 27/5/25 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** C.S./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING ON COMPLETION OF CORING						22			CH	FILL: Gravel, fine to coarse grained, angular, grey. FILL: Sandy gravel, fine to medium grained, angular, brown, fine to coarse grained sand. Gravelly CLAY: high plasticity, dark grey mottled brown, fine to medium grained angular gravel, trace of roots.	D M w-PL	St	240 220 160 190	ALLUVIAL
					N = 6 2,3,3		1		GC	Clayey GRAVEL: fine to medium grained, angular, dark grey mottled dark red, orange, grey and brown, with clay bands, some shear planes in clay bands.	M D	(VD)		COLLUVIAL
					N=SPT 20/ 120mm REFUSAL		2							
					N=SPT 20/ 100mm REFUSAL		3							
					N=SPT 10/ 50mm REFUSAL		4							
					N=SPT 15/ 100mm REFUSAL		5							
						17			-	BASALT: brown mottled grey.	HW	(L)		POSSIBLE BOULDER
						16			GC	Clayey GRAVEL: fine to coarse grained angular, brown mottled orange, grey and yellow.	D	(VD)		POSSIBLE EXTREMELY WEATHERED BASALT

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 22.2 m
Date: 27/5/25 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** C.S./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
						15			GC	Clayey GRAVEL: fine to coarse grained angular, brown mottled orange, grey and yellow. (continued)	D	(VD)		
						8			-	BASALT: grey.	HW	(L)		LISMORE BASALT
						14								
						13	9			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 6.0m TO 1.0m. CASING 0m TO 1.0m. 2mm SAND FILTER PACK 6.0m TO 1.0m. BENTONITE SEAL 1.0m TO 0.1m. STEEL COVER INSTALLED FLUSH WITH GROUND AND CONCRETED.
						10	10							
						11	11							
						12	12							
						10	10							
						13	13							
						9	9							

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR**Core Size:** NMLC**R.L. Surface:** 22.2 m**Date:** 27/5/25**Inclination:** VERTICAL**Datum:** AHD**Plant Type:** JK300**Bearing:** N/A**Logged/Checked By:** C.S./P.R.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness		
								VL-0.1 L-0.3 M-1 H-3 VH-10 EH	600 200 60 20	Specific	General	
		14			START CORING AT 8.65m							
			9		BASALT: dark grey, trace of chlorite seams.	FR	VH					
			13									
			10									
			12									
			11									
			11									
			12									
			10									
			13									
			9									
			14									
			8									
					END OF BOREHOLE AT 14.73 m							

JK 9.024.1 LB GLB Log JK CORED BOREHOLE - MASTER 37635UOR NORTH LISMORE GPJ <-DrawingFile> 25/05/2025 16:12 10:01 00:01 D:\git\Lab and In Situ\Tool - DGD | Lib JK 9.024.2019-05-31 Proj JK 9.01.0 2018-03-20

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 14.6 m
Date: 4/6/25 **Datum:** AHD
Plant Type: JK309 **Logged/Checked By:** A.G./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING ON COMPLETION OF CORING									CH	TOPSOIL: Silty clay, high plasticity, dark brown, trace of root fibres. Silty CLAY: high plasticity, dark brown, trace of fine to medium grained basalt and ironstone gravel.	w>PL w>PL	St St	110 130 190 160 190 210	ALLUVIAL
					N = 5 2,2,3	14	1							
					N = 8 2,3,5	13	2					St - Vst	270 340 340 370	
					N > 13 3,8,5/ 50mm REFUSAL		3			Silty CLAY: high plasticity, light brown and brown, trace of fine to medium grained ironstone gravel.		Vst - Hd	360 360 420	RESIDUAL
										Extremely Weathered BASALT: Silty gravelly clay, low plasticity, brown, fine to medium grained basalt and ironstone gravel.	XW	(Hd)		LISMORE BASALT
							4							
					N=SPT 6/ 50mm REFUSAL		10			Extremely Weathered BASALT: Clayey GRAVEL, fine grained, brown, basalt and ironstone gravel.		(VD)		LOW 'TC' BIT RESISTANCE GROUNDWATER MONITORING WELL INSTALLED TO 6.3m DEPTH IN ADJACENT BOREHOLE. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 6.3m TO 1.3m. CASING 0m TO 1.3m. 2mm SAND FILTER PACK 6.3m TO 0.5m. BENTONITE SEAL 0.5m TO 0m.
							5							
							9							
							6							
							8			Extremely Weathered BASALT: Clayey GRAVEL, fine grained, brown, basalt and ironstone gravel, with low to high strength bands of basalt and ironstone.				LOW RESISTANCE WITH OCCASIONAL HIGH RESISTANCE BANDS

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Method:** SPIRAL AUGER **R.L. Surface:** 14.6 m
Date: 4/6/25 **Datum:** AHD
Plant Type: JK309 **Logged/Checked By:** A.G./P.R.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							7		-	Extremely Weathered BASALT: Clayey GRAVEL, fine grained, brown, basalt and ironstone gravel, with low to high strength bands of basalt and ironstone. (continued)	XW	(VD)		LOW RESISTANCE WITH OCCASIONAL HIGH RESISTANCE BANDS
							8							
							6							
							9							
							5							
							10							
							4							
							11							
							3							
							12							
							2							
							13							
							1							
														HIGH RESISTANCE

CORED BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION
Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT
Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.: 37635UOR **Core Size:** NMLC **R.L. Surface:** 14.6 m
Date: 4/6/25 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK309 **Bearing:** N/A **Logged/Checked By:** A.G./P.R.

Water Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
		1			START CORING AT 13.95m							
		14			BASALT: dark grey, trace of rounded gravel sized green chlorite inclusions.	SW	VH					Lismore Basalt
		0				HW	L	0.10				
		15				SW	VH	3.6				
		-1						4.1				
		16						4.6				
		-2						4.1				
		17			END OF BOREHOLE AT 16.90 m			4.3				
		-3										
		18										
		-4										
		19										
		-5										

JK 9.024.LB.GLB Log JK CORED BOREHOLE - MASTER 37635UOR NORTH LISMORE.GPJ <-DrawingFile> 25/06/2025 16:12 10:01 00.01 D:\git\Lab and In Situ\Tool - DGD\JLib JK 9.024.2019-05-31 Proj JK 9.01.0 2018-03-20

BOREHOLE LOG

Client: DEPARTMENT OF EDUCATION Project: NORTHERN RIVERS FLOOD RECOVERY-RICHMOND RIVER HIGH CAMPUS REDEVELOPMENT Location: 163 AND 170 ALEXANDRA PARADE, NORTH LISMORE, NSW											
Job No.: 37635UOR Date: 30/5/25 Plant Type: JK300				Method: SPIRAL AUGER Logged/Checked By: O.B./K.T.				R.L. Surface: 14.568 m Datum: AHD			

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION										TOPSOIL: Silty clay, medium plasticity, dark brown, with root fibres.	w>PL			
								CI	Silty CLAY: medium plasticity, dark brown, with numerous clay bands. END OF BOREHOLE AT 0.45 m	w>PL	St		RESIDUAL	
						14								
						1								
						13								
						2								
						12								
						3								
						11								
						4								
						10								
						5								
						9								
						6								
						8								

JKEnvironments

ENVIRONMENTAL LOG



Log No.
TP216
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION	
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS	
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW	
Job No.: E36314PT3	Method: TEST PIT
Date: 20/5/25	R.L. Surface: 24.20m
Plant Type: EXCAVATOR	Datum: AHD
Logged/Checked by: J.T./B.P.	

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0			TOPSOIL: Silty clay, medium plasticity, brown, with root fibres.	w>PL			SCREEN: 9.7kg (<10L) 0-0.1m, NO FCF
							0.5		CI	Silty CLAY: medium plasticity, dark grey, trace of basalt gravel, basalt cobbles, and root fibres.	w>PL			ALLUVIAL
							1		-	SILTSTONE: grey, with extremely weathered bands (gravelly clay), highly weathered, low strength.				
							1.5			Interbedded BASALT: red brown, and TUFF: fine to coarse grained, red brown, grey and brown, trace of vesicles, and extremely weathered bands.				
							2			END OF TEST PIT AT 1.9m				
							2.5							
							3							
							3.5							



ENVIRONMENTAL LOG

Log No.
TP217
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: 14.51m						
Date: 20/5/25			Datum: AHD										
Plant Type: EXCAVATOR			Logged/Checked by: J.T./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0			TOPSOIL: Silty clay, medium plasticity, dark brown, with root fibres.	w>PL			SCREEN: 9.8kg (<10L) 0-0.1m, NO FCF RESIDUAL
						0.5		CI	Silty CLAY: medium plasticity, dark brown, with fine to coarse grained sub-angular basalt gravel, trace of root fibres.	w>PL			
						0.5			BASALT: grey, highly fractured with numerous clay bands, highly weathered, low strength.				
						1			SILTSTONE: red brown and brown, with ferricrete bands, highly fractured, and extremely weathered bands.				
						1.3			END OF TEST PIT AT 1.3m				
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP301
1/1

Environmental logs are not to be used for geotechnical purposes

SDUP303: 0-0.1m

Client: DEPARTMENT OF EDUCATION														
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS														
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW														
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A							
Date: 27/5/25			Datum: -											
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.											
Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0			FILL: Silty clay, medium to high plasticity, brown, trace of igneous gravel, roots and root fibres.	w≈PL			GRASS COVER
							0.5							SCREEN: 10.10kg 0-0.1m, NO FCF SCREEN: 10kg 0.1-0.6m, NO FCF
									CH	Silty CLAY: high plasticity, red brown, trace of basalt gravel.	w≈PL			RESIDUAL
							1			END OF TEST PIT AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							



ENVIRONMENTAL LOG

Log No.
TP302
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: N/A					
Date: 27/5/25				Datum: -									
Plant Type: EXCAVATOR				Logged/Checked by: O.B./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, medium to high plasticity, brown, trace of igneous gravel, roots and root fibres.	w≈PL			SCREEN: 10.40kg 0-0.1m, NO FCF SCREEN: 10.56kg 0.1-0.3m, NO FCF
								-	Extremely Weathered basalt: GRAVEL, fine to coarse grained, red brown, dark grey and orange brown. END OF TEST PIT AT 0.4m	XW			LISMORE BASALT
						0.5							BUCKET REFUSAL ON BEDROCK
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP303
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 27/5/25			Datum: -										
Plant Type: -			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▼						0		CH	TOPSOIL: Silty clay, high plasticity, grey brown mottled orange brown, with roots and root fibres.	w>PL			GRASS COVER
									Silty CLAY: high plasticity, grey brown mottled orange brown, trace of roots and root fibres.	w>PL			SCREEN: 10.40kg 0-0.1m, NO FCF ALLUVIAL
						0.5			END OF TEST PIT AT 0.2m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP304

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: N/A					
Date: 28/5/25				Datum: -									
Plant Type: -				Logged/Checked by: O.B./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0		CH	Silty CLAY: high plasticity, grey brown mottled orange brown, trace of roots and root fibres.	w≈PL			GRASS COVER ALLUVIAL
						0.5			END OF TEST PIT AT 0.2m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG



Log No.
TP305

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT / SHOVEL				R.L. Surface: N/A					
Date: 27/5/25								Datum: -					
Plant Type: -				Logged/Checked by: O.B./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0		CH	Silty CLAY: high plasticity, grey brown mottled orange brown, trace of root fibres.	w≈PL			GRASS COVER
									END OF TEST PIT AT 0.2m				ALLUVIAL
						0.5							
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG



Log No.
TP306
1/1

Environmental logs are not to be used for geotechnical purposes

SDUP304: 0-0.1m

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 28/5/25			Datum: -										
Plant Type: -			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▼	█	█	█	█		0		CH	Silty CLAY: high plasticity, grey brown mottled orange brown, trace of roots and root fibres.	w≈PL			GRASS COVER ALLUVIAL
						0.5			END OF TEST PIT AT 0.2m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP307

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: N/A					
Date: 28/5/25								Datum: -					
Plant Type: -				Logged/Checked by: O.B./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0			FILL: Silty clay, medium to high plasticity, brown, trace of igneous gravel, roots and root fibres. END OF TEST PIT AT 0.2m	w≈PL			GRASS COVER SCREEN: 10.56kg 0-0.1m, NO FCF
						0.5							
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP308
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 27/5/25			Datum: -										
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▲	■	■	■	■		0		CH	TOPSOIL: Silty clay, high plasticity, grey, trace of igneous gravel, roots and root fibres.	w>PL			GRASS COVER
									Silty CLAY: high plasticity, grey brown, trace of roots and root fibres.	w>PL			SCREEN: 10.33kg 0-0.1m, NO FCF ALLUVIAL
▼	■	■	■	■		0.5			END OF TEST PIT AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP309

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 27/5/25							Datum: -						
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▼	■	■	■	■		0		CH	TOPSOIL: Silty clay, high plasticity, grey, with roots and root fibres.	w>PL			GRASS COVER
	■	■	■	■		0.5			Silty CLAY: high plasticity, grey brown mottled orange brown, trace of root fibres.	w>PL			SCREEN: 11.76kg 0-0.1m, NO FCF ALLUVIAL
						0.5			END OF TEST PIT AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP310
1/1

Environmental logs are not to be used for geotechnical purposes

SDUP302: 0-0.1m

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 27/5/25			Datum: -										
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▲						0		CH	TOPSOIL: Silty clay, high plasticity, brown mottled grey brown and orange brown, with roots and root fibres.	w>PL			GRASS COVER
									Silty CLAY: high plasticity, grey brown mottled orange brown, trace of root fibres.	w>PL			SCREEN: 11.45kg 0-0.1m, NO FCF ALLUVIAL
▼						0.5			END OF TEST PIT AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP311
1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION											
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS											
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW											
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A				
Date: 27/5/25			Datum: -								
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.								
Groundwater Record	SAMPLES		Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Sirength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
ES	ASS	ASB									
▼				0		CH	Silty CLAY: high plasticity, grey brown, trace of roots and root fibres.				GRASS COVER ALLUVIAL
				0.5			END OF TEST PIT AT 0.5m				
				1							
				1.5							
				2							
				2.5							
				3							
				3.5							



ENVIRONMENTAL LOG

Log No.
TP312

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3			Method: TEST PIT				R.L. Surface: N/A						
Date: 27/5/25			Datum: -										
Plant Type: EXCAVATOR			Logged/Checked by: O.B./B.P.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
▼	█	█	█	█		0		CH	TOPSOIL: Silty clay, high plasticity, grey brown mottled orange brown, with roots and root fibres.	w>PL			GRASS COVER
	█	█	█	█					Silty CLAY: high plasticity, grey brown mottled orange brown.	w>PL			SCREEN: 11.40kg 0-0.1m, NO FCF ALLUVIAL
						0.5			END OF TEST PIT AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

Client: DEPARTMENT OF EDUCATION Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3 Method: TEST PIT R.L. Surface: N/A Date: 27/5/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: O.B./B.P.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0		CH	TOPSOIL: Silty clay, high plasticity, brown mottled grey brown, trace of roots and root fibres.	w≈PL			GRASS COVER
									Silty CLAY: high plasticity, grey mottled orange brown, trace of roots and root fibres.	w≈PL			SCREEN: 11.10kg 0-0.1m, NO FCF ALLUVIAL
						0.5			END OF TEST PIT AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOG

Log No.
TP314

1/1

Environmental logs are not to be used for geotechnical purposes

Client: DEPARTMENT OF EDUCATION													
Project: NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS													
Location: REDEVELOPMENT 163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW													
Job No.: E36314PT3				Method: TEST PIT				R.L. Surface: N/A					
Date: 27/5/25				Datum: -									
Plant Type: EXCAVATOR				Logged/Checked by: O.B./B.P.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0		CH	TOPSOIL: Silty clay, high plasticity, grey brown mottled orange brown, trace of roots and root fibres.	w≈PL			GRASS COVER
									Silty CLAY: high plasticity, grey brown mottled orange brown, trace of roots and root fibres.	w≈PL			SCREEN: 11.10kg 0-0.1m, NO FCF ALLUVIAL
						0.5			END OF BOREHOLE AT 0.5m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG



Log No.
TP315

1/1

Environmental logs are not to be used for geotechnical purposes

Client:

DEPARTMENT OF EDUCATION

Project:

NORTHERN RIVERS FLOOD RECOVERY - RICHMOND RIVER HIGH CAMPUS

Location:

REDEVELOPMENT
163-170 ALEXANDRA PARADE, NORTH LISMORE, NSW

Job No.:

E36314PT3

Method:

TEST PIT

R.L. Surface:

N/A

Date:

27/5/25

Datum:

-

Plant Type:

EXCAVATOR

Logged/Checked by:

O.B./B.P.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0		CH	TOPSOIL: Silty clay, high plasticity, grey brown, with roots and root fibres.	w≈PL			GRASS COVER
										Silty CLAY: high plasticity, grey brown and orange brown, trace of roots and root fibres.	w≈PL			SCREEN: 10.90kg 0-0.1m, NO FCF ALLUVIAL
							0.5			END OF TEST PIT AT 0.4m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							



ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 'Geotechnical Site Investigations'. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from “feel” and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term ‘mud’ encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) ‘*Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)*’.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the ‘N’ value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

N = 13
4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

N > 30
15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as ‘N_c’ on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than ‘straight line’ variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL



FILL



TOPSOIL



CLAY (CL, CI, CH)



SILT (ML, MH)



SAND (SP, SW)



GRAVEL (GP, GW)



SANDY CLAY (CL, CI, CH)



SILTY CLAY (CL, CI, CH)



CLAYEY SAND (SC)



SILTY SAND (SM)



GRAVELLY CLAY (CL, CI, CH)



CLAYEY GRAVEL (GC)



SANDY SILT (ML, MH)



PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK



CONGLOMERATE



SANDSTONE



SHALE/MUDSTONE



SILTSTONE



CLAYSTONE



COAL



LAMINITE



LIMESTONE



PHYLLITE, SCHIST



TUFF



GRANITE, GABBRO



DOLERITE, DIORITE



BASALT, ANDESITE



QUARTZITE

OTHER MATERIALS



BRICKS OR PAVERS



CONCRETE



ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 60% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	‘Dirty’ materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	‘Dirty’ materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	‘Dirty’ materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	‘Dirty’ materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $C_u > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$$

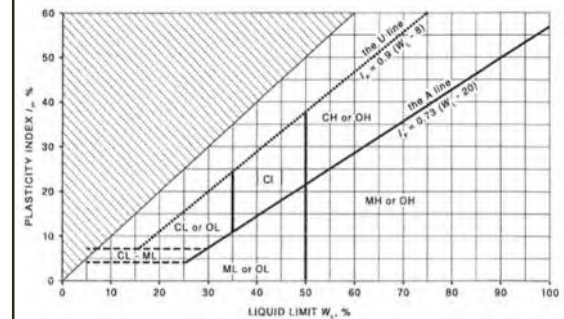
Where D_{10} , D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

- For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
- Clay soils with liquid limits $> 35\%$ and $\leq 50\%$ may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition		
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.		
		Extent of borehole/test pit collapse shortly after drilling/excavation.		
		Groundwater seepage into borehole or test pit noted during drilling or excavation.		
Samples	ES	Sample taken over depth indicated, for environmental analysis.		
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.		
	DB	Bulk disturbed sample taken over depth indicated.		
	DS	Small disturbed bag sample taken over depth indicated.		
	ASB	Soil sample taken over depth indicated, for asbestos analysis.		
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.		
	SAL	Soil sample taken over depth indicated, for salinity analysis.		
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.		
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. ‘Refusal’ refers to apparent hammer refusal within the corresponding 150mm depth increment.		
	N _c =	5	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. ‘R’ refers to apparent hammer refusal within the corresponding 150mm depth increment.	
		7		
		3R		
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).		
Moisture Condition (Fine Grained Soils)	w > PL w ≈ PL w < PL w ≈ LL w > LL	Moisture content estimated to be greater than plastic limit. Moisture content estimated to be approximately equal to plastic limit. Moisture content estimated to be less than plastic limit. Moisture content estimated to be near liquid limit. Moisture content estimated to be wet of liquid limit.		
	(Coarse Grained Soils) D M W	DRY – runs freely through fingers. MOIST – does not run freely but no free water visible on soil surface. WET – free water visible on soil surface.		
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.		
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.		
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.		
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.		
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.		
	Hd	HARD – unconfined compressive strength > 400kPa.		
	Fr	FRIABLE – strength not attainable, soil crumbles.		
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.		
Density Index/ Relative Density (Cohesionless Soils)		Density Index (I_D) Range (%)	SPT ‘N’ Value Range (Blows/300mm)	
	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 85	> 50
	()	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		



Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit 'TC' bit T_{60} Soil Origin	Hardened steel 'V' shaped bit. Twin pronged tungsten carbide bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers. The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



Appendix D: Laboratory Report(s) & COC Documents

CERTIFICATE OF ANALYSIS 381579

Client Details

Client	JK Environments
Attention	C Ridley
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E36314PT North Lismore</u>
Number of Samples	42 Soil
Date samples received	26/05/2025
Date completed instructions received	26/05/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	02/06/2025
Date of Issue	02/06/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Jack Wallis, Senior Chemist
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	62	83	71	80	77

vTRH(C6-C10)/BTEXN in Soil

Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	29/05/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	78	74	73	80	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		381579-32	381579-34	381579-37	381579-41	381579-42
Your Reference	UNITS	TP210	TP216	TP217	SDUPA	TB-A
Depth		0.5-0.6	0-0.1	0-0.1	0-0.1	NA
Date Sampled		20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	29/05/2025	29/05/2025	29/05/2025	29/05/2025	29/05/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	79	74	78	79	76

svTRH (C10-C40) in Soil

Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	65	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	160	120	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	160	180	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	180	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	120	130	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	300	130	<50
Surrogate o-Terphenyl	%	106	104	115	107	101

svTRH (C10-C40) in Soil

Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	110	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	110	<50	<50
Surrogate o-Terphenyl	%	103	104	66	99	107

svTRH (C10-C40) in Soil

Our Reference		381579-32	381579-34	381579-37	381579-41	381579-42
Your Reference	UNITS	TP210	TP216	TP217	SDUPA	TB-A
Depth		0.5-0.6	0-0.1	0-0.1	0-0.1	NA
Date Sampled		20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	140	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	140	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	140	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	140	<50
Surrogate o-Terphenyl	%	99	101	102	108	97

PAHs in Soil						
Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.2	0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.1	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.60	0.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	121	120	126	120	119

PAHs in Soil						
Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	118	123	97	107	122

PAHs in Soil						
Our Reference		381579-32	381579-34	381579-37	381579-41	381579-42
Your Reference	UNITS	TP210	TP216	TP217	SDUPA	TB-A
Depth		0.5-0.6	0-0.1	0-0.1	0-0.1	NA
Date Sampled		20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	114	116	116	113	109

Organochlorine Pesticides in soil						
Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	100	98	110	106	105

Organochlorine Pesticides in soil						
Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	102	103	113	97	100

Organochlorine Pesticides in soil				
Our Reference		381579-34	381579-37	381579-41
Your Reference	UNITS	TP216	TP217	SDUPA
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	102	97

Organophosphorus Pesticides in Soil						
Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	100	98	110	106	105

Organophosphorus Pesticides in Soil						
Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	102	103	113	97	100

Organophosphorus Pesticides in Soil				
Our Reference		381579-34	381579-37	381579-41
Your Reference	UNITS	TP216	TP217	SDUPA
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	102	97

