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Detailed Site Investigation

Proposed Melrose Park High School

37 Hope Street, Melrose Park

REPORT NO 20468/5-AA.v1 15 JANUARY 2025

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Job No: 20468/5
Our Ref: 20468/5-AA.v1
15 January 2025

NSW Department of Education
School Infrastructure NSW (SINSW)
GPO Box 33
SYDNEY NSW 2001

re: **Proposed Melrose Park High School**
37 Hope Street, Melrose Park
Detailed Site Investigation

Please find herewith our *Detailed Site Investigation* report for the above site.

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

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

Yours faithfully
GEOTECHNIQUE PTY LTD

JOHN XU
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Acronyms and Abbreviations

Acronym / Abbreviation	Description
ABC	Ambient Background Concentration
ACL	Added Contaminant Limit
ACM	Asbestos containing material
ADE	ADE Consulting Group Pty Ltd
AEC	Area of Environmental Concern
AF	Asbestos Fines
ASET	Australian Safer Environment & Technology Pty Ltd
BA	Building Application
BTEX	Benzene Toluene, Ethyl Benzene and Xylenes
CEC	Cation Exchange Capacity
COC	Chains of Custody
COLA	Covered Outdoor Learning Area
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DA	Development Application
DoE	Department of Education
DP	Dougles Partners Pty Ltd
DSI	Detailed Site Investigation
EI	EI Australia
EIL	Ecological Investigation Level
ENM	Excavated natural material
Envirolab	Envirolab Services Pty Ltd
EP&A Act	Environmental Planning and Assessment Act
EPA	Environment Protection Authority
ESL	Ecological Screening Level
FA	Fibrous Asbestos
Geosyntec	Geosyntec Consultants Pty Ltd
Geotechnique	Geotechnique Pty Ltd
GIPA	Government Information Public Access
GLS	General Learning Spaces
HIL	Health Investigation Level
HS	High School
HSL	Health Screening Level
km	kilometre
LEP	Local Environmental Plan
LGA	Local Government Area
LOEC	lowest observed effect concentrations
LOR	Limit of Reporting
m	metre
m^2	Square metre
NATA	National Association of Testing Authorities

Acronym / Abbreviation	Description
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
PAEC	Potential Area of Environmental Concern
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per and Poly Fluoroalkyl Substances
PID	Photo-Ionisation Detector
POEO	Protection of Environment Operations
PSI	Preliminary Desktop Site Investigation
QA	Quality Assurance
QC	Quality Control
TRH	Total Recoverable Hydrocarbons
RAP	Remedial Action Plan
REF	Review of Environmental Factors
SAQP	Sampling, Analysis and Quality Plan
SEPP	State Environmental Planning Policy
SGS	SGS Environmental Services
SH	SH Melrose PP Land Pty Ltd
SINSW	School Infrastructure NSW
SQG	Soil Quality Guidelines
VENM	Virgin excavated natural material
VOC	Volatile organic compounds

EXECUTIVE SUMMARY

This Detailed Site Investigation (DSI) report has been prepared by Geotechnique Pty Ltd (Geotechnique) on behalf of the NSW Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction and use of the new Melrose Park High School project (the **Activity**) at Part 84 Wharf Road, Melrose Park. This report supports the assessmentof the proposed Activity under Part 5 of the *Environmental Planning and Assessment Act 1979*. The Activity is proposed by the DoE to meet the growth in educational demand in the Melrose Park precinct.

The objectives of the DSI were to determine the contamination status of the soil for confirmatory soil sampling and laboratory testing in borehole locations in conjunction with intrusive geotechnical investigation, to assess the suitability of the site for the proposed land use, and to make recommendations with regard to any future remedial works if required. The scope of work included review of the PSI report prepared by Geotechnique and Section A Site Audit Report prepared Site Auditor Ms Kylie Lloyd, site inspection, as well as confirmatory soil sampling and laboratory testing.

The findings of this DSI are summarised as follows:

- The remediation and validation works for the site had been completed.
- Site Auditor Ms Kylie Lloyd of Geosyntec had issued SAS and SAR November 2024 and considered the site is suitable for the proposed school (including daycare centre, preschool, primary school and secondary school) use.
- The site appeared to comprise a vacant portion of a larger construction site subject to bulk earth moving activities at the time of sampling and site inspection in December 2024.
- All the laboratory test results for confirmatory soil sampling and laboratory testing satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory limits of reporting or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under the condition for the proposed high school land use.
- No further site investigation and remediation are deemed necessary.

Based on this assessment, Geotechnique's opinion that the conclusions drawn in the Geosyntec SAS and SAR November 2024 considered relevant, and the site is considered suitable for the proposed Melrose Park high school land use.

If suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets / pieces / pipes, ash material, imported fill materials [which are different to those encountered during this and previous assessments], etc.) are encountered during any stage of future earthworks / site preparation, we recommend that this office is contacted for assessment and an unexpected finds management protocol in Appendix E of this report should be implemented.

Reference should be made to Section 9.0 for details of the recommendations regarding any materials to be excavated and removed from the site, and any fill to be imported to the site.

Reference should be made to Section 10.0 for the limitations of this report.

TABLE OF CONTENTS

FIGURES

LIST OF REFERENCES

DRAWINGS

20468/3-AA1 *Site Layout and Features*

20468/4-AA1 *Borehole Locations*

LABORATORY TEST RESULT SUMMARY TABLES

APPENDICES

1.0 INTRODUCTION AND DECLARATION

This Detailed Site Investigation (DSI) report has been prepared by Geotechnique Pty Ltd (Geotechnique) on behalf of the NSW Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction and use of the new Melrose Park High School project (the **Activity**) at Part 37 Hope Street, Melrose Park. This report supports the assessmentof the proposed Activity under Part 5 of the *Environmental Planning and Assessment Act 1979*. The Activity is proposed by the DoE to meet the growth in educational demand in the Melrose Park precinct. Figure 1 below shows the location of the site.

Figure 1 - Location of Proposed Melrose Park High School

This report has been prepared to determine the contamination status of the soil for confirmatory soil sampling and laboratory testing in borehole locations in conjunction with intrusive geotechnical investigation, to assess the suitability of the site for the proposed land use, and to make recommendations with regard to any future remedial works if required.

2.0 SUMMARY OF ACTIVITIES

The proposed activity involves the construction and use of a new high school in two stages for approximately 1,000 students.

Stage 1 of the proposed activity includes the following:

- Site preparation works.
- Construction of Block A – a six-storey (with additional roof / plant level) school building in the south-westernportion of the site containing staff rooms and General Learning Spaces (GLS).
- Construction of Block B – a one storey (double height) hall, gymnasium, canteen and covered outdoor learning area (COLA) building in the south-eastern portion of the site.
- Construction of Block C – a single storey plant and storage building at the north-eastern portion of the site.
- Associated landscaping.
- Construction of on-site car parking.
- Provision and augmentation of services infrastructure.
- Associated public domain infrastructure works to support the school, including (but not limited to):
  - Provision of kiss and drop facilities along Wharf Road and widening of the Wharf Road footpath.
  - Raised pedestrian crossings on Wharf Road and Hope Street.

Stage 2 of the proposed activity includes the following:

- Construction of Block D – a five-storey (with additional roof / plant level) school building in the north-western portion of the site containing staff rooms and GLS.
- Additional open play spaces within the terrace areas of Block D.
- Minor layout amendments to Block A.

Figure 2 in the following page shows footprints of proposed buildings, car park, open spaces etc.

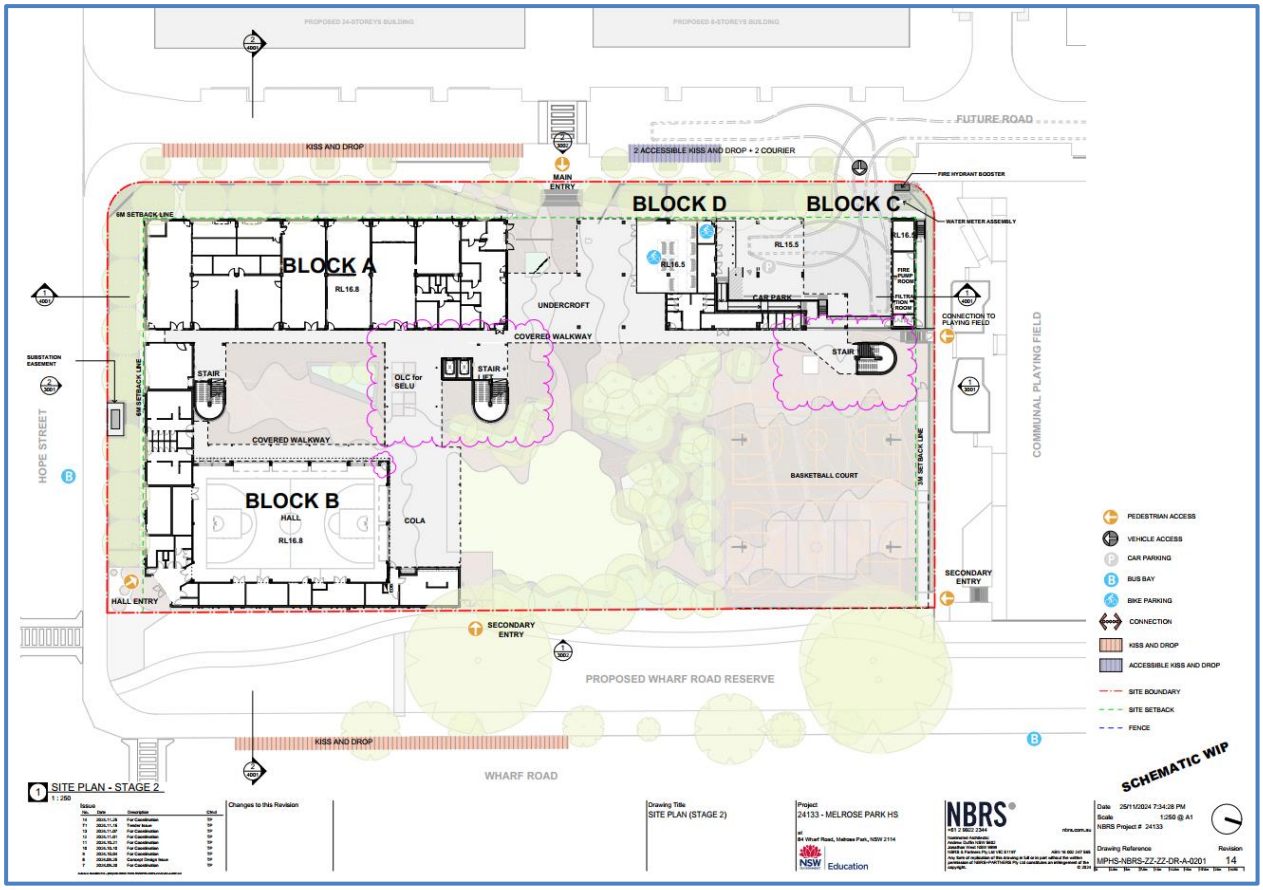

Figure 2 - Footprints of Proposed Structures in Proposed Melrose Park High School

3.0 SITE DESCRIPTION

The site is located at 37 Hope Street, Melrose Park within the Parramatta (LGA). The school covers an approximate area of 9,500 square metres (m^2) and is generally rectangular in shape. The site is currently cleared and vacant. The site is located approximately 8 kilometres (km) east of the Parramatta CBD.

4.0 REF REPORTING REQUIREMENTS

Reviews of Environmental Factors (REF) reporting requirements checklist for the proposed Activity is presented in Appendix A. This DSI report is prepared specifically to address the following REF reporting requirements related to key contamination issue.

Requirement	Y	N	N/A	Comments / Relevant Report Section
Contamination				
Have either of the following been prepared to inform the REF: • a Preliminary Site Investigation (PSI) and/or Detailed Site Investigation (DSI) that conclude that there is a low risk of contamination and that the site is suitable for the use of the site as a school; or • a PSI and/or DSI and a Remediation Action Plan (RAP)?	☒	☐	☐	Sections 5.3, 5.4, 5.5, 6.0, 8.0 & 9.0
Does the PSI, DSI and RAP address all the potential sources of contamination mentioned in the various report?	☒	☐	☐	Sections 5.2, 5.3 & 5.4
If the DSI or RAP identifies that limited further testing is required, has this been incorporated as a mitigation measure in the REF?	☒	☐	☐	Sections 5.5, 6.0 & 7.0
If remediation is required, does the REF determine if the remediation is Category 1 or 2 having regarded to the Hazards and Resilience SEPP?	☐	☐	☒	
Does the REF include an interim statement from a Site Auditor confirming that the RAP is appropriate?	☐	☐	☒	
If no interim statement, does the RAP set out actions to remediate all potential sources of contamination?	☐	☐	☒	
Does the REF summarise investigations undertaken and conclude that contamination risk has been appropriately addressed in accordance with the Hazards and Resilience SEPP?	☒	☐	☐	Sections 5.3, 5.4 & 5.5
Has the PSI, DSI and/or RAP concluded that the proposal would not be likely to result in significant environmental effects as a result of contamination and/or contamination management?	☒	☐	☐	Sections 5.3, 5.5 & 8.0
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable?	☒	☐	☐	Sections 6.0, 7.0 & 9.0 and Appendix E

5.0 CONSULTANT REPORT CONTENT

Geotechnique carried out the PSI for the site in February 2024 as detailed in the following:

- PSI report: Preliminary Desktop Site Investigation report Site Contamination DD PSI-Proposed Melrose Park New HS-Geotechnique-DDWO05601/23 (Our Ref: 20468/3-AA dated 27 February 2024).

Site Auditor Ms Kylie Lloyd of Geosyntec Consultants Pty Ltd (Geosyntec) issued the following for the proposed school, 84 Wharf Road, Melrose Park:

- Site Audit Report (SAR): Section A Site Audit Report (Ref: 20244 Final SAR KJL254 School SctA dated 4 November 2024); and
- Site Audit Statement (SAS): (Ref: SAS KJL254 School SctA dated 4 November 2024)

Geotechnique conducted this DSI for confirmatory soil sampling and laboratory testing and notes agreement with the SAR and SAS.

This section presents a summary of historical / background information and the results of the investigation / assessment.

5.1 Historical / Background Information

5.1.1 Aerial Photographs

Aerial photographs taken in 1950, 1960, 1970, 1977, 1985, 1993, 2004, September 2013 and October 2023 were examined.

Review of the aerial photographs indicated that the site was part of a parcel of rural residential land and predominantly vacant prior to the 1960s. The site was developed for industrial / commercial land use in 1970s. The buildings / features were removed in or prior to 2023.

Wharf Road and Hope Street had been formed and located to the east and south of the site respectively since or prior to 1950. The adjoining western, northern and eastern properties were rural residential land and developed into commercial / industrial land use in 1970s. The buildings / features were removed in or prior to 2023. The properties to the south west and south of the site across the road were urban residential land and developed into commercial / industrial or school land uses in 1960s and 1970s. The properties to the further west of the site, as well as to the east of the site across the road had been urban residential since 1950s.

5.1.2 NSW Land Registry Services Records

The site comprises part of a parcel of land formerly registered as Lot 201 in DP1265603 (refer to the Drawing No 20468/3-AA1).

Review of the historical aerial photographs and records of NSW Land Registry Services revealed that the site had been used for industrial activities between 1970s and 2010s.

5.1.3 Section 10.7 Planning Certificate and Council Records

Planning Certificate (No 2024/66) under Section 10.7 (2 & 5) of the Environmental Planning and Assessment Act 1979 for the site issued on 9 January 2024 by Parramatta City Council, indicated the following:

- The land is located at 84 Wharf Road Melrose Park.
- The land is zoned RE1 Public Recreation, R4 High Density Residential and SP2 Infrastructure under Parramatta Local Environmental Plan (LEP) 2023.
- An item of environmental heritage is not situated on the land
- The land is not located in a heritage conservation area.
- In regard to the following matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 - as listed:
  - Clause 59(2)a - The land to which the certificate relates is not significantly contaminated land.
  - Clause 59(2)b - The land to which the certificate relates is not subject to a management order.
  - Clause 59(2)c - The land to which the certificate relates is not subject to an approved voluntary management proposal.
  - Clause 59(2)d - The land to which the certificate relates is not subject to an ongoing maintenance order.
  - Clause 59(2)e - The land to which the certificate relates is subject to a site audit statement.
- The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.
- Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.
- The land is identified as Class 5 on the Acid Sulfate Soils map.

An enquiry was made to Council under Government Information Public Access (GIPA) Act on publicly available records on Development Applications (DA), Building Applications (BA) and application approvals. This information can sometimes include complaints or comments from neighbouring persons or companies, which might be relevant to the contamination status of the site.