PCBs in Soil						
Our Reference	UNITS	381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference		TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	114	109	121	113	107

PCBs in Soil						
Our Reference	UNITS	381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference		TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	108	111	110	107	110

PCBs in Soil				
Our Reference		381579-34	381579-37	381579-41
Your Reference	UNITS	TP216	TP217	SDUPA
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	108	106	109

Acid Extractable metals in soil

Our Reference		381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Arsenic	mg/kg	<4	<4	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	0.5	1	<0.4
Chromium	mg/kg	14	21	13	26	41
Copper	mg/kg	11	9	19	24	17
Lead	mg/kg	7	18	15	21	8
Mercury	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	12	15	14	31	29
Zinc	mg/kg	54	70	150	77	55

Acid Extractable metals in soil

Our Reference		381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference	UNITS	TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	0.4	0.5	<0.4	<0.4
Chromium	mg/kg	12	10	25	25	10
Copper	mg/kg	18	19	13	11	17
Lead	mg/kg	20	25	11	10	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	22	15	21	17
Zinc	mg/kg	100	130	49	73	100

Acid Extractable metals in soil

Our Reference		381579-32	381579-34	381579-37	381579-41	381579-42
Your Reference	UNITS	TP210	TP216	TP217	SDUPA	TB-A
Depth		0.5-0.6	0-0.1	0-0.1	0-0.1	NA
Date Sampled		20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Arsenic	mg/kg	<4	<4	<8	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	26	9	22	2
Copper	mg/kg	14	15	22	19	1
Lead	mg/kg	6	8	10	14	1
Mercury	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	18	29	25	22	2
Zinc	mg/kg	65	73	110	61	5

Moisture						
Our Reference	UNITS	381579-1	381579-4	381579-7	381579-10	381579-13
Your Reference		TP201	TP202	TP203	TP204	TP205
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.2
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Moisture	%	39	31	60	58	27

Moisture						
Our Reference	UNITS	381579-17	381579-20	381579-24	381579-27	381579-31
Your Reference		TP206	TP207	TP208	TP209	TP210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	21/05/2025	21/05/2025	19/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Moisture	%	32	53	44	32	39

Moisture						
Our Reference	UNITS	381579-32	381579-34	381579-37	381579-41	381579-42
Your Reference		TP210	TP216	TP217	SDUPA	TB-A
Depth		0.5-0.6	0-0.1	0-0.1	0-0.1	NA
Date Sampled		20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Date analysed	-	28/05/2025	28/05/2025	28/05/2025	28/05/2025	28/05/2025
Moisture	%	22	32	27	50	7.2

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stoichiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

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

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			29/05/2025	1	28/05/2025	28/05/2025		28/05/2025	29/05/2025
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	98	94
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	98	94
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	96	95
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	89	87
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	107	101
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	99	94
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	83
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	98	1	62	66	6	95	90

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		27/05/2025	[NT]
Date analysed	-			[NT]	34	29/05/2025	29/05/2025		29/05/2025	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	34	<25	<25	0	97	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	34	<25	<25	0	97	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	34	<0.2	<0.2	0	95	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	34	<0.5	<0.5	0	88	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	106	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	34	<2	<2	0	98	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	86	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	34	74	83	11	94	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			28/05/2025	1	28/05/2025	28/05/2025		27/05/2025	28/05/2025
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	97	82
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	84	91
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	129	106
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	97	82
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	84	91
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	129	106
Surrogate o-Terphenyl	%		Org-020	102	1	106	108	2	100	105

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		27/05/2025	[NT]
Date analysed	-			[NT]	34	28/05/2025	28/05/2025		28/05/2025	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	34	<50	<50	0	82	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	34	<100	<100	0	80	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	34	<100	<100	0	114	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	34	<50	<50	0	82	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	34	<100	<100	0	80	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	34	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	34	101	102	1	94	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			28/05/2025	1	28/05/2025	28/05/2025		28/05/2025	28/05/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	82
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	66	68
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	80
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	95
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	84
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	82
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	73
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	74	77
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	100	1	121	125	3	104	105

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Date analysed	-			[NT]	34	28/05/2025	28/05/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	34	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	34	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	34	116	116	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			28/05/2025	1	28/05/2025	28/05/2025		28/05/2025	28/05/2025
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	86
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	80
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	78
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	86
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	86
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	78
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	94
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	88
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	92
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	76
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	114	1	100	106	6	99	97

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Date analysed	-			[NT]	34	28/05/2025	28/05/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	34	97	99	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			28/05/2025	1	28/05/2025	28/05/2025		28/05/2025	28/05/2025
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	84
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	82
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	72
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	90
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	90
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	80
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	92
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	114	1	100	106	6	99	97

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Date analysed	-			[NT]	34	28/05/2025	28/05/2025		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	34	97	99	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date extracted	-			30/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			31/05/2025	1	28/05/2025	28/05/2025		28/05/2025	28/05/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	85	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	113	1	114	116	2	104	105

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Date analysed	-			[NT]	34	28/05/2025	28/05/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	34	108	106	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	381579-37
Date prepared	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Date analysed	-			27/05/2025	1	27/05/2025	27/05/2025		27/05/2025	27/05/2025
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	94	#
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	82	83
Chromium	mg/kg	1	Metals-020	<1	1	14	13	7	86	87
Copper	mg/kg	1	Metals-020	<1	1	11	9	20	89	103
Lead	mg/kg	1	Metals-020	<1	1	7	7	0	84	85
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	120	101
Nickel	mg/kg	1	Metals-020	<1	1	12	17	34	84	83
Zinc	mg/kg	1	Metals-020	<1	1	54	56	4	83	80

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Date analysed	-			[NT]	34	27/05/2025	27/05/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	34	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	34	<0.4	0.7	55	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	34	26	28	7	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	34	15	15	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	34	8	8	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	34	29	30	3	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	34	73	70	4	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

8 metals in soil:

- # Low spike recovery was obtained for this sample. The sample was re-digested and re-spiked and the low recovery was confirmed. This is due to matrix interferences. However, an acceptable recovery was obtained for the LCS.
- The PQL for 381579-37 has been raised for As due to the low spike recovery/recoveries. This may reflect other samples where similar in matrix and similar analytical interferences occur.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	C Ridley

Sample Login Details

Your reference	E36314PT North Lismore
Envirolab Reference	381579
Date Sample Received	26/05/2025
Date Instructions Received	26/05/2025
Date Results Expected to be Reported	02/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	42 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	On Hold
TP201-0-0.2	✓	✓	✓	✓	✓	✓	✓	
TP201-0.3-0.4								✓
TP201-0.4-0.6								✓
TP202-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP202-0.5-0.6								✓
TP202-0.9-1								✓
TP203-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP203-0.5-0.6								✓
TP203-1-1.1								✓
TP204-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP204-0.5-0.6								✓
TP204-1-1.1								✓
TP205-0-0.2	✓	✓	✓	✓	✓	✓	✓	
TP205-0.4-0.5								✓
TP205-0.5-0.6								✓
TP205-1-1.1								✓
TP206-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP206-0.4-0.5								✓
TP206-0.9-1								✓
TP207-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP207-0.1-0.3								✓
TP207-0.5-0.6								✓
TP207-1-1.1								✓
TP208-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP208-0.5-0.6								✓
TP208-1-1.1								✓
TP209-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP209-0.5-0.6								✓
TP209-0.8-0.9								✓
TP209-1-1.1								✓
TP210-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP210-0.5-0.6	✓	✓	✓				✓	



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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	On Hold
TP210-0.7-0.8								✓
TP216-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP216-0.3-0.4								✓
TP216-0.8-0.9								✓
TP217-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TP217-0.3-0.4								✓
TP217-0.5-0.6								✓
TP217-0.9-1								✓
SDUPA-0-0.1	✓	✓	✓	✓	✓	✓	✓	
TB-A-NA	✓	✓	✓				✓	

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen				JKE Job Number: E36314PT Date Results Required: STANDARD Page: 1 of 2				FROM:  JKE Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Craig Ridley											
Location:		North Lismore, NSW					Sample Preserved in Esky on Ice												
Sampler:		Jessica Thornton					Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a NEPM	Combo 6	Combo 6a	Combo 6	Asbestos (detection)	BTEX							
19/05/2025	1	TP201	0-0.2	G	0.2	Soil		X											
19/05/2025	2	TP201	0.3-0.4	G	0.1	Soil													
19/05/2025	3	TP201	0.4-0.6	G	0	Soil													
20/05/2025	4	TP202	0-0.2	G	1.3	Soil		X											
20/05/2025	5	TP202	0.5-0.6	G	0.2	Soil													
20/05/2025	6	TP202	0.9-1	G	0.2	Soil													
20/05/2025	7	TP201	0-0.1	G	1.5	Soil		X											
20/05/2025	8	TP203	0.4-0.6	G	0.2	Soil													
20/05/2025	9	TP203	1-1.1	G	0.2	Soil													
20/05/2025	10	TP204	0-0.1	G	5.5	Soil		X											
20/05/2025	11	TP204	0.5-0.6	G	0.1	Soil													
20/05/2025	12	TP204	1-1.1	G	0.2	Soil													
19/05/2025	13	TP203	0-0.2	G	0.4	Soil		X											
19/05/2025	14	TP205	0.4-0.5	G	0.1	Soil													
19/05/2025	15	TP205	0.5-0.6	G	0	Soil													
19/05/2025	16	TP203	1-1.1	G	0	Soil													
20/05/2025	17	TP201	0-0.1	G	4.5	Soil		X											
20/05/2025	18	TP206	0.4-0.5	G	0.1	Soil													
20/05/2025	19	TP206	0.9-1	G	0.1	Soil													
21/05/2025	20	TP207	0-0.1	G	0.1	Soil		X											
21/05/2025	21	TP207	0.1-0.3	G	1.2	Soil													
21/05/2025	22	TP207	0.5-0.6	G	0	Soil													
21/05/2025	23	TP204	1-1.1	G	0	Soil													
21/05/2025	24	TP208	0-0.1	G	0	Soil		X											
21/05/2025	25	TP208	0.5-0.6	G	0.1	Soil													
Remarks (comments/detection limits required): 							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag												
Relinquished By: MD					Date: 25/1/25		Time: 12.40			Received By: ALWFE ENVIROLAB 8215			Date: 22/05/2025						

17.5

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen			JKE Job Number: E36314PT Date Results Required: STANDARD Page: 2 of 2			FROM: REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Craig Ridley																												
Location: North Lismore, NSW			Sample Preserved in Esky on Ice																															
Sampler: Jessica Thornton			Tests Required																															
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX																						
21/05/2025	26	TP208	1-1.1	G	0	Soil																												
19/05/2025	27	TP209	0-0.1	G	1.8	Soil		X																										
19/05/2025	28	TP209	0.5-0.6	G	0.1	Soil																												
19/05/2025	29	TP209	0.8-0.9	G	0.1	Soil																												
19/05/2025	30	TP209	1-1.1	G	0.1	Soil																												
20/05/2025	31	TP210	0-0.1	G	1.4	Soil		X																										
20/05/2025	32	TP210	0.5-0.6	G	0.3	Soil				X																								
20/05/2025	33	TP210	0.7-0.8	G	0.2	Soil																												
20/05/2025	34	TP210	0-0.1	G	0.3	Soil		X																										
20/05/2025	35	TP210	0.3-0.4	G	0.2	Soil																												
20/05/2025	36	TP210	0.8-0.9	G	0.2	Soil																												
20/05/2025	37	TP217	0-0.1	G	2.6	Soil		X																										
20/05/2025	38	TP210	0.3-0.4	G	0.3	Soil																												
20/05/2025	39	TP217	0.5-0.6	G	0.1	Soil																												
20/05/2025	40	TP217	0-0.1	G	0.2	Soil																												
20/05/2025	41	SDUPA	0-0.1	G	0.3	Soil		X																										
20/05/2025	50	SDUPB	0.5-0.6	G	0.2	Soil				X																								
19-21/5/25	42	TB-A	NA	G	NA	Sand				X																								
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag																											
Relinquished By:							Date: 25/5/25							Time: 12:40							Received By: Aileen							Date: 22/05/2025						
																					ENVIROLAB 886													

17.5.

#381579
26105125
D.J.

CERTIFICATE OF ANALYSIS 382348

Client Details

Client	JK Environments
Attention	C Ridley
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E36314PT North Lismore</u>
Number of Samples	64 Soil, 2 Water, 1 Material
Date samples received	03/06/2025
Date completed instructions received	03/06/2025

Analysis Details

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

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

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

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

Report Details

Date results requested by	11/06/2025
Date of Issue	11/06/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
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Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu, Amanda Lee, Nyovan Moonean

Authorised by Asbestos Approved Signatory: Lucy Zhu, Nyovan Moonean

Results Approved By

Dragana Tomas, Senior Chemist

Giovanni Agosti, Group Technical Manager

Jack Wallis, Senior Chemist

Lucy Zhu, Asbestos Supervisor

Nyovan Moonean, Asbestos Approved Identifier/Counter

Tabitha Roberts, Senior Chemist

Timothy Tall, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference	UNITS	BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	77	90	69	78	79

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-31	382348-32	382348-33	382348-34	382348-35
Your Reference	UNITS	TP301	TP302	TP302	TP303	TP303
Depth		0.9-1	0-0.1	0.3-0.4	0-0.1	0.1-0.2
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	69	96	84	67	69

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference	UNITS	TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	65	66	72	77	64

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-41	382348-42	382348-43	382348-44	382348-46
Your Reference	UNITS	TP308	TP309	TP309	TP310	TP311
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	83	67	82	70

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-47	382348-48	382348-49	382348-51	382348-53
Your Reference	UNITS	TP312	TP312	TP313	TP314	TP315
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	69	83	75	64

vTRH(C6-C10)/BTEXN in Soil

Our Reference		382348-54	382348-55	382348-59	382348-60	382348-62
Your Reference	UNITS	TP315	SDUP301	TB301	TS301	Creek1
Depth		0.3-0.4	0-0.1	-	-	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	29/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	[NA]	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	[NA]	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	98%	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	98%	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	97%	<1
m+p-xylene	mg/kg	<2	<2	<2	97%	<2
o-Xylene	mg/kg	<1	<1	<1	97%	<1
Naphthalene	mg/kg	<1	<1	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	75	72	65	114	65

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		382348-63
Your Reference	UNITS	Creek2
Depth		0-0.1
Date Sampled		29/05/2025
Type of sample		Soil
Date extracted	-	04/06/2025
Date analysed	-	10/06/2025
TRH C ₆ - C ₉	mg/kg	<25
TRH C ₆ - C ₁₀	mg/kg	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	75

svTRH (C10-C40) in Soil						
Our Reference	UNITS	382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference		BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	100	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	100	<50	<50	<50	<50
Surrogate o-Terphenyl	%	111	107	101	101	101

svTRH (C10-C40) in Soil						
Our Reference	UNITS	382348-31	382348-32	382348-33	382348-34	382348-35
Your Reference		TP301	TP302	TP302	TP303	TP303
Depth		0.9-1	0-0.1	0.3-0.4	0-0.1	0.1-0.2
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	113	97	96	100	101

svTRH (C10-C40) in Soil

Our Reference		382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference	UNITS	TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	97	101	113	97

svTRH (C10-C40) in Soil

Our Reference		382348-41	382348-42	382348-43	382348-44	382348-46
Your Reference	UNITS	TP308	TP309	TP309	TP310	TP311
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	110	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	240	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	350	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	260	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	160	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	420	<50	<50	<50
Surrogate o-Terphenyl	%	96	111	106	99	95

svTRH (C10-C40) in Soil

Our Reference		382348-47	382348-48	382348-49	382348-51	382348-53
Your Reference	UNITS	TP312	TP312	TP313	TP314	TP315
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	97	99	101	101

svTRH (C10-C40) in Soil

Our Reference		382348-54	382348-55	382348-59	382348-62	382348-63
Your Reference	UNITS	TP315	SDUP301	TB301	Creek1	Creek2
Depth		0.3-0.4	0-0.1	-	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	29/05/2025	29/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	99	96	99	100

PAHs in Soil						
Our Reference		382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference	UNITS	BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.06	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.2	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	122	129	135	128	133

PAHs in Soil						
Our Reference		382348-31	382348-32	382348-33	382348-34	382348-35
Your Reference	UNITS	TP301	TP302	TP302	TP303	TP303
Depth		0.9-1	0-0.1	0.3-0.4	0-0.1	0.1-0.2
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	06/06/2025	05/06/2025	06/06/2025	05/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	128	128	129	127	131

PAHs in Soil						
Our Reference		382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference	UNITS	TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.07	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.3	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	131	126	130	128	131

PAHs in Soil						
Our Reference		382348-41	382348-42	382348-43	382348-44	382348-46
Your Reference	UNITS	TP308	TP309	TP309	TP310	TP311
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	06/06/2025	05/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.2	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.67	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	132	125	134	130	133

PAHs in Soil						
Our Reference		382348-47	382348-48	382348-49	382348-51	382348-53
Your Reference	UNITS	TP312	TP312	TP313	TP314	TP315
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	05/06/2025	06/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	131	136	132	131	128

PAHs in Soil						
Our Reference		382348-54	382348-55	382348-59	382348-62	382348-63
Your Reference	UNITS	TP315	SDUP301	TB301	Creek1	Creek2
Depth		0.3-0.4	0-0.1	-	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	29/05/2025	29/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	06/06/2025	05/06/2025	06/06/2025	06/06/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	133	129	136	129	121

Organochlorine Pesticides in soil						
Our Reference		382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference	UNITS	BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	130	123	129	122	126

Organochlorine Pesticides in soil						
Our Reference		382348-32	382348-34	382348-36	382348-37	382348-38
Your Reference	UNITS	TP302	TP303	TP304	TP305	TP306
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	28/05/2025	27/05/2025	28/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	121	119	124	116	118

Organochlorine Pesticides in soil						
Our Reference		382348-39	382348-40	382348-42	382348-44	382348-46
Your Reference	UNITS	TP307	TP308	TP309	TP310	TP311
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	117	120	135	122	123

Organochlorine Pesticides in soil						
Our Reference		382348-47	382348-49	382348-51	382348-53	382348-55
Your Reference	UNITS	TP312	TP313	TP314	TP315	SDUP301
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	118	123	122	116	113

Organochlorine Pesticides in soil			
Our Reference		382348-62	382348-63
Your Reference	UNITS	Creek1	Creek2
Depth		0-0.1	0-0.1
Date Sampled		29/05/2025	29/05/2025
Type of sample		Soil	Soil
Date extracted	-	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	114	109

Organophosphorus Pesticides in Soil						
Our Reference		382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference	UNITS	BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	130	123	129	122	126

Organophosphorus Pesticides in Soil

Our Reference		382348-32	382348-34	382348-36	382348-37	382348-38
Your Reference	UNITS	TP302	TP303	TP304	TP305	TP306
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	28/05/2025	27/05/2025	28/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	121	119	124	116	118

Organophosphorus Pesticides in Soil

Our Reference		382348-39	382348-40	382348-42	382348-44	382348-46
Your Reference	UNITS	TP307	TP308	TP309	TP310	TP311
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	117	120	135	122	123

Organophosphorus Pesticides in Soil

Our Reference		382348-47	382348-49	382348-51	382348-53	382348-55
Your Reference	UNITS	TP312	TP313	TP314	TP315	SDUP301
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	118	123	122	116	113

Organophosphorus Pesticides in Soil			
Our Reference		382348-62	382348-63
Your Reference	UNITS	Creek1	Creek2
Depth		0-0.1	0-0.1
Date Sampled		29/05/2025	29/05/2025
Type of sample		Soil	Soil
Date extracted	-	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025
Dichlorvos	mg/kg	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	114	109

PCBs in Soil						
Our Reference	UNITS	382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference		BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	134	120	125	118	121

PCBs in Soil						
Our Reference	UNITS	382348-32	382348-34	382348-36	382348-37	382348-38
Your Reference		TP302	TP303	TP304	TP305	TP306
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	28/05/2025	27/05/2025	28/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	116	114	110	113	109

PCBs in Soil						
Our Reference	UNITS	382348-39	382348-40	382348-42	382348-44	382348-46
Your Reference		TP307	TP308	TP309	TP310	TP311
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	116	119	136	118	119

PCBs in Soil						
Our Reference	UNITS	382348-47	382348-49	382348-51	382348-53	382348-55
Your Reference		TP312	TP313	TP314	TP315	SDUP301
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	117	121	119	115	115

PCBs in Soil			
Our Reference		382348-62	382348-63
Your Reference	UNITS	Creek1	Creek2
Depth		0-0.1	0-0.1
Date Sampled		29/05/2025	29/05/2025
Type of sample		Soil	Soil
Date extracted	-	04/06/2025	04/06/2025
Date analysed	-	06/06/2025	06/06/2025
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	114	110

Acid Extractable metals in soil

Our Reference		382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference	UNITS	BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	6	28	9	17
Copper	mg/kg	17	17	21	18	14
Lead	mg/kg	10	4	20	9	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	21	24	23	20
Zinc	mg/kg	110	60	140	120	86

Acid Extractable metals in soil

Our Reference		382348-31	382348-32	382348-33	382348-34	382348-35
Your Reference	UNITS	TP301	TP302	TP302	TP303	TP303
Depth		0.9-1	0-0.1	0.3-0.4	0-0.1	0.1-0.2
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	8	4	19	19
Copper	mg/kg	4	21	11	11	12
Lead	mg/kg	2	14	3	12	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	22	17	20	20
Zinc	mg/kg	29	120	61	62	62

Acid Extractable metals in soil

Our Reference		382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference	UNITS	TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	27	24	21	18	27
Copper	mg/kg	12	14	13	14	16
Lead	mg/kg	8	10	15	8	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	13	12	13	22	31
Zinc	mg/kg	35	47	62	76	50

Acid Extractable metals in soil

Our Reference		382348-41	382348-42	382348-43	382348-44	382348-46
Your Reference	UNITS	TP308	TP309	TP309	TP310	TP311
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	34	16	15	16	15
Copper	mg/kg	14	21	10	12	14
Lead	mg/kg	5	10	6	9	6
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	13	11	15	12
Zinc	mg/kg	31	80	28	57	46

Acid Extractable metals in soil

Our Reference		382348-47	382348-48	382348-49	382348-51	382348-53
Your Reference	UNITS	TP312	TP312	TP313	TP314	TP315
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	21	21	28	25
Copper	mg/kg	10	14	12	12	17
Lead	mg/kg	8	6	11	8	12
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	14	15	23	14	13
Zinc	mg/kg	44	46	42	41	53

Acid Extractable metals in soil

Our Reference		382348-54	382348-55	382348-59	382348-62	382348-63
Your Reference	UNITS	TP315	SDUP301	TB301	Creek1	Creek2
Depth		0.3-0.4	0-0.1	-	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	29/05/2025	29/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	25	21	2	30	41
Copper	mg/kg	10	13	<1	13	19
Lead	mg/kg	9	11	2	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	14	25	<1	23	39
Zinc	mg/kg	39	44	3	90	79

Moisture						
Our Reference	UNITS	382348-12	382348-15	382348-19	382348-21	382348-30
Your Reference		BH211	BH212	BH214	BH215	TP301
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		29/05/2025	27/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	55	9.3	37	34	24

Moisture						
Our Reference	UNITS	382348-31	382348-32	382348-33	382348-34	382348-35
Your Reference		TP301	TP302	TP302	TP303	TP303
Depth		0.9-1	0-0.1	0.3-0.4	0-0.1	0.1-0.2
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	27	26	17	39	41

Moisture						
Our Reference	UNITS	382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference		TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	41	42	47	19	39

Moisture						
Our Reference	UNITS	382348-41	382348-42	382348-43	382348-44	382348-46
Your Reference		TP308	TP309	TP309	TP310	TP311
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	36	60	38	39	40

Moisture						
Our Reference	UNITS	382348-47	382348-48	382348-49	382348-51	382348-53
Your Reference		TP312	TP312	TP313	TP314	TP315
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	41	43	45	40	41

Moisture						
Our Reference	UNITS	382348-54	382348-55	382348-59	382348-62	382348-63
Your Reference		TP315	SDUP301	TB301	Creek1	Creek2
Depth		0.3-0.4	0-0.1	-	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	29/05/2025	29/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Moisture	%	40	48	0.2	47	51

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Our Reference		382348-1	382348-2	382348-3	382348-4	382348-5
Your Reference	UNITS	TP201	TP202	TP203	TP204	TP204
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0.5-0.6
Date Sampled		19/05/2025	20/05/2025	20/05/2025	20/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	311.99	348.61	147.36	368.97	235.49
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

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Our Reference		382348-6	382348-7	382348-8	382348-9	382348-10
Your Reference	UNITS	TP205	TP206	TP207	TP208	TP209
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		19/05/2025	20/05/2025	21/05/2025	21/05/2025	19/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	592.94	315.93	231.73	157.19	413.79
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		382348-11	382348-12	382348-15	382348-19	382348-21
Your Reference	UNITS	TP210	BH211	BH212	BH214	BH215
Depth		0-0.1	0-0.1	0.05-0.2	0-0.1	0-0.1
Date Sampled		20/05/2025	29/05/2025	27/05/2025	30/05/2025	30/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	299.67	214.16	995.23	315.82	340.46
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		382348-23	382348-24	382348-30	382348-32	382348-34
Your Reference	UNITS	TP216	TP217	TP301	TP302	TP303
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		20/05/2025	20/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	465.78	334.19	572.12	522.41	331.52
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		382348-36	382348-37	382348-38	382348-39	382348-40
Your Reference	UNITS	TP304	TP305	TP306	TP307	TP308
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		28/05/2025	27/05/2025	28/05/2025	28/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	293.65	305.93	237.56	599.24	342.31
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		382348-42	382348-44	382348-46	382348-47	382348-49
Your Reference	UNITS	TP309	TP310	TP311	TP312	TP313
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025	27/05/2025	27/05/2025	27/05/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/06/2025	10/06/2025	10/06/2025	10/06/2025	10/06/2025
Sample mass tested	g	205.36	332.09	319.62	322.9	251.39
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		382348-51	382348-53
Your Reference	UNITS	TP314	TP315
Depth		0-0.1	0-0.1
Date Sampled		27/05/2025	27/05/2025
Type of sample		Soil	Soil
Date analysed	-	10/06/2025	10/06/2025
Sample mass tested	g	308.35	265.21
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—
FA and AF Estimation*	g	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001
Asbestos comments	-	Nil	Nil

Asbestos ID - materials		
Our Reference	UNITS	382348-61
Your Reference		Surf Mat 1
Depth		Surface
Date Sampled		26/05/2025
Type of sample		Material
Date analysed	-	05/06/2025
Mass / Dimension of Sample	-	80x30x5mm
Sample Description	-	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected
		Organic fibres detected
Trace Analysis	-	[NT]

vTRH(C6-C10)/BTEXN in Water		
Our Reference		382348-58
Your Reference	UNITS	FR301-Shovel
Depth		-
Date Sampled		28/05/2025
Type of sample		Water
Date extracted	-	06/06/2025
Date analysed	-	10/06/2025
TRH C ₆ - C ₉	µg/L	81
TRH C ₆ - C ₁₀	µg/L	85
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	85
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	96

svTRH (C10-C40) in Water		
Our Reference		382348-58
Your Reference	UNITS	FR301-Shovel
Depth		-
Date Sampled		28/05/2025
Type of sample		Water
Date extracted	-	04/06/2025
Date analysed	-	04/06/2025
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	103

PAHs in Water		
Our Reference		382348-58
Your Reference	UNITS	FR301-Shovel
Depth		-
Date Sampled		28/05/2025
Type of sample		Water
Date extracted	-	04/06/2025
Date analysed	-	06/06/2025
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	113

Metals in Waters - Acid extractable		
Our Reference		382348-58
Your Reference	UNITS	FR301-Shovel
Depth		-
Date Sampled		28/05/2025
Type of sample		Water
Date prepared	-	04/06/2025
Date analysed	-	05/06/2025
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	0.1
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stoichiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			10/06/2025	12	10/06/2025	10/06/2025		10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	12	<25	<25	0	108	88
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	12	<25	<25	0	108	88
Benzene	mg/kg	0.2	Org-023	<0.2	12	<0.2	<0.2	0	108	89
Toluene	mg/kg	0.5	Org-023	<0.5	12	<0.5	<0.5	0	118	90
Ethylbenzene	mg/kg	1	Org-023	<1	12	<1	<1	0	107	89
m+p-xylene	mg/kg	2	Org-023	<2	12	<2	<2	0	103	87
o-Xylene	mg/kg	1	Org-023	<1	12	<1	<1	0	102	86
Naphthalene	mg/kg	1	Org-023	<1	12	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	88	12	77	61	23	73	82

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	10/06/2025	10/06/2025		10/06/2025	10/06/2025
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	36	<25	<25	0	83	101
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	36	<25	<25	0	83	101
Benzene	mg/kg	0.2	Org-023	[NT]	36	<0.2	<0.2	0	83	101
Toluene	mg/kg	0.5	Org-023	[NT]	36	<0.5	<0.5	0	81	102
Ethylbenzene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	84	102
m+p-xylene	mg/kg	2	Org-023	[NT]	36	<2	<2	0	83	100
o-Xylene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	83	101
Naphthalene	mg/kg	1	Org-023	[NT]	36	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	36	65	70	7	66	92

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	10/06/2025	10/06/2025		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	47	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	47	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	47	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	47	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	47	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	47	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	47	83	82	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	10/06/2025	10/06/2025		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	63	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	63	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	63	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	63	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	63	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	63	75	99	28	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	12	<50	<50	0	101	86
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	12	<100	<100	0	97	88
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	12	100	150	40	86	87
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	12	<50	<50	0	101	86
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	12	100	150	40	97	88
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	12	<100	110	10	86	87
Surrogate o-Terphenyl	%		Org-020	97	12	111	116	4	84	80

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	36	<50	<50	0	101	95
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	36	<100	<100	0	97	97
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	36	<100	<100	0	86	93
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	36	<50	<50	0	101	95
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	36	<100	<100	0	97	97
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	36	<100	<100	0	86	93
Surrogate o-Terphenyl	%		Org-020	[NT]	36	99	97	2	85	86

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	05/06/2025	05/06/2025		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	47	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	47	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	47	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	47	100	99	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	05/06/2025	05/06/2025		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	63	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	63	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	63	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	63	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	63	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	63	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	63	100	102	2	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			06/06/2025	12	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	88	88
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	94
Fluorene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	88	88
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	96	96
Anthracene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	98
Pyrene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	96
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	78	78
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	12	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	12	<0.05	<0.05	0	90	96
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	132	12	122	138	12	102	102

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	94	96
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	98	100
Fluorene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	92	96
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	100	102
Anthracene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	102	108
Pyrene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	102	106
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	78	86
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	36	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	36	<0.05	<0.05	0	90	98
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	36	131	133	2	108	114

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	06/06/2025	06/06/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	47	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	47	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	47	131	131	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	06/06/2025	06/06/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	63	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	63	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	63	121	131	8	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			06/06/2025	12	06/06/2025	06/06/2025		06/06/2025	06/06/2025
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	92	92
HCB	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	86	86
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	86	86
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	80	84
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	98	98
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	82	84
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	94
Endrin	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	80	88
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	88	90
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	88	96
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	126	12	130	133	2	106	103

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	06/06/2025	06/06/2025		06/06/2025	06/06/2025
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	94	98
HCB	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	90	94
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	90	96
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	86	92
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	102	104
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	88	94
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	102	106
Endrin	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	90	102
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	94	98
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	98	108
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	36	124	124	0	108	109

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	06/06/2025	06/06/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	47	118	118	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	06/06/2025	06/06/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	63	109	113	4	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			06/06/2025	12	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	92	96
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	84	88
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	100
Malathion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	104	114
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	94	98
Fenthion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	96	100
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	90	96
Phosalone	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	126	12	130	133	2	106	103

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	102	108
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	90	96
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	92	100
Malathion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	114	116
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	100	100
Fenthion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	96	98
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	96	100
Phosalone	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	36	124	124	0	108	109

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	06/06/2025	06/06/2025		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	47	118	118	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	06/06/2025	06/06/2025		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	63	109	113	4	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date extracted	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			06/06/2025	12	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	88	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	120	12	134	127	5	95	98

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date extracted	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	06/06/2025	06/06/2025		06/06/2025	06/06/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	92	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	36	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	36	110	120	9	105	102

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	06/06/2025	06/06/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	47	117	116	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	06/06/2025	06/06/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	63	110	116	5	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	382348-15
Date prepared	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			04/06/2025	12	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Arsenic	mg/kg	4	Metals-020	<4	12	<4	<4	0	103	76
Cadmium	mg/kg	0.4	Metals-020	<0.4	12	<0.4	<0.4	0	100	83
Chromium	mg/kg	1	Metals-020	<1	12	14	13	7	97	89
Copper	mg/kg	1	Metals-020	<1	12	17	16	6	100	109
Lead	mg/kg	1	Metals-020	<1	12	10	10	0	99	87
Mercury	mg/kg	0.1	Metals-021	<0.1	12	<0.1	<0.1	0	119	121
Nickel	mg/kg	1	Metals-020	<1	12	10	8	22	99	88
Zinc	mg/kg	1	Metals-020	<1	12	110	100	10	99	88

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	382348-49
Date prepared	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			[NT]	36	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Arsenic	mg/kg	4	Metals-020	[NT]	36	<4	<4	0	106	71
Cadmium	mg/kg	0.4	Metals-020	[NT]	36	<0.4	<0.4	0	101	87
Chromium	mg/kg	1	Metals-020	[NT]	36	27	28	4	98	93
Copper	mg/kg	1	Metals-020	[NT]	36	12	11	9	102	105
Lead	mg/kg	1	Metals-020	[NT]	36	8	9	12	101	89
Mercury	mg/kg	0.1	Metals-021	[NT]	36	<0.1	<0.1	0	120	118
Nickel	mg/kg	1	Metals-020	[NT]	36	13	14	7	100	89
Zinc	mg/kg	1	Metals-020	[NT]	36	35	38	8	100	87

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	47	04/06/2025	04/06/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	47	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	47	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	47	19	19	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	47	10	12	18	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	47	8	7	13	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	47	14	16	13	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	47	44	44	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Date analysed	-			[NT]	63	04/06/2025	04/06/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	63	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	63	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	63	41	32	25	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	63	19	16	17	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	63	9	9	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	63	39	29	29	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	63	79	73	8	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			06/06/2025	[NT]	[NT]	[NT]	[NT]	06/06/2025	[NT]
Date analysed	-			10/06/2025	[NT]	[NT]	[NT]	[NT]	10/06/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	89	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	89	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			04/06/2025	[NT]	[NT]	[NT]	[NT]	04/06/2025	[NT]
Date analysed	-			04/06/2025	[NT]	[NT]	[NT]	[NT]	04/06/2025	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	102	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/06/2025	[NT]	[NT]	[NT]	[NT]	04/06/2025	[NT]
Date analysed	-			06/06/2025	[NT]	[NT]	[NT]	[NT]	06/06/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	109	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			04/06/2025	[NT]	[NT]	[NT]	[NT]	04/06/2025	[NT]
Date analysed	-			05/06/2025	[NT]	[NT]	[NT]	[NT]	05/06/2025	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, samples 382348-1-5,7-9,11-12,19,21,24,30,34,36-38,40,42,44,46,-47,49,51,53 are below the minimum recommended 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	C Ridley

Sample Login Details

Your reference	E36314PT North Lismore
Envirolab Reference	382348
Date Sample Received	03/06/2025
Date Instructions Received	03/06/2025
Date Results Expected to be Reported	11/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	64 Soil, 2 Water, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
TP201-0-0.2								✓						
TP202-0-0.1								✓						
TP203-0-0.1								✓						
TP204-0-0.1								✓						
TP204-0.5-0.6								✓						
TP205-0-0.2								✓						
TP206-0-0.1								✓						
TP207-0-0.1								✓						
TP208-0-0.1								✓						
TP209-0-0.1								✓						
TP210-0-0.1								✓						
BH211-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
BH211-0.1-0.2														✓
BH211-0.4-0.5														✓
BH212-0.05-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
BH212-0.4-0.5														✓
BH213-0-0.1														✓
BH213-0.5-0.6														✓
BH214-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
BH214-0.3-0.4														✓
BH215-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
BH215-0.4-0.5														✓
TP216-0-0.1								✓						
TP217-0-0.1								✓						
TP217-0.3-0.4														✓
BH218-0-0.1														✓
BH218-0.5-0.6														✓
SDUP201-0-0.1														✓
SDUP202-0-0.1														✓
TP301-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP301-0.9-1	✓	✓	✓				✓							
TP302-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
TP302-0.3-0.4	✓	✓	✓				✓							
TP303-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP303-0.1-0.2	✓	✓	✓				✓							
TP304-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP305-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP306-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP307-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP308-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP308-0.4-0.5	✓	✓	✓				✓							
TP309-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP309-0.4-0.5	✓	✓	✓				✓							
TP310-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP310-0.4-0.5														✓
TP311-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP312-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP312-0.4-0.5	✓	✓	✓				✓							
TP313-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP313-0.4-0.5														✓
TP314-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP314-0.4-0.5														✓
TP315-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓						
TP315-0.3-0.4	✓	✓	✓				✓							
SDUP301-0-0.1	✓	✓	✓	✓	✓	✓	✓							
SDUP303-0-0.1														✓
SDUP304-0-0.1														✓
FR301-Shovel										✓	✓	✓	✓	
TB301	✓	✓	✓				✓							
TS301	✓													
Surf Mat 1-Surface									✓					
Creek1-0-0.1	✓	✓	✓	✓	✓	✓	✓							
Creek2-0-0.1	✓	✓	✓	✓	✓	✓	✓							
TB														✓



EnviroLab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	On Hold
BH212-1-1.1														✓
BH218-0.3-0.4														✓
BH214-0-0.1														✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

LOC 3/6/25, 1455.

①

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E36314PT Date Results Required: STANDARD Page: 1 of 3	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Craig Ridley

Location:		North Lismore					Sample Preserved in Esky on Ice												
Sampler:		Jessica Thornton					Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a NEPM	Combo 6	Combo 6a	Combo 6	Asbestos (detection)	BTEX	Asbestos NEPM						
19/05/2025	1	TP201	0-0.2	A	0.2	Silty Clay							X						
20/05/2025	2	TP202	0-0.2	A	0	Silty Clay							X						
20/05/2025	3	TP203	0-0.2	A	1.5	Silty Clay							X						
20/05/2025	4	TP204	0-0.1	A	5.5	Silty Clay							X						
19/05/2025	5	TP204	0.5-0.6	A	0.1	Silty Clay							X						
19/05/2025	6	TP205	0-0.2	A	0.4	Silty Clay							X						
20/05/2025	7	TP201	0-0.2	A	4.5	Silty Clay							X						
21/05/2025	8	TP207	0-0.1	A	0.1	Silty Clay							X						
21/05/2025	9	TP208	0-0.1	A	0	Silty Clay							X						
19/05/2025	10	TP209	0-0.1	A	0.1	Silty Clay							X						
20/05/2025	11	TP210	0-0.1	A	0	Silty Clay							X						
29/05/2025	12	BH211	0-0.1	G, A	0	F: Sandy Clay	X												
29/05/2025	13	BH211	0.1-0.2	G, A	0	F: Sandy Clay													
29/05/2025	14	BH211	0.4-0.5	G, A	0	Silty Clay													
27/05/2025	15	BH212	0.05-0.2	G, A	0	Soil	X												
27/05/2025	16	BH212	0.4-0.5	G, A	0	Soil													
29/05/2025	17	BH213	0-0.1	G, A	0	Topsoil: Silty Clay													
29/05/2025	18	BH213	0.5-0.6	G, A	0	Gravelly Clay													
30/05/2025	19	BH214	0-0.1	G, A	0	Topsoil: Silty Clay	X												
30/05/2025	20	BH214	0.3-0.4	G, A	0	Silty Clay													
30/05/2025	21	BH215	0-0.1	G, A	0	Topsoil: Silty Clay	X												
30/05/2025	22	BH215	0.4-0.5	G, A	0	Silty Clay													
20/05/2025	23	TP216	0-0.2	A	0.3	Silty Clay							X						
20/05/2025	24	TP217	0-0.1	A	0.3	Silty Clay							X						
20/05/2025	25	TP217	0.3-0.4	A	0.3	Silty Clay													
30/05/2025	26	BH218	0-0.1	G, A	0	Topsoil: Silty Clay													
30/05/2025	27	BH218	0.5-0.6	G, A	0	Silty Clay													
30/05/2025	28	SDUP201	0-0.1	G	0	Duplicate													
30/05/2025	29	SDUP202	0-0.1	G	0	Duplicate													



EnviroLAB
12 Ashley
Chatswood NSW 2067
Ph: (02) 9910 6211

Job No: 382348

Date Received: 3/6/25

Time Received: 15:05

Received By: KC

Temp: Cool/Ambient 12°C

Cooling: Ice/Icepack

Security: Intact/Broken

Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag																	
Relinquished By:						Date:						Time:						Received By: <u>EUS SYD</u> Date: <u>3/6/25 1500</u>					

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

Job No: 382348
Date Received: 3/6/25
Time Received: 1500
Received By: KEC
Temp: Cool/Ambient 12°C
Cooling: Ice/icepack
Security: Intact/Broken None

2

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		JKE Job Number: E36314PT Date Results Required: STANDARD Page: 2 of 3		FROM:  REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: CRidley@jkenvironments.com.au													
Location: Lismore		Sample Preserved in Esky on Ice															
Sampler: OB		Tests Required															
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a NEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX	Asbestos NEPM				
27/05/2025	30	TP301	0-0.1	G, A	1.2	F: Silty Clay	X										
27/05/2025	31	TP301	0.9-1	G, A	2.2	Silty Clay				X							
27/05/2025	32	TP301	0-0.1	G, A	0.8	F: Silty Clay	X										
27/05/2025	33	TP302	0.3-0.4	G, A	2.3	.XW Basalt				X							
27/05/2025	34	TP303	0-0.1	G, A	0.7	Topsoil: Silty Clay	X										
27/05/2025	35	TP303	0.1-0.2	G, A	0.8	Silty Clay				X							
28/05/2025	36	TP304	0-0.1	G, A	1.2	Silty Clay	X										
27/05/2025	37	TP305	0-0.1	G, A	1.2	Silty Clay	X										
28/05/2025	38	TP306	0-0.1	G, A	0.3	Silty Clay	X										
28/05/2025	39	TP307	0-0.1	G, A	0.1	F: Silty Clay	X										
27/05/2025	40	TP306	0-0.1	G, A	0.3	Topsoil: Silty Clay	X										
27/05/2025	41	TP308	0.4-0.5	G, A	1.7	Silty Clay				X							
27/05/2025	42	TP304	0-0.1	G, A	0.5	Topsoil: Silty Clay	X										
27/05/2025	43	TP309	0.4-0.5	G, A	0.5	Silty Clay				X							
27/05/2025	44	TP310	0-0.1	G, A	0.5	Topsoil: Silty Clay	X										
27/05/2025	45	TP310	0.4-0.5	G, A	0.7	Silty Clay											
27/05/2025	46	TP311	0-0.1	G, A	0.3	Silty Clay	X										
27/05/2025	47	TP312	0-0.1	G, A	0.2	Topsoil: Silty Clay	X										
27/05/2025	48	TP312	0.4-0.5	G, A	1	Silty Clay				X							
27/05/2025	49	TP313	0-0.1	G, A	0.8	Topsoil: Silty Clay	X										
27/05/2025	50	TP313	0.4-0.5	G, A	0.5	Silty Clay											
27/05/2025	51	TP314	0-0.1	G, A	1	Topsoil: Silty Clay	X										
27/05/2025	52	TP310	0.4-0.5	G, A	0.9	Silty Clay											
27/05/2025	53	TP315	0-0.1	G, A	0.5	Topsoil: Silty Clay	X										
27/05/2025	54	TP315	0.3-0.4	G, A	1.4	Silty Clay				X							
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag										
Relinquished By:					Date:		Time:		Received By:			Date:					

#382348
3/6/25
wc

SAMPLE AND CHAIN OF CUSTODY FORM

[illegible]

#382348
3/6/25
uc

CERTIFICATE OF ANALYSIS 382348-A

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E36314PT North Lismore</u>
Number of Samples	Additional analysis 1 sample
Date samples received	03/06/2025
Date completed instructions received	20/06/2025

Analysis Details

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

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

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

Report Details

Date results requested by	24/06/2025
Date of Issue	24/06/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Giovanni Agosti, Group Technical Manager

Authorised By

Nancy Zhang, Laboratory Manager

CEC		
Our Reference		382348-A-63
Your Reference	UNITS	Creek2
Depth		0-0.1
Date Sampled		29/05/2025
Type of sample		Soil
Date prepared	-	24/06/2025
Date analysed	-	24/06/2025
Exchangeable Ca	meq/100g	16
Exchangeable K	meq/100g	0.3
Exchangeable Mg	meq/100g	10
Exchangeable Na	meq/100g	0.3
Cation Exchange Capacity	meq/100g	27

Method ID	Methodology Summary
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			24/06/2025	[NT]	[NT]	[NT]	[NT]	24/06/2025	[NT]
Date analysed	-			24/06/2025	[NT]	[NT]	[NT]	[NT]	24/06/2025	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E36314PT North Lismore
Envirolab Reference	382348-A
Date Sample Received	03/06/2025
Date Instructions Received	20/06/2025
Date Results Expected to be Reported	24/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	Additional analysis 1 sample
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	CEC	On Hold
TP201-0-0.2		✓
TP202-0-0.1		✓
TP203-0-0.1		✓
TP204-0-0.1		✓
TP204-0.5-0.6		✓
TP205-0-0.2		✓
TP206-0-0.1		✓
TP207-0-0.1		✓
TP208-0-0.1		✓
TP209-0-0.1		✓
TP210-0-0.1		✓
BH211-0-0.1		✓
BH211-0.1-0.2		✓
BH211-0.4-0.5		✓
BH212-0.05-0.2		✓
BH212-0.4-0.5		✓
BH213-0-0.1		✓
BH213-0.5-0.6		✓
BH214-0-0.1		✓
BH214-0.3-0.4		✓
BH215-0-0.1		✓
BH215-0.4-0.5		✓
TP216-0-0.1		✓
TP217-0-0.1		✓
TP217-0.3-0.4		✓
BH218-0-0.1		✓
BH218-0.5-0.6		✓
SDUP201-0-0.1		✓
SDUP202-0-0.1		✓
TP301-0-0.1		✓
TP301-0.9-1		✓
TP302-0-0.1		✓



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Sample ID	CEC	On Hold
TP302-0.3-0.4		✓
TP303-0-0.1		✓
TP303-0.1-0.2		✓
TP304-0-0.1		✓
TP305-0-0.1		✓
TP306-0-0.1		✓
TP307-0-0.1		✓
TP308-0-0.1		✓
TP308-0.4-0.5		✓
TP309-0-0.1		✓
TP309-0.4-0.5		✓
TP310-0-0.1		✓
TP310-0.4-0.5		✓
TP311-0-0.1		✓
TP312-0-0.1		✓
TP312-0.4-0.5		✓
TP313-0-0.1		✓
TP313-0.4-0.5		✓
TP314-0-0.1		✓
TP314-0.4-0.5		✓
TP315-0-0.1		✓
TP315-0.3-0.4		✓
SDUP301-0-0.1		✓
SDUP303-0-0.1		✓
SDUP304-0-0.1		✓
FR301-Shovel		✓
TB301		✓
TS301		✓
Surf Mat 1-Surface		✓
Creek1-0-0.1		✓
Creek2-0-0.1	✓	
-		✓

Sample ID	CEC	On Hold
BH212-1-1.1		✓
BH218-0.3-0.4		✓
BH214-0-0.1		✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Anna Bui

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Friday, 20 June 2025 11:58 AM
To: Envirolab Sydney Sample Receipt
Subject: FW: Results for Registration 382348 E36314PT North Lismore
Attachments: 382348-[R00].pdf; 382348-COC.pdf; JK Environment Soil for Envirolab 382348.xlsx; 382348.Excel.xlsx

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi,

Could you please analyse sample Creek 2 (Envirolab #63) for CEC on 2 day TA.