A summary of the available records of Parramatta City Council associated with Northern Melrose Park Precinct including the school site is listed below:

- 13 December 2023, Council's conditions of approval for DA (No. DA/1100/2021) for Melrose Park North street network (roads, footways, street trees, landscaping, drainage, services, and associated infrastructure); including tree removal, remediation and bulk earthworks; and Torrens subdivision. The application was determined by the Sydney Central City Planning Panel.

5.1.4 NSW EPA Record of Notices and POEO Public Register

A search of NSW EPA Record of Notices for Contaminated Lands on 10 January and 9 February 2024 revealed the following records for the site, adjoining properties and the land within a radius of 500m of the site:

- A property (Pfizer Australia Pty Ltd located at 38-42 Wharf Road, West Ryde) in the vicinity of the north of the site is recorded by EPA as “Contamination Activity Type: Chemical Industry; Management Class: regulation under CLM Act not required”.
- A property (Reckitt Benckiser located at 44 Wharf Road, West Ryde) at and in the vicinity of the north of the site is recorded by EPA as “Contamination Activity Type: Chemical Industry; Management Class: regulation under CLM Act not required”.
- A property (Blue Star Ermington located at 700 Victoria, Ermington) about 500m north west of the site is recorded by EPA as “Contamination Activity Type: Service Station; Management Class: regulation under CLM Act not required”.

A search of the and Protection of Environment Operations (POEO) Public Register on 10 January, as well as 7 and 8 February 2024 found the following records for the site, adjoining properties and the land within a radius of 500m of the site:

- POEO licence (No 2838) for hazardous, industrial or Group A waste generation or storage of pharmaceutical and veterinary products production was issued to Pfizer Australia on 26 June 2000 and surrendered on 3 June 2011 for the property located at 38-42 Wharf Road, West Ryde, in the vicinity of the north the site.
- POEO licence (No 2196) for chemical production, waste generation and dangerous goods production was issued to Reckitt Benckiser Australia on 31 March 2000 and surrendered on 2 September 2013 for the property located at 44 Wharf Road, West Ryde, at and in the vicinity of the north of the site.
- POEO licence (No 1024) for chemical production waste generation, pharmaceutical and veterinary products production was issued to Glaxosmithkline Healthcare Australia on 17 December 1999 and surrendered on 1 April 2021 for the property located at 82 Hughes Avenue, Ermington, about 480m south west of the site.
- POEO licence (No 2762) for chemical production waste generation was issued to Eli Lilly Australia on 26 June 2000 and was surrendered on 5 July 2010 for the property located at 112 Wharf Road, West Ryde, about 300m south of the site.

5.1.5 SafeWork NSW Records

A search of the records held by SafeWork NSW had not located any records pertaining to the site.

5.1.6 Controlled Chemicals

To determine the presence or otherwise of controlled chemicals, a site inspection and discussion of the former / existing activities and operations with facility management at the site and / or on telephone are required. This could not be made as the site inspection and a consultation with the public do not form part of the scope of work for the PSI.

5.1.7 Per and Poly Fluoroalkyl Substances (PFAS)

A search of the NSW Government PFAS investigation program (accessed via the EPA website on 22 January 2024) revealed that the listed 50 investigation sites were not related to the site and the land within a radius of 500m of the site.

5.1.8 School Asbestos Register

The Department of Education's schools asbestos register contains information about the existence and location of any known or presumed asbestos-containing materials on school sites, based on advice from experts.

A search of the records of school's asbestos register had not located any records pertaining to the site.

5.1.9 Acid Sulfate Soils

Acid Sulphate Soil Risk Map (Edition 2, 1:25,000) of Prospect / Parramatta River prepared by Department of Land and Water Conservation indicates there is no known occurrence of acid sulphate soil (ASS) materials at the site. However, the site is potentially impacted by acid sulphate soils as Ei0 (Estuarine Intertidal Flat with elevation level of 0-1 m) with acid sulphate potential has been identified in the land located about 300m to the south west of the site near the Parramatta River.

Section 10.7 Certificate revealed that the site is identified as Class 5 on the Acid Sulphate Soils Map with reference to Parramatta LEP 2021. Area within Class 5 requires development consent for carrying out of works within 500m of adjacent Class 1, 2, 3 or 4 land that is below 5m Australian Height Datum and by which the watertable is likely to be lowered below 1m Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

Review of the Parramatta LEP 2021 Acid Sulfate Soils Maps revealed that the nearest land identified as Class 2 is approximately 300m to the south west of the site. However, it was noted that the elevation of site was approximately 16.5 m AHD. It is our opinion that it is unlikely that the proposed development works would encounter ASS.

As such, it is our assessment that earthworks (disturbance or excavation of soils) for proposed works can be carried out without an approved Acid Sulphate Soil Management Plan.

5.1.10 Salinity

Reference to Map showing Salinity Potential in Western Sydney prepared by Department of Infrastructures, Planning and Natural Resources (2002) indicates that there is very low salinity potential across the site.

It is our assessment that earthworks (disturbance or excavation of soils) for proposed development works may be carried out without a Saline Soil Management Plan.

5.1.11 Topography

Assessment of site slope was carried out on Mecone Mosaic website which includes up to date topographical data. According to elevation contours on Mecone Mosaic, the site appears to be flat (at elevation of approximately 16.5 mAHD) in general and gently slopes towards the east.

5.1.12 Regional Geology & Soil Landscape

The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral Resources indicates the residual soils within the site to be underlain by Quaternary Age soils consisting of silty to peaty quartz sand, silt and clay with ferruginous and humic cementation in places and common shell layers.

The Soil Landscape Map of Sydney (Soil Landscape Series Sheet 9130, Scale 1:100,000, 1989), published by the Soil Conservation Service of NSW, indicates that the site is located within the Lucas Heights landscape area and typically consists of occasionally impermeable residual soils

Reference should be made to engineering borehole logs in Appendix B for descriptions of the soils encountered during sampling on 2 and 3 December 2024 for this assessment. Based on information from all borehole locations the sub-surface profile is generalised as follows:

Fill	Gravelly Clay, low plasticity, grey or brown-grey, with gravel was encountered in borehole locations BH1, BH2 and BH4 to depths ranging from approximately 0.15m to 0.3m below the existing ground level (EGL).
Natural Soil	Silty CLAY, medium to high plasticity, brown mottled grey with or without shale fragments SHALE, brown-grey, highly, moderately or highly to moderately weathered, low to medium, medium or low strength

All the recovered soil samples were screened for the presence of volatile organic compounds (VOC) using a calibrated Photo-Ionisation Detector (PID). The PID readings on recovered soil samples, as presented in engineering borehole logs in Appendix B, were equal to zero, suggesting that the presence of volatiles in the soil is unlikely.

There were no obvious fibro-cement / asbestos fragments and foreign materials, no detectable odour and no obvious staining / discolouration of the soil and vegetation in the borehole locations and recovered soil samples that would indicate potential for contamination.

No groundwater or perched water was encountered during sampling in conjunction with geotechnical investigation to a maximum depth of approximately 5.5m below the EGL and during the short time the boreholes remained open. It should be noted that fluctuations in the level of groundwater might occur due to variations in rainfall and / or other factors not evident during investigation.

5.1.13 Hydrology & Hydrogeology

No water bodies, such as a creek, river, or wetland is located close to and transecting the site. Archer Creek and Parramatta River are located approximately 390m and 600m to the east and south of the site respectively.

A site-specific groundwater analysis is outside the scope of this assessment. However, a search was carried out on 10 January 2024 through the website of WaterNSW for any registered groundwater bore data within a radius of 500m of the site. The search revealed that no information available on that date.

5.2 Results of Preliminary Desktop Site Investigation

The objectives of the PSI were to identify any areas of potential contamination and to assess if the site is likely to present a risk of harm to human health and the environment for the proposed high school land use, as well as is considered suitable or can be made suitable for the proposed land use.

In order to achieve the objectives, the following scope of work was conducted:

- A desktop study of;
  - Historical aerial photographs

- NSW Land Registry Services records
- Section 10.7 planning certificate
- Council records
- The following documents provided by SINSW:
  - Remediation Action Plan (RAP) - School Site, 84 Wharf Road, Melrose Park, reference E25803.E06_School_ Rev3 dated 9 October 2023 prepared by EI Australia (EI) (EI RAP October 2023).
  - Site Audit Statement (SAS), reference SAS KJL254 School SctB dated 20 October 2023 prepared by Geosyntec Consultants Pty Ltd (Geosyntec) (Geosyntec SAS October 2023).
  - Site Audit Report (SAR), reference 20244 SAR KJL254 School SctB dated 20 October 2023 prepared by Geosyntec (Geosyntec SAR October 2023).
- NSW EPA Record of Notices for Contaminated Lands
- Search for licences, applications and notices under the POEO public register
- SafeWork NSW records
- Available information regarding controlled chemicals and PFAS
- School asbestos register
- Soil and geological maps
- Groundwater bore records of WaterNSW

An inspection is required to observe present site conditions and any areas of environmental concern based on visual and olfactory indicators of potential contamination that differ from those identified during the previous investigations by EI. The site inspection had not been carried out as an approval for the site access for inspection was required and had not been received.

In addition, discussion of the former / existing activities and operations with facility management at the site and / or on telephone is also required. However, it was understood that a consultation with the public did not form part of the scope of work at that time.

EI had identified the existing soil and groundwater contamination within the site. Area of environmental concern (AEC) and associated contamination / contaminants of potential concern (CoPC) had been identified within the site; and conceptual site model (CSM) had been developed by EI.

Based on all the findings from across the site, localised soil contamination was identified, which included heavy metals, particularly chromium (Cr), nickel (Ni) & zinc (Zn), Total Recoverable Hydrocarbons (TRH) including F1 (TRH C6 – C10 less the sum of BTEX [Benzene, Toluene, Ethyl Benzene and Xylenes] concentrations]), F2 (TRH >C10 – C16 less the concentration of naphthalene) and F3 (TRH >C16 – C34), Organochlorine Pesticides (OCP), particularly Aldrin and Dieldrin, Polycyclic Aromatic Hydrocarbons (PAH) particularly benzo(a)pyrene (BaP), asbestos (bonded and friable). The contamination had resulted from multiple sources from past commercial and industrial use. The contamination was generally relatively shallow overlying the shale and / or sandstone bedrock.

The groundwater had isolated impacts with heavy metals, particularly copper (Cu) & Zn, and TRH including F2.

Remediation was therefore deemed necessary, as detailed in EI RAP October 2023.

SH Melrose PP Land Pty Ltd (SH) commissioned Ms Kylie Lloyd of Geosyntec to conduct a site audit to provide an independent review of the appropriateness of environmental works completed at the Northern Melrose Park Precinct and to form an opinion on the suitability of the environmental investigations completed and that the precinct can be made suitable for the proposed mixed use residential / commercial, public open space and school. The Northern Melrose Park Precinct is being redeveloped in a staged manner with staged investigation, remediation and audits.

The audit covered by Geosyntec SAS and SAR October 2023 is part of the Northern Melrose Park Precinct and includes only the area proposed for school (including day care centre, preschool, primary school) use (the proposed School site).

The investigation results at the proposed School site indicate that:

- Soil investigation results indicate heavy metals, TRH, OCPs, VOCs and asbestos were detected above criteria and require remediation and / or management.
- Groundwater investigation results indicate heavy metals (particularly nickel and zinc), TRH, VOCs were detected above criteria and require further assessment and / or management.
- Soil vapour investigation results indicate VOCs were detected above the laboratory limit of reporting for a number of samples where no available Australian criteria were present. There are data gaps in the soil vapour assessments given only limited number of samples could be sampled.

The Auditor has issued a Section B SAS certifying that, in the opinion of the Auditor, although the nature and extent of the contamination has not been appropriately determined, the remediation plan is appropriate for the purpose(s) stated and the site can be made suitable for day care centre, preschool, primary school if the site is remediated / managed in accordance with RAP (EI 2023) subject to compliance with the following conditions:

1. The following data gaps must be assessed and issued as a Data Gap Investigation Report prior to commencement of remediation:
    a. A sampling, quality and analytical plan (SAQP) must be prepared and endorsed by the Auditor to document data gap investigation scope and methodology.
    b. Assessment of sampling locations proposed and not yet completed in the EI (21 October 2022) Sampling and Analysis Quality Plan, 38-42, 44 & 44A Wharf Road, Melrose Park NSW (Ref: E25803.E99_Rev1):
        i. Locations listed in the EI figures as “Samples not collected”.
        ii. Asbestos quantification in accordance with NEPM (2013) / WA DoH (2009) across the entire site (particularly through collection of 10L samples).
        iii. Deeper sample collected at EiA2-TP136 (in the area of former UST) to address TRH impacted backfill noting EI sample EiA2-TP136 was not sufficiently deep.
    c. Groundwater sampling to confirm the risk of TRH considering previous silica gel clean-up results.
    d. Vapour risk associated with VOC impacted groundwater where VOCs were / are detected in soil and groundwater samples.
2. The following criteria must be confirmed:
    a. Site-specific EILs are developed for heavy metals.
    b. Soil located to be used within the proposed landscaped areas (including the road nature strips) must be assessed against site specific EILs or NEPM (2013) conservative EILs.
3. Extent of soil remediation must follow Appendix B of the RAP as follows:

   a. Remediation of TRH must include management limits.
   b. The preferred remedial option for soil is understood to be excavation and offsite disposal or reuse under road (if concentrations meet criteria for road use). Any other options must be documented in a RAP addendum with Auditor Approval prior to implementation.

4. The following must be considered during remediation
   a. Should significantly soil contamination be identified during the earthworks or removal of subsurface structures, the need for additional soil, groundwater and / or soil vapour investigation should be conducted.
   b. Any excavated fill must not be placed within the proposed School site without rigorous assessment of suitability for the end use, in consideration of potential human health and ecological risk.
5. The following validation sampling is conducted:
   a. Recovered aggregate must also be assessed for asbestos, in addition to the analytes required by the NSW EPA Recovered Aggregate Order.
   b. Validation sample from asbestos-impacted areas must include at least 1 sample every 5 lineal metre along the wall (per metre depth) and 1 sample per 25m^2 on the base of excavation, unless otherwise justified.
   c. Validation samples must be collected from beneath other underground petroleum storage system (UPSS) infrastructure (e.g. pipes, vent lines, etc.), sands surrounding USTs, UST excavations and any areas should the impact extend to the soil surrounding the tanks in accordance with NSW EPA Sampling Design Guidelines. Testing must include at least asbestos, heavy metals, TRH, BTEX, PAHs, and other COPCs associated with the subsurface pit, unless otherwise justified.
6. Any material moved from VRS Development or the Town Centre Excavation cannot be used within the proposed School site.
7. A Section A Audit is required at completion of the validation works.

Based on the PSI, it was Geotechnique's opinion that the conclusions drawn in the EI RAP October 2023, as well as Geosyntec SAS and SAR October 2023R considered relevant, and the site could be made suitable for the proposed school uses including day care centre, preschool, primary school and high school if the site is remediated / managed in accordance with the RAP subject to compliance with the conditions endorsed by the Auditor.

Based on the RAP, the contaminated soil would be excavated and disposed offsite and / or relocated for management within the broader development (i.e. road corridor) during the remediation works.

5.3 Executive Summary of Auditor SAR KJL254 School SctA

It is understood that remediation and validation works for the site had been completed.

The Auditor's SAR and associated SAS considered investigation works conducted by DP, IT Environmental, EnRiskS, AECOM, Trace, EI Australia and ADE to form an opinion on whether the site is suitable for the proposed school (including daycare centre, preschool, primary school and secondary school) use.

The following executive summary was extracted from the Auditor's SAR KJL254 School SctA dated 4 November 2024:

"*SH Melrose PP Land Pty Ltd (SH) commissioned Geosyntec Consultants Pty Ltd (Geosyntec) to provide an independent review of the appropriateness of environmental works completed at the Northern Melrose Park Precinct (the Precinct) and to form an opinion whether the Precinct can be made suitable for the proposed mixed use residential/commercial, public open space and school. The Precinct is being redeveloped in a staged manner with staged investigation, remediation and audits.*

This audit has been prepared a portion of the Precinct and includes the approximately 9,925m^2 area of land located at 84 Wharf Road, Melrose Park, NSW and legally identified as part Lot 2 DP1303954 (proposed Lot 9 DP1310509). The site is proposed to be redeveloped as a School (primary or secondary). The boundary of this Audit is shown in the Survey Plan prepared by LTS (Ref: 41367 216SA dated 4/11/2024) included in Appendix A.

This Audit Report (SAR KJL254 Melrose SctA) and associated Site Audit Statement (SAS KJL254 Melrose SctA) were produced by Kylie Lloyd (Accreditation No. 0302). The Audit has reviewed investigation works conducted by DP, IT Environmental, AECOM, Trace Environmental, EI Australia, EnRiskS, and ADE.

This is a statutory Audit as defined under Part 4, Section 47 of the Contaminated Land Management Act (1997) (CLM Act), as amended. This audit report has been written in accordance with guidelines made or approved by NSW EPA. This audit report makes reference to requirements contained within Conditions 81, 82, 83, 119 and 120 of DA/1100/2021/A, issued by the City of Parramatta Council dated 7 June 2024.

The School site was part of the former Reckitt Benckiser property, which historically manufactured household chemicals. The historical land uses identified potential contaminants of concern (COPCs) including total recoverable hydrocarbon (TRH), benzene, toluene, ethyl benzene, xylenes, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), heavy metals, asbestos, organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polychlorinated biphenyls (PCBs), phenols, volatile organic compounds (VOCs), per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The consultants have variously assessed the identified COPCs in soil, groundwater and soil vapour, noting that the investigations conducted at the School site was conducted together with the investigation at the Melrose Park Development.

The investigation results at the proposed School site indicate:

- *Selected heavy metals, TRH, OCPs, VOCs, and asbestos were detected above criteria in soils and require remediation and/or management.*
- *Selected heavy metals (particularly nickel and zinc), TRH, VOCs, were detected above criteria in groundwater and require further assessment and/or management.*
- *VOCs were detected in soil vapour samples above the laboratory limit of reporting for a number of samples where no available Australian criteria were present. There are data gaps in the soil vapour assessments given only limited number of samples could be sampled.*

The remedial approach included excavation and offsite disposal of friable asbestos hotspots, removal of non-friable asbestos from one hotspot and removal of fill from the School site for later use beneath road. The remainder of the fill was considered suitable for use under road.
Groundwater and soil vapour results were assessed to present an unacceptable risk.

The investigation and remedial action plan reports reviewed are considered to have met the requirements of EPA (2017), other relevant guidelines endorsed under s.105 of the CLM Act and the objectives of the Site Audit. Where the consultant's work deviated from the guidelines, the Auditor has discussed this within this audit report and is satisfied that these omissions do not affect the conclusions of the Audit.

On this basis a Section A SAS will be issued certifying that, in the opinion of the Auditor, the site is suitable for daycare centre, preschool, primary school and secondary school uses.

As this is a staged development and works on the surrounding development will receive excess fill from the School site, this fill is to be placed under the road and final placement is to be tracked.
Tracking of this material and assessment of suitability should be provided in the relevant validation report(s) where the material is finally placed."

5.4 Detailed Site Investigation

The objectives of the DSI were to determine the contamination status of the soil in borehole locations in conjunction with intrusive geotechnical investigation, to assess the suitability of the site for the proposed land use, and to make recommendations with regard to any future remedial works if required.

In order to achieve the objectives of this assessment, the scope of work included review of the PSI report prepared by Geotechnique and Section A Site Audit Report prepared Site Auditor Ms Kylie Lloyd, site inspection, as well as confirmatory soil sampling and laboratory testing.

5.4.1 Sampling, Analysis, Quality Plan and Sampling Methodology

On 2 and 3 December 2024, our Environmental Scientist carried out sampling in five locations BH1 to BH5 nominated for geotechnical investigation across the site.

Reference may be made to Drawing No 20468/4-AA1 for details of the above-mentioned borehole locations.

The sampling procedures adopted for the assessment were generally as follows:

- The boreholes were drilled using a stainless steel auger mounted on an excavator, over the depth interval nominated by the Environmental Scientist. The representative soil sample was recovered directly from the central of auger using a stainless steel trowel.
- The stainless steel trowel was decontaminated prior to use between each sampling location, in order to prevent cross contamination.
- To minimise the potential loss of organic compounds the recovered soil sample for laboratory analysis was immediately transferred to a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jar was then placed in a chilled container.
- All the recovered soil samples were screened, using a calibrated PID, to screen for the presence or otherwise of VOC. A soil sample for PID screening was placed in an airtight polyethylene bag, ensuring enough air space ('headspace') above the sample is present to be screened in the field. The soil sample remained in the bag for approximately 15 minutes before being shaken (to thoroughly mix soil with the air in the headspace) and a PID reading recorded. The PID readings are summarised in engineering borehole logs in Appendix B and a copy of PID calibration sheets is presented in Appendix C.

- The recovered soil sample for asbestos analysis was transferred into a small plastic zip-lock bag, which was placed inside a container.

In order to ensure the analytical performance of the primary laboratory, duplicate and split samples were prepared for analysis. Soil samples were kept in a labelled laboratory supplied glass jar (acid-washed and solvent-rinsed) and sealed with an airtight screw Teflon top lid. The fully filled jar was placed in a chilled container.

The following table summarising the primary sample and the corresponding duplicate / split sample recovered and analysed. As shown in the table prepared, the split sample was prepared from primary sample which was not the same as that prepared for duplicate sample.

Primary Sample	Corresponding Duplicate	Primary Sample	Corresponding Split
BH1 (0.0-0.15m)	DDS1	BH2 (0.0-0.15m)	DSS1

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

The primary samples in the chilled container with trip spike sample were forwarded under COC conditions to the primary NATA accredited laboratory, SGS Environmental Services (SGS). The split samples in the chilled container were forwarded under COC conditions to the secondary NATA accredited laboratory, Envirolab Services Pty Ltd (Envirolab). On receipt of the samples, the laboratories returned the Sample Receipt Advice verifying the integrity of all the samples received.

Samples for asbestos analysis in plastic bags within the container were delivered to a NATA accredited testing laboratory, Australian Safer Environment & Technology Pty Ltd (ASET). All samples were sent to the laboratory with completed form. On receipt of the samples, the laboratory returned a signed COC, acknowledging the receipt of samples and verifying the integrity of all the samples received.

Based on the site observation and the soil profiles encountered, the following laboratory analysis plan was implemented:

- Three (3) fill samples and eleven (11) natural soil samples, as well as the corresponding duplicate sample DDS1 and split sample DSS1 were analysed for metals.

  3 fill samples, four (4) natural soil samples, as well as the corresponding duplicate sample DDS1 and split sample DSS1 were analysed for TRH, BTEX and PAH for screening purposes.

  3 fill samples, 2 natural soil samples, as well as the corresponding duplicate sample DDS1 and split sample DSS1 were analysed for OCP, OPP, PCB and Phenols for screening purposes.
- 2 fill samples and 4 natural soil samples were selected for analysis of Cation Exchange Capacity (CEC) and pH.
- 3 fill samples and 2 natural soil samples were analysed for asbestos for screening purposes.
- Rinsate samples RS1 and RS2 were analysed for metals, TRH, BTEX and PAH.
- Trip spike samples TS1 and TS2 were analysed for BTEX.

5.4.2 Assessment Criteria

Investigation levels and screening levels developed in the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (April 2013) were used for the assessment, as follows:

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

  The site is proposed for a new high school land use and as such the analytical results for the assessment will be assessed against the available HIL for *public open space including secondary schools* (HIL C).

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

  For this assessment, the analytical results will be assessed against the available HSL for clay to depth of 0m to >2m for *recreational / open space* (HSL C).

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

  For this assessment, the analytical results will be assessed against the available ESL for fine-grained soil (clay) for *public open space* land use.

- Ecological Investigation Levels (EIL), a specific type of Soil Quality Guidelines (SQG) for selected metals, Naphthalene and DDT are applicable for assessing the risk to terrestrial ecosystems. EIL listed in Table 1B(1-5) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil. The EIL are calculated using 30% effect concentration (EC30) or lowest observed effect concentrations (LOEC) toxicity data.

  For this assessment, the analytical results will be assessed against the available EIL for aged contamination in soil for *public open space* land use.

  For arsenic, Naphthalene and DDT, generic EIL for urban residential are adopted for aged contaminants. For other metals, EIL are the sum of the added contaminant limit (ACL) and the ambient background concentration (ABC). Where available, EIL are calculated using the EIL calculator developed by CSIRO for NEPC.

For asbestos assessment, the adopted assessment criteria are:

- 0.02% w/w for bonded ACM for *recreational* land use;
- 0.001% for friable asbestos in soil; and
- No visible asbestos for surface soil.

The soil will be deemed contaminated if the above criteria are unfulfilled. Further investigation, remediation and / or management will be recommended if the soil is found to be contaminated.

5.4.3 Summary of Site and Field Observation

At the time of inspection by an Environmental Scientist from Geotechnique on 2 and 3 December 2024, it was noted the site appeared to comprise a vacant portion of a larger construction site subject to bulk earth moving activities.

Recent soil stripping / earthwork activities were noted throughout the site, extremely weathered bedrock profile was noted on the side cut of the proposed road adjoining the north of the site, and natural soil was noted on the cut area of the south side of the site boundary.

Waterlogging / puddles were noted throughout the site as residual from recent deluge.

There were no obvious features associated with any underground storage tanks (bowser, breather pipe, inlet valve and piping) or odour that would indicate the potential for contamination.

Soil logs was completed during the field investigation. The soil logs recording soil lithology and depth were as presented in table below. Logging of soil profiles was carried out in accordance with AS1726-2017 Australian Standard Geotechnical Site Investigations.

Borehole	Depth Interval (m)	Soil Profile	Fill or Natural	Inclusion	Fill Thickness (m)
BH1	0.0-0.15	Gravelly Clay, low plasticity, grey	Fill		0.15
	0.15-2.64	SHALE, brown-grey, highly or moderately weathered, low to medium or medium strength	Natural shale		
BH2	0.0-0.3	Gravelly Clay, low plasticity, brown-grey	Fill		0.3
	0.3-2.95	SHALE, brown-grey or grey, highly to moderately or moderately weathered, low strength with clay lenses, or low to medium strength	Natural shale		
BH3	0.0-0.3	Silty CLAY, medium to high plasticity, brown mottled grey, with shale fragments	Natural clay		
	0.3-0.8	SHALE, medium to high plasticity, brown to orange	Natural shale		
BH4	0.0-0.15	Gravelly Clay, low plasticity, grey	Fill		0.15
	0.15-1.63	SHALE, brown-grey, highly to moderately or moderately weathered, low to medium or medium strength	Natural clay		
BH5	0.0-0.8	Silty CLAY, medium to high plasticity, brown mottled grey	Natural shale		
	0.8-0.85	SHALE, grey, highly to moderately weathered, low to medium strength, with ironstone	Natural shale		

The PID readings on all recovered soil samples, as presented in engineering borehole logs in Appendix B, were equal to zero, suggesting that the presence of volatiles in the fill is unlikely.

There were no obvious fibro-cement fragments and foreign materials, no detectable odour and no obvious staining / discolouration of the soil and vegetation in the borehole locations and recovered soil samples that would indicate potential for contamination.

5.4.4 Assessment of Laboratory Test Results

The test results for field quality assurance (QA) and quality control (QC) samples including rinsate, trip spike, duplicate and split samples are presented in Tables A to D. The laboratory test results for the analysed soil samples are presented in Tables E to I together with the assessment criteria adopted. A copy of the laboratory analytical reports and certificate of analysis is included in Appendix D.

The laboratory test results indicated that:

- The concentrations of metals were below the relevant available HIL C and / or EIL (Tables E1 and E2).
- The concentrations of F1 (TRH C6-C10 less BTEX), F2 (TRH >C10-C16 less Naphthalene and TRH>C10-C16), F3 (TRH >C16-C34), F4 (TRH >C34-C40) and BTEX were below the relevant available ESL adopted (Table F). Moreover, the test results of F1, F2, F3, F4 and BTEX were less than the laboratory limits of reporting (LOR).

  There was no HSL C (not limiting) for clay/shale for F1, F2 (TRH >C10-C16 less Naphthalene) and BTEX in all depths.
- All the concentrations of BaP TEQ, Total PAH, Naphthalene and BaP were well below the relevant HIL C, EIL and / or ESL (Table G). Moreover, the test results of BaP TEQ, Total PAH, Naphthalene and BaP were less than the laboratory LOR.

  There was no HSL C (not limiting) for clay for Naphthalene in all depths.
- The concentrations of OCP were well below the relevant HIL C and less than the laboratory LOR (Table H). Concentrations of DDT were also below the EIL.
- The concentrations of Chlorpyrifos (OPP) were well below the HIL C and less than the laboratory LOR (Table H).
- The concentrations of PCB were below the HIL C and less than laboratory LOR (Table H).
- The concentrations of Phenols were well below the HIL C and less than the laboratory LOR (Table H).
- No ACM (>7mm) was detected at the LOR of 0.01% w/w, which was below the soil assessment criterion of 0.02% w/w (Table I). No asbestos fines (AF) and fibrous asbestos (FA) was detected at the LOR of 0.001% w/w, which was below the soil assessment criterion (0.001% w/w).

5.5 Site Characterisation

The remediation and validation works for the site had been completed.

Site Auditor Ms Kylie Lloyd of Geosyntec had issued SAS and SAR November 2024 and considered the site is suitable for the proposed school (including daycare centre, preschool, primary school and secondary school) use.

At the time of site inspection during the field works for this assessment by our Environmental Scientist on 2 and 3 December 2023, the site appeared to comprise a vacant portion of a larger construction site subject to bulk earth moving activities.

During the intrusive investigation for combined geotechnical and contamination assessment by Geotechnique, 5 boreholes were drilled. Fill material was encountered at depths ranging from approximately 0.15m to 0.3m below the EGL in borehole locations BH1, BH2 and BH4.

There were no obvious fibro-cement /potential asbestos fragments and foreign materials, no detectable odour and no obvious staining / discolouration of the soil and vegetation in the borehole locations and recovered soil samples that would indicate potential for contamination.

The PID readings on all recovered soil samples were equal to zero, suggesting that the presence of volatiles in the fill is unlikely.

No groundwater or perched water was encountered during sampling in conjunction with geotechnical investigation to a maximum depth of approximately 5.5m below the EGL and during the short time the boreholes remained open.

A confirmatory sampling and testing for screening purposes were conducted in order to determine / ascertain the contamination status of the soil in borehole locations in conjunction with intrusive geotechnical investigation. A number of the recovered fill samples were selected for analysis of CoPC including metals, TRH, BTEX, PAH, OCP, OPP, PCB, Phenols and / or Asbestos.

There were no elevated concentrations of analytes detected in the samples analysed. All the laboratory test results for confirmatory soil sampling and laboratory testing for this DSI satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory limits of reporting or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under the condition for the proposed high school land use.

Based on the forgoing, it is our opinion that no further site investigation and remediation are deemed necessary. Therefore, the site is environmentally suitable for the proposed Melrose Park High School development.

6.0 POTENTIAL CONTAMINATION CONSTRAINTS OR RISKS

Based on this assessment, no contamination is identified within the site, subsequently, no further remediation is required.

Based on anticipated site conditions, the potential constraints or risks on proposed high school construction are unexpected findings of suspect material during any stage of future earthworks / site preparation, which can be appropriately managed in accordance with the recommended unexpected finds management protocol in Appendix E of this report.

7.0 MITIGATION MEASURES FOR CONTAMINATION RISKS

The following table presents recommended mitigation measure for the identified unexpected finds.

Project Stage	Mitigation Measures	Reason for Mitigation Measures	Relevant Section of Report
Construction (C)	In the event of unexpected finds, carry out contamination assessment and prepare a RAP if contamination is identified in consultation with Independent Site Auditor	To determine the presence or otherwise of an unacceptable risk to human health and environment and to manage the site suitable for the proposed high school land use	Appendix E

8.0 SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

Based on nature of potential contamination risks or issues at the site, it is our assessment that the potential impacts of the development work or activity can be appropriately managed in accordance with the recommended unexpected finds management protocol. Therefore, from contamination consideration, it is determined that the extent and nature of potential impacts from the proposed development work or activity are “Low” and will not have significant impact on the locality, community and / or the environment.

9.0 CONCLUSION AND RECOMMENDATIONS

The findings of this DSI are summarised as follows:

- The remediation and validation works for the site had been completed.
- Site Auditor Ms Kylie Lloyd of Geosyntec had issued SAS and SAR November 2024 and considered the site is suitable for the proposed school (including daycare centre, preschool, primary school and secondary school) use.
- The site appeared to comprise a vacant portion of a larger construction site subject to bulk earth moving activities at the time of sampling and site inspection in December 2024.
- All the laboratory test results for confirmatory soil sampling and laboratory testing satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory limits of reporting or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under the condition for the proposed new high school land use.
- No further site investigation and remediation are deemed necessary.

Based on this assessment, it is Geotechnique’s opinion that the conclusions drawn in the Geosyntec SAS and SAR November 2024 considered relevant, and the site is considered suitable for the proposed Melrose Park high school land use.

If suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets / pieces / pipes, ash material, imported fill materials [which are different to those encountered during this and previous assessments], etc.) are encountered during any stage of future earthworks / site preparation, we recommend that this office is contacted for assessment and an unexpected finds management protocol in Appendix E of this report should be implemented.