Thank you

Regards
Katrina Taylor
Senior Associate | Environmental Scientist
NSW Licensed Asbestos Assessor



T: +61 2 9888 5000
D: +61 418 481 628
E: KTaylor@jkenvironments.com.au
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JKEnvironments

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From: Craig Ridley <CRidley@jkenvironments.com.au>
Sent: Wednesday, 11 June 2025 3:22 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: FW: Results for Registration 382348 E36314PT North Lismore

Regards
Craig Ridley
Associate | Environmental Scientist



T: +61 2 9888 5000
D: +61 421 856 992
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EU REF: 382348-A
TATS 2 DAY
DUE 24/6/25
AS -

Certificate of Analysis MGE0492

Client Details

Client	JK Environments
Contact	Craig Ridley
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E36314PT
Number of Samples	1 Soil
Date Samples Received	27/05/2025
Date Instructions Received	27/05/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	02/06/2025
Date of Issue	02/06/2025

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

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

Authorisation Details

Results Approved By	Chris De Luca, Lab Manager Maggie Hu, Organics Supervisor Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

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Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGE0492-01	SDUPB	Soil	20/05/2025	27/05/2025

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Volatile TRH and BTEX (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGE0492-01 SDUPB 20/05/2025
TRH C6-C9	mg/kg	25	<25
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50
Benzene	mg/kg	0.20	<0.20
Toluene	mg/kg	0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		90.1

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Semi-volatile TRH (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGE0492-01 SDUPB 20/05/2025
TRH C10-C14	mg/kg	50	<50
TRH C15-C28	mg/kg	100	<100
TRH C29-C36	mg/kg	100	<100
Total +ve TRH C10-C36	mg/kg	50	<50
TRH >C10-C16	mg/kg	50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50
Surrogate o-Terphenyl	%		77.4

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Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGE0492-01 SDUPB 20/05/2025
Naphthalene	mg/kg	0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10
Fluorene	mg/kg	0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10
Anthracene	mg/kg	0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10
Pyrene	mg/kg	0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10
Chrysene	mg/kg	0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		84.9

Certificate of Analysis MGE0492

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MGE0492-01
Your Reference			SDUPB
Date Sampled			20/05/2025
Arsenic	mg/kg	4.0	<4.0
Cadmium	mg/kg	0.40	<0.40
Chromium	mg/kg	1.0	8.4
Copper	mg/kg	1.0	18
Mercury	mg/kg	0.10	<0.10
Nickel	mg/kg	1.0	24
Lead	mg/kg	1.0	5.6
Zinc	mg/kg	1.0	90

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Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MGE0492-01
Your Reference			SDUPB
Date Sampled			20/05/2025
Moisture	%	0.10	24

Certificate of Analysis MGE0492

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Certificate of Analysis MGE0492

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis MGE0492

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

Miscellaneous Information

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

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

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGE0492

Client Details

Client	JK Environments
Your Reference	E36314PT
Date Issued	02/06/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MGE0492

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Soil	1	20/05/2025	28/05/2025	30/05/2025	Yes
sTRH Soil	1	20/05/2025	28/05/2025	29/05/2025	Yes
PAH Soil	1	20/05/2025	28/05/2025	29/05/2025	Yes
Metals Soil	1	20/05/2025	28/05/2025	30/05/2025	Yes
Metals-Hg Soil	1	20/05/2025	28/05/2025	30/05/2025	Yes
Moisture Soil	1	20/05/2025	28/05/2025	30/05/2025	Yes

Outliers: Duplicates

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGE4978

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGE4978-DUP3#	DUP3	Anthracene	50.00	65.1[4]
BGE4978-DUP3#	DUP3	Fluoranthene	50.00	75.9[4]
BGE4978-DUP3#	DUP3	Fluorene	50.00	62.0[3]
BGE4978-DUP3#	DUP3	Phenanthrene	50.00	97.5[4]

Outliers: Matrix Spike

METALS-020 | Acid Extractable Metals (Soil) | Batch BGE4976

Sample ID	Analyte	% Limits	% Recovery
BGE4976-MS1#	Zinc	70 - 130	##[2]

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGE4978

Sample ID	Analyte	% Limits	% Recovery
BGE4978-MS2#	Fluoranthene	60 - 140	49.6[1]
BGE4978-MS2#	Phenanthrene	60 - 140	##[1]
BGE4978-MS2#	Pyrene	60 - 140	28.4[1]

Quality Control MGE0492

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGE4977

Analyte	Units	PQL	Blank	DUP1 MGE0492-01 Samp QC RPD %	DUP2 BGE4977-DUP2# Samp QC RPD %	LCS %	Spike % BGE4977-MS2#
TRH C6-C9	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	95.5	106
TRH C6-C10	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	94.1	105
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	84.4	96.0
Toluene	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	89.4	98.4
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	91.2	97.7
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	88.0	94.4
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	83.8	90.3
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%		90.6	90.1 86.8	94.3 93.0	97.0	91.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020| Semi-volatile TRH (Soil) | Batch BGE4978

Analyte	Units	PQL	Blank	DUP1 MGE0492-01 Samp QC RPD %	DUP2 MGE0492-01 Samp QC RPD %	LCS %	Spike % BGE4978-MS1#
TRH C10-C14	mg/kg	50	<50	<50 <50 [NA]		130	125
TRH C15-C28	mg/kg	100	<100	<100 <100 [NA]		98.0	96.0
TRH C29-C36	mg/kg	100	<100	<100 <100 [NA]		118	118
TRH >C10-C16	mg/kg	50	<50	<50 <50 [NA]		100	97.3
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 <100 [NA]		101	99.4
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 <100 [NA]		107	92.7
Surrogate o-Terphenyl	%		78.2	77.4 79.0		87.2	87.4

Analyte	Units	PQL	Blank	DUP3 BGE4978-DUP3# Samp QC RPD %	DUP4 BGE4978-DUP4# Samp QC RPD %	LCS %
TRH C10-C14	mg/kg	50		<50 <50 [NA]		[NA]
TRH C15-C28	mg/kg	100		135 <100 [NA]		[NA]
TRH C29-C36	mg/kg	100		115 <100 [NA]		[NA]
TRH >C10-C16	mg/kg	50		<50 <50 [NA]		[NA]
TRH >C16-C34 (F3)	mg/kg	100		200 127 [NA]		[NA]
TRH >C34-C40 (F4)	mg/kg	100		<100 <100 [NA]		[NA]
Surrogate o-Terphenyl	%			105 105		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGE0492

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGE4978

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				MGE0492-01	MGE0492-01		BGE4978-MS2#
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		94.1	95.1
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		98.6	87.7
Fluorene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		94.0	92.9
Phenanthrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		95.7	##[1]
Anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		92.1	49.6[1]
Pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		95.5	28.4[1]
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		93.8	69.1
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 <0.050 [NA]		92.2	79.0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Surrogate p-Terphenyl-D14	%		85.6	84.9 / 80.6		77.2	82.4

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGE4978-DUP3#	BGE4978-DUP4#	
				Samp QC RPD %	Samp QC RPD %	
Naphthalene	mg/kg	0.1		1.23 1.36 9.46		[NA]
Acenaphthylene	mg/kg	0.1		1.08 0.886 19.8		[NA]
Acenaphthene	mg/kg	0.1		0.217 0.151 [NA]		[NA]
Fluorene	mg/kg	0.1		0.706 0.372 62.0 [3]		[NA]
Phenanthrene	mg/kg	0.1		8.71 3.00 97.5 [4]		[NA]
Anthracene	mg/kg	0.1		1.62 0.824 65.1 [4]		[NA]
Fluoranthene	mg/kg	0.1		6.35 2.86 75.9 [4]		[NA]
Pyrene	mg/kg	0.1		10.8 6.56 49.0 [4]		[NA]
Benzo(a)anthracene	mg/kg	0.1		3.09 2.08 39.2		[NA]
Chrysene	mg/kg	0.1		3.48 2.40 36.9		[NA]
Benzo(b,j,k)fluoranthene	mg/kg	0.2		4.48 3.58 22.3		[NA]
Benzo(a)pyrene	mg/kg	0.05		4.20 3.31 23.6		[NA]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		2.41 1.93 22.0		[NA]
Dibenzo(a,h)anthracene	mg/kg	0.1		0.471 0.378 [NA]		[NA]
Benzo(g,h,i)perylene	mg/kg	0.1		2.89 2.38 19.2		[NA]
Surrogate p-Terphenyl-D14	%			86.7 / 88.8		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGE0492

METALS-020 | Acid Extractable Metals (Soil) | Batch BGE4976

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGE4976-MS1#
				MGE0492-01 Samp QC RPD %	MGE0492-01 Samp QC RPD %		
Arsenic	mg/kg	4.0	<4.0	<4.0 12.3 [NA]		106	95.6
Cadmium	mg/kg	0.40	<0.40	<0.40 <0.40 [NA]		108	81.4
Chromium	mg/kg	1.0	<1.0	8.38 8.96 6.76		102	109
Copper	mg/kg	1.0	<1.0	18.4 21.8 16.7		105	113
Lead	mg/kg	1.0	<1.0	5.64 5.82 3.29		101	79.5
Mercury	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		98.4	103
Nickel	mg/kg	1.0	<1.0	24.3 29.3 18.7		101	90.9
Zinc	mg/kg	1.0	<1.0	90.2 89.6 0.666		103	# # [2]

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGE4976-DUP3# Samp QC RPD %	BGE4976-DUP4# Samp QC RPD %	
Arsenic	mg/kg	4		5.83 5.60 [NA]		[NA]
Cadmium	mg/kg	0.4		<0.40 <0.40 [NA]		[NA]
Chromium	mg/kg	1		74.1 70.3 5.30		[NA]
Copper	mg/kg	1		42.9 42.4 1.28		[NA]
Lead	mg/kg	1		11.9 13.0 8.69		[NA]
Mercury	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Nickel	mg/kg	1		65.8 60.9 7.84		[NA]
Zinc	mg/kg	1		76.5 82.6 7.68		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008 | Inorganics - Moisture (Soil) | Batch BGE4970

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGE4970-DUP1# Samp QC RPD %	BGE4970-DUP2# Samp QC RPD %	
Moisture	%	0.1		12.0 13.1 8.74	11.7 12.0 3.29	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.
[4]	The laboratory duplicate RPD acceptance criteria has been exceeded. Results are accepted due to the inhomogeneous nature of the sample.

Sample Receipt Advice MGE0492

Client Details

Client	JK Environments
Attention	Craig Ridley

Sample Login Details

Your Reference	E36314PT
Envirolab Reference	MGE0492
Date Sample Received	27/05/2025
Date Instructions Received	27/05/2025
Date Final Results Expected	02/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Soil
Turnaround Time	4 Days
Temperatures / Cooling Methods	10.5°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Chris De Luca

Phone 03 9763 2500
Email cdeluca@envirolab.com.au

Tianna Milburn

Phone 03 9763 2500
Email tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGE0492

Analysis Grid

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

	Combination 3	Moisture
MGE0492-01		
Soil 20/05/2025	•	•
SDUPB		

Suite Details

Suite Name	Suite Analyses
Combination 3 Soil	vTRH&MBTEXN, sTRH, PAH, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E36314PT Date Results Required: STANDARD Page: 1 of 2	FROM:  JKE Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Craig Ridley

Location: North Lismore, NSW							Sample Preserved in Esky on Ice									
Sampler: Jessica Thornton							Tests Required									
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a/NEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX				
19/05/2025	1	TP201	0-0.2	G	0.2	Soil		X								
19/05/2025	2	TP201	0.3-0.4	G	0.1	Soil										
19/05/2025	3	TP201	0.4-0.6	G	0	Soil										
20/05/2025	4	TP202	0-0.1	G	1.3	Soil		X								
20/05/2025	5	TP202	0.5-0.6	G	0.2	Soil										
20/05/2025	6	TP202	0.9-1	G	0.2	Soil										
20/05/2025	7	TP203	0-0.1	G	1.5	Soil		X								
20/05/2025	8	TP203	0.5-0.6	G	0.2	Soil										
20/05/2025	9	TP203	1-1.1	G	0.2	Soil										
20/05/2025	10	TP204	0-0.1	G	5.5	Soil		X								
20/05/2025	11	TP204	0.5-0.6	G	0.1	Soil										
20/05/2025	12	TP204	1-1.1	G	0.1	Soil										
19/05/2025	13	TP205	0-0.2	G	0.4	Soil		X								
19/05/2025	14	TP205	0.4-0.5	G	0.1	Soil										
19/05/2025	15	TP205	0.5-0.6	G	0	Soil										
19/05/2025	16	TP205	1-1.1	G	0	Soil										
20/05/2025	17	TP206	0-0.1	G	4.5	Soil		X								
20/05/2025	18	TP206	0.4-0.5	G	0.1	Soil										
20/05/2025	19	TP206	0.9-1	G	0.1	Soil										
21/05/2025	20	TP207	0-0.1	G	0.1	Soil		X								
21/05/2025	21	TP207	0.1-0.3	G	1.2	Soil										
21/05/2025	22	TP207	0.5-0.6	G	0	Soil										
21/05/2025	23	TP207	1-1.1	G	0	Soil										
21/05/2025	24	TP208	0-0.1	G	0	Soil		X								
21/05/2025	25	TP208	0.5-0.6	G	0.1	Soil										

Remarks (comments/detection limits required): 		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: MD	Date: 25/5/25	Time: 12.40	Received By: ALICE ENVIROLAB SERVICES
			Date: 22/05/2025

17.5

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		JKE Job E36314PT Number: Date Results STANDARD Required: Page: 2 of 2		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Craig Ridley	

Location: North Lismore, NSW							Sample Preserved in Esky on Ice												
Sampler: Jessica Thornton							Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX							
21/05/2025	26	TP208	1-1.1	G	0	Soil													
19/05/2025	27	TP209	0-0.1	G	1.8	Soil		X											
19/05/2025	28	TP209	0.5-0.6	G	0.1	Soil													
19/05/2025	29	TP209	0.8-0.9	G	0.1	Soil													
19/05/2025	30	TP209	1-1.1	G	0.1	Soil													
20/05/2025	31	TP210	0-0.1	G	1.4	Soil		X											
20/05/2025	32	TP210	0.5-0.6	G	0.3	Soil				X									
20/05/2025	33	TP210	0.7-0.8	G	0.2	Soil													
20/05/2025	34	TP216	0-0.1	G	0.7	Soil		X											
20/05/2025	35	TP216	0.3-0.4	G	0.2	Soil													
20/05/2025	36	TP216	0.8-0.9	G	0.3	Soil													
20/05/2025	37	TP217	0-0.1	G	2.6	Soil		X											
20/05/2025	38	TP217	0.3-0.4	G	0.3	Soil													
20/05/2025	39	TP217	0.5-0.6	G	0.1	Soil													
20/05/2025	40	TP217	0.9-1	G	0.2	Soil													
20/05/2025	41	SDUPA	0-0.1	G	0.3	Soil		X											
20/05/2025	510	SDUPB	0.5-0.6	G	0.2	Soil				X									
19-21/5/25	42	TB-A	NA	G	NA	Sand				X									
 Envirolab Services 25 Research Drive Croydon South VIC 3136 Ph: (03) 9763 2500																			
Job No:																			
Date Received:																			
Time Received:																			
Received By:																			
Temp: Cool/Ambient Cooling: Ice/Icepack Security: Intact/Broken/None							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag												
Relinquished By: <i>MS</i>					Date: 25/5/25		Time: 12:40			Received By: Aileen			Date: 22/05/2025						

Relinquished by Tony Trinh ELS Syd. 17.5
 On 26/05/25 12:36.

#381579
 26/05/25
 D-R

Certificate of Analysis MGF0097

Client Details

Client	JK Environments
Contact	Craig Ridley
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E36314PT
Number of Samples	1 Soil
Date Samples Received	05/06/2025
Date Instructions Received	05/06/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	12/06/2025
Date of Issue	11/06/2025

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

Authorisation Details

Results Approved By	Chris De Luca, Lab Manager Maggie Hu, Organics Supervisor Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

Certificate of Analysis MGF0097

Samples in this Report

Envirolab ID	Sample ID	Depth	Matrix	Date Sampled	Date Received
MGF0097-01	SDUP302	0.00-0.10	Soil	27/05/2025	05/06/2025

Certificate of Analysis MGF0097

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
TRH C6-C9	mg/kg	25	<25
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50
Benzene	mg/kg	0.20	<0.20
Toluene	mg/kg	0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		76.8

Certificate of Analysis MGF0097

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
TRH C10-C14	mg/kg	50	<50
TRH C15-C28	mg/kg	100	<100
TRH C29-C36	mg/kg	100	<100
Total +ve TRH C10-C36	mg/kg	50	<50
TRH >C10-C16	mg/kg	50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50
Surrogate o-Terphenyl	%		73.9

Certificate of Analysis MGF0097

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
Naphthalene	mg/kg	0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10
Fluorene	mg/kg	0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10
Anthracene	mg/kg	0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10
Pyrene	mg/kg	0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10
Chrysene	mg/kg	0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		107

Certificate of Analysis MGF0097

Organochlorine Pesticides (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
alpha-BHC	mg/kg	0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10
Aldrin	mg/kg	0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10
Endrin	mg/kg	0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10
Mirex	mg/kg	0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		113

Certificate of Analysis MGF0097

Organophosphorus Pesticides (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
Dichlorvos	mg/kg	0.10	<0.10
Dimethoate	mg/kg	0.10	<0.10
Diazinon	mg/kg	0.10	<0.10
Chlorpyrifos-methyl	mg/kg	0.10	<0.10
Ronnel	mg/kg	0.10	<0.10
Fenitrothion	mg/kg	0.10	<0.10
Malathion	mg/kg	0.10	<0.10
Chlorpyrifos	mg/kg	0.10	<0.10
Parathion	mg/kg	0.10	<0.10
Bromophos-ethyl	mg/kg	0.10	<0.10
Ethion	mg/kg	0.10	<0.10
Coumaphos	mg/kg	0.10	<0.10
Disulfoton	mg/kg	0.10	<0.10
Fenamiphos	mg/kg	0.10	<0.10
Fenthion	mg/kg	0.10	<0.10
Methidathion	mg/kg	0.10	<0.10
Mevinphos	mg/kg	0.10	<0.10
Parathion-methyl	mg/kg	0.10	<0.10
Phorate	mg/kg	0.10	<0.10
Phosalone	mg/kg	0.10	<0.10
Azinphos-methyl	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		113

Certificate of Analysis MGF0097

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
Aroclor 1016	mg/kg	0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		104

Certificate of Analysis MGF0097

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
Arsenic	mg/kg	4.0	<4.0
Cadmium	mg/kg	0.40	<0.40
Chromium	mg/kg	1.0	16
Copper	mg/kg	1.0	13
Mercury	mg/kg	0.10	<0.10
Nickel	mg/kg	1.0	15
Lead	mg/kg	1.0	9.1
Zinc	mg/kg	1.0	53

Certificate of Analysis MGF0097

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MGF0097-01
Your Reference			SDUP302
Date Sampled			27/05/2025
Depth			0.00-0.10
Moisture	%	0.10	36

Certificate of Analysis MGF0097

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-021/022/025_P CB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Certificate of Analysis MGF0097

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis MGF0097

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

Miscellaneous Information

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

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

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGF0097

Client Details

Client	JK Environments
Your Reference	E36314PT
Date Issued	11/06/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary MGF0097

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
sTRH Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
PAH Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
OCP Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
OPP (21 list) Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
PCB Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
Metals Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
Metals-Hg Soil	1	27/05/2025	10/06/2025	10/06/2025	Yes
Moisture Soil	1	27/05/2025	10/06/2025	11/06/2025	Yes

Quality Control MGF0097

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGF1278

Analyte	Units	PQL	Blank	DUP1 MGF0097-01 Samp QC RPD %	DUP2 BGF1278-DUP2# Samp QC RPD %	LCS %	Spike % BGF1278-MS2#
TRH C6-C9	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	114	94.8
TRH C6-C10	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	114	95.2
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	101	82.7
Toluene	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	104	88.7
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	93.5	79.6
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	97.1	82.8
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	95.6	80.6
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%		71.8	76.8 / 74.2	92.0 / 80.8	98.4	89.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020|Semi-volatile TRH (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1 MGF0097-01 Samp QC RPD %	DUP2 MGF0097-01 Samp QC RPD %	LCS %	Spike % BGF1279-MS1#
TRH C10-C14	mg/kg	50	<50	<50 <50 [NA]		102	105
TRH C15-C28	mg/kg	100	<100	<100 <100 [NA]		85.0	88.0
TRH C29-C36	mg/kg	100	<100	<100 <100 [NA]		95.7	89.5
TRH >C10-C16	mg/kg	50	<50	<50 <50 [NA]		80.4	82.7
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 <100 [NA]		87.3	90.1
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 <100 [NA]		91.8	88.2
Surrogate o-Terphenyl	%		73.6	73.9 / 75.4		88.3	87.7

Analyte	Units	PQL	Blank	DUP3 BGF1279-DUP3# Samp QC RPD %	DUP4 BGF1279-DUP4# Samp QC RPD %	LCS %
TRH C10-C14	mg/kg	50		<50 <50 [NA]		[NA]
TRH C15-C28	mg/kg	100		<100 <100 [NA]		[NA]
TRH C29-C36	mg/kg	100		<100 <100 [NA]		[NA]
TRH >C10-C16	mg/kg	50		<50 <50 [NA]		[NA]
TRH >C16-C34 (F3)	mg/kg	100		<100 104 [NA]		[NA]
TRH >C34-C40 (F4)	mg/kg	100		<100 <100 [NA]		[NA]
Surrogate o-Terphenyl	%			78.9 / 79.2		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0097