For any materials to be excavated and removed from the site, it is recommended that waste classification of the materials, in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA 2014; NSW EPA resource recovery exemptions and orders under the Protection of the Environment Operations (Waste) Regulation 2014; or NSW EPA *Certification: Virgin excavated natural material* is undertaken prior to disposal at a facility that can lawfully accept the materials.

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

10.0 LIMITATIONS

The services performed by Geotechnique in preparing this report were conducted in a manner consistent with the level of quality and skill generally exercised by members of the profession and consulting practice.

This report has been prepared for the purposes stated within. This report can also be relied upon by SINSW, DoE and relevant authorities for development and building application assessment processes. Any reliance on this report by other parties shall be at such parties' sole risk as the report might not contain sufficient information for other purposes.

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

The information in this report is considered accurate at the date of issue, in accordance with current site conditions during site inspection and field sampling for this DSI (2 and 3 December 2024). Any variations to the site form or use beyond those dates could nullify the conclusion stated.

No contamination assessment can eliminate all risk; even a rigorous professional assessment might not detect all contamination within a site. Whilst the assessment conducted at the site was carried out in accordance with current NSW guidelines, the potential always exists for contaminants and contaminated soils to be present between sampled locations.

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

LIST OF REFERENCES

Acid Sulphate Soil Manual - New South Wales, Acid sulphate Soil Management Advisory Committee 1988

Acid Sulphate Soil Risk Map (Edition 2, 1:25,000) of Prospect / Parramatta River - Department of Land and Water Conservation 1997Contaminated Land Management Act 1997

Australian Standard AS1726-2017, Geotechnical Site Investigation 2017

Contaminated Land Guidelines Sampling Design Part 1 - Application – NSW EPA 2022

Contaminated Land Management Act 1997

Contaminated Land Management Regulation 1998

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

Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia

National Environment Protection (Assessment of Site Contamination) Measures, 1999 (April 2013) - National Environmental Protection Council

Protection of the Environment Operations Act – 1997

Resource Recovery Order / Exemption Under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – The Excavated Natural Material Order / Exemption 2014 NSW Environment Protection Authority

SINSW website: https://www.schoolinfrastructure.nsw.gov.au/

Sydney Soil Landscape of the Sydney 1:100,000 Sheet (9130) – Soil Conservation Service Survey of NSW 1989

Salinity Potential in Western Sydney (scale approximately 1:140,000), Department of Infrastructure, Planning and Natural Resources 2002

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

The NSW Government PFAS Investigation Program: https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

Trace Element Concentrations in Soils from Rural and Urban Areas of Australia, Henry Olszowy et al., 1995

Waste Classification Guidelines Part 1: Classifying Waste – NSW EPA 2014

DRAWINGS

Drawing No	
20468/3-AA1	*Site Layout and Features*
20468/4-AA1	*Borehole Locations*

Imagery © NearMap.com

LEGEND

Site Boundary

0 10 20 30 40 50m

Scale 1:1000

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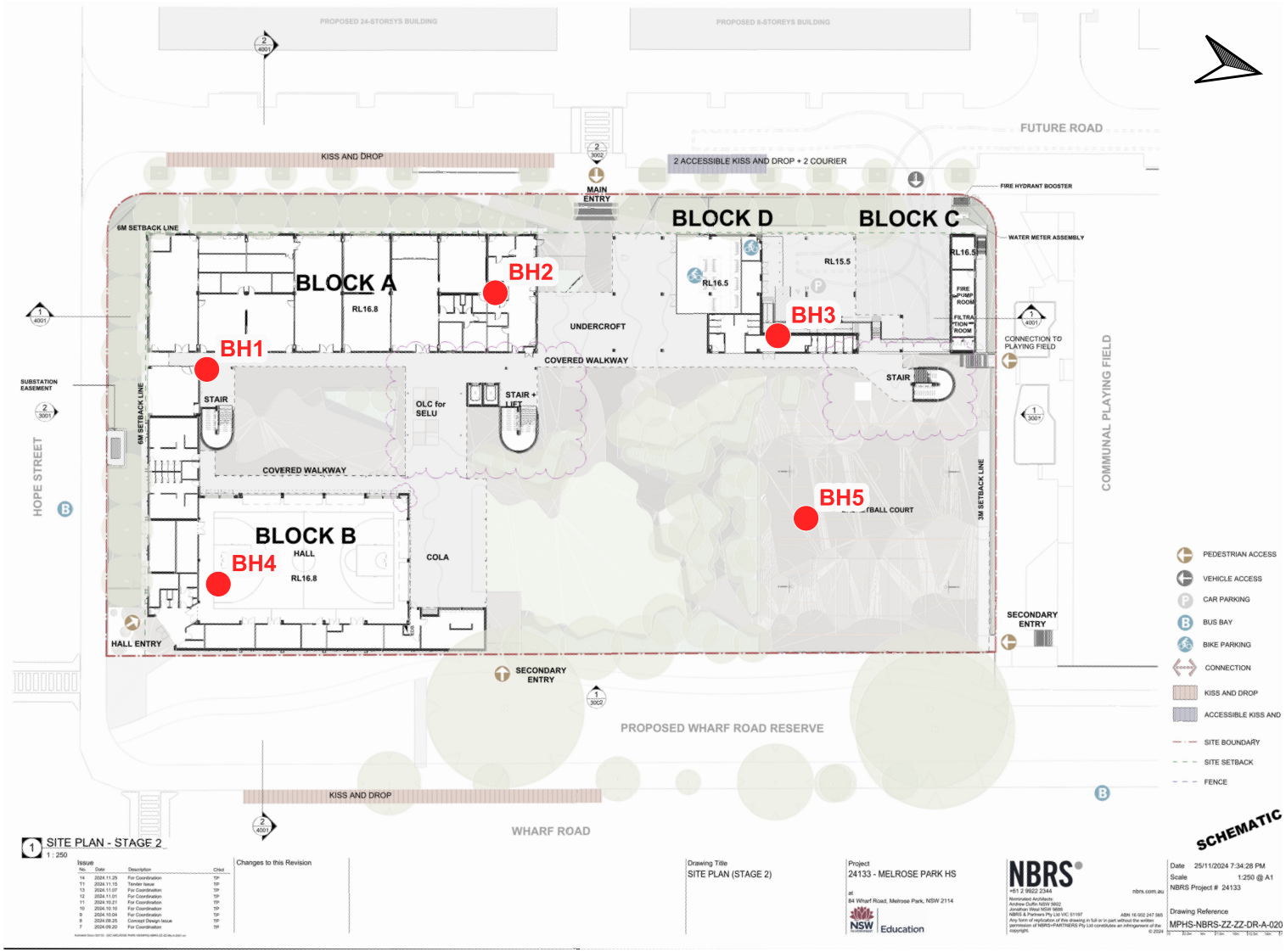
NSW Department of Education - School Infrastructure
Proposed New High School
Cnr Hope Street and Wharf Road
Melrose Park

Site Layout and Features

Drawing No: 20468/3-AA1
Job No: 20468/3
Drawn By: MH
Date: 31 October 2023
Checked By: JX

File No: 20468-3
Layers: 0, AA1



LEGEND

- Borehole

0 10 20 30 40 m

1:1000

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NOTES
1. Site Features are indicative and not to scale.
2. This drawing has been produced using a base plan provided by othered to which additional information e.g test pits, horehole locations or notes have meen added. some or all of the plan may not be relivent at the time of producing this drawing.

SOURCES
1. Base map: Site Plan (stage 2); Project ID 24155-Melrose Park HS; Revision 14; By NBRS & Partners Pty Ltd; Dated 25/11/2024.

PROJECT: PROPOSED NEW HIGH SCHOOL - CNR HOPE STREET & WHARF ROAD, MELROSE PARK - CONTRACT ID DDWWO05601/23

JOB NUMBER: 20468/4

TITLE: BOREHOLE LOCATIONS

CLIENT: NSW DEPARTMENT OF EDUCATION - SCHOOL INFRASTRUCTUR

Drawing number: AA1
Drawn by: Jack Scott Herben
Date: 10/12/2024
Revision: 0
Page size: A4

LABORATORY TEST RESULT SUMMARY TABLES

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TABLE A
RINSATE
(Ref No: 20468/5-AA)

SAMPLE DATE	RS1 2/12/2024	RS2 3/12/2024
METAL	**(mg/L)**	**(mg/L)**
Arsenic	<0.02	<0.02
Cadmium	<0.001	<0.001
Chromium	<0.005	<0.005
Copper	0.007	0.008
Lead	<0.02	<0.02
Mercury	<0.0001	<0.0001
Nickel	<0.005	<0.005
Zinc	<0.01	<0.01
TOTAL RECOVERABLE HYDROCARBON (TRH)	**(µg/L)**	**(µg/L)**
F1 (C6-C10 less BTEX)	<50	<50
F2 (>C10-C16)	<60	<60
F3 (>C16-C34)	<500	<500
F4 (>C34-C40)	<500	<500
BTEX	**(µg/L)**	**(µg/L)**
Benzene	<0.5	<0.5
Toluene	<0.5	<0.5
Ethyl Benzene	<0.5	<0.5
Xylenes	<1.5	<1.5
POLYCYCLIC AROMATIC HYDROCARBON (PAH)	**(µg/L)**	**(µg/L)**
Total PAH	<1	<1
Naphthalene	<0.1	<0.1
Benzo(a)Pyrene	<0.1	<0.1

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PTY LTD

TABLE B
TRIP SPIKE
(Ref No: 20468/5-AA)

Sample	Sampling Date	BTEX			
		Benzene	Toluene	Ethylbenzene	Xylenes
TS1	2/12/2024	86%	86%	88%	89%
TS2	3/12/2024	110%	109%	112%	109%

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

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TABLE C
DUPLICATE SAMPLE
(Ref No: 20468/5-AA)

ANALYTE	BH1 0.0-0.15 (m) mg/kg	DDS1 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
Arsenic	8	8	0
Cadmium	<0.3	<0.3	-
Chromium	5.3	5.2	2
Copper	27	27	0
Lead	20	19	5
Mercury	<0.05	<0.05	-
Nickel	7.6	7.6	0
Zinc	49	49	0
TOTAL RECOVERABLE HYDROCARBONS (TRH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	<25	<25	-
F4 (>C34-C40)	<120	<120	-
BTEX			
Benzene	<0.1	<0.1	-
Toluene	<0.1	<0.1	-
Ethyl Benzene	<0.1	<0.1	-
Xylenes	<0.3	<0.3	-
POLYCYCLIC AROMATIC HYDROCARBONS			
Benzo(a)Pyrene TEQ	<0.3	<0.3	-
Total PAH	<0.1	<0.1	-
Naphthalene	<0.1	<0.1	-
Benzo(a)Pyrene	<0.1	<0.1	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.2	<0.2	-
Endrin	<0.1	<0.1	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	<0.1	-
Endosulfan (alpha, beta & sulphate)	<0.3	<0.3	-
DDD+DDE+DDT	<0.3	<0.3	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
ORGANOPHOSPHATE PESTICIDES (OPP)			
Chlorpyrifos (Chlorpyrifos Ethyl)	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	-
Phenols	<0.5	<0.5	-

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TABLE D
SPLIT SAMPLE
(Ref No: 20468/5-AA)

ANALYTE	BH2 0.0-0.15 (m) mg/kg (SGS)	DSS1 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
Arsenic	5	10	67
Cadmium	<0.3	<0.4	-
Chromium	14	26	60
Copper	29	24	19
Lead	17	28	49
Mercury	<0.05	<0.1	-
Nickel	16	9	56
Zinc	81	42	63
TOTAL RECOVERABLE HYDROCARBONS (TRH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	<25	<50	-
F3 (>C16-C34)	<90	<100	-
F4 (>C34-C40)	<120	<100	-
BTEX			
Benzene	<0.1	<0.2	-
Toluene	<0.1	<0.5	-
Ethyl Benzene	<0.1	<1	-
Xylenes	<0.3	<1	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
Benzo(a)Pyrene TEQ	<0.3	<0.5	-
Total PAH	<0.1	<0.05	-
Naphthalene	<0.1	<0.1	-
Benzo(a)Pyrene	<0.1	<0.05	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.2	<0.2	-
Endrin	<0.1	<0.1	-
Methoxychlor	<0.1	<0.1	-
Endosulfan (alpha (I), beta (II) & sulphate)	<0.3	<0.3	-
DDD+DDE+DDT	<0.3	<0.1	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
ORGANOPHOSPHATE PESTICIDES (OPP)			
Chlorpyriphos	<0.2	<0.1	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	-
Phenols	<0.5	<5	-

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TABLE E1
METAL, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES (FILL)
(Ref No: 20468/5-AA)

Sample Location	Depth (m)	METAL (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC ($cmol_c/kg$)	pH
FILL											
BH1	0.0-0.15	8	<0.3	5.3	27	20	<0.05	7.6	49	-	-
BH2	0.0-0.15	5	<0.3	14	29	17	<0.05	16	81	28	7.2
BH4	0.0-0.15	5	<0.3	5.8	22	15	<0.05	17	63	5	5.6
Limit of Reporting (LOR)		1	0.3	0.5	0.5	1	0.05	0.5	2	0.02	0.1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) [a] C - Recreational C		300	90	300 [c]	17000	600	13 [d]	1200	30000		
Ecological Investigation Levels (EIL) [b]- Public open space		100 [e]	-	190[f]	110	1200 [g]	-	35	270		

Notes:
a: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.
b: EIL of aged chromium (III), copper, nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; Old Suburb with Low Traffic; the lowest CEC=5 cmolc/kg & pH=5.6; the assumed clay content=1 % were selected for derivation of EIL; a conservative approach.
c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III)
g: Generic added contaminant limit for aged lead + ambient background concentration; Old Suburb with Low Traffic.

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TABLE E2
METAL, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES (NATURAL SOIL)
(Ref No: 20468/5-AA)

Sample Location	Depth (m)	METAL (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC ($cmol_c/kg$)	pH
Natural Soil											
BH1	0.2-0.3	5	<0.3	5.2	22	15	<0.05	4.7	35	-	-
BH1	1.0-1.1	10	<0.3	5.3	29	21	<0.05	7.8	49	2.5	5.5
BH2	0.35-0.45	4	<0.3	6.6	27	16	<0.05	6.0	43	-	-
BH3	0.0-0.15	7	<0.3	6.2	6.5	12	<0.05	<0.5	2	3.8	5.0
BH3	0.35-0.45	4	<0.3	4.1	5.7	12	<0.05	<0.5	<2	3.8	4.9
BH4	0.2-0.3	5	<0.3	4.9	18	13	<0.05	3.0	25	-	-
BH4	1.2-1.3	8	<0.3	6.6	26	15	<0.05	6.0	43	11	5.5
BH5	0.0-0.15	5	<0.3	12	5.1	15	<0.05	<0.5	3	-	-
Limit of Reporting (LOR)		1	0.3	0.5	0.5	1	0.05	0.5	2	0.02	0.1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) [a] C - Recreational C		300	90	300 [c]	17000	600	13 [d]	1200	30000		
Ecological Investigation Levels (EIL) [b]- Public open space		100 [e]	-	190[f]	60	1200 [g]	-	10	150		

Notes:
a: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.
b: EIL of aged chromium (III), copper, nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; Old Suburb with Low Traffic; the lowest CEC=2.5 cmolc/kg & pH=4.9; the assumed clay content=1 % were selected for derivation of EIL; a conservative approach.
c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III)
g: Generic added contaminant limit for aged lead + ambient background concentration; Old Suburb with Low Traffic.

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TABLE F
TOTAL RECOVERABLE HYDROCARBONS (TRH) AND BTEX TEST RESULTS
DISCRETE SAMPLES

												NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)														
			TRH (mg/kg)					BTEX (mg/kg)				Health Screening Levels (HSL) C Recreational / open space						Ecological Screening Levels for fine-grained soil Public open space								
Sample Location	Depth (m)	Soil type	F1	F2*	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2*	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
BH1	0.0-0.15	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH1	0.2-0.3	Shale	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH2	0.0-0.15	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH3	0.0-0.15	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH4	0.0-0.15	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH4	1.2-1.3	Shale	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
BH5	0.0-0.15	Clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	NL	NL	NL	NL	NL	NL	180	120	1300	5600	65	105	125	45
Limit of Reporting (LOR)			25	25	25	90	120	0.1	0.1	0.1	0.3														

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

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TABLE G
POLYCYCLIC AROMATIC HYDROCARBONS (PAH) TEST RESULTS
DISCRETE SAMPLES

							NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
			PAH (mg/kg)				Health-based Investigation Levels (HIL) C [a] Recreational C		Health Screening Level (HSL) C - Recreational / open space	Generic Ecological Investigation Level (EIL) - Public open space	Ecological Screening Level (ESL) - Public open space
Sample Location	Depth (m)	Soil type	BaP TEQ	TOTAL PAHs	NAPHTHALENE	BENZO(a)PYRENE (BaP)	BaP TEQ	TOTAL PAHs	NAPHTHALENE	NAPHTHALENE	BENZO(a)PYRENE (BaP)
BH1	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH1	0.2-0.3	Shale	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH2	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH3	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH4	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH4	1.2-1.3	Shale	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
BH5	0.0-0.15	Clay	<0.3	<0.1	<0.1	<0.1	3	300	NL	170	0.7
Limit of Reporting (LOR)			0.3	0.1	0.1	0.1					

Notes: a: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.