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGF1279-MS2 #
				MGF0097-01	MGF0097-01		
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		102	114
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		107	115
Fluorene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		104	112
Phenanthrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		105	112
Anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		107	115
Pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		110	118
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		106	114
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]		[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 <0.050 [NA]		101	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Surrogate p-Terphenyl-D14	%		101	107 / 107		102	102

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGF1279-DUP3#	BGF1279-DUP4#	
				Samp QC RPD %	Samp QC RPD %	
Naphthalene	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Acenaphthylene	mg/kg	0.1		0.200 0.258 [NA]		[NA]
Acenaphthene	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Fluorene	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Phenanthrene	mg/kg	0.1		0.402 0.631 44.3		[NA]
Anthracene	mg/kg	0.1		0.149 0.228 [NA]		[NA]
Fluoranthene	mg/kg	0.1		1.84 2.53 31.6		[NA]
Pyrene	mg/kg	0.1		1.98 2.74 32.4		[NA]
Benzo(a)anthracene	mg/kg	0.1		0.859 1.21 33.6		[NA]
Chrysene	mg/kg	0.1		1.07 1.41 28.0		[NA]
Benzo(b,j,k)fluoranthene	mg/kg	0.2		2.41 3.04 23.0		[NA]
Benzo(a)pyrene	mg/kg	0.05		1.51 1.96 25.9		[NA]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		1.13 1.39 20.9		[NA]
Dibenzo(a,h)anthracene	mg/kg	0.1		0.199 0.253 [NA]		[NA]
Benzo(g,h,i)perylene	mg/kg	0.1		1.11 1.39 22.1		[NA]
Surrogate p-Terphenyl-D14	%			108 / 108		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0097

ORG-022_OC | Organochlorine Pesticides (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike % BGF1279-MS2 #
				MGF0097-01		MGF0097-01			
				Samp	QC RPD %	Samp	QC RPD %		
alpha-BHC	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			103	109
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			97.6	108
gamma-BHC	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			90.5	94.8
Aldrin	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			95.8	101
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			116	125
trans-Chlordane	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			107	115
Dieldrin	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			104	112
Endrin	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			106	110
4,4'-DDD	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			112	120
Endosulfan II	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			98.8	109
Endrin ketone	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10	<0.10 [NA]			[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		114	113/111				110	110

Analyte	Units	PQL	Blank	DUP3			DUP4			LCS %
				BGF1279-DUP3#			BGF1279-DUP4#			
				Samp	QC	RPD %	Samp	QC	RPD %	
alpha-BHC	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Hexachlorobenzene	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
beta-BHC	mg/kg	0.1		<0.20	<0.20	[NA] [1]				[NA]
gamma-BHC	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
delta-BHC	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Heptachlor	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Aldrin	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Heptachlor epoxide	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
trans-Chlordane	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
cis-Chlordane	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endosulfan I	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
4,4'-DDE	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Dieldrin	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endrin	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
4,4'-DDD	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endosulfan II	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endrin aldehyde	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
4,4'-DDT	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endosulfan sulfate	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Endrin ketone	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Methoxychlor	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Mirex	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Surrogate	%			109 / 111						[NA]
4-chloro-3-nitrobenzotrifluoride										

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0097

ORG-022 | Organophosphorus Pesticides (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1			DUP2			LCS %	Spike % BGF1279-MS2#
				MGF0097-01			MGF0097-01				
				Samp	QC	RPD %	Samp	QC	RPD %		
Dichlorvos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				101	111
Dimethoate	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Diazinon	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				104	114
Ronnel	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				108	116
Fenitrothion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				109	123
Malathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				102	112
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				108	115
Parathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				99.5	108
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Ethion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				105	116
Coumaphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Disulfoton	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Fenamiphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Fenthion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Methidathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Mevinphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Parathion-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Phorate	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Phosalone	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]				[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		114	113/111						110	110

Analyte	Units	PQL	Blank	DUP3			DUP4			LCS %
				BGF1279-DUP3#			BGF1279-DUP4#			
				Samp	QC	RPD %	Samp	QC	RPD %	
Dichlorvos	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Dimethoate	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Diazinon	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Chlorpyrifos-methyl	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Ronnel	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Fenitrothion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Malathion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Chlorpyrifos	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Parathion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Bromophos-ethyl	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Ethion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Coumaphos	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Disulfoton	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Fenamiphos	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Fenthion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Methidathion	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Mevinphos	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Parathion-methyl	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Phorate	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Phosalone	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Azinphos-methyl	mg/kg	0.1		<0.10	<0.10	[NA]				[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	%			109 / 111						[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0097

ORG-021/022/025_PCB | Polychlorinated Biphenyls (Soil) | Batch BGF1279

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGF1279-MS2 #
				MGF0097-01	MGF0097-01		
				Samp QC RPD %	Samp QC RPD %		
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 0.00 [NA]		107	115
Surrogate 2-Fluorobiphenyl	%		105	104 104		103	104

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGF1279-DUP3#	BGF1279-DUP4#	
				Samp QC RPD %	Samp QC RPD %	
Aroclor 1016	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1221	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1232	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1242	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1248	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1254	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Aroclor 1260	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
PCB C103	mg/kg			0.00 0.00 [NA]		[NA]
Surrogate 2-Fluorobiphenyl	%			102 106		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Soil) | Batch BGF1277

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike % BGF1277-MS1 #
				MGF0097-01	MGF0097-01		
				Samp QC RPD %	Samp QC RPD %		
Arsenic	mg/kg	4.0	<4.0	<4.0 <4.0 [NA]		103	98.2
Cadmium	mg/kg	0.40	<0.40	<0.40 <0.40 [NA]		103	89.3
Chromium	mg/kg	1.0	<1.0	15.8 15.4 2.73		101	100
Copper	mg/kg	1.0	<1.0	13.1 11.9 8.84		104	96.2
Lead	mg/kg	1.0	<1.0	9.12 8.87 2.81		96.6	89.0
Mercury	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		106	107
Nickel	mg/kg	1.0	<1.0	14.6 15.0 3.08		98.7	87.8
Zinc	mg/kg	1.0	<1.0	52.8 53.7 1.70		99.2	85.8

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGF1277-DUP3#	BGF1277-DUP4#	
				Samp QC RPD %	Samp QC RPD %	
Arsenic	mg/kg	4		4.13 <4.0 [NA]		[NA]
Cadmium	mg/kg	0.4		<0.40 <0.40 [NA]		[NA]
Chromium	mg/kg	1		16.1 14.3 11.4		[NA]
Copper	mg/kg	1		21.4 18.6 13.9		[NA]
Lead	mg/kg	1		35.6 30.9 14.2		[NA]
Mercury	mg/kg	0.1		<0.10 0.407 [NA]		[NA]
Nickel	mg/kg	1		8.99 7.61 16.6		[NA]
Zinc	mg/kg	1		67.8 58.1 15.3		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008 | Inorganics - Moisture (Soil) | Batch BGF1274

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGF1274-DUP1#	BGF1274-DUP2#	
				Samp QC RPD %	Samp QC RPD %	
Moisture	%	0.1		15.1 14.8 1.61	5.98 7.19 18.4	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGF0097

QC Comments

Identifier	Description
[1]	PQL(s) has/have been raised due to matrix interference.

Sample Receipt Advice MGF0097

Client Details

Client	JK Environments
Attention	Craig Ridley

Sample Login Details

Your Reference	E36314PT
Envirolab Reference	MGF0097
Date Sample Received	05/06/2025
Date Instructions Received	05/06/2025
Date Final Results Expected	12/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Soil
Turnaround Time	4 Days
Temperatures / Cooling Methods	11.1°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Chris De Luca

Tianna Milburn

Phone 03 9763 2500
Email cdeluca@envirolab.com.au

Phone 03 9763 2500
Email tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGF0097

Analysis Grid

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

	Combination 6	Moisture
MGF0097-01		
Soil 27/05/2025	•	•
SDUP302 0.0m-0.1m		

Suite Details

Suite Name	Suite Analyses
Combination 6 Soil	vTRH&MBTEXN, sTRH, PAH, OCP, OPP (21 list), PCB, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		JKE Job Number: E36314PT Date Results Required: STANDARD Page: 3 of 3		FROM:  JKE Environments REAR OF MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: CRidley@jkenvironments.com.au																	
Location: Lismore Sampler: OB		Sample Preserved in Esky on Ice																			
							Tests Required														
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a NEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX	Asbestos NEPM	Combo 3 (total metals)							
27/05/2025	SS	SDUP301	0-0.1	G	-	Duplicate		X													
27/05/2025	5/0	SDUP302	0-0.1	G	-	Duplicate		X			** PLEASE SEND TO ENVIROLAB VIC **										
27/05/2025	56	SDUP303	0-0.1	G	-	Duplicate															
28/05/2025	57	SDUP304	0-0.1	G	-	Duplicate															
28/05/2025	58	FR301-Shovel	-	G1, H, V	-	Field Rinsate								X							
27/05/2025	59	TB301	-	V	-	Trip Blank				X											
27/05/2025	60	TS301	-	V	-	Trip Spike						X									
26/05/2025	61	Surf Mat 1	Surface	A		Fragment					X										
29/05/2025	62	Creek1	0-0.1	G		Sediment		X													
29/05/2025	63	Creek2	0-0.1	G		Sediment		X													
		64 TB-KC				Water-KC															
27/5/25	65	BH212	1-1.1			Soil-KC															
30/5/25	66	BH213	0.3-0.4			Soil-KC															
29/5/25	67	BH214	0-0.1			Soil-KC															
 Envirolab Services 25 Research Drive Croydon Se. VIC 3136 Ph: (03) 9763 2500 Job No: M6F0097 Date Received: 5/6/25 Time Received: 2:05 PM Received By: SS Temp: Cool/Ambient Coolant: Ice/Coolant Security: Intact/Broken/None																					
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar G1 - Amber Glass Bottle V - BTEX Vial A - Ziplock Asbestos Bag H - HNO3 Wash PVC Bottle														
Relinquished By: ELS SYD Katherine Chavez 4/6/25 KC							Date:		Time:		Received By:		Date:								

#382348
3/6/25
KC

CERTIFICATE OF ANALYSIS 382346

Client Details

Client	JK Environments
Attention	Oisin Butler
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E36314PT Lismore</u>
Number of Samples	10 Water
Date samples received	03/06/2025
Date completed instructions received	03/06/2025

Analysis Details

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

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

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

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

Report Details

Date results requested by	11/06/2025
Date of Issue	11/06/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Inorganics Supervisor
 Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Stuart Chen, Asbestos Approved Identifier/Report coordinator
 Tabitha Roberts, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water

Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
TRH C ₆ - C ₉	µg/L	<10	<10	14	12	19
TRH C ₆ - C ₁₀	µg/L	<10	12	16	46	20
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	12	13	41	11
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	3	<1	9
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	3	<2
o-xylene	µg/L	<1	<1	<1	3	<1
Naphthalene	µg/L	<1	<1	<1	2	<1
Surrogate Dibromofluoromethane	%	103	103	102	103	102
Surrogate Toluene-d8	%	98	99	100	100	99
Surrogate 4-Bromofluorobenzene	%	96	99	97	100	98

vTRH(C6-C10)/BTEXN in Water

Our Reference		382346-6	382346-7	382346-8	382346-9	382346-10
Your Reference	UNITS	GWDUP301	GWDUP302	FR302-IP	TB301	TS301
Date Sampled		30/05/2025	30/05/2025	30/05/2025	27/05/2025	27/05/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	06/06/2025	06/06/2025	06/06/2025	06/06/2025	06/06/2025
TRH C ₆ - C ₉	µg/L	<10	<10	84	<10	[NA]
TRH C ₆ - C ₁₀	µg/L	<10	12	87	<10	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	12	87	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	110%
Toluene	µg/L	<1	<1	<1	<1	107%
Ethylbenzene	µg/L	<1	<1	<1	<1	102%
m+p-xylene	µg/L	<2	<2	<2	<2	103%
o-xylene	µg/L	<1	<1	<1	<1	105%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	101	103	101	103	101
Surrogate Toluene-d8	%	99	100	100	100	100
Surrogate 4-Bromofluorobenzene	%	94	98	98	95	99

svTRH (C10-C40) in Water

Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	µg/L	<50	78	170	350	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	380	220	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	80	550	570	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	110	420	450	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	110	420	450	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	110	100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	110	540	560	<50
Surrogate o-Terphenyl	%	134	106	130	116	102

svTRH (C10-C40) in Water

Our Reference		382346-6	382346-7	382346-8	382346-9
Your Reference	UNITS	GWDUP301	GWDUP302	FR302-IP	TB301
Date Sampled		30/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	µg/L	<50	78	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	80	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	120	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	120	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	120	<50	<50
Surrogate o-Terphenyl	%	105	108	109	112

PAHs in Water						
Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Naphthalene	µg/L	<0.1	0.1	<0.1	0.4	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	0.3	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	0.11	<0.1	0.79	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	104	99	99	100	90

PAHs in Water					
Our Reference		382346-6	382346-7	382346-8	382346-9
Your Reference	UNITS	GWDUP301	GWDUP302	FR302-IP	TB301
Date Sampled		30/05/2025	30/05/2025	30/05/2025	27/05/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	10/06/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	100	98	99	112

Organochlorine Pesticides in Water						
Our Reference		382346-1	382346-2	382346-3	382346-4	382346-6
Your Reference	UNITS	MW62	MW206	MW212	MW214	GWDUP301
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	30/05/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate 4-Chloro-3-NBTF	%	67	63	67	70	67

Organochlorine Pesticides in Water		
Our Reference		382346-7
Your Reference	UNITS	GWDUP302
Date Sampled		30/05/2025
Type of sample		Water
Date extracted	-	04/06/2025
Date analysed	-	05/06/2025
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	68

All metals in water-dissolved						
Our Reference	UNITS	382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference		MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025	04/06/2025
Aluminium-Dissolved	µg/L	<10	20	<10	<10	30
Silver-Dissolved	µg/L	<1	<1	<1	<1	<1
Antimony-Dissolved	µg/L	<1	<1	<1	<1	<1
Barium-Dissolved	µg/L	10	19	24	59	49
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Boron-Dissolved	µg/L	<20	20	<20	<20	<20
Cobalt-Dissolved	µg/L	<1	<1	2	<1	9
Iron-Dissolved	µg/L	<10	60	<10	20	190
Lithium-Dissolved	µg/L	5	4	2	6	<1
Manganese-Dissolved	µg/L	<5	47	240	53	840
Molybdenum-Dissolved	µg/L	<1	6	14	2	<1
Selenium-Dissolved	µg/L	<1	<1	11	<1	<1
Strontium-Dissolved	µg/L	650	130	440	2,200	100
Uranium-Dissolved	µg/L	<0.5	<0.5	1.2	1.2	<0.5
Vanadium-Dissolved	µg/L	2	1	2	3	3
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	2	3	2	4
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	<1	1	8	<1	2

All metals in water-dissolved				
Our Reference		382346-6	382346-8	382346-9
Your Reference	UNITS	GWDUP301	FR302-IP	TB301
Date Sampled		30/05/2025	30/05/2025	27/05/2025
Type of sample		Water	Water	Water
Date prepared	-	04/06/2025	04/06/2025	04/06/2025
Date analysed	-	04/06/2025	04/06/2025	04/06/2025
Arsenic-Dissolved	µg/L	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	<1	310	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	1	<1
Lead-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	<1	11	<1

Metals in Waters - Acid extractable						
Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Date analysed	-	05/06/2025	05/06/2025	05/06/2025	05/06/2025	05/06/2025
Phosphorus - Total	mg/L	0.05	0.63	8.5	12	2.0

Miscellaneous Inorganics						
Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Date analysed	-	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Electrical Conductivity	µS/cm	1,400	340	1,200	3,700	210
pH	pH Units	7.1	7.3	7.4	7.1	6.6
Redox Potential*	mV	198	178	184	182	157
Dissolved Oxygen*	mg/L	8.6	7.2	8.5	8.3	8.4
Turbidity	NTU	<0.1	420	540	0.1	550
Total Dissolved Solids (grav)	mg/L	770	[NA]	1,300	2,300	120
Total Suspended Solids	mg/L	<5	[NA]	2,700	22,000	820
Total Organic Carbon	mg/L	1	4	18	2	20
Sodium Adsorption Ratio	-	3.4	2.7	5.2	5.2	1.4
Silica (Reactive - SiO ₂)	mg/L	52	54	20	43	28
Ammonia as N in water	mg/L	<0.005	0.02	<0.005	<0.005	0.29
Nitrate as N in water	mg/L	0.41	2.1	<0.005	1.8	0.065
Nitrite as N in water	mg/L	<0.005	0.058	<0.005	0.01	0.02
NOx as N in water	mg/L	0.41	2.1	<0.005	1.8	0.087
Total Nitrogen in water	mg/L	0.4	2.6	0.4	3.8	1.7
TKN in water	mg/L	<0.1	0.5	0.4	2.0	1.6
Phosphate as P in water	mg/L	0.064	0.41	0.01	0.057	0.067
Organic Nitrogen as N	mg/L	<0.2	0.5	0.4	2.0	1.3

Ion Balance						
Our Reference		382346-1	382346-2	382346-3	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW212	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Date analysed	-	03/06/2025	03/06/2025	03/06/2025	03/06/2025	03/06/2025
Calcium - Dissolved	mg/L	68	15	44	180	9.5
Potassium - Dissolved	mg/L	0.9	2	2	2	5.1
Sodium - Dissolved	mg/L	160	50	170	390	23
Magnesium - Dissolved	mg/L	57	7.0	22	140	6.8
Hardness (calc) equivalent CaCO ₃	mg/L	410	65	200	1,000	52
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	460	160	250	780	87
Carbonate Alkalinity as CaCO ₃	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as CaCO ₃	mg/L	460	160	250	780	87
Sulphate, SO ₄	mg/L	31	8	84	130	1
Chloride, Cl	mg/L	150	17	140	710	18
Ionic Balance	%	3.0	-3.0	3.0	-1.0	-2.0

Microbiological Testing					
Our Reference		382346-1	382346-2	382346-4	382346-5
Your Reference	UNITS	MW62	MW206	MW214	Creek1
Date Sampled		30/05/2025	30/05/2025	31/05/2025	29/05/2025
Type of sample		Water	Water	Water	Water
Date of testing	-	04/06/2025	04/06/2025	04/06/2025	04/06/2025
E. coli	cfu/100mL	<1000	20 MPN/100mL	<18 MPN/100mL	16000 MPN/100mL
Thermotolerant Coliforms	cfu/100mL	<1000	790 MPN/100mL	<18 MPN/100mL	16000 MPN/100mL

Method ID	Methodology Summary
Ext-008	Subcontracted to Sonic Food & Water Testing. NATA Accreditation No. 4034.
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- $\text{TDS} = \text{EC} * 0.6$
Inorg-019	Suspended Solids - determined gravimetrically by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-079	TOC determined using a TOC analyser using the combustion method. Dissolved requires filtering prior to determination. Analysis using APHA latest edition 5310B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.
INORG-120	Reactive Silica (SiO2) determined colorimetrically. Waters samples are filtered on receipt prior to analysis.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stoichiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Metals-020	Calcium and Magnesium analysed by ICP-AES and SAR calculated.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			05/06/2025	4	05/06/2025	06/06/2025		05/06/2025	[NT]
Date analysed	-			06/06/2025	4	06/06/2025	10/06/2025		06/06/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	4	12	<10	18	80	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	4	46	40	14	80	[NT]
Benzene	µg/L	1	Org-023	<1	4	<1	<1	0	83	[NT]
Toluene	µg/L	1	Org-023	<1	4	<1	<1	0	81	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	4	<1	<1	0	79	[NT]
m+p-xylene	µg/L	2	Org-023	<2	4	3	2	40	79	[NT]
o-xylene	µg/L	1	Org-023	<1	4	3	3	0	79	[NT]
Naphthalene	µg/L	1	Org-023	<1	4	2	2	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	4	103	103	0	100	[NT]
Surrogate Toluene-d8	%		Org-023	99	4	100	100	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	4	100	98	2	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	382346-3
Date extracted	-			04/06/2025	1	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	1	<50	<50	0	117	121
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	1	<100	<100	0	111	124
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	1	<100	<100	0	100	103
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	1	<50	<50	0	117	121
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	1	<100	<100	0	111	124
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	1	<100	<100	0	100	103
Surrogate o-Terphenyl	%		Org-020	109	1	134	108	21	101	130

QUALITY CONTROL: PAHs in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	382346-3
Date extracted	-			04/06/2025	1	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	05/06/2025
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	87
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	68
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	74
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	85
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	78
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	82
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	73
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	73
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	103	1	104	98	6	104	94

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	
Date extracted	-			04/06/2025	1	04/06/2025	04/06/2025		04/06/2025	[NT]
Date analysed	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	74	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	70	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	78	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	93	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	95	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	81	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	94	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	84	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	86	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	90	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	68	1	67	65	3	73	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	382346-3
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	04/06/2025
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	05/06/2025
alpha-BHC	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	68
beta-BHC	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	66
Heptachlor	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	73
Aldrin	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	87
Heptachlor Epoxide	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	87
pp-DDE	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	77
Dieldrin	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	88
Endrin	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	82
pp-DDD	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	81
Endosulfan Sulphate	µg/L	0.2	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	83
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	71

QUALITY CONTROL: All metals in water-dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W8	382346-2
Date prepared	-			04/06/2025	1	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Date analysed	-			04/06/2025	1	04/06/2025	04/06/2025		04/06/2025	04/06/2025
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	103	100
Silver-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	116
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	84	73
Barium-Dissolved	µg/L	1	Metals-022	<1	1	10	11	10	116	114
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	98	99
Boron-Dissolved	µg/L	20	Metals-022	<20	1	<20	<20	0	86	88
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	117	118
Iron-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	118	115
Lithium-Dissolved	µg/L	1	Metals-022	<1	1	5	6	18	99	105
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	<5	<5	0	106	104
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	107	89
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	94
Strontium-Dissolved	µg/L	1	Metals-022	<1	1	650	650	0	115	103
Uranium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	101	79
Vanadium-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	107	105
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	104
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	105	105
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	106	103
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	115	115
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		94	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	116	117
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	94
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	104

QUALITY CONTROL: All metals in water-dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	382346-3
Date prepared	-			[NT]	2	04/06/2025	04/06/2025		[NT]	04/06/2025
Date analysed	-			[NT]	2	04/06/2025	04/06/2025		[NT]	04/06/2025
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	2	20	[NT]		[NT]	[NT]
Silver-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Barium-Dissolved	µg/L	1	Metals-022	[NT]	2	19	[NT]		[NT]	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	2	<0.5	[NT]		[NT]	[NT]
Boron-Dissolved	µg/L	20	Metals-022	[NT]	2	20	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	2	60	[NT]		[NT]	[NT]
Lithium-Dissolved	µg/L	1	Metals-022	[NT]	2	4	[NT]		[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	2	47	[NT]		[NT]	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	2	6	[NT]		[NT]	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Strontium-Dissolved	µg/L	1	Metals-022	[NT]	2	130	[NT]		[NT]	[NT]
Uranium-Dissolved	µg/L	0.5	Metals-022	[NT]	2	<0.5	[NT]		[NT]	[NT]
Vanadium-Dissolved	µg/L	1	Metals-022	[NT]	2	1	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	2	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	2	<0.05	<0.05	0	[NT]	91
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	2	2	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	2	1	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	[NT]
Date analysed	-			05/06/2025	1	05/06/2025	05/06/2025		05/06/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.05	<0.05	0	86	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/06/2025	1	03/06/2025	03/06/2025		03/06/2025	[NT]
Date analysed	-			03/06/2025	1	03/06/2025	03/06/2025		03/06/2025	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	1400	[NT]		96	[NT]
pH	pH Units		Inorg-001	[NT]	1	7.1	[NT]		98	[NT]
Redox Potential*	mV		Inorg-035	[NT]	1	198	197	1	109	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	1	8.6	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	<0.1	[NT]		99	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	770	760	1	97	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	<5	[NT]		100	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	1	1	1	0	102	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	[NT]	1	3.4	[NT]		96	[NT]
Silica (Reactive - SiO ₂)	mg/L	0.1	INORG-120	<0.1	1	52	51	2	100	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	<0.005	[NT]		90	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.41	[NT]		96	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		104	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.41	[NT]		97	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.4	[NT]		93	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	<0.1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.064	[NT]		109	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	<0.2	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	03/06/2025	03/06/2025		[NT]	[NT]
Date analysed	-			[NT]	3	03/06/2025	03/06/2025		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	3	1200	[NT]		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	3	7.4	[NT]		[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	3	184	[NT]		[NT]	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	[NT]	3	8.5	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	3	540	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	3	1300	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	3	2700	2700	0	[NT]	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	[NT]	3	18	[NT]		[NT]	[NT]
Sodium Adsorption Ratio	-	0.01	Metals-020	[NT]	3	5.2	[NT]		[NT]	[NT]
Silica (Reactive - SiO ₂)	mg/L	0.1	INORG-120	[NT]	3	20	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	3	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	3	0.4	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	3	0.4	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	3	0.01	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	3	0.4	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/06/2025	3	03/06/2025	03/06/2025		03/06/2025	[NT]
Date analysed	-			03/06/2025	3	03/06/2025	03/06/2025		03/06/2025	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	3	44	[NT]		100	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	3	2	[NT]		103	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	3	170	[NT]		96	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	3	22	[NT]		99	[NT]
Hardness (calc) equivalent CaCO ₃	mg/L	3	Metals-020	[NT]	3	200	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	5	Inorg-006	<5	3	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	3	250	[NT]		[NT]	[NT]
Carbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	3	<5	[NT]		[NT]	[NT]
Total Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	3	250	[NT]		114	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	3	84	84	0	92	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	3	140	150	7	94	[NT]
Ionic Balance	%		Inorg-040	[NT]	3	3.0	[NT]		[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

Holding time exceedance for PH/EC and nutrients.

vTRH & BTEXN in Water NEPM - TRH C6-C9/C6-C10 Results are positive (or in part positive) due to the presence of THMs within the sample.