NL: Not Limiting

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TABLE H

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

DISCRETE SAMPLES

(Ref No: 20468/5-AA)

Sample Location	Depth (m)	OCP (mg/kg)										(mg/kg)	(mg/kg)	(mg/kg)
		HEXACHLOROBENZENE (HCB)	HEPTACHLOR	ALDRIN+DIELDRIN	ENDRIN	METHOXYCHLOR	MIREX	ENDOSULFAN (alpha, beta & sulphate)	DDD+DDE+DDT	DDT	CHLORDANE (alpha & gamma)	Chlorpyrifos (Chlorpyrifos Ethyl)	PCB	Phenols
BH1	0.0-0.15	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	<0.5
BH2	0.0-0.15	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	<0.5
BH3	0.0-0.15	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	-
BH4	0.0-0.15	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	<0.5
BH4	1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
BH5	0.0-0.15	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	<0.5
Limit of Reporting (LOR)		0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.2	0.1	0.5
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)														
Health-based Investigation Levels (HIL) C [a] - Recreational C		10	10	10	20	400	20	340	400		70	250	1	40000
Ecological Investigation Levels (EIL) - Public open space										180 [b]				

Notes: a: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.

b: Generic EIL for DDT

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TABLE I
ASBESTOS TEST RESULTS
DISCRETE SAMPLES
(Ref No: 20468/5-AA)

Sample Location	Depth (m)	ASBESTOS (% w/w)		
Soil Sample		Bonded ACM (>7mm)	AF	FA
BH1	0.0 - 0.15	<0.01	<0.001	<0.001
BH2	0.0 - 0.15	<0.01	<0.001	<0.001
BH3	0.0 - 0.15	<0.01	<0.001	<0.001
BH4	0.0 - 0.15	<0.01	<0.001	<0.001
BH5	0.0 - 0.15	<0.01	<0.001	<0.001
Limits of Reporting (LOR)		0.01	0.001	0.001
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
Health Screening Levels [a] - Recreational C		0.02	0.001	0.001

Notes:
ACM: Asbestos Containing
AF: Asbestos Fines
FA: Fibrous Asbestos
a: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths.

APPENDIX A

REF REQUIREMENTS CHECKLIST

REF Review Checklist

Template Reference: DOC24/3137063 Revision 1 December 2024

Project details

Project name:	New Melrose Park High School

Purpose and limitations

This checklist is intended to assist project and consultant teams in checking that Reviews of Environmental Factors (REF) appropriately assess a proposed activity and address legislative requirements. It seeks to address common requirements, does not address every potential environmental matter that may be relevant to a site and includes matters that will not be relevant to all sites/proposals. The project consultant town planner is responsible for identifying potential environmental impacts and assessment requirements to consider and mitigate potential impacts.

Adequacy review

Complete the table below to check that the REF and supporting technical investigations have adequately assessed the proposed activity.

Requirement	Y	N	N/A	Comments
General requirements				
Regulatory requirements Does the REF include: • an acknowledgement of County?	☐	☐	☐	
• details of: ○ the proposed activity?	☐	☐	☐	
○ need for the activity?	☐	☐	☐	
○ alternatives considered, including the do-nothing option?	☐	☐	☐	
○ relevant planning policies, including relevant indicative layout plans, masterplans, strategic plans or Voluntary Planning Agreements apply to the site?	☐	☐	☐	
○ how proposal relates to relevant legislation and policies?	☐	☐	☐	
○ related approvals required?	☐	☐	☐	
○ relevant determining authority (i.e. the NSW Department of Education)	☐	☐	☐	
• a description of the site (including address and lot/DP) and surrounding environment using text and plans/photos including details the environmental features and planning constraints?	☐	☐	☐	
• a description of land / road reserves associated with any off-site works?	☐	☐	☐	
• a summary of existing approvals and relevant conditions that apply to the site?	☐	☐	☐	
• for existing schools, confirmation that the proposed activity does not contravene a relevant condition of consent?	☐	☐	☐	
• an assessment of potential impacts of the proposal?	☐	☐	☐	
• a summary of consultation undertaken, responses received and how responses were considered?	☐	☐	☐	
• a statement certifying that the contents are true and correct?	☐	☐	☐	
• a conclusion that the proposal is not likely to significantly affect the environment or threatened species, communities or habitats unless a Species Impact Statement (SIS) (for aquatic biodiversity) or (terrestrial) Biodiversity Development Assessment Report (BDAR)	☐	☐	☐	

has been prepared?				
• a statement that the proposed activity qualifies as development without consent?	☐	☐	☐	
• a detailed response to the design quality principles set out in the T&I SEPP?	☐	☐	☐	
• a detailed response to the Design for Schools Guide?	☐	☒	☐	NBRS TO ADDRESS IN DESIGN REPORT V2
• where relevant, a detailed response to any School Design Review Panel comments?	☐	☒	☐	NBRS TO ADDRESS IN DESIGN REPORT V2
• a schedule of mitigation measures that are specific and deliverable?	☐	☐	☐	
Has the REF addressed s171 of the EP&A Reg including the environmental factors set out in the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools and s171A (if the site is located in a regulated water catchment)?	☐	☐	☐	
Has the REF been prepared in accordance with the Part 5 Guidelines, including the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools??	☐	☐	☐	
If early engagement has occurred, has the REF summarised the issues raised been summarised and set out how they have been considered?	☐	☐	☐	
Scope Does the REF incorporate the relevant scope, including associated works such as additional infrastructure (i.e. substation, pumping stations, roadworks, stormwater etc.)?	☒	☐	☐	
Landowner's detail and consent If owned by 'education', does the REF note that the land is owned by the Minister for Education and Early Learning rather than the department?	☐	☐	☒	
Has landowner's consent been obtained or has the landowner been notified of the REF? Note: It is the preference Landowner's consent is to be obtained prior to lodgement. However, where this is not possible and for any public domain or road works on council land, the council must be notified of the proposed works prior to lodgement of the REF.	☐	☐	☐	
Title details Has a copy of the following been obtained to inform the REF: • the certificates of title(s) for the site that is/are less than six months old?	☐	☒	☐	COLLIERS TO ISSUE
• the deposited plan?	☐	☒	☐	COLLIERS TO ISSUE
• any instruments or encumbrances registered over the land?	☐	☐	☐	
• a detailed survey plan for the site that is less than 12 months old?	☐	☐	☐	
Easements and encumbrances Do the survey plan, proposed site plan and civil plans: • clearly detail existing easements and encumbrances?	☐	☐	☐	
• demonstrate that no buildings, works, structures, earthworks, trenches or other activities would contravene or impinge upon any easement or encumbrance over the site unless with written approval of the easement beneficiary?	☐	☐	☐	
Plans Does the REF reasonably depict the proposed activity in figures, plans and/or photomontages including indicative details of: • overall layout? • maximum height and footprint of buildings? • elevational treatment of buildings? • tree planting and general landscape treatment?	☐	☐	☐	
Attachments	☐	☐	☐	

Does the REF list documents (with revision numbers and dates) that form part of the REF and are relied upon to assess the proposed activity?	☐	☐	☐	
Does the REF list include a list of all mitigation measures in Appendix 1?	☐	☐	☐	
Does the REF reference and list all figures and tables?	☐	☐	☐	
Terminology Does the REF use appropriate terminology for a REF: • "activity" instead of "development"?	☐	☐	☐	
• "NSW Department of Education" shortened to "the department" instead of "School Infrastructure NSW" or "SINSW"?	☐	☐	☐	
• "Proponent" instead of "Applicant"?	☐	☐	☐	
• "Mitigation measures" instead of "conditions"?	☐	☐	☐	
Transport and accessibility				
Does the REF include a Transport and Accessibility Impact Assessment (TAIA)?	☒	☐	☐	
RTA / early consultation Does the TAIA summarise the work undertaken as part of, and the findings of, a Rapid Transport Assessment (RTA)?	☐	☒	☐	OUTSTANDING
Does the REF summarise consultation undertaken through the Transport Working Group (TWG) process, including issues raised by transport agencies and proposed responses?	☐	☒	☐	Require proposed responses to TWG consultation outcomes
Existing conditions Does the TAIA describe the existing road network, including: • the wider state network and local network?	☒	☐	☐	
• speed and parking restrictions?	☒	☐	☐	
• public transport?	☒	☐	☐	
• pedestrian infrastructure?	☒	☐	☐	
• any known road safety issues?	☐	☐	☐	TTW to advise
• any significant infrastructure gaps identified?	☐	☐	☐	TTW to advise
Construction traffic Does the TAIA: • set out proposed construction vehicle routes and site access arrangements and estimated movements per day?	☐	☐	☐	
• include a high level assessment of / conclusion that the local road network could accommodate the movements subject to appropriate management?	☒	☐	☐	
• set out parking arrangements for construction workers and conclude that sufficient parking would be available on site / proposed arrangements would avoid detrimental impacts to local roads?	☐	☒	☐	Needs further detail and assessment
• set out whether works zones are required?	☐	☒	☐	Unclear
• include a preliminary construction management plan that details management and mitigation measures to minimise impacts and ensure safety of road users and pedestrians?	☒	☐	☐	
Operational traffic Does the TAIA: • estimate the expected trip generation as a result of the proposed development having regard to:	☒	☐	☐	
○ proposed number of students and staff?	☒	☐	☐	
○ assumed travel mode share for the school developed having regard to: ▪ existing mode share ▪ proposed measures to reduce car-based travel ▪ mode shares achieved for schools with similar use and transport characteristics?	☒	☐	☐	
○ data from other nearby schools / previous studies	☒	☐	☐	

and/or census data?				
○ expected distribution across the local road network?	☒	☐	☐	
• outline future surrounding roads/road infrastructure shown on a relevant Indicative Layout Plan/Masterplan and how the development responds to these?	☒	☐	☐	
• include a SIDRA analysis (or other modelling agreed through the TWG) of key nearby intersections before the proposed development (i.e. existing) and after the development at completion and 10 years after?	☐	☒	☐	SIDRA modelling not completed for nearby intersections immediately after the activity is constructed
• include the detailed SIDRA modelling results?	☐	☒	☐	Outstanding
• include a conclusion that the SIDRA analysis (or alternative) demonstrates that the local road network can accommodate the additional traffic generated by the development?	☒	☐	☐	
• if there is a reduction in Level of Service (LoS) from pre to post development, does the TIA justify that this is acceptable or set out measures to mitigate the impact / accommodate the additional demand?	☐	☒	☐	Outstanding – pre-development LoS not provided
• identify how significant infrastructure gaps will be addressed?	☐	☐	☐	TTW to advise
• include an existing conditions road safety assessment if existing road safety issues were identified?	☐	☐	☐	TTW to advise
• identify how any known safety issues will be addressed?	☐	☐	☐	TTW to advise
School Transport Plan Has a School Transport Plan been included in the TAIA which: • sets out measures to reduce car-based travel?	☒	☐	☐	
• sets achievable targets for mode shift with supporting explanation and evidence?	☒	☐	☐	
• include provisions for the monitoring and review of the plan?	☒	☐	☐	
Operational Parking Does the TAIA clearly set out: • proposed car parking?	☒	☐	☐	
• proposed bicycle car parking?	☒	☐	☐	
• proposed end-of trip facilities?	☒	☐	☐	
Does the TAIA include an assessment of likely demand for parking having regard to the expected/target mode share?	☒	☐	☐	
If so, does the proposal meet the expected demand?	☐	☒	☐	
If it doesn't match expected demand, does it include information to demonstrate why this is acceptable? i.e. availability of on street parking in surrounding streets based on a parking demand survey to demonstrate spare capacity?	☐	☒	☐	No evidence that surrounding streets have spare capacity
Does the TAIA include a similar assessment of bicycle parking?	☒	☐	☐	
Private vehicle drop-off and pick-up Does the TAIA: • describe the proposed private vehicle drop-off and pick-up arrangements?	☒	☐	☐	
• identify the expected private vehicle drop-off / pick-up demand based on the expected/target mode share, number of trips / drop-offs and likely dwell time?	☒	☐	☐	
• assess the capacity of the existing / proposed private vehicle drop-off / pick-up areas to accommodate the above demand?	☒	☐	☐	
Bus drop-off and pick-up Does the TAIA: • describe the proposed bus drop-off / pick-up arrangements?	☐	☐	☐	Unclear, needs coordination
• identify the expected bus drop-off / pick-up demand based on the expected/target mode share and likely dwell time?	☒	☐	☐	

• assess the capacity of the existing / proposed bus drop-off / pick-up to accommodate the above demand?	☒	☐	☐	
Service and emergency vehicle access Does the TAIA: • set out the proposed access arrangements for service vehicles (i.e. garbage and other deliveries) and emergency vehicles?	☒	☐	☐	
• set out any required mitigation or management measures?	☒	☐	☐	
• assess the above arrangements and conclude that they would not have significant impacts?	☒	☐	☐	
Overall assessment Does the TAIA: • include a list of measures to mitigate the impacts of the activity?	☐	☐	☐	
• conclude overall, that the activity would not be likely to have significant environment impacts?	☐	☐	☐	
Noise and vibration				
Noise monitoring Does the REF include an Noise and Vibration Impact Assessment (NVIA)?	☒	☐	☐	
Does the assessment include background noise monitoring at locations that appropriately represent the existing noise levels at nearby sensitive receivers (i.e. residences, churches, health facilities, etc.)?	☒	☐	☐	
Does the background noise monitoring undertaken meet the requirements of Noise Policy for Industry (2017) i.e. at least a week with acceptable weather conditions: • average wind speed <5 m/s? • no rain or other extraneous noise?	☒	☐	☐	
Construction noise Does the assessment consider impacts from construction noise and vibration in accordance with the Interim Construction Noise Guideline?	☒	☐	☐	
Does it: • determine noise management levels for the development?	☒	☐	☐	
• predict noise levels of the proposed construction activities (usually of expected standard activities and equipment and associated noise levels given that full construction methodology will not yet be known)?	☒	☐	☐	
• conclude whether the predicted levels would exceed the noise management levels?	☒	☐	☐	
• set out measures to minimise impacts to sensitive receivers, including existing school users, and ensure best practice on site?	☒	☐	☐	
• conclude whether construction noise would be likely to result in significant impacts?	☒	☐	☐	
• adopt standard construction hours set out in the ICNG or include justification where non-standard hours are proposed?	☒	☐	☐	
Vibration Does the assessment include an assessment of potential impacts as a result of vibration during constriction which: • relevant standards and assessment criteria for human comfort, sensitive equipment and structural damage?	☒	☐	☐	
• details potential sources of vibration during construction having regard to typical activities and equipment expected to undertake proposed construction works?	☒	☐	☐	
• consider potential impacts having regard to separation distances to nearby sensitive receivers?	☒	☐	☐	
• sets out measures to mitigate potential impacts,	☒	☐	☐	

including existing school users?				
• concludes that the proposed activity would not be likely to have significant environmental affects following mitigation?	☒	☐	☐	
Operational noise Does the assessment: • consider noise impacts from all aspects of proposed operations in accordance with the Noise Policy for Industry (2017) or Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment in the case of outdoor play?	☐	☐	☐	
• determine noise criteria that would be applicable?	☐	☐	☐	
• consider all proposed activities, including: ○ indoor learning activities?	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
○ outdoor play?	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
○ use of public address system?	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
○ plant and equipment (i.e. air conditioning)	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
○ use of the hall	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
○ use of outdoor sports courts	☒	☐	☐	Delineation between Stage 1 and Stage 2 required
• conclude that the proposal would meet the project noise trigger levels?	☐	☐	☐	
• set out mitigation measures if the proposal does not meet the trigger levels, does the assessment	☐	☐	☐	
Internal noise tenability Does the assessment: • consider external sources of noise in proximity to the site (i.e. main roads or rail corridors)?	☒	☐	☐	
• detail applicable internal noise comfort criteria having regard to the EFSG?	☐	☐	☐	Arup to clearly locate in report and advise
• predict internal noise levels?	☒	☐	☐	
• conclude that internal noise levels would meet criteria?	☐	☒	☐	
• set out any proposed mitigation measures required to meet the criteria?	☒	☐	☐	
Overall assessment Does the assessment: • include a list of measures to mitigate the impacts of the activity?	☐	☐	☐	
• conclude overall, that the activity would not be likely to result in significant environmental affects?	☐	☐	☐	
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable (i.e. does the design include mechanical ventilation where this is required to achieve internal comfort levels)?	☐	☐	☐	
Biodiversity				
Does the REF include either: • a statement from a suitably qualified ecologist that the proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats or impact biodiversity values, meaning a Species Impact Statement and/or Biodiversity Development Assessment Report is not required having regard to s7.8 of the *Biodiversity Conservation Act 2016* (this might include a statement that accompanies a Biodiversity Development Assessment Report (BDAR) waiver issue ahead of a	☒	☐	☐	