Microbiology analysed by Sonic Food & Water Testing. Report no. W2512539, W2512509.

The time between collection and the commencement of testing should not exceed 24 hours. Samples tested outside this time may have their results compromised.

Escherichia Coli, Faecal coliforms not detected by the method.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Oisin Butler

Sample Login Details

Your reference	E36314PT Lismore
Envirolab Reference	382346
Date Sample Received	03/06/2025
Date Instructions Received	03/06/2025
Date Results Expected to be Reported	11/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	10 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Sample ID	Water Quality Parameters																																						
	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	All metals in water-dissolved	Metals in Waters -Acid extractable	Electrical Conductivity	pH	Redox Potential*	Dissolved Oxygen*	Turbidity	Total Dissolved Solids(grav)	Total Suspended Solids	Total Organic Carbon	Sodium Adsorption Ratio	Silica (Reactive - SiO2)	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Total Nitrogen in water	TKN in water	Phosphate as P in water	Organic Nitrogen as N	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Microbiological Testing			
MW62	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
MW206	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
MW212	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW214	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Creek1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GWDUP301	✓	✓	✓	✓																																			
GWDUP302	✓	✓	✓																																				
FR302-IP	✓	✓	✓	✓																																			
TB301	✓	✓	✓	✓																																			
TS301	✓																																						

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E36314PT Date Results Required: STANDARD Page: 1 OF 1	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention:

Location: Lismore						Sample Preserved in Esky on Ice													
Sampler: OB						Tests Required													
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Alkalinity suite	EC, pH, redox, DO	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	#3	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli	BTEX	TRH/BTEXN/PAH		
30/05/2025	1	MW62	##	0.1	Water	X	X	X	X	X	X	X	X	X	X				
30/05/2025	2	MW206	##	10.7	Water	X	X	X	X	X	X	X	X	X	X				
30/05/2025	3	MW212	##	24.8	Water	X	X	X	X	X	X	X	X	X	X				
31/05/2025	4	MW214	##	44.4	Water	X	X	X	X	X	X	X	X	X	X				
29/05/2025	5	Creek1	##	-	Water	X	X	X	X	X	X	X	X	X	X				
30/05/2025	6	GWDUP301		-	Water						X	X							
30/05/2025	7	GWDUP302		-	Water	X						X					X		
30/05/2025	8	FR302-IP		-	Field Rinsate						X	X							
27/05/2025	9	TB301		-	Trip Blank				X		X								
27/05/2025	10	TS301		-	Trip Spike											X			
											X				X				
											X								
											X								
						X													

Remarks (comments/detection limits required):

Sample Containers:
 ## Each sample includes: x2 amber bottles, x2 HCl preserved glass vials, x2 unpreserved plastic bottles, x2 nitric acid preserved bottles (1 is field filtered), x1 sulphuric acid preserved bottle and x1 sterile container

Relinquished By:	Date:	Time:	Received By: O. WILCZAK
			Date: 3/6/25

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

Job No: 382346

Date Received: 3/6/25
Time Received: 1500
Received By: [Signature]
Temp: Cool/Ambient
Cooling: Ice/Repack
Security: Intact/Broken/None

CERTIFICATE OF ANALYSIS 382346-A

Client Details

Client	JK Environments
Attention	Oisin Butler
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E36314PT Lismore</u>
Number of Samples	Additional analysis 1 sample
Date samples received	03/06/2025
Date completed instructions received	10/06/2025

Analysis Details

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

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

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

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

Report Details

Date results requested by	17/06/2025
Date of Issue	16/06/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Inorganics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

Miscellaneous Inorganics		
Our Reference		382346-A-2
Your Reference	UNITS	MW206
Date Sampled		30/05/2025
Type of sample		Water
Date prepared	-	13/06/2025
Date analysed	-	13/06/2025
Total Dissolved Solids (grav)	mg/L	230
Total Suspended Solids	mg/L	620

Method ID	Methodology Summary
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-019	Suspended Solids - determined gravimetrically by filtration of the sample. The samples are dried at 104+/-5°C.

Client Reference: E36314PT Lismore

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/06/2025	2	13/06/2025	13/06/2025		13/06/2025	[NT]
Date analysed	-			13/06/2025	2	13/06/2025	13/06/2025		13/06/2025	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	2	230	[NT]		96	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	2	620	520	18	104	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

TSS/TDS - Samples were out of the recommended holding time for this analysis.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Oisin Butler

Sample Login Details

Your reference	E36314PT Lismore
Envirolab Reference	382346-A
Date Sample Received	03/06/2025
Date Instructions Received	10/06/2025
Date Results Expected to be Reported	17/06/2025

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	Additional analysis 1 sample
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

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

Analysis Underway, details on the following page:

Sample ID	Total Dissolved Solids(grav)	Total Suspended Solids	On Hold
MW62			✓
MW206	✓	✓	
MW212			✓
MW214			✓
Creek1			✓
GWDUP301			✓
GWDUP302			✓
FR302-IP			✓
TB301			✓
TS301			✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E36314PT Date Results Required: STANDARD Page: 1	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Anna Bui

Location:						Sample Preserved in Esky on Ice										
Sampler:						Tests Required										
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Alkalinity suite EC, pH, redox, DO	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	#3L	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli		
30/05/2025	382346	MW206	PVC	10.7	Water											
Remarks (comments/detection limits required): Envirolab Reference: 382346						Sample Containers: PVC - HDPE Plastic Bottles										
Relinquished By:			Date:			Time:			Received By: EW MD			Date: 10/6/25				

382346-A
101612P
CW

Anna Bui

From: Oisin Butler <OButler@jkenvironments.com.au>
Sent: Tuesday, 10 June 2025 12:40 PM
To: Anna Bui; Craig Ridley
Cc: Envirolab Sydney Sample Receipt; Nam Dinh; Katrina Taylor
Subject: RE: E36314PT Lismore - 382346

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Anna,

Standard turnaround is fine for the results. We will send the sample to the lab today.

Regards
Oisin Butler
Environmental Scientist



T: +61 2 9888 5000
D: +61 493 309 876
E: OButler@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

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From: Anna Bui <ABui@envirolab.com.au>
Sent: Tuesday, 10 June 2025 12:27 PM
To: Craig Ridley <CRidley@jkenvironments.com.au>; Oisin Butler <OButler@jkenvironments.com.au>
Cc: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>; Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: RE: E36314PT Lismore - 382346

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Hi Oisin/Craig,

Thanks. We'll log the TSS/TDS for MW206 as an A-job once the bottle is received. How urgently did you need the results?

Unfortunately, we don't have enough sample to re-extract for trace OCPs. We'd need another 200ml minimum in amber bottles.

Thanks,

Kind Regards,

Anna Bui | Client Services Officer | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

Follow us on: [LinkedIn](#) | [Facebook](#) | [Twitter](#)

Samples will be analysed per our T&C's.

From: Craig Ridley <CRidley@jkenvironments.com.au>

Sent: Tuesday, 10 June 2025 11:30 AM

To: Oisin Butler <OButler@jkenvironments.com.au>; Anna Bui <ABui@envirolab.com.au>

Cc: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>; Katrina Taylor <KTaylor@jkenvironments.com.au>

Subject: RE: E36314PT Lismore - 382346

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Anna,

Would it also be possible to re-extract this portion of sample for trace OCPs?

Regards

Craig Ridley

Associate | Environmental Scientist



T: +61 2 9888 5000
D: +61 421 856 992
E: CRidley@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

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From: Oisin Butler <OButler@jkenvironments.com.au>

Sent: Tuesday, 10 June 2025 11:18 AM

To: Craig Ridley <CRidley@jkenvironments.com.au>; Anna Bui <ABui@envirolab.com.au>

Cc: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>

Subject: RE: E36314PT Lismore - 382346

Hi Anna,

We do in fact have MW206 500ml unpreserved bottle, I will send it to the lab today for TSS and TDS testing.

Regards

Oisin Butler

Environmental Scientist



T: +61 2 9888 5000
D: +61 493 309 876
E: OButler@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
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From: Craig Ridley <CRidley@jkenvironments.com.au>

Sent: Tuesday, 10 June 2025 9:41 AM

To: Anna Bui <ABui@envirolab.com.au>; Oisin Butler <OButler@jkenvironments.com.au>

Cc: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>

Subject: RE: E36314PT Lismore - 382346

Hi Anna,

Thanks for letting us know. I don't believe we have any additional sample, so please proceed below as you've suggested.

Regards

Craig Ridley

Associate | Environmental Scientist



T: +61 2 9888 5000
D: +61 421 856 992
E: CRidley@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

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From: Anna Bui <ABui@envirolab.com.au>

Sent: Friday, 6 June 2025 2:19 PM

To: Oisin Butler <OButler@jkenvironments.com.au>

Cc: Craig Ridley <CRidley@jkenvironments.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>

Subject: E36314PT Lismore - 382346

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Hi Oisin,

I just noticed the COC that came with the GW samples cut off the trace OCPs column.

We've already extracted them for PAH, so will be able to get OCP results in the same run, however, we will no longer be able to get them to trace level. We don't have enough sample to re-extract.

We also didn't receive a 500ml unpreserved plastic for sample MW206, so will have to omit TSS & TDS.

Let us know if you have extra sample(s) to send in.

Thanks,

From: Oisin Butler <OButler@jkenvironments.com.au>

Sent: Wednesday, 4 June 2025 12:50 PM

To: Grace Zhang <GZhang@envirolab.com.au>; Nam Dinh <NDinh@envirolab.com.au>; Da-Hyun Lee <DLee@envirolab.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>

Cc: Craig Ridley <CRidley@jkenvironments.com.au>

Subject: RE: E36314PT Lismore COCs

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Thank you Grace.

Regards

Oisin Butler

Environmental Scientist



T: +61 2 9888 5000

D: +61 493 309 876

E: OButler@jkenvironments.com.au

www.jkenvironments.com.au

PO Box 976

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115 Wicks Road

MACQUARIE PARK NSW 2113

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From: Grace Zhang <GZhang@envirolab.com.au>

Sent: Wednesday, 4 June 2025 12:49 PM

To: Oisin Butler <OButler@jkenvironments.com.au>; Nam Dinh <NDinh@envirolab.com.au>; Da-Hyun Lee <DLee@envirolab.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>

Cc: Craig Ridley <CRidley@jkenvironments.com.au>

Subject: Re: E36314PT Lismore COCs

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Hi Oisin,

No worries, I can get that arranged.

Thanks for confirming



Appendix E: Report Explanatory Notes



QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)¹⁴ methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)¹⁵. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

¹⁴ US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. (US EPA SW-846)

¹⁵ Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$



Appendix F: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in the SAQP attached in Appendix G of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table Q1 and Table Q2 inclusive) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report. A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Number Analysed	Frequency (of Sample Type)
<u>Intra-laboratory duplicates:</u>		
Soil	2	Approximately 5% of primary samples
Groundwater	1	Approximately 20% of primary samples
<u>Inter-laboratory duplicate:</u>		
Soil	2	As above
<u>Trip spikes:</u>		
Soil	1	One soil and one water for the investigation to demonstrate adequacy of preservation, storage and transport methods
Water	1	
<u>Trip blanks:</u>		
Soil	1	Two soil and one water for the investigation to demonstrate adequacy of storage and transport methods
Water	1	
<u>Rinsates:</u>		
soil SPT	1	One for the rig, one for the excavator shovel and one for the IP dip tape for groundwater sampling to demonstrate adequacy of decontamination methods
Excavator bucket/shovel	1	
IP Dip tape (groundwater)	1	



3. Data Assessment Criteria

JK Environments adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field/Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (EnviroLab) is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with our standard sampling procedures. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times generally in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

As reported in laboratory report 382346 holding time exceedances were reported for pH/EC. Given the samples were kept on ice, in a fridge at the JKE office or in the laboratory prior to analysis, all report indicate that the samples were received in good order, JKE is of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the investigation.

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC, with the exception of the anthracene, benzo(a)pyrene and all OCP PQLs for surface and groundwater analysis. Regarding the OCP in water analysis, there was a logging error by the laboratory when checking in the samples and trace analysis was not scheduled. Whilst this resulted in the PQLs being above the SAC for OCPs in water, considering other lines of evidence including the site use, undeveloped nature of up-gradient areas, and the absence of pesticides in the soils, the data is still considered to be acceptable for decision-making. There were no on-site groundwater sources for PAHs and the PQLs being above the SAC for some compounds is considered to be insignificant in the context of the risk assessment.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for TRH F3, TRH F4, fluoranthene, arsenic, cadmium, lead and nickel in SDUPA/TP204 (0-0.1m);
- An elevated RPD was reported for mercury in SDUP301/TP313 (0-0.1m); and

- An elevated RPD was reported for zinc in SDUP302/TP310 (0-0.1m).

Values outside the acceptable limits have largely been attributed to results close to the PQL for organic compounds, and minor sample heterogeneity for metals. As both the primary and duplicate sample results were substantially less than the SAC, the exceedances are not considered to have had an adverse impact on the data set as a whole.

Field/Trip Blanks

During the investigation, two soil trip blanks and one water trip blank were placed in the esky during sampling and transported back to the laboratory.

The soil trip blank analysis results were all less than the PQLs with the exception of chromium, copper, lead, nickel and zinc with reported concentrations of between 1mg/kg and 5mg/kg. Low level metals concentrations are typical in washed sand which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in a sand matrix and were not indicative of cross-contamination. On this basis, cross contamination between samples that may have significance for data validity did not occur.

The water trip blank results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

The shovel rinsate analysis results, were all below the PQL with the exception of light fraction TRH (TRH F1) and copper. The detectable concentration of light fraction TRH is most likely attributed to trihalomethanes. These compounds are breakdown products from the chlorination process and are common in potable water at the concentration reported (the Australian drinking water guideline for total trihalomethanes is 250µg/L). Similarly, the low-level metals concentrations (i.e. copper) are typical in potable water which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in potable water and were not indicative of cross-contamination.

The IP meter rinsate analysis results were all below the PQL with the exception of light fraction TRH (TRH F1), copper, nickel and zinc. As noted in the comments section of Envirolab report 382346, the detectable concentration of light fraction TRH is attributed to trihalomethanes. These compounds are breakdown products from the chlorination process and are common in potable water at the concentration reported (the Australian drinking water guideline for total trihalomethanes is 250µg/L). Similarly, the low-level metals concentrations (i.e. nickel and zinc) are typical in potable water which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in potable water and were not indicative of cross-contamination. The copper concentration of 310µg/L was considered to be anomalous given the soil and groundwater results reported, and does not affect the quality of the dataset, noting copper is also common in potable water;

Trip Spikes

The soil trip spike results ranged from 97% to 98% and indicated that field preservation methods were appropriate.



The water trip spike results ranged from 102% to 110% and indicated that field preservation methods were appropriate.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation. A review of the laboratory QA/QC data identified the following minor non-conformances:

Envirolab report 381579

- Low spike recovery was obtained for one sample for metals in soil. The sample was re-digested and re-spiked and the low recovery was confirmed and contributed to matrix interferences. However, an acceptable recovery was obtained for the LCS; and
- The PQL for arsenic in one sample was raised due to the low spike recovery/recoveries. This may reflect other samples where similar in matrix and similar analytical interferences occur.

Envirolab Report 382346

- Holding time exceedance for PH/EC and nutrients.

Envirolab report 382346-A

- TSS/TDS - Samples were out of the recommended holding time for this analysis.

Envirolab report MGE0492

- Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria;
- Spike recovery was outside routine acceptance criteria (70-130%), this may have been due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS;
- Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10 times the PQL, the RPD acceptance criteria increases exponentially; and
- The laboratory duplicate RPD acceptance criteria was exceeded. Results were accepted due to the inhomogeneous nature of the sample.

Envirolab report MGF0097

- PQLs) were raised due to matrix interference.

The holding time exceedances were largely attributed to the fact that the work occurred at a relatively remote site that was a long distance from the laboratory. The holding time exceedances are not considered to have compromised the data. Other non-conformances were not considered to be significant to the extent they would impact the outcome of the risk assessment.

C. DATA QUALITY SUMMARY

JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of



systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

There was only one groundwater monitoring event undertaken for the investigation, although it is noted that a larger data set exists for the wider property. There is some uncertainty around the representativeness of the groundwater data, particularly during different climatic conditions and after wet/dry periods. However, given the low contaminant concentrations reported, the site history and the surrounding land uses, this is not considered to alter the conclusions of the investigation. The minor impacts associated with the mechanical issues with the drill rig have been closely evaluated and we have reviewed our field practices in light of this issue. The impacts were unavoidable considering the point in time in the drilling process where the issue occurred.



Appendix G: Field Work Documents



JKE SAQP



REPORT TO
DEPARTMENT OF EDUCATION

ON
SAMPLING ANALYSIS AND QUALITY PLAN FOR
SUPPLEMENTARY INVESTIGATION

FOR
RICHMOND RIVER HIGH CAMPUS – FLOOD
RECOVERY RELOCATION

AT
163-170 ALEXANDRA PARADE, NORTH LISMORE,
NSW

Date: 16 May 2025

Ref: E36314PT3rpt-SAQP

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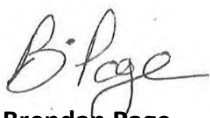


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- Appendix A: Report Figures
- Appendix B: Report Explanatory Notes
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Abbreviations

Asbestos Fines/Fibrous Asbestos	AF/FA
Ambient Background Concentrations	ABC
Added Contaminant Limits	ACL
Asbestos Containing Material	ACM
Australian Drinking Water Guidelines	ADWG
Area of Environmental Concern	AEC
Australian Height Datum	AHD
Acid Sulfate Soil	ASS
Before You Dig Australia	BYDA
Below Ground Level	BGL
Benzo(a)pyrene Toxicity Equivalent Factor	BaP TEQ
Benzene, Toluene, Ethylbenzene, Xylene	BTEX
Cation Exchange Capacity	CEC
Contaminated Land Management	CLM
Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Development Application	DA
Data Quality Indicator	DQI
Data Quality Objective	DQO
Detailed Site Investigation	DSI
Ecological Investigation Level	EIL
Ecological Screening Level	ESL
Environment Protection Authority	EPA
Fibre Cement Fragment(s)	FCF
Finished Floor Level	FFL
Health Investigation Level	HIL
Health Screening Level	HSL
Health Screening Level-Site Specific Assessment	HSL-SSA
International Organisation of Standardisation	ISO
JK Environments	JKE
JK Geotechnics	JKG
Lab Control Spike	LCS
Light Non-Aqueous Phase Liquid	LNAPL
Map Grid of Australia	MGA
National Association of Testing Authorities	NATA
National Environmental Protection Measure	NEPM
Organochlorine Pesticides	OCP
Organophosphate Pesticides	OPP
Polycyclic Aromatic Hydrocarbons	PAH
Potential ASS	PASS
Polychlorinated Biphenyls	PCB
Photo-ionisation Detector	PID
Protection of the Environment Operations	POEO
Practical Quantitation Limit	PQL
Quality Assurance	QA
Quality Control	QC
Remediation Action Plan	RAP
Reduced/Relative Level	RL
Relative Percentage Difference	RPD
Site Assessment Criteria	SAC
Sampling, Analysis and Quality Plan	SAQP
State Environmental Planning Policy	SEPP



Surface and Groundwater Impact Assessment	SGIA
Site Specific Assessment	SSA
Source, Pathway, Receptor	SPR
Specific Contamination Concentration	SCC
Standard Penetration Test	SPT
Standing Water Level	SWL
Trip Blank	TB
Toxicity Characteristic Leaching Procedure	TCLP
Total Recoverable Hydrocarbons	TRH
Trip Spike	TS
Upper Confidence Limit	UCL
United States Environmental Protection Agency	USEPA
Underground Storage Tank	UST
Virgin Excavated Natural Material	VENM
Volatile Organic Compounds	VOC
Vinyl Chloride	VC
World Health Organisation	WHO
Work Health and Safety	WHS
Units	
Litres	L
Metres BGL	mBGL
Metres	m
Millivolts	mV
Millilitres	ml or mL
Milliequivalents	meq
micro Siemens per Centimetre	µS/cm
Micrograms per Litre	µg/L
Milligrams per Kilogram	mg/kg
Milligrams per Litre	mg/L
Parts Per Million	ppm
Percentage	%
Percentage weight for weight	%w/w

APPENDIX G - SAQP

1 INTRODUCTION

Department of Education ('the client') commissioned JK Environments (JKE) to prepare a Sampling Analysis and Quality Plan (SAQP) for the Supplementary Investigation to be undertaken by JKE for the Richmond River High Campus – Flood Recovery Relocation, at 163-170 Alexandra Parade, North Lismore, NSW ('the site'). The site location is shown on Figure 1 and the proposed investigation will be confined to the nominated site boundaries as shown on Figure 2 attached in the appendices.

JKE has previously undertaken a Preliminary (Desktop) Site Investigation (PSI) and Detailed Site Investigation (DSI) of a section of the north of the site and the wider property. A summary of relevant information is included in Section 2. This Supplementary Investigation is required to address data gaps as a result of the proposed site location being relocated within the wider property.

1.1 Proposed Development Details

Based on the details provided, JKE understand that the existing Richmond River High Campus was significantly impacted by the 2022 floods. As such, the site has been identified as the preferred location for the new high school campus. The proposed site layout for the school is shown on Figure 2.

1.2 Aims and Objectives

The primary aim of the Supplementary Investigation is to provide additional data to establish whether the site is consistent with expectations with reference to the conceptual site model (CSM) and findings of the DSI undertaken previously. Secondary aims of the investigation are to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The DSI objectives are to:

- Assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program that considers the potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) identified in the PSI;
- Document an iteration and review of the conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

1.3 Scope of Work

The SAQP has been prepared generally in accordance with the Scope of Services (SI-07798-25) as provided by the client in an email of 2 May 2025, and the agreement dated 15 May 2025.

The scope of work included review of the existing information for the site and wider property and preparation of an SAQP with regards to National Environmental Protection (Assessment of Site Contamination) Measure



1999 as amended (2013)¹, and other guidelines made under or with regards to the Contaminated Land Management Act (1997)².

A list of reference documents/guidelines is included in the appendices.

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¹ National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)

² Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 Background

JKE previously undertook a PSI across the site and wider school property in December 2023³. The PSI included a review of historical information and other relevant information for the site and preparation of a preliminary CSM. It is acknowledged that at the time of the PSI, the area that was investigated included the wider property including all of Lots 1 & 2 in DP539012 and Lot 1 in DP376007 (see Figure 1 in Appendix A).

A time line summary of the historical land uses and activities identified for the site is presented in the table below.

Table 2-1: Summary of Historical Land Uses / Activities

Year(s)	Potential Land Use / Activities
1918 to present	<i>On-site</i> • Agricultural (grazing and farming), and rural residential; • Construction/demolition of structures; • Localised filling/earthworks for levelling purposes and installation of services in general areas of buildings/structures. Although there was no obvious evidence of this in the aerial photographs, localised waste burial may have occurred as this is relatively common on large rural properties in our experience; • Use of pesticides around site and beneath building/s; and • Use and impacts from hazardous building materials in former/existing structures. <i>Off-site</i> • Agricultural (grazing and farming), and rural residential, commercial (cattle yards and concrete works), and recreational (showground and cattle dips).

The following potential contamination sources/AEC were identified in the PSI: fill material; historical agricultural land use (farming and grazing); use of pesticides around site; hazardous building materials (former and existing buildings); and off-site cattle dips.

As the site was identified to have been used for agricultural purposes (farming and grazing) which is listed in Table 1 of the SEPP55 Planning Guidelines as activities that may cause contamination, the PSI indicated that a DSI is required to establish whether the site is either suitable in its current state, or whether it needs to be remediated, with regards to Clause 4.6 of State Environmental Planning Policy (Resilience and Hazards) 2021⁴ (formerly known as SEPP55).

The PSI report recommended the following to better assess the risks associated with potential contamination at the site:

- A DSI to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required. A SafeWork NSW search for historical dangerous goods licenses should also occur under the scope of the DSI;
- A SAQP should be prepared for the DSI. Soil sampling from test pits would be preferred, however, locations could be combined with the geotechnical investigation where practicable. Preliminary waste

³ JKE, (2023). *Report to School Infrastructure New South Wales on Contamination - Preliminary (Desktop) Site Investigation for Due Diligence – Flood Recovery at 163-170 Alexandra Parade, North Lismore, NSW.* (Ref: E36314PT3rpt, dated 18 December 2023) (referred to as PSI)

⁴ *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

classification assessment should occur concurrently with this investigation if it is anticipated that soil waste will need to be disposed off-site during the development works. Sampling must include the dam sediment and water (where available); and

- A hazardous building material survey should be undertaken of the existing buildings/structures prior to demolition. An asbestos clearance certificate should be obtained following removal of any asbestos and/or hardstand.

Subsequent to the PSI, JKE was engaged to undertake a DSI in part of the northern and central sections of the wider property (refer to Figures 1 and 2 in Appendix A). The DSI included soil sampling from 37 boreholes, 31 test pits, groundwater sampling from five of six monitoring wells (it is noted one monitoring well did not make water), and surface water sampling from the onsite dam and creek.

The boreholes/test pits encountered fill/topsoil materials to depths of approximately 0.1mBGL to 0.5mBGL, underlain by clayey and gravelly alluvial, colluvial and residual soils and basalt bedrock. The fill/topsoil typically comprised silty clay, with sporadic occurrences of plastic, glass and ceramic fragments occurred in fill to a lesser extent. One fibre cement fragment (FCF) was also encountered at the ground surface just to the south-west of the DSI site boundary, however this was found not to contain asbestos and was therefore not asbestos containing material (ACM).

A selection of soil, groundwater and surface water samples were analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC in fill/soil. Copper, nickel and zinc were reported above the ecological SAC in surface and groundwater however, these results were considered to be a regional issue and risks were assessed to be low.

Based on the Tier 1 risk assessment, JKE was of the opinion that potential risks associated with the CoPC at the DSI site were low and the data collected during the investigation suggested that significant and widespread contamination issues were unlikely to be encountered.

Further investigation and/or remediation was not considered to be required and the DSI site was considered to be suitable for the proposed high school development, from a contamination viewpoint. Development and implementation of an unexpected finds protocol was recommended.

Since completion of the DSI, the proposed site for the high school development has been moved to the south (referred to as 'the site' within this SAQP, as shown on Figures 1 and 2 in Appendix A). There is only a small overlap between the site and the DSI site area, so additional data collection is required to establish whether the site conditions are consistent with expectations with reference to the CSM and findings of the DSI undertaken previously.

2.2 Site Identification

Table 2-2: Site Identification

Site Owner (certificate of title from PSI):	Fiona Janice Murray (Lot 2 in DP 539012) (as at October 2023) Craig Kenneth Murray (Lot 1 in DP539012) (as at October 2023)
Site Address:	163-170 Alexandra Parade, North Lismore, NSW
Lot & Deposited Plan:	Part of Lots 1 & 2 in DP539012
Current Land Use:	Rural residential and agricultural (grazing)
Proposed Land Use:	High school
Local Government Area:	Lismore City Council
Current Zoning:	RU1 Primary Production
Site Area (m²) (approx.):	87,200
RL (AHD in m) (approx.):	10-40
Geographical Location (decimal degrees) (approx.):	Latitude: -28.7950695 Longitude: 153.2664283
Site Plans:	Appendix A

2.3 Site Description

The site is located in a mixed use (rural residential/recreational/commercial) area of North Lismore and the wider property is bound by Duncannon Road to the east and Alexandra Parade to the south. The site is located approximately 830m to the north-west of Wilsons River at its closest point.

The site is located at a transition between undulating topography with rolling hills generally sloping down at approximately 5° to 15°, associated with the North Lismore Plateau, and the relatively level floodplain around Wilsons River and Leicester Creek.

The most recent inspection of the area was undertaken by JKE on 14 October 2024 as part of the DSI for the wider property. All areas of the site were not inspected at that time, but the summary below also includes some details gathered during the inspection for the PSI. An internal inspection of buildings was not undertaken. A summary of key inspections findings is outlined below:

- The site comprises two rural residences with associated agricultural land (cattle grazing);
- Both properties within the site and wider property were accessed via an unpaved driveway off Alexandra Parade to the south;
- A timber stable was positioned on the western boundary of the northern lot and was in poor condition. The main residence of the northernmost property was not located within the site;
- The main residence and associated outbuildings of the southern property (No.163 Alexandra Parade) was located in the central west of the site. The buildings were generally constructed on grade with

timber and/or metal walls, metal rooves, and on concrete slab. The buildings were of an age indicative of housing hazardous building materials. JKE understand that another consultant has been engaged to undertake hazardous building materials surveys of the buildings/structures at the site;

- The site predominantly comprised grassed paddocks with sparse tree cover in the eastern portion;
- A revegetated swale drain/ creek line was visible in the northern corner of the site, but was not flowing/ was dry at the time of the inspection; and
- All vegetation inspected appeared to be in good condition with no obvious evidence of phyto-toxic stress or die back.

2.4 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds of the wider property:

- North – rural residential and agricultural properties;
- South – Alexandra Parade with residential, agricultural (including cattle/sheep loading areas/yards) and commercial (Boral Concrete and a landscape supplies store) properties beyond;
- East – Dunoon Road with Lismore Showground and kart racing track/club beyond; and
- West – undeveloped scrubland and/or agricultural land.

JKE did not observe any obvious land uses in the immediate surrounds that were identified as potential contamination sources for the site.

2.5 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.6 Summary of Regional Geology and Hydrogeology

2.6.1 Regional Geology

Regional geological information was reviewed for the PSI. The PSI indicated that the western section the site is underlain by Lismore Basalt which typically consists of predominantly tholeiitic with occasional alkaline types of formations. The eastern section of the site is underlain by Quaternary aged alluvial floodplain deposits, which typically consists of silt, very fine- to medium grained lithic to quartz-rich sand, and clay. A sliver through the central section of the site is underlain by Quaternary aged alluvial fan deposits, which typically consists of fluvially-deposited quartz-lithic sand, silt, gravel, and clay.

2.6.2 Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW information was reviewed for the PSI. The information indicated that the site is located within the Coolamon, Disputed Plain and Leicester soil landscapes. Coolamon soils are generally characterised by moderate erodibility, and high to very high shrink-swell capacity. Disputed

Plains soils are generally characterised by high erodibility. Leicester soils are generally characterised by moderate erodibility with some higher local occurrences, and high dispersivity.

2.6.3 Dryland Salinity – National Assessment

There was no dryland salinity national assessment data for the site.

2.6.4 Acid Sulfate Soil (ASS) Risk and Planning

ASS related information was reviewed for the PSI. The PSI indicated that the site is not located in an ASS risk area.

2.6.5 Hydrogeology

Hydrogeological information presented in the PSI indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive highly productive aquifers. There was a total of 38 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 630m to the south and down-gradient of the site and was registered for irrigation purposes;
- A number of the bores were registered for irrigation, water supply, and stock and domestic purposes; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1m-11.3m, underlain by basalt bedrock. Standing water levels (SWLs) in the bores ranged from 0.6m below ground level (BGL) to 45mBGL.

The information reviewed indicated that the subsurface conditions at the site are expected to consist of variable soils, including alluvial soils. Abstraction and use of groundwater at the site or in the immediate surrounds may be viable under these conditions, however the use of groundwater is not proposed as part of the development and there were no registered groundwater bores in close proximity. We assume there is a reticulated water supply in the area and consumption of groundwater is not expected to occur, although it cannot be ruled out given that some registered groundwater bores in the region are listed as water supply bores.

Considering the local topography and surrounding land features, JKE anticipate groundwater to generally flow towards the south-east overall.

2.6.6 Receiving Water Bodies

An unnamed tributary of Leicester Creek flows through the north-east corner of the site in an east-west orientation and commences onsite. This water body is considered to be a potential receptor.

3 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and background/site history site history information. Reference should also be made to the figures attached in the appendices.

3.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) are presented in the following table:

Table 3-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
<u>Fill material</u> – The site may have been historically filled to achieve the existing levels, particularly around the existing buildings and structures. The fill may have been imported from various sources and could be contaminated. Although there was no obvious evidence of this in the aerial photographs, localised waste burial may have occurred as this is relatively common on large rural properties in our experience. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works. The boreholes and test pits from the DSI that were within the northern portion of the site identified fill to depths in the order of 0.1-0.5mBGL (but generally 0.2mBGL or less). Samples collected and analysed from these locations were not impacted by the CoPC at concentrations that exceeded the SAC.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
<u>Agricultural use</u> – The site has been used for agricultural (farming and grazing) purposes. This could have resulted in contamination across the site via use of machinery, application of pesticides and building/demolition of various structures.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos. JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
<u>Use of pesticides</u> – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs.
<u>Hazardous Building Material</u> – Hazardous building materials may be present as a result of former building and demolition activities and in the existing buildings/structures on the site. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	Asbestos, lead and PCBs.

Source / AEC	CoPC
<u>Off-site cattle dip</u> – The site information reviewed indicated that two cattle dips were located within approximately 55m of the site to the south and may represent sources of contamination for the site. Groundwater information from the DSI indicated that the cattle dip is likely to be down-gradient of the site. However, this needs to be further assessed as a consequence of the site boundary changes.	Heavy metals (notably arsenic) and OCPs. Once the groundwater flow direction is understood, this AEC may be reassessed.

3.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 3-2: CSM

Potential mechanism for contamination	Potential mechanisms for contamination include: • Fill material – importation of impacted material, ‘top-down’ impacts (e.g. placement of fill, leaching from surficial material etc), or sub-surface release (e.g. impacts from buried material); • Historical agricultural use – ‘top-down’ and spills (e.g. application of pesticides, refuelling or repairing machinery, and other activities at the ground surface level); • Use of pesticides – ‘top-down’ and spills (e.g. during normal use, application and/or improper storage); • Hazardous building materials – ‘top-down’ (e.g. demolition resulting in surficial impacts in unpaved areas); and • Off-site commercial/agricultural land uses (cattle dip)– ‘top-down’, spill or sub-surface release. Impacts to the site could occur via migration of contaminated groundwater.
Affected media	Soil, creek sediment, surface water and groundwater have been identified as the potentially affected media.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, groundwater users and recreational water users in the creeks and river. Ecological receptors include terrestrial organisms and plants within unpaved areas (including any proposed landscaped areas), freshwater ecology in the onsite creeks and down-gradient water bodies.
Potential exposure pathways	Dermal absorption, ingestion and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary/direct contact and ingestion.

	Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens/playground areas, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings. Potential exposure pathways to groundwater (for human receptors) would be via vapour intrusion, or potential primary/secondary contact with groundwater during construction or if groundwater migrates into the river which could be utilised for recreational purposes. Exposure to ecological receptors could also occur in this water body. Sporadic use of groundwater for drinking purposes may also occur in the region (as suggested by the registered water supply bores in the vicinity), although it is assumed there is a town water supply and there are no water supply bores registered in the immediate vicinity.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into proposed buildings (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; • Contact with groundwater/surface water during construction activities; • Migration of groundwater/dam water into nearby water bodies, including aquatic ecosystems and recreational water bodies; and • Potential consumption of groundwater, or primary/secondary contact during activities such as irrigation.
Presence of preferential pathways for contaminant movement	None identified to date.

4 SAMPLING, ANALYSIS AND QUALITY PLAN

4.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) have been developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013). The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation will be summarised in the report.

4.1.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Detailed investigation data was previously collected, however, the development boundaries were altered and further investigation is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development and assess whether remediation is required. This information will be considered by the project team in the design and delivery of the project as well as by the consent authority in exercising its planning functions in relation to the approval of the development proposal under Chapter 4, Clause 4.6 of SEPP Resilience and Hazards 2021.

A waste classification is required prior to off-site disposal of excavated soil/bedrock.

4.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the investigation are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is further investigation/remediation required and what is this likely to involve?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?
- What is the preliminary waste classification of the in-situ fill material and natural soils/bedrock sampled and is further sampling/analysis required to confirm the waste classification(s)?

4.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Existing relevant environmental data from previous reports;
- Site information, including site observations and site history documentation;
- Sampling of potentially affected media, including soil, sediment, surface water and groundwater;
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining, and groundwater physiochemical parameters;
- Laboratory analysis of soils, sediment (if encountered), fibre cement (if encountered) and groundwater samples for the CoPC identified in the CSM; and

- Field and laboratory QA/QC data.

4.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figure 2 and will be limited vertically to a maximum depth of 6mBGL (spatial boundary). The final depth could depend on site conditions and will be noted in the report. At this stage, the sampling is scheduled to be completed in May 2025 (temporal boundary). Areas not accessible for sampling will be noted in the report as data gaps.

4.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

4.1.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 5. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid Source-Pathway-Receptor (SPR) linkages.

Statistical evaluation of the dataset via calculation of mean values and/or 95% upper confidence limit (UCL) values will not be undertaken due to the spatial distribution of the data and the number of samples submitted for analysis. For the supplementary investigation, the individual results will be assessed as either above or below the SAC.

4.1.5.2 Field and Laboratory QA/QC

Field QA/QC will include analysis of inter-laboratory duplicates (minimum of 5% of primary samples), intra-laboratory duplicates (minimum of 5% of primary samples), and trip spike (for volatiles), trip blank (for selected organic and inorganic compounds) and rinsate (for selected organic and inorganic compounds) samples (one for each medium sampled to assess the adequacy of field practices).

Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, will be included in the Data Quality (QA/QC) Evaluation presented in the report.

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which will be outlined in the laboratory reports. These criteria are developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, the most conservative concentration reported are to be adopted.

4.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are to be considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this is provided.

4.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results will be undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.

Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For the Supplementary Investigation, the null hypothesis will be adopted which is that, there is considered to be a complete source-pathway-receptor (SPR) linkage for the CoPC identified in the CSM unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis will be adopted for this investigation. Quantitative limits on decision errors will not be established as the sample plan is not probabilistic.

Data Quality Indicators (DQI) for field and laboratory QA/QC samples are defined below. An assessment of the DQI's is to be made in relation to precision, accuracy, representativeness, completeness and comparability.

Field Duplicates

Acceptable targets for precision of field duplicates will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL) are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data will be assessed against the laboratory QA/QC criteria. These criteria are developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the typical limits is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics; and
- 60-140% recovery acceptable for organics.

Surrogate Spikes

- 60-140% recovery acceptable for general organics.

Method Blanks

- All results less than PQL.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence will be reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is to be undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, we will adopt the most conservative concentration reported.

4.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the investigation objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data will be collected. The sampling plan and methodology are outlined in the following sub-sections.

4.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology proposed for the investigation is outlined in the table below. It is acknowledged that an archaeological investigation is underway on the site and this may limit the number and location of the sampling locations:

Table 4-1: Proposed Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples for the investigation will be collected from 30 locations (TP201 to TP210, BH211, BH212, BH214, BH215, TP217, BHTP301 to TP315) as shown on the attached Figure 2. This number of locations does not meet the minimum sampling density for hotspot identification, as outlined in the NSW EPA Sampling Design Part 1 – Application (2022)⁵ contaminated land guidelines. However, given the findings of the DSI on the wider property, JKE considered this density to be appropriate for the Supplementary Investigation, based on the proposed development and current CSM. Two sample locations will also be targeted in the creek bed (if encountered/flowing) for sediment sampling. These locations are not shown on Figure 2, however, they will be confirmed on the final figures to be included in the report.

⁵ NSW EPA, (2022). *Sampling design part 1 - application*. (referred to as EPA Sampling Design Guidelines 2022)

Aspect	Input
	Samples will be collected from 20 locations for salinity analysis (TP201 to TP210, TP303, TP305 to TP309, and TP312 to TP315), which forms part of a separate scope of work running in parallel with the Supplementary Investigation. This number of locations meets the minimum sampling density outlined in the initial site investigation for moderately intensive construction outlined in DLWC Salinity Guidelines (2002)⁶ based on the site area.
Sampling Plan	The sampling locations will be placed on a judgemental sampling plan taking into consideration only the development footprint including the buildings, roads and parking, open space and playing fields. Areas identified for agricultural purposes are excluded from the scope and will not be captured as 'the site' in the context of the Supplementary Investigation. The locations have been proposed for site coverage, and also considering areas to be disturbed and areas where former structures were present. Locations TP301 and TP217 were initially proposed to target building or former building areas. TP217 was however repositioned due to archaeological constraints.
Set-out and Sampling Equipment	Sampling locations will be set out using a hand-held GPS unit (with an accuracy of approximately $\pm 0.1\text{m}$ where adequate satellite coverage is available). In-situ sampling locations will be checked for underground services by an external contractor prior to sampling. Samples will be collected using a combination of: • Drill rig equipped with spiral flight augers (150mm diameter). Soil samples will be obtained from a Standard Penetration Test (SPT) split-spoon sampler, and/or directly from the auger; and/or • Backhoe/excavator. Samples will be obtained from the test pit walls or directly from the bucket by hand. Where sampling occurs from the bucket, JKE will collect samples from the central portion of large soil clods, or from material that is unlikely to have come into contact with the bucket. Sediment samples (from the creek if encountered), will be obtained using a hand trowel or pick/shovel as safe access allows.
Sample Collection and Field QA/QC	Soil samples will be obtained in accordance with our standard field procedures. Soil samples will be collected from the fill and natural profiles based on field observations. The sample depths will be shown on the logs included in the report. Soil samples will be placed in glass jars with plastic caps and Teflon seals with minimal headspace. Samples for asbestos analysis will placed in zip-lock plastic bags. During sampling, soil at selected depths will be split into primary and duplicate samples for field QA/QC analysis. The field splitting procedure includes alternate filling of the sampling containers to obtain a representative split sample. Homogenisation of duplicate samples will not occur to minimise the potential for the release of volatile organic compounds.

⁶ Department of Land and Water Conservation (DLWC), (2002). *Site Investigations for Urban Salinity*, (referred to as DLWC 2002)

Aspect	Input
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp will be used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs will be undertaken on soil samples using the soil sample headspace method. VOC data will be obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records will be maintained for the project. The field screening for asbestos quantification will include the following: • A representative bulk sample (approximately 10L sample, to the extent achievable based on sample return) is to be collected from fill at 1m intervals, or from each distinct fill profile. The quantity of material for each sample may vary based on the return achieved using the auger. The bulk sample intervals will be shown on the borehole/test pit logs; • Each sample will be weighed using an electronic scale; • Each bulk sample will be passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement. If the soil are cohesive in nature, the samples will be subsequently placed on a contrasting support (blue tarpaulin) and inspected for the presence of fibre cement. Any soil clumps/nodules will be disaggregated; • The condition of fibre cement or any other suspected asbestos materials will be noted on the field records; and • If observed, any fragments of fibre cement in the bulk sample will be collected, placed in a zip-lock bag and assigned a unique identifier. Calculations for asbestos content will be undertaken based on the requirements outlined in Schedule B1 of NEPM (2013), as summarised in Section 5.1. Bulk samples in unpaved areas will be taken from the top 100mm, then each distinct fill profile thereafter, with a minimum of one sample per 1m depth of each fill profile.
Decontamination and Sample Preservation	Sampling personnel will use disposable nitrile gloves during sampling activities. Re-usable sampling equipment will be decontaminated between sampling events using a Decon and potable water solution, followed by a rinse in potable water. Soil samples will be preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the samples may be stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

4.3 Groundwater and Surface Water Sampling Plan and Methodology

The groundwater sampling plan and methodology proposed for the Supplementary Investigation is outlined in the table below:

Table 4-2: Proposed Groundwater and Surface Water Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Where groundwater is present, it is proposed to sample the two existing groundwater wells that were installed during the fieldwork for the DSI on the wider property, MW62 and MW85 (refer to Figure 2). Three new wells are proposed, including BH212 (MW212), BH213 (MW213) and BH215 (MW215) generally positioned in the north of the site and at the south of the building cluster.