previously proposed SSD application); or • a SIS; and/or • a BDAR?				
A statement that the proposed activity is not likely to have a significant impact on matters of national environmental significance, or on the environment of Commonwealth land, and therefore referral to the Minister under the EPBC Act is not required? Note: Contact the Statutory Planning team if impacts are likely.	☒	☐	☐	
If the development is on biodiversity certified land, does the REF include information to identify the site (using associated mapping) and demonstrate the proposed development is consistent with the relevant biodiversity measure conferred by the biodiversity certification?	☐	☐	☒	
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable?	☐	☐	☐	
Flooding				
Flood Hazard Does the REF include either: • information that demonstrates that the site and key access routes are free of flood risk; or • a Flood Risk and Impact Assessment (FIRA)?	☐	☐	☐	
If a FIRA has been prepared, does it: • state that it has been prepared in accordance with the updated Floodplain Management Manual and Toolkit, including Planning Circular PD24-001?	☐	☐	☐	
• detail consultation undertaken with the local council and any relevant agencies (i.e. State Emergency Service) to identify existing, draft and proposed flood studies relevant to the site?	☐	☐	☐	
• describe the flood potential of the site and key access routes having regard to available flood studies and information, the conditions of the site, and the types of flood: ○ mainstream flooding?	☐	☐	☐	
○ overland flows?	☐	☐	☐	
○ flash flooding?	☐	☐	☐	
• describe the key flood mechanisms?	☐	☐	☐	
• include flood modelling showing flood extent, levels, depths, velocities and hazard classifications for all relevant events, including:	☐	☐	☐	
○ 1% AEP / 1 in 100yr?	☐	☐	☐	
○ 5% AEP / 1 in 20yr?	☐	☐	☐	
○ 10% AEP / 1 in 10yr?	☐	☐	☐	
○ 0.2% AEP / 1 in 500yr?	☐	☐	☐	
○ 0.02% AEP / 1 in 5000yr?	☐	☐	☐	
○ PMF?	☐	☐	☐	
• consider the timeframe for flood waters to inundate the site and timeframe for water to hit peak levels?	☐	☐	☐	
• consider the impacts of climate change on future flood frequency and levels?	☐	☐	☐	
Risk / impact of flood on the activity If a FIRA has been prepared, does it: • determine whether the proposal is in a high-risk catchment?	☐	☐	☐	
• the location of the proposal in relation to flood behaviour and constraints including floodway, flood storage area or flood fringe area?	☐	☐	☐	
• the hazard vulnerability classification of the land?	☐	☐	☐	
• frequency of inundation?	☐	☐	☐	

• whether the proposal provides for safe occupation and efficient and effective evacuation in flood events and how it is to be achieved?	☐	☐	☐	
• in high-risk catchments, whether the proposal is likely to result in a significant increase to the risk to life in other parts of the catchment in a PMF flood event?	☐	☐	☐	
• any known evacuation constraints such as the flood emergency response classification for the area and available warning times (including rate of rise and when the evacuation route is cut off by floodwater)?	☐	☐	☐	
• whether the proposal is for a sensitive or hazardous land use, or other higher risk uses and what mitigation strategies (if any) are proposed to reduce any identified risks?	☐	☐	☐	
Impact of the activity on flood outside of the site If a FIRA has been prepared, does it address the matters to consider set out in PS-24-001, including has it determined: • potential impacts of cut and fill and other building works on flood behaviour?	☐	☐	☐	
• whether there may be adverse flooding impacts on surrounding properties?	☐	☐	☐	
• ability of proposed development to withstand flood impacts?	☐	☐	☐	
Building and structure design If a FIRA has been prepared, does it: • nominate a flood planning level (minimum floor level plus freeboard) for proposed buildings?	☐	☐	☐	
• recommend any other mitigations such as flood resistant materials or structural requirements?	☐	☐	☐	
FERP If the site or key access routes are impacted by flood waters, does the REF include a preliminary Flood Emergency Response Plan (FERP) that has been prepared in consultation with NSW SES?	☐	☐	☐	
Does the plan clearly and simply detail: • the flood potential of the site?	☐	☐	☐	
• detail roles and responsibilities across the department and relevant emergency response agencies?	☐	☐	☐	
• flood monitoring and warning systems consistent with advice received to date from NSW SES?	☐	☐	☐	
• flood warning times and notifications?	☐	☐	☐	
• emergency management triggers, including rainfall and water levels?	☐	☐	☐	
• the emergency response to a flood event or events where different flood mechanisms impact a site?	☐	☐	☐	
• messaging and communication protocols?	☐	☐	☐	
• assembly points and flood free routes (where required)?	☐	☐	☐	
• shelter in place locations (where required as last resort) that are able to withstand flood and debris forces of the PMF?	☐	☐	☐	
• mechanisms and requirements for regular review?	☐	☐	☐	
• awareness training for employees, contractors, visitors, students and caregivers and induction of new staff members?	☐	☐	☐	
Conclusion Does the FIRA: • conclude that the proposal would not be likely to result in significant environmental effects?	☐	☐	☐	
• list any mitigation measures identified in the assessment?	☐	☐	☐	
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where	☐	☐	☐	

applicable (i.e. flood resistant structures and materials)?				
Bushfire				
Does the REF include either: • information that demonstrates that the site is not mapped as bushfire prone and is not adjacent to a potential bushfire hazard; or • a Bushfire Assessment (BA)?	☐	☐	☒	
If a BA has been prepared, does it: • assess the immediately adjoining bushfire hazard in accordance with Planning for Bush Fire Protection (PBP)?	☐	☐	☒	
• consider bushfire in the wider landscape context and potential impacts to key access routes or surrounding communities that may impact the activity?	☐	☐	☒	
• identify bushfire protection measures required under PBP?	☐	☐	☒	
• confirm if the activity can comply with the required bushfire protection measures, including:	☐	☐	☒	
○ provision of minimum asset protection zones (APZs) with all buildings outside of the APZs?	☐	☐	☒	
○ minimum construction requirements for buildings? Note: - Table 2, Appendix B of the Addendum November 2022 to PBP requires school buildings on bushfire prone land to be built to a minimum of BAL-19. - The NSW RFS has advised that BAL-Low does not apply to school and similar developments under PBP. If the consultant considers that no construction standard applies, the report should state 'no requirements' in order to avoid further information requests from the NSW RFS.	☐	☐	☒	
○ access roads?	☐	☐	☒	
○ provision of a perimeter road between the buildings and the bush fire hazard?	☐	☐	☒	
○ water provision?	☐	☐	☒	
○ design of utilities?	☐	☐	☒	
○ emergency management arrangements?	☐	☐	☒	
○ landscaping?	☐	☐	☒	
Conclusion Does the BA: • conclude that the proposal would not be likely to result in significant environmental effects?	☐	☐	☒	
• list any mitigation measures identified in the assessment?	☐	☐	☒	
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable (i.e. APZs, BAL-19 construction?	☐	☐	☒	
Contamination				
Have either of the following been prepared to inform the REF: • a Preliminary Site Investigation (PSI) and/or Detailed Site Investigation (DSI) that conclude that there is a low risk of contamination and that the site is suitable for the use of the site as a school; or • a PSI and/or DSI and a Remediation Action Plan (RAP)?	☒	☐	☐	
Does the PSI, DSI and RAP address all the potential sources of contamination mentioned in the various report?	☒	☐	☐	
If the DSI or RAP identifies that limited further testing is required, has this been incorporated as a mitigation measure in the REF?	☒	☐	☐	
If remediation is required, does the REF determine if the remediation is Category 1 or 2 having regarded to the Hazards and Resilience SEPP?	☐	☐	☒	
Does the REF include an interim statement from a Site	☐	☐	☒	

Auditor confirming that the RAP is appropriate?				
If no interim statement, does the RAP set out actions to remediate all potential sources of contamination?	☐	☐	☒	
Does the REF summarise investigations undertaken and conclude that contamination risk has been appropriately addressed in accordance with the Hazards and Resilience SEPP?	☒	☐	☐	
Has the PSI, DSI and/or RAP concluded that the proposal would not be likely to result in significant environmental effects as a result of contamination and/or contamination management?	☒	☐	☐	
Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable?	☒	☐	☐	
Environmental heritage				
Heritage items If: • any portion of the site is a listed heritage item on the department's s170 register, in the Local Environmental Plan (LEP) or on the State Heritage Register (SHR); or • there is a place listed on any s170 register, LEP or SHR immediately near the site; or • the school site in a heritage conservation area; or • the site has been previously assessed as having heritage significance even if no statutory listing has been provided; has a heritage impact statement (HIS) been prepared to support the REF?	☐	☐	☒	
If a HIS has been prepared, does the HIS: • provide a clear assessment of heritage significance against the NSW guidelines for Assessing Heritage Significance?	☐	☐	☒	
• include an assessment of the degree of impact (physical and visual) to identified heritage items?	☐	☐	☒	
• assess the impacts of the proposal to be less then minimal?	☐	☐	☒	
• detail consultation with council if the impacts were assessed as more than minimal?	☐	☐	☒	
• identify whether additional Heritage Act approvals (s60 permits) are required if the item is on the SHR?	☐	☐	☒	
• include adequate project justification and analysis of design options to show that the heritage impacts were not avoidable (if the impacts were assessed as more than minimal)?	☐	☐	☒	
• set out appropriate mitigation measures?	☐	☐	☒	
Archaeology Does the REF and/or HIS: • consider the potential for archaeological relics either in a HIS or through existing regional planning documentation or similar?	☐	☐	☒	
• include an evidence-based archaeological assessment, including a clear grading of the potential for archaeological remains to be identified, and what their archaeological significance is?	☐	☐	☐	
If an archaeological assessment was undertaken has: • the assessment been informed by historic archaeological test excavation (where necessary)?	☐	☐	☒	
• the assessment identified impacts to archaeological relics?	☐	☐	☒	
• archaeological monitoring or test excavation been proposed under a self-approved s139(4) Exception, and if so, has an Exception Record of Use Form been	☐	☐	☒	

submitted and signed?				
• is a permit under the Heritage Act (s140 / s60), approved by Heritage NSW, required to authorise impacts to relics?	☐	☐	☒	
• set out appropriate mitigation measures required to give effect to any mitigations from the archaeological assessment?	☐	☐	☒	
Aboriginal cultural heritage				
Does the REF either include: • confirmation that the activity does not include ground disturbing works or removal of mature vegetation; or • an Aboriginal Cultural Heritage Due Diligence (DD), a Preliminary Indigenous Heritage Assessment Impact (PIHAI) and/or an Archaeological Survey Report (ASR) which identifies no harm to Aboriginal objects or places would occur; or • an Aboriginal Cultural Heritage Assessment Report (ACHAR)? Note: where a DD / PIHAI / ASR has been prepared and it identifies that Aboriginal objects or places are likely to be impacted, an ACHAR must be prepared.	☒	☐	☐	
Where an ASR has been prepared, has it assessed the archaeological nature and significance of Aboriginal sites within the study area (through survey / test excavation)?	☐	☐	☒	
Where an ACHAR has been prepared, has it been undertaken in accordance with the OEH consultation guidelines?	☒	☐	☐	
Where an ACHAR has been prepared, has it completed the mandatory steps, including: • agencies contacted to identify relevant parties; • an advert placed in local paper to invite registrations of interest; • invitations to register issued to potential stakeholder groups; • methodology issued to RAPs and invited to comment; and • draft ACHAR sent to RAPs and invited to comment?	☒	☐	☐	
Where an ACHAR has been prepared: • have all comments provided by RAPs been addressed and actioned (where possible) in the ACHAR?	☐	☐	☐	
• did the ASR or ACHAR assess the archaeological nature and significance of Aboriginal sites within the study area (through survey / test excavation)?	☐	☐	☐	
• assess impacts of the proposed works?	☐	☐	☐	
• indicate that an Aboriginal Heritage Impact Permit (AHIP) is required?	☐	☐	☐	
Has the REF and/or supporting documents: • included a list of measures to mitigate the impacts of the activity?	☐	☐	☐	
• concluded that the proposal would not be likely to result in significant environmental effects?	☐	☐	☐	
Built form and urban design				
If the project has a value over $50M, has it been presented at School Design Review Panel (SDRP)?	☐	☐	☐	NBRS/COLLIERS TO CONFIRM
If presented to SDRP, have comments from the Panel been: • summarised in the REF / Design Report?	☐	☐	☐	NBRS/COLLIERS TO CONFIRM
• appropriately considered, incorporated into the design (where appropriate) and responded to in the REF / Architectural Design Report?	☐	☐	☐	NBRS/COLLIERS TO CONFIRM
Does the Design Report: • explain how the proposed layout, building and facade design appropriately considers and respond to the	☒	☐	☐	

existing / likely future / preferred character of the streetscape?				
• address the design quality principles in the T&I SEPP and the design principles set out in the Design Guide for Schools?	☐	☐	☐	OUTSTANDING
• explain how the height of the proposed development is appropriate in consideration of the site context and form of surrounding development?	☒	☐	☐	
Environmental amenity				
Overshadowing Does the REF:	☐	☐	☐	
• include shadow diagrams?	☒	☐	☐	
• discuss impacts from overshadowing impacts?	☐	☐	☐	REF
• conclude that the proposal would have no significant impacts?	☐	☐	☐	REF
• if the proposal results in overshadowing of windows or private open space of residential properties, does the REF demonstrate maintenance of at least two hours of daylight as required by the Apartment Design Guide or otherwise in accordance with the applicable Planning principles?	☐	☐	☐	
Privacy Does the REF consider potential privacy impacts of the proposed works and conclude that these would not be likely to result in significant effects with or without mitigation measures?	☐	☐	☐	
Visual impacts Does the REF assess potential visual impacts of the proposed works and conclude that impacts would not be significant with or without mitigation measures?	☒	☐	☐	
Visual impacts (view sharing) – private views If the activity has the potential to obstruct existing significant views from private property, does the REF include an assessment of the proposal in accordance with the Tenacity Principles including as assessment of the: • type of views affected; • parts of the property the views are obtained; • extent of the impact; and • reasonableness of the proposal causing the impact?	☐	☐	☒	
Does the assessment conclude overall, that the proposal would not be likely to result in significant environmental effects?	☐	☐	☒	

Visual impacts (view sharing) – public views
If the activity has the potential to obstruct existing significant views from public land, does the REF include an assessment in accordance with the established planning principles (i.e. principles established by the Land and Environment Court in Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor [2013] NSWLEC 1046 (principles of view sharing: the impact on the public domain), including:
• an assessment of:
  ○ nature and scope of the existing views from public domain;
  ○ locations in the public domain from which potentially interrupted view is enjoyed
  ○ extent of the obstruction at each relevant location;
  ○ intensity of public use of those locations where that enjoyment will be obscured, in whole or in part, by the proposed activity;
  ○ whether there is any document that identifies the importance of the view to be assessed; and
• a quantitative and qualitative evaluation of the impacts?
	☐	☐	☒	

Does the REF list any mitigation measures identified in the above assessments and incorporate them into the design where applicable?	☐	☐	☒	
Air quality				
If the site is adjacent to a significant potential source of air pollution (i.e. motorway, airport or hazardous industry), has the REF been informed by either of the following by a suitably qualified person: • a statement that air quality at the site is suitable for the proposed use based on expert advice and/or existing data; • an air quality assessment? Note: Reference may need to be given to Development Near Rail Corridors and Busy Roads – Interim Guideline in the above	☐	☐	☒	
If an air quality assessment is prepared, does it: • conclude that air quality is suitable for the proposed use with or without migration?	☐	☐	☒	
• indicate impacts generated by the proposed activity and suitable mitigation measures?	☐	☐	☒	
Does the REF summarise the assessment and list any mitigation measures identified in the above assessments and incorporate them into the design where applicable?	☐	☐	☒	
Trees and landscaping				
Has an Aboricultural Impact Assessment (AIA) been prepared to support the REF which assesses existing trees within the proposed works area, including street trees, and recommends tree protection measures for trees to be retained?	☒	☐	☐	
Does the REF discuss the number, species, pot sizes and height of trees to be removed and trees to be planted?	☐	☐	☒	
Have any tree protection measures set out in the AIA been incorporated in: • the design; • REF mitigation measures; and • the preliminary construction methodology?	☒	☐	☐	
Social Impact				
Does the REF include an assessment of the social impacts of the proposed activity comprising either: • Sites identified for a school in a Voluntary Planning Agreement (VPA), Concept Approval, Precinct Plan, Indicative Layout Plan, adopted Masterplan, or other adopted strategic planning document, together with upgrades to existing schools - Social impact addressed in REF by the consultant town planner (i.e. no standalone SIA report). • New schools where land has not been identified as a school in a strategic planning document or VPA etc - Social impact addressed in the REF by consultant town planner (or suitably experienced), or as necessary, in a stand-alone report. • Schools subject to closures or mergers, or where there is loss of, or substantial change to, community infrastructure: Comprehensive SIA as a separate report prepared by suitably experienced consultant.	☒	☐	☐	
Ecologically sustainable development				
Does the ESD Report set sustainability targets for the activity in line with the department's commitments, including: • Green Star Buildings certification for projects with >1000m2 new building and >$10m EDC of 5 Star for Sydney, Wollongong and Newcastle metro or 4 Star for rest of NSW • Operational energy and potable water intensity targets	☐	☒	☐	Operational energy an potable water intensity targets outstanding

for the activity?				
If Green Star Buildings certification is required, does the ESD Report include: • the Green Star registration number for the project, and • a Green Star Building pathway showing how activity will achieve the required number of credit points to certify?	☒	☐	☐	
If applicable under the Sustainable Buildings SEPP, has an NABERS embodied emissions material form been included in the ESD Report?	☐	☐	☐	
Does the ESD report include a Climate Change Risk Assessment and Adaptation Plan?	☐	☐	☐	
For sites identified as any high or extreme risks in the Climate Change Risk Assessment and Adaptation Plan, have design responses been identified to been incorporated into the project to mitigate the risks?	☐	☐	☐	
Does the ESD Report adequately address how the activity will: • minimise waste from associated demolition and construction; • minimise peak electricity demand; • minimise overall energy use through passive design; • generate and store renewable energy; • minimise consumption of potable water; and • meter and monitor energy and water consumption and energy generation?	☐	☐	☐	
Does the ESD Report include a Net Zero Action Plan / Net Zero in operations plan (exact name TBA) that adequately addresses how the activity has been designed to eliminate use of fossil fuels during operations, or how the use of fossil fuels will be minimised and will be eliminated by 2035?	☐	☐	☐	
Staging				
If the project is to be staged, does the REF include preliminary details on how construction and operations will be managed during each stage of the development, including the following for each stage: • operational areas and areas still under construction?	☐	☐	☐	More info required – separate EU email to Colliers
• student/staff numbers?	☒	☐	☐	
• operational and construction access and parking arrangements?	☐	☐	☐	More info required – separate EU email to Colliers
• open space provision?	☐	☐	☐	More info required – separate EU email to Colliers
• measures to ensure acceptable amenity for students and staff in areas adjacent to ongoing construction?	☐	☐	☐	More info required – separate EU email to Colliers
• measures to ensure the safety and security of students and staff?	☐	☐	☐	More info required – separate EU email to Colliers
Has each relevant technical report (transport and acoustic reports at a minimum) assessed the proposed staging and concluded that it would not be likely to result in significant environmental affects, including cumulative affects?	☐	☐	☐	More info required – separate EU email to Colliers
Does the REF list any mitigation measures identified as a result of the proposed staging?	☐	☐	☐	
Utilities				
Does the REF broadly set out how the proposal will be serviced by necessary services and utilities?	☒	☐	☐	EL-MPHS-RPT-002 Melrose Park HS Services Report (REF), Section 5.1 and 5.2
Does the REF assess any works required to provide necessary services and utilities and conclude that these would not have significant environmental affects?	☒	☐	☐	EL-MPHS-RPT-002 Melrose Park HS Services Report (REF), Section 5.3
If on site water treatment is required, does the REF include an on-side waste water management plan / land capability assessment that concludes that the site would be capable of accommodating wastewater without significant affects on the	☐	☐	☐	

environment?				
If temporary arrangements are required (i.e. generator), does the REF assess any potential temporary environmental effects as a result of the arrangements and conclude that significant effects would not be likely?	☐	☐	☒	
Stormwater drainage				
Has a stormwater management plan been prepared that: • considers and complies with council's applicable engineering specifications, including requirement for on-site detention and water quality treatment?	☐	☐	☐	
• demonstrates that the proposed stormwater management system would not increase runoff from the site (i.e. that post-development flows do not exceed pre-development flows)?	☐	☐	☐	
• demonstrates that the stormwater management system would discharge to a legal point of discharge?	☐	☐	☐	
• conclude that stormwater would be managed so that the proposal would not be likely to have significant environmental affects?	☒	☐	☐	
Does the REF summarise the proposed stormwater management strategy and conclude that the activity would not be likely to have significant environmental impacts as a result of stormwater management with or without mitigation measures?	☐	☐	☐	
Soil and water				
If the site is mapped as, or has otherwise been identified, as having salinity potential, does the geotechnical report consider impacts from salinity and set out measures to mitigate impacts (i.e. Salinity Management Plan) so that they would not be significant?	☐	☒	☐	
If the site is mapped as, or has otherwise been identified as having acid sulfate soils (ASS) potential, does the geotechnical report consider impacts from ASS and set out measures to mitigate impacts (i.e. ASS Management Plan) so that they would not be significant?	☐	☒	☐	
If the site is mapped as being in an area of groundwater vulnerability, does the REF include an Integrated Water Management Plan that assess the potential of the activity to impact groundwater and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?	☐	☐	☒	
If the site is mapped as being in an area of landslide risk, does the REF assess the potential of the activity and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?	☐	☒	☐	
Has an Erosion and Sediment Control plan been prepared to inform the REF that includes: • a plan(s) detailing: ○ property boundaries, existing levels of the land in relation to the building, roads and where stormwater surface flows enter and leave the site?	☐	☒	☐	
○ the location of stabilised construction access points?	☐	☐	☐	
○ the location of perimeter sediment/erosion controls?	☐	☐	☐	
○ any 'no-go' areas that are not to be disturbed?	☐	☐	☐	
○ location of stockpile areas?	☐	☐	☐	
○ location of proposed temporary and permanent site drainage?	☐	☐	☐	
• specific measures to be implemented to prevent pollution of stormwater off the site?	☐	☐	☐	
Does the REF summarise the proposed controls and incorporate any mitigation measures identified in the above	☐	☐	☐	

documents?				
Waste management				
Has a preliminary Construction Waste Management Plan been prepared that informs the REF that considers: • the likely type and volume of waste generated by the activity?	☒	☐	☐	
• opportunities to reuse and recycle waste in order to reduce waste sent to landfill?	☒	☐	☐	
• set out measures to handle and dispose of the waste?	☒	☐	☐	
• conclude that appropriate arrangements can be put in place such that there would not be likely to have significant environmental affects?	☐	☒	☐	NEEDS CONCLUSION
Has a preliminary Operational Waste Management Plan been prepared to inform the REF that considers: • the likely type and volume of waste generated by the activity?	☒	☐	☐	
• opportunities to reuse and recycle waste in order to reduce waste sent to landfill?	☒	☐	☐	
• set out measures to handle and dispose of the waste including the number of bins, siting and size of the waste storage area, and truck access arrangements (including swept path diagrams to demonstrate access can be achieved in a forward direction)?	☐	☒	☐	REQUIRES: truck access arrangements (including swept path diagrams to demonstrate access can be achieved in a forward direction)
• Council's waste management policies, if applicable?	☒	☐	☐	
• conclude that appropriate arrangements can be put in place such that there would not be likely to have significant environmental affects?	☐	☒	☐	NEEDS CONCLUSION
Does the REF summarise outcomes of the above and incorporate any mitigation measures identified in the above documents?	☐	☐	☐	
Aviation				
If the proposal is located within the Obstacle Limitation Surface (OLS) or is in close proximity to an aviation facility, including helicopter landing sites, has a statement from a suitably qualified person assessing the proposed activity been prepared to inform the REF?	☐	☐	☒	
Does the statement: • describe the nearby aviation facility?	☐	☐	☒	
• any relevant policies, procedures or controls that apply to development works on the site?	☐	☐	☒	
• assess any potential impacts from the activity, including proposed buildings, on aviation operations?	☐	☐	☒	
• assess any potential impacts of the proposed construction activities, including use of cranes, on aviation operations?	☐	☐	☒	
• describe any consultant with the relevant airport, CASA or other relevant aviation authority?	☐	☐	☒	
• advise if any approvals are required under aviation legislation?	☐	☐	☒	
• conclude that the proposal is appropriate and would not have detrimental impacts on aviation safety or operations?	☐	☐	☒	
Does the REF summarise outcomes of the above and incorporate any mitigation measures identified in the above documents?	☐	☐	☒	
Signs				
Does the REF include: • an assessment of the proposed signs against the Chapter 3 Advertising and Signage, under SEPP (Industry and Employment) 2021a site plan and elevations of any proposed signs that clearly depict the	☐	☐	☐	

location, type, content and appearance of any proposed signs that form part of the REF activity?				
Other				
If the site is located in a coastal management or sensitivity area, does the REF include a Coastal Management Assessment that assesses the likely impacts of the activity on coastal values and concludes that these would not be likely to be significant with or without mitigation?	☐	☐	☒	
If the site is in proximity to a gas or oil pipeline, petrol station, LPG storage, landfill or other hazardous use, does the REF include a Preliminary Hazard Assessment that assesses the risk to the proposed activity and concludes that the risk is acceptable according to any relevant assessment framework?	☐	☐	☐	
If the site is in a Mine Subsidence District or Mine Subsidence Risk Area, does it include a Mine Subsidence Statement and Advisory Board Approval or Mine Subsidence Risk Report (as appropriate?	☐	☐	☒	
If the site is in close proximity to high volage power lines or telecommunication towers, does the REF include an Electromagnetic Field Report that assesses the risk to the proposed activity and concludes that the risk is acceptable according to any relevant assessment framework?	☐	☐	☒	
If the site is located in an area of risk of unexploded ordinance, does the REF include an Unexploded Ordinance Risk Assessment that assesses the risk to the proposed activity and concludes that the risk is acceptable according to any relevant assessment framework?	☐	☐	☐	
If the proposed activity includes a proposed government preschool, does the REF include a report that details how the proposed activity complies with Part 4 of the Child Care Planning Guideline September 2021?	☐	☐	☒	

Completion

	Name and position	Signature	Date
Prepared:	[Name] Project Town Planning Consultant		[Insert date]
Reviewed:	[Name] Project Manager		

APPENDIX B

ENGINEERING BOREHOLE LOGS

BOREHOLE LOG

BH ID: BH1

Location	Corner Wharf Road and Hope Street, Melrose Park			**Started**	02 December 2024
Client	NSW Dept of Education - School Infrastructure (SINSW)			**Completed**	02 December 2024
Job No.	20468/4			**Logged By**	JH **Date** 02 December 2024
Sheets	1 of 1			**Review By**	JH **Date** 02 December 2024
Drilling Contractor	Terratest	**Surface RL**	≈16.26 m (AHD)	**Latitude**	-
Plant	Comacchio track mounted Geo 305	**Inclination**	90°	**Longitude**	-

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH1_0.00-0.15 PID = 0.0 PPM BH1_0.20-0.30 BH1_0.20-0.40 BH1_0.20-0.40 PID = 0.0 PPM BH1_0.80-1.00 BH1_1.00-1.10 BH1_1.00-1.32 SPT 1.00-1.32 20,10,8/20 mm HB N=R PID = 0.0 PPM		0.00 0.15 0.40 1 2		16.26 16.10 15.86 13.62	FILL: Gravelly CLAY: low plasticity, grey SHALE: brown-grey, highly weathered, low to medium strength SHALE: moderately weathered, medium strength Terminated at 2.64m. Auger refusal on bedrock.	- - M	-	FILL BEDROCK

BOREHOLE LOG

BH ID: BH2

Location	Corner Wharf Road and Hope Street, Melrose Park	**Started**	02 December 2024
Client	NSW Dept of Education - School Infrastructure (SINSW)	**Completed**	03 December 2024
Job No.	20468/4	**Logged By**	JH **Date** 03 December 2024
Sheets	1 of 1	**Review By**	JH **Date** 03 December 2024
Drilling Contractor	Terratest	**Surface RL**	≈16.00 m (AHD) **Latitude** -
Plant	Comacchio track mounted Geo 305	**Inclination**	90° **Longitude** -

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH2_0.00-0.15 PID = 0.0 PPM BH2_0.30-0.50 BH2_0.35-0.45 PID = 0.0 PPM		0.00		16.00	FILL: Gravelly CLAY: low plasticity, brown-grey	D - M		FILL
				0.30		15.70	SHALE: brown-grey, highly to moderately weathered, low strength with clay lenses			WEATHERED ROCK
		BH2_1.50-1.95 SPT 1.50-1.95 10,12,18 N=30		2.00		14.00	SHALE: grey, moderately weathered, low to medium strength			BEDROCK
						13.05	Terminated at 2.95m. Auger refusal on bedrock.			

BOREHOLE LOG

BH ID: BH3

Location	Corner Wharf Road and Hope Street, Melrose Park			**Started**	03 December 2024
Client	NSW Dept of Education - School Infrastructure (SINSW)			**Completed**	03 December 2024
Job No.	20468/4			**Logged By**	JH **Date** 03 December 2024
Sheets	1 of 1			**Review By**	JH **Date** 03 December 2024
Drilling Contractor	Terratest	**Surface RL**	≈15.48 m (AHD)	**Latitude**	-
Plant	Comacchio track mounted Geo 305	**Inclination**	90°	**Longitude**	-

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH3_0.00-0.15 BH3_0.10-0.30 PID = 0.0 PPM BH3_0.35-0.45 PID = 0.0 PPM BH3_0.70-0.74 SPT 0.70-0.74 RW/40 mm, 10/40 mm HB N=R		0.00		15.48	Silty CLAY: medium to high plasticity, brown mottled grey with shale fragments			RESIDUAL SOIL
				0.30		15.18	SHALE: grey, highly to moderately weathered, low to medium strength			BEDROCK
				0.80		14.68	Terminated at 0.80m. Auger refusal on bedrock.			

BOREHOLE LOG

BH ID: BH4

Location	Corner Wharf Road and Hope Street, Melrose Park			**Started**	02 December 2024	
Client	NSW Dept of Education - School Infrastructure (SINSW)			**Completed**	02 December 2024	
Job No.	20468/4			**Logged By**	JH	**Date**	02 December 2024
Sheets	1 of 1			**Review By**	JH	**Date**	02 December 2024
Drilling Contractor	Terratest	**Surface RL**	≈16.04 m (AHD)	**Latitude**	-		
Plant	Comacchio track mounted Geo 305	**Inclination**	90°	**Longitude**	-		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH4_0.00-0.15 PID = 0.0 PPM BH4_0.20-0.30 BH4_0.20-0.40 BH4_0.20-0.40 PID = 0.0 PPM		0.00		16.04	FILL: Gravelly CLAY: low plasticity, grey	- - M	-	FILL
				0.15		15.89	SHALE: brown-grey, highly to moderately weathered, low to medium strength			BEDROCK
				0.70		15.34	From 0.70m, moderately weathered, medium strength			
		BH4_1.20-1.30 BH4_1.20-1.40 PID = 0.0 PPM		1						
		BH4_1.50-1.63 SPT 1.50-1.63 18/130 mm HB N=R				14.41	Terminated at 1.63m. SPT refusal on bedrock.			
				2						
				3						
				4						
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE LOG

BH ID: BH5

Location	Corner Wharf Road and Hope Street, Melrose Park			**Started**	03 December 2024	
Client	NSW Dept of Education - School Infrastructure (SINSW)			**Completed**	03 December 2024	
Job No.	20468/4			**Logged By**	JH	**Date**	03 December 2024
Sheets	1 of 1			**Review By**	JH	**Date**	03 December 2024
Drilling Contractor	Terratest	**Surface RL**	≈15.21 m (AHD)	**Latitude**	-		
Plant	Comacchio track mounted Geo 305	**Inclination**	90°	**Longitude**	-		

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	DCP BLOWS	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH5_0.00-0.15 BH5_0.00-0.18 PID = 0.0 PPM BH5_0.20-0.40 BH5_0.40-0.60 BH5_0.50-0.85 SPT 0.50-0.85		0.00		15.21	Silty CLAY: medium to high plasticity, brown mottled grey	M ≈ PL - M < PL	F - St	4, 7, 5, 4, 3, 3, 3, 3	RESIDUAL SOIL
		3,4,12/50 mm HB N=R		0.80		14.41 14.36	SHALE: grey, highly to moderately weathered, low to medium strength, with ironstone Terminated at 0.85m. SPT, Auger & DCP Refusal on bedrock.			8/50mm	BEDROCK

DCP BLOWS: 0 5 10 15 20 25 30

APPENDIX C

PID CALIBRATION SHEETS

GEOTECHNIQUE PTY LTD

PID CALIBRATION

CLIENT	SINSW	JOB NO	20468/5
PROJECT	Proposed School	DATE	2/12/24
ADDRESS	Corner Wharf Rd & Hope Street, Melrose Park	CHECKED BY	JH
PID MODEL	**PID MODEL: PGM – 7600 MINIRAE 2000**	CALIBRATED BY	JH
SERIAL NO	**SERIAL NO: 110 – 005380**		

This performance of this PID has been checked and calibrated as follows:

☒ **Charged***

☒ **Calibrate** **0.0ppm** **Reading:** 0.0 **ppm**

100ppm **Isobutylene** **Reading:** 100 **ppm**

Gas Bottle Number 173 **Lot No** 51809

Signed & Approved Date: 2/12/24

Note: * Should be between 5.V and 6.2V

GEOTECHNIQUE
PTY LTD

PID CALIBRATION

CLIENT	DINSW	JOB NO	20468/5
PROJECT	Proposed School	DATE	3/12/24
ADDRESS	Corner Wharf Rd & Hope St, Melrose Park	CHECKED BY	JH
PID MODEL	**PID MODEL: PGM – 7600 MINIRAE 2000**	CALIBRATED BY	JH
SERIAL NO	**SERIAL NO: 110 – 005380**		

This performance of this PID has been checked and calibrated as follows:

☒ **Charged***

☒ **Calibrate** **0.0ppm** **Reading:** 0.0 **ppm**

100ppm **Isobutylene** **Reading:** 100 **ppm**

Gas Bottle Number 173 **Lot No** 51809

Signed & Approved _____ Date: 3/12/24

Note: * Should be between 5.V and 6.2V

APPENDIX D

LABORATORY ANALYTICAL REPORTS & CERTIFICATE OF ANALYSIS

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	John Xu
Client	Geotechnique
Address	P.O. Box 880 NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	john.xu@geotech.com.au
Project	**20468/5 Melrose Park**
Order Number	**20468/5**
Samples	16

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE275273 R1**
Date Received	4/12/2024
Date Reported	13/12/2024

COMMENTS

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

This report cancels and supersedes the report No. SE275273 R0 dated 11.12.2024 issued by SGS Environment, Health and Safety due to modifying the sampling date error on some of the samples.

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Laboratory Manager

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012	TS1 SOIL - 2/12/2024 SE275273.015	TS2 SOIL - 3/12/2024 SE275273.016
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[86%]	[110%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[86%]	[109%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[88%]	[112%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[89%]	[109%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[89%]	[109%]
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	-	-
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	-	-
Total BTEX*	mg/kg	0.3	<0.3	<0.3	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (NEPM/WHO 16)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.1	<0.1	<0.1	<0.1
Total PAH (NEPM/WHO 16)	mg/kg	0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN420] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN420] Tested: 5/12/2024 (continued)

PARAMETER	UOM	LOR	DDS1 CLAY - 2/12/2024 SE275273.012
Alpha BHC	mg/kg	0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1
Endrin	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1

OP Pesticides in Soil [AN420] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	DDS1 CLAY - 2/12/2024 SE275273.012
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	DDS1 CLAY - 2/12/2024 SE275273.012
Arochlor 1016	mg/kg	0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1

pH in soil (1:5) [AN101] Tested: 9/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 1.0-1.1 2/12/2024 SE275273.003	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH3 CLAY 0.35-0.45 3/12/2024 SE275273.007	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
pH	pH Units	0.1	**5.5**	**7.2**	**5.0**	**4.9**	**5.6**

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010
pH	pH Units	0.1	**5.5**

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 10/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 1.0-1.1 2/12/2024 SE275273.003	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH3 CLAY 0.35-0.45 3/12/2024 SE275273.007	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	0.27	25	0.97	0.84	2.1
Exchangeable Calcium Percentage*	%	0.1	10.9	88.9	25.6	22.2	42.3
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.36	0.50	0.32	0.34	0.38
Exchangeable Potassium Percentage*	%	0.1	14.6	1.8	8.3	8.9	7.7
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	1.1	1.3	1.9	2.0	1.7
Exchangeable Magnesium Percentage*	%	0.1	45.1	4.6	50.9	53.2	34.1
Exchangeable Sodium, Na	cmol (+)/kg	0.01	0.72	1.3	0.58	0.59	0.79
Exchangeable Sodium Percentage*	%	0.1	29.3	4.7	15.2	15.7	15.9
Cation Exchange Capacity	cmol (+)/kg	0.02	2.5	28	3.8	3.8	5.0

PARAMETER	UOM	LOR	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010
Exchangeable Calcium, Ca	cmol (+)/kg	0.01	8.2
Exchangeable Calcium Percentage*	%	0.1	78.0
Exchangeable Potassium, K	cmol (+)/kg	0.01	0.46
Exchangeable Potassium Percentage*	%	0.1	4.4
Exchangeable Magnesium, Mg	cmol (+)/kg	0.02	1.1
Exchangeable Magnesium Percentage*	%	0.1	10.1
Exchangeable Sodium, Na	cmol (+)/kg	0.01	0.79
Exchangeable Sodium Percentage*	%	0.1	7.5
Cation Exchange Capacity	cmol (+)/kg	0.02	11

Total Phenolics in Soil [AN295] Tested: 9/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011
Total Phenols	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5

PARAMETER	UOM	LOR	DDS1 CLAY - 2/12/2024 SE275273.012
Total Phenols	mg/kg	0.5	<0.5

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH1 CLAY 1.0-1.1 2/12/2024 SE275273.003	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH2 CLAY 0.35-0.45 2/12/2024 SE275273.005
Arsenic, As	mg/kg	1	8	5	10	5	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	5.3	5.2	5.3	14	6.6
Copper, Cu	mg/kg	0.5	27	22	29	29	27
Lead, Pb	mg/kg	1	20	15	21	17	16
Nickel, Ni	mg/kg	0.5	7.6	4.7	7.8	16	6.0
Zinc, Zn	mg/kg	2	49	35	49	81	43

PARAMETER	UOM	LOR	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH3 CLAY 0.35-0.45 3/12/2024 SE275273.007	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH4 CLAY 0.2-0.3 2/12/2024 SE275273.009	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010
Arsenic, As	mg/kg	1	7	4	5	5	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	6.2	4.1	5.8	4.9	6.6
Copper, Cu	mg/kg	0.5	6.5	5.7	22	18	26
Lead, Pb	mg/kg	1	12	12	15	13	15
Nickel, Ni	mg/kg	0.5	<0.5	<0.5	17	3.0	6.0
Zinc, Zn	mg/kg	2	2	<2	63	25	43

PARAMETER	UOM	LOR	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
Arsenic, As	mg/kg	1	5	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	5.2
Copper, Cu	mg/kg	0.5	5.1	27
Lead, Pb	mg/kg	1	15	19
Nickel, Ni	mg/kg	0.5	<0.5	7.6
Zinc, Zn	mg/kg	2	3	49

Mercury in Soil [AN312] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH1 CLAY 1.0-1.1 2/12/2024 SE275273.003	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH2 CLAY 0.35-0.45 2/12/2024 SE275273.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH3 CLAY 0.35-0.45 3/12/2024 SE275273.007	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH4 CLAY 0.2-0.3 2/12/2024 SE275273.009	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 5/12/2024

PARAMETER	UOM	LOR	BH1 CLAY 0.0-0.15 2/12/2024 SE275273.001	BH1 CLAY 0.2-0.3 2/12/2024 SE275273.002	BH1 CLAY 1.0-1.1 2/12/2024 SE275273.003	BH2 CLAY 0.0-0.15 2/12/2024 SE275273.004	BH2 CLAY 0.35-0.45 2/12/2024 SE275273.005
% Moisture	%w/w	1	6.3	7.5	8.1	10.1	10.1

PARAMETER	UOM	LOR	BH3 CLAY 0.0-0.15 3/12/2024 SE275273.006	BH3 CLAY 0.35-0.45 3/12/2024 SE275273.007	BH4 CLAY 0.0-0.15 2/12/2024 SE275273.008	BH4 CLAY 0.2-0.3 2/12/2024 SE275273.009	BH4 CLAY 1.2-1.3 2/12/2024 SE275273.010
% Moisture	%w/w	1	12.6	12.7	6.7	7.5	8.1

PARAMETER	UOM	LOR	BH5 CLAY 0.0-0.15 3/12/2024 SE275273.011	DDS1 CLAY - 2/12/2024 SE275273.012
% Moisture	%w/w	1	20.3	6.5

VOCs in Water [AN433] Tested: 9/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
Benzene	µg/L	0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 9/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
TRH C6-C9	µg/L	40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 6/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
TRH C10-C14	µg/L	50	<50	<50
TRH C15-C28	µg/L	200	<200	<200
TRH C29-C36	µg/L	200	<200	<200
TRH C37-C40	µg/L	200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500
TRH C10-C40	µg/L	320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 6/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
Naphthalene	µg/L	0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 6/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
Arsenic, As	mg/L	0.02	<0.02	<0.02
Cadmium, Cd	mg/L	0.001	<0.001	<0.001
Chromium, Cr	mg/L	0.005	<0.005	<0.005
Copper, Cu	mg/L	0.005	**0.007**	**0.008**
Lead, Pb	mg/L	0.02	<0.02	<0.02
Nickel, Ni	mg/L	0.005	<0.005	<0.005
Zinc, Zn	mg/L	0.01	<0.01	<0.01

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 10/12/2024

PARAMETER	UOM	LOR	RS1 WATER - 2/12/2024 SE275273.013	RS2 WATER - 3/12/2024 SE275273.014
Mercury	mg/L	0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by AAS or ICP as per USEPA Method 200.8.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: ESP < 6% non-sodic ESP 6-15% sodic ESP >15% strongly sodic Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1.-
AN295	For Soil, a 1:10 NaOH extraction is made and analysed after 16 hours. The soil extract or water sample is distilled in a phosphoric acid stream. Phenolic compounds in the distillate react with a reagent stream of potassium hexacyanoferrate(III) and 4-Amino-2,3-dimethyl-3-pryazolin-5-one in an alkaline medium to form a coloured complex which is analysed spectrophotometrically onboard a continuous flow analyser.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.

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

FOOTNOTES

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

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

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

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

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

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

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

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

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

STATEMENT OF QA/QC PERFORMANCE

SE275273 R1

CLIENT DETAILS

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Order Number	**20468/5**
Samples	16

LABORATORY DETAILS

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SGS Reference	**SE275273 R1**
Date Received	04 Dec 2024
Date Reported	13 Dec 2024

COMMENTS

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

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

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	14 Soil/Clay, 2 Wate	Type of documentation received	COC
Date documentation received	4/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.6°C
Sample container provider	SGS	Turnaround time requested	Three Days/Standar
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE275273 R1

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

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.003	LB332665	02 Dec 2024	04 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	10 Dec 2024
BH2	SE275273.004	LB332665	02 Dec 2024	04 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	10 Dec 2024
BH3	SE275273.006	LB332665	03 Dec 2024	04 Dec 2024	31 Dec 2024	10 Dec 2024	31 Dec 2024	10 Dec 2024
BH3	SE275273.007	LB332665	03 Dec 2024	04 Dec 2024	31 Dec 2024	10 Dec 2024	31 Dec 2024	10 Dec 2024
BH4	SE275273.008	LB332665	02 Dec 2024	04 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	10 Dec 2024
BH4	SE275273.010	LB332665	02 Dec 2024	04 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	10 Dec 2024

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332697	02 Dec 2024	04 Dec 2024	30 Dec 2024	10 Dec 2024	30 Dec 2024	11 Dec 2024
RS2	SE275273.014	LB332697	03 Dec 2024	04 Dec 2024	31 Dec 2024	10 Dec 2024	31 Dec 2024	11 Dec 2024

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH1	SE275273.002	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH1	SE275273.003	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH2	SE275273.004	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH2	SE275273.005	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH3	SE275273.006	LB332342	03 Dec 2024	04 Dec 2024	31 Dec 2024	05 Dec 2024	31 Dec 2024	11 Dec 2024
BH3	SE275273.007	LB332342	03 Dec 2024	04 Dec 2024	31 Dec 2024	05 Dec 2024	31 Dec 2024	11 Dec 2024
BH4	SE275273.008	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH4	SE275273.009	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH4	SE275273.010	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024
BH5	SE275273.011	LB332342	03 Dec 2024	04 Dec 2024	31 Dec 2024	05 Dec 2024	31 Dec 2024	11 Dec 2024
DDS1	SE275273.012	LB332342	02 Dec 2024	04 Dec 2024	30 Dec 2024	05 Dec 2024	30 Dec 2024	11 Dec 2024

Metals in Water (Dissolved) by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332399	02 Dec 2024	04 Dec 2024	31 May 2025	06 Dec 2024	31 May 2025	06 Dec 2024
RS2	SE275273.014	LB332399	03 Dec 2024	04 Dec 2024	01 Jun 2025	06 Dec 2024	01 Jun 2025	06 Dec 2024

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH1	SE275273.002	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH1	SE275273.003	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH2	SE275273.004	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH2	SE275273.005	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH3	SE275273.006	LB332352	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH3	SE275273.007	LB332352	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH4	SE275273.008	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH4	SE275273.009	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH4	SE275273.010	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
BH5	SE275273.011	LB332352	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024
DDS1	SE275273.012	LB332352	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	10 Dec 2024	09 Dec 2024

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH1	SE275273.002	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH2	SE275273.004	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH3	SE275273.006	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.008	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.010	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH5	SE275273.011	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
DDS1	SE275273.012	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH1	SE275273.002	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH2	SE275273.004	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024

HOLDING TIME SUMMARY

SE275273 R1

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

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

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

OP Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3	SE275273.006	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.008	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.010	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH5	SE275273.011	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
DDS1	SE275273.012	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH1	SE275273.002	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH2	SE275273.004	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH3	SE275273.006	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.008	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH4	SE275273.010	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
BH5	SE275273.011	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024
DDS1	SE275273.012	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	09 Dec 2024

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332358	02 Dec 2024	04 Dec 2024	09 Dec 2024	06 Dec 2024	15 Jan 2025	11 Dec 2024
RS2	SE275273.014	LB332358	03 Dec 2024	04 Dec 2024	10 Dec 2024	06 Dec 2024	15 Jan 2025	11 Dec 2024

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH1	SE275273.002	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH2	SE275273.004	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH3	SE275273.006	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH4	SE275273.008	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH4	SE275273.010	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
BH5	SE275273.011	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024
DDS1	SE275273.012	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	11 Dec 2024

pH in soil (1:5)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.003	LB332549	02 Dec 2024	04 Dec 2024	09 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024
BH2	SE275273.004	LB332549	02 Dec 2024	04 Dec 2024	09 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024
BH3	SE275273.006	LB332549	03 Dec 2024	04 Dec 2024	10 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024
BH3	SE275273.007	LB332549	03 Dec 2024	04 Dec 2024	10 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024
BH4	SE275273.008	LB332549	02 Dec 2024	04 Dec 2024	09 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024
BH4	SE275273.010	LB332549	02 Dec 2024	04 Dec 2024	09 Dec 2024	09 Dec 2024	10 Dec 2024	09 Dec 2024

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN295

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332584	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	09 Dec 2024
BH2	SE275273.004	LB332584	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	09 Dec 2024
BH4	SE275273.008	LB332584	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	09 Dec 2024
BH4	SE275273.010	LB332584	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	09 Dec 2024
BH5	SE275273.011	LB332584	03 Dec 2024	04 Dec 2024	17 Dec 2024	09 Dec 2024	17 Dec 2024	09 Dec 2024
DDS1	SE275273.012	LB332584	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	09 Dec 2024

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH1	SE275273.002	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH1	SE275273.003	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH2	SE275273.004	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH2	SE275273.005	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH3	SE275273.006	LB332339	03 Dec 2024	04 Dec 2024	01 Jun 2025	05 Dec 2024	01 Jun 2025	10 Dec 2024
BH3	SE275273.007	LB332339	03 Dec 2024	04 Dec 2024	01 Jun 2025	05 Dec 2024	01 Jun 2025	10 Dec 2024
BH4	SE275273.008	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH4	SE275273.009	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024
BH4	SE275273.010	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024

HOLDING TIME SUMMARY

SE275273 R1

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

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5	SE275273.011	LB332339	03 Dec 2024	04 Dec 2024	01 Jun 2025	05 Dec 2024	01 Jun 2025	10 Dec 2024
DDS1	SE275273.012	LB332339	02 Dec 2024	04 Dec 2024	31 May 2025	05 Dec 2024	31 May