Aspect	Input
	A surface water sample is to be collected from the creek (if encountered/flowing). All wells and the surface water sample will form part of the supplementary investigation and a separate scope of work for Surface and Groundwater Impact Assessment (SGIA), running in parallel with the Supplementary Investigation.
Monitoring Well Installation Procedure	The monitoring well construction details will be documented on the appropriate borehole logs. The monitoring wells will be installed to maximum depths of approximately 6mBGL. The wells will generally be constructed as follows: • 50mm diameter Class 18 PVC (machine slotted screen) installed in the lower section of the well to intersect groundwater; • 50mm diameter Class 18 PVC casing installed in the upper section of the well (screw fixed); • A 2mm sand filter pack used around the screen section for groundwater infiltration; • A hydrated bentonite seal/plug used on top of the sand pack to seal the well; and • A gatic cover installed at the surface with a concrete plug to limit the inflow of surface water.
Monitoring Well Development	The monitoring wells will be developed after installation using a submersible electrical pump. During development, the following parameters will be monitored using calibrated field instruments: • SWL using an electronic dip meter; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter. Steady state conditions are considered to have been achieved when the difference in the pH measurements is less than 0.2 units, the difference in conductivity is less than 10%, and when the SWL is not in drawdown. In the event that groundwater in-flow is relatively slow, the development will continue until the wells are effectively dry. The field monitoring records and calibration data will be included in the report.
Surface Water and Groundwater Sampling	The monitoring wells will be allowed to recharge for approximately two to five days after development. Prior to sampling, the monitoring wells will be checked for the presence of Light Non-Aqueous Phase Liquids (LNAPL) using an inter-phase probe electronic dip meter. The monitoring well head space will be checked for VOCs using a calibrated PID unit. The samples will be obtained using a peristaltic pump/disposable plastic bailer. During sampling, the following parameters will be monitored using calibrated field instruments: • SWL using an electronic dip meter; and • pH, temperature, EC, DO and Eh using a YSI Multi-probe water quality meter. Steady state conditions is considered to have been achieved when the difference in the pH measurements is less than 0.2 units, the difference in conductivity is less than 10%, and when the SWL was not in drawdown. Groundwater samples will be obtained directly from the single use PVC tubing and placed in the sample containers. Duplicate samples are to be obtained by alternate filling of sample containers. This technique is adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc.

Aspect	Input
	A grab sample of surface water will be obtained from the creek (if encountered/flowing) using a disposable plastic bailer and placed in the sample containers. The field monitoring record and calibration data will be included in the report.
Decontaminant and Sample Preservation	During development, the development pump and hose will be flushed between monitoring wells with a potable water and Decon solution, followed by a pulse of potable water (single-use tubing will be used for each well). This will also occur for the inter-phase probe electronic dip meter during development and sampling. The groundwater sampling process utilises a peristaltic pump and single-use tubing, therefore no decontamination procedure for the sampling is considered necessary. The samples will be preserved with reference to the analytical requirements and placed in an insulated container with ice or ice bricks. On completion of the fieldwork, the samples may be temporarily stored in a fridge at the JKE office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

4.4 Laboratory Analysis and Proposed Analytical Schedule

Samples will analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. The laboratory details are provided in the table below:

Table 4-3: Laboratory Details

Samples	Laboratory
All primary samples and field QA/QC samples including intra-laboratory duplicates, trip blanks, trip spikes, and field rinsate samples	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)

For the Supplementary Investigation, an allowance has been made for the following analysis:

- Up to 30 selected soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; BTEX; OCPs and OPPs; PCBs; and asbestos (500ml);
- Two selected sediment samples (if encountered) will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; BTEX; OCPs and OPPs; PCBs; and asbestos (500ml);
- Up to 10 selected deeper soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; and BTEX;
- Up to four representative fibre cement fragments, if found on or in soil, will be analysed for asbestos;
- Up to 10 selected samples will be analysed for toxicity characteristic leachate procedure (TCLP) for selected metals and PAHs for preliminary waste classification purposes; and
- Up to five groundwater samples and one surface water sample (if encountered) for: heavy metals; TRH/BTEX; PAHs; trace level OCPs; pH; and EC.

The soil analysis will generally target the fill soils and the first contact of natural soils. Deeper samples may be analysed based on the results of the shallow soils and site observations. A staged approach to soil sample analysis has been undertaken to allow for targeting areas based on the results of the initial analysis round.

Additional analysis will also occur for:

Assessment of Salinity (although this will be reported in a separate document to the Supplementary Investigation):

- Up to 60 selected soil/rock samples will be analysed for pH, EC, resistivity (calculated from EC results), sulphate and chloride and soil texture; and
- Up to 20 selected soil samples will be analysed for CEC.

Assessment of Surface and Groundwater Impacts (although this will be reported in a separate document to the Supplementary) and will include a surface water sample if encountered:

- Alkalinity (bicarbonate, carbonate, hydroxide and total), acidity, EC, pH, redox potential (Eh) and dissolved oxygen (DO);
- Turbidity, total dissolved solids, total suspended solids, total organic carbon and sodium absorption ratio (SAR);
- Ionic balance, which includes major anions and the cation suite (including hardness);
- Metals including Aluminium, antimony, barium, beryllium, boron, cobalt, iron, lithium, manganese, molybdenum, selenium, silica (dissolved SiO₂), silver, strontium, uranium, and vanadium;
- Nutrient suite, including Ammonia, nitrate, total nitrogen, oxidised nitrogen, total phosphorus and reactive phosphorus; and
- Faecal coliforms, and Escherichia (E) coli.

5 SITE ASSESSMENT CRITERIA (SAC)

The following SAC derived from the NEPM 2013 and other guidelines, as discussed in the following sub-sections, will be adopted for the Supplementary Investigation, consistent with the approach taken for the DSI.

5.1 Soil

Soil data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below. We will also compare the sediment data to these SAC rather than sediment guidelines because the dam and creek bed are not expected to support benthic organisms in the context of the proposed development.

5.1.1 Human Health

- Health Investigation Levels (HILs) for 'public open spaces; secondary schools; and footpaths' exposure scenario (HIL-C);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B), will be adopted as land use type C does not allow for buildings and structures. HSLs will be calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)⁷; and
- Asbestos will be assessed against the HSL-C criteria. A summary of the asbestos criteria is provided in the table below:

Table 5-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-C criteria will be adopted for the assessment of asbestos in soil. The SAC adopted for asbestos are derived from the NEPM 2013 and based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)⁸. The SAC include the following: • <0.02% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (kg)}}{\text{Soil volume (L)} \times \text{soil density (kg/L)}}$ However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams):

⁷ Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

⁸ Western Australian (WA) Department of Health (DoH), (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2021)

Guideline	Applicability
	$\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (g)}}{\text{Soil weight (g)}}$

5.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. The EILs will only be applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene will be increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines⁹;
- ESLs will be adopted based on the soil type; and
- EILs for selected metals will be calculated as a first pass based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)¹⁰. This method is considered to be adequate for the Tier 1 screening. Where applicable, pH and CEC data may be used to refine the EILs in the event there are SAC exceedances based on the first pass assessment.

5.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) will be considered.

5.1.4 Waste Classification

Data for the waste classification assessment will be assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)¹¹ as outlined in the following table:

Table 5-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.
Hazardous Waste	• If SCC > CT2 then TCLP must be undertaken to classify the soil as hazardous waste; and • If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.

⁹ Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

¹⁰ Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

¹¹ NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. (referred to as Waste Classification Guidelines 2014)

Category	Description
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

5.2 Groundwater and Surface Water

Groundwater and surface water data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)¹². Environmental values for the Supplementary Investigation will include aquatic ecosystems, human uses (incidental contact and recreational water use), and human-health risks in non-use scenarios (vapour intrusion).

5.2.1 Human Health

- HSLs for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). HSLs will be calculated based on the soil type and the observed depth to groundwater.
- Should groundwater be recorded at depths shallower than 2m, a site-specific assessment (SSA) for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater will be undertaken. The assessment will include a selection of alternative Tier 1 criteria that are considered suitably protective of human health. These criteria are based on drinking water guidelines and have been referred to as HSL-SSA. The criteria are based on the following:
 - Australian Drinking Water Guidelines 2011 (updated 2021)¹³ for BTEX compounds and selected VOCs;
 - World Health Organisation (WHO) document titled Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality (2008)¹⁴ for petroleum hydrocarbons. We have conservatively adopted the value of 100µg/L for TRH F1 and F2;
 - USEPA regional screening levels for naphthalene (threshold value for tap water); and
 - The use of the laboratory PQLs for other contaminants where there are no Australian guidelines;
- The ADWG 2011 will be multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies, or with bore water used for irrigation, water supply and/or stock and domestic purposes. These have been deemed as 'recreational' SAC; and
- The recreational guidelines in The PFAS National Environmental Management Plan (NEMP) 3.0 2025¹⁵ will be adopted for PFAS in groundwater.

¹² NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination*.

¹³ National Health and Medical Research Council (NHMRC), (2021). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)

¹⁴ World Health Organisation (WHO), (2008). *Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality* (referred to as WHO 2008)

¹⁵ Heads of EPAs Australia and New Zealand (HEPA). PFAS National Environmental Management Plan 3.0 (referred to as NEMP 2025)

5.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of freshwater species will be adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)¹⁶. The 99% trigger values will be adopted where required to account for bioaccumulation. Low and moderate reliability trigger values will also be adopted for some contaminants where high-reliability trigger values don't exist.

The freshwater guideline values will be adopted for PFAS assessment, as documented in the NEMP 2025.

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¹⁶ Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)

6 REPORTING REQUIREMENTS

A Supplementary Investigation report is to be prepared presenting the results of the investigation, generally in accordance with the NSW EPA Consultants Reporting on Contaminated Land, Contaminated Land Guidelines (2020)¹⁷.

A standalone Salinity and ASS report will be prepared including an assessment of the results and our recommendations. A Salinity Management Plan will also be provided (if required).

A standalone SGIA report will be prepared including an assessment of the results and our recommendations.

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¹⁷ NSW EPA, (2020). *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*

7 LIMITATIONS

The report limitations are outlined below:

- This SAQP was developed based on the information available, as documented in this plan. There is always a potential that the proposed investigation will identify contamination impacts (actual or potential) that trigger a need for further investigation;
- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The plan is based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The preparation of this report has been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors

This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data

Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations

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

Misinterpretation of Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

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

Read Responsibility Clauses Closely

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

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Appendix A: Report Figures



Appendix B: Report Explanatory Notes

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QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)¹⁸ methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)¹⁹. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

¹⁸ US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. (US EPA SW-846)

¹⁹ Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$



Appendix C: Guidelines and Reference Documents

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Australian and New Zealand Governments (ANZG), (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation (DLWC), Site Investigations for Urban Salinity (2002)

Heads of EPAs Australia and New Zealand (HEPA), (2025). PFAS National Environmental Management Plan 3.0

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

NSW EPA, (2017). Guidelines for the NSW Site Auditor Scheme, 3rd Edition

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

NSW EPA, (2022). *Sampling design part 1 - application*, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Olszowy, H., Torr, P. and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia



Groundwater Field Sheets

WELL FINISH DETAILS

WELL DEVELOPMENT DETAILS

Comments:

DEVELOPMENT MEASUREMENTS

Comments:Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used: /

low silt load

Tested By:	03	Remarks: - Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductivity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Date Tested:	28/5/25	
Checked By:	KT	
Date:	12/06/2025	

Tested By: -	OK	Remarks: - Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductivity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Date Tested:	28/5/25	
Checked By:	KT	
Date:	12.06.2025	

WELL FINISH DETAILS

WELL DEVELOPMENT DETAILS

Comments:

DEVELOPMENT MEASUREMENTS

Comments:Odours (YES / NO). NAPL/PSH (YES / NO). Sheen (YES / NO). Steady State Achieved (YES / NO)

YSI Used:

hydrocarbon

about

H salt load, low recharge / brown

Tested By:	DB	Remarks: - Steady state conditions - Difference in the pH less than 0.2 units, difference in temperature less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well proved to be effectively dry
Date Tested:	30/5/15	
Checked By:	KT	
Date:	12.06.2025	

JK Environments



Client:	School Infrastructure NSW	Job No.:	E36314PT
Project:	Proposed Richland River High Campus Rebuild	Well No.:	MAN206
Location:	163 - 170 Alexandra Parade, North Lismore, NSW	Depth (m):	5.70

SPICE

WELL FINISH	Gatic Cover	Standpipe	1.05m	Other (describe)

WELL PURGE DETAILS:	Method:	Peri Pump	SWL - Before:	2.37
	Date:	30/5/25	Time - Before:	13.04
	Undertaken By:	OR	Total Vol Removed:	~15L
	Pump Program No:	low	PID (ppm):	10.7

PURGING / SAMPLING MEASUREMENTS								
Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
13:13 (3)	2.50	0.6		21.3	6.41	410.8	7.38	71.1
13:16 (6)	2.59	1.2		21.1	6.72	352.1	7.42	68.3
13:19 (9)	2.69	1.8		21.3	6.36	354.1	7.38	70.3
13:22 (12)	2.79	2.4		21.4	6.06	382.2	7.36	71.6
13:25 (15)	3.04	3.0		21.5	5.65	404.6	7.34	72.7
13:28 (18)	2.25	3.6		21.4	5.84	404.5	7.34	71.9
13:31 (21)	3.27	4.4	(Pump started)	20.9	4.96	896.0	7.37	69.5
13:34 (24)	3.42	5.0		20.4	5.00	391.5	7.38	68.8
13:37 (27)								
13:40 (30)	3.52	6.0		19.0	6.90	370.4	7.38	51.2
13:43 (33)	3.58	6.3		19.2	5.47	367.5	7.38	53.6
13:46 (36)	3.58	6.6		18.8	5.45	364.8	7.39	53.9
13:49 (39)	3.61	6.9		18.7	5.45	361.0	7.40	54.4
13:52 (42)	3.63	7.2		18.6	5.44	357.5	7.41	55.0
13:55 (45)	3.67	7.5	pump outburst	18.7	5.46	356.5	7.41	56.0
13:58 (48)								
14:01 (51)	3.79	8.5		19.6	6.36	328.8	7.46	52.9
14:04 (54)	3.92	9.0		19.6	5.72	319.7	7.52	25.9
14:07 (57)	4.03	9.5		20.1	6.00	316.0	7.54	15.1
14:10 (60)	4.17	10.0		20.3	6.00	318.0	7.48	-3.1
14:13 (63)	4.30	10.5		20.3	6.16	307.7	7.43	8.4
14:16 (66)	4.43	11.0		20.4	6.28	311.6	7.41	16.9
14:19 (69)	4.59	11.5	pump lost section	20.5	6.07	325.5	7.41	23.3
14:22 (72)	4.66	11.95		19.7	5.42	329.5	7.45	27.1
14:25 (75)	4.71	12.0		18.6	5.57	377.0	7.44	30.5
14:28 (78)	4.75	12.25	start sampling	19.0	5.78	321.7	7.40	34.4

Comments: Odours (YES / NO): NAPL/PSH (YES / NO): Sheen (YES / NO): Steady State Achieved (YES / NO)
 Sampling Containers Used: x glass amber, 6 x BTEX vials, 2 x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic
 YSI used: 1 GWTUP 302, 1 start sampling - throat or losing water, x2 PPMs
 low recharge, moderate silt load, yellow brown

Tested By:	OR	Remarks:
Date Tested:	30/5/25	- Steady state conditions
Checked By:	KT	- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and
Date:	12.06.2025	SWL stable/not in drawdown

Date:	12.06.2025



WATER QUALITY METER CALIBRATION FORM

Client: School Infrastructure NSW			
Project: Proposed Richland River High Campus Rebuild			
Location: 163 – 170 Alexandra Parade, North Lismore, NSW			
Job Number: E36314PT			
DISSOLVED OXYGEN			
Make: YSI		Model: 1	
Date of calibration: 28/5/25		Name of Calibrator: JT, OR	
Span value: 70% to 130%			
Measured value: 80.7			
Measured reading Acceptable (Yes/No): Yes.			
pH			
Make: YSI		Model: 1	
Date of calibration: 28/5/25		Name of Calibrator: JT, OR	
Buffer 1: Theoretical pH = 7.01 ± 0.01		Expiry date: 29/10/25	Lot No: CC291024
Buffer 2: Theoretical pH = 4.01 ± 0.01		Expiry date: 12/11/25	Lot No: CA121124
Measured reading of Buffer 1: 7.07			
Measured reading of Buffer 2: 4.07			
Slope: -		Measured reading Acceptable (Yes/No): Yes.	
EC			
Make: YSI		Model: 1	
Date: 28/5/25	Name of Calibrator: JT, OR		Temperature: 18 °C
Calibration solution: ROWE Scientific	Expiry date: 13/08/25	Lot No: CR130824	
Theoretical conductivity at temperature (see solution container): 1224		µS/cm	
Measured conductivity: 1557 µS/cm		Measured reading Acceptable (Yes/No): Yes	
REDOX			
Make: YSI		Model: 1	
Date of calibration: 28/5/25		Name of Calibrator: JT, OR	
Calibration solution: Hanna Instruments		Expiry date: 09/29	Lot No: 0567
Theoretical redox value: 240mV			
Measured redox reading: 236.1mV		Measured reading Acceptable (Yes/No): Yes.	



WATER QUALITY METER CALIBRATION FORM

Client: School Infrastructure NSW			
Project: Proposed Richland River High Campus Rebuild			
Location: 163 – 170 Alexandra Parade, North Lismore, NSW			
Job Number: E36314PT			
DISSOLVED OXYGEN			
Make: YSI		Model: 1	
Date of calibration: 29/5/25		Name of Calibrator: OB	
Span value: 70% to 130%			
Measured value: 101 %/o			
Measured reading Acceptable (Yes/No): yes			
pH			
Make: YSI		Model: 1	
Date of calibration: 29/5/25		Name of Calibrator: OB	
Buffer 1: Theoretical pH = 7.01 ± 0.01		Expiry date: 29/10/25 Lot No: CC291024	
Buffer 2: Theoretical pH = 4.01 ± 0.01		Expiry date: 12/11/25 Lot No: CA121124	
Measured reading of Buffer 1: 7.01			
Measured reading of Buffer 2: 4.01			
Slope:		Measured reading Acceptable (Yes/No): yes	
EC			
Make: YSI		Model: 1	
Date: 29/5/25	Name of Calibrator: OB	Temperature: 21 °C	
Calibration solution: Rane Seawater	Expiry date: 13/8/25	Lot No: CB130824	
Theoretical conductivity at temperature (see solution container): 1305 µS/cm			
Measured conductivity: 1296 µS/cm		Measured reading Acceptable (Yes/No): yes	
REDOX			
Make: YSI		Model: 1	
Date of calibration: 29/5/25		Name of Calibrator: OB	
Calibration solution: HANNA		Expiry date: 09/7/29 Lot No: 0567	
Theoretical redox value: 240mV			
Measured redox reading: 228.4 mV		Measured reading Acceptable (Yes/No): yes	



WATER QUALITY METER CALIBRATION FORM

Client: School Infrastructure NSW			
Project: Proposed Richland River High Campus Rebuild			
Location: 163 – 170 Alexandra Parade, North Lismore, NSW			
Job Number: E36314PT			
DISSOLVED OXYGEN			
Make: YSI		Model: 1	
Date of calibration: 30/5/25		Name of Calibrator: OB	
Span value: 70% to 130%			
Measured value: 98.1%			
Measured reading Acceptable (Yes/No): Yes			
pH			
Make: YSI		Model: 1	
Date of calibration: 30/5/25		Name of Calibrator: OB	
Buffer 1: Theoretical pH = 7.01 ± 0.01		Expiry date: 10/25	Lot No: CC291024
Buffer 2: Theoretical pH = 4.01 ± 0.01		Expiry date: 11/25	Lot No: CA121124
Measured reading of Buffer 1: 7.01			
Measured reading of Buffer 2: 4.01			
Slope:		Measured reading Acceptable (Yes/No): Yes	
EC			
Make: YSI		Model: 1	
Date: 30/5/25	Name of Calibrator: OB		Temperature: 21 °C
Calibration solution: Rowe Scientific	Expiry date: 2/25	Lot No: CB130824	
Theoretical conductivity at temperature (see solution container): 1305 µS/cm			
Measured conductivity: 1480 µS/cm		Measured reading Acceptable (Yes/No): Yes	
REDOX			
Make: YSI		Model: 1	
Date of calibration: 30/5/25		Name of Calibrator: OB	
Calibration solution: HANNA		Expiry date: 09/29	Lot No: 0567
Theoretical redox value: 240mV			
Measured redox reading: 230.0 mV		Measured reading Acceptable (Yes/No): Yes	



WATER QUALITY METER CALIBRATION FORM

Client: School Infrastructure NSW			
Project: Proposed Richland River High Campus Rebuild			
Location: 163 – 170 Alexandra Parade, North Lismore, NSW			
Job Number: E36314PT			
DISSOLVED OXYGEN			
Make: YSI		Model: 1	
Date of calibration: 31/5/25		Name of Calibrator: OB	
Span value: 70% to 130%			
Measured value:			
Measured reading Acceptable (Yes/No): YES			
pH			
Make: YSI		Model: 1	
Date of calibration: 31/5/25		Name of Calibrator: OB	
Buffer 1: Theoretical pH = 7.01 ± 0.01		Expiry date: 6/25	Lot No: CC291024
Buffer 2: Theoretical pH = 4.01 ± 0.01		Expiry date: 11/25	Lot No: CA121124
Measured reading of Buffer 1: 7.01			
Measured reading of Buffer 2: 4.01			
Slope:		Measured reading Acceptable (Yes/No): YES	
EC			
Make: YSI		Model: 1	
Date: 31/5/25	Name of Calibrator: OB	Temperature: 18 °C	
Calibration solution: Rowe Scientific		Expiry date: 8/25	Lot No: CB130824
Theoretical conductivity at temperature (see solution container): 1224 µS/cm			
Measured conductivity: 1400 µS/cm		Measured reading Acceptable (Yes/No): YES	
REDOX			
Make: YSI		Model: 1	
Date of calibration: 31/5/25		Name of Calibrator: OB	
Calibration solution: HANNA		Expiry date: 09/29	Lot No: 0567
Theoretical redox value: 240mV			
Measured redox reading: 232.8 mV		Measured reading Acceptable (Yes/No): YES	



PID FIELD CALIBRATION FORM

Client: School Infrastructure NSW			
Project: Proposed Richland River High Campus Rebuild			
Location: 163 – 170 Alexandra Parade, North Lismore, NSW			
Job Number: E36314PT			
PID			
Make: Honeywell	Model: MINIRALITE+	Unit: 4	Date of last factory calibration: 28/1/25
Date of calibration: 3/6/25		Name of Calibrator: OS	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: 97.3 ppm		Error in measured reading: $\pm$ 2.7 ppm	
Measured reading Acceptable (Yes/No): YES			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: $\pm$ ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: $\pm$ ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: $\pm$ ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: $\pm$ ppm	
Measured reading Acceptable (Yes/No):			



Appendix H: Guidelines and Reference Documents



Australian and New Zealand Governments (ANZG), (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

NSW EPA, (2017). Guidelines for the NSW Site Auditor Scheme, 3rd Edition

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

NSW EPA, (2022). *Sampling design part 1 - application*, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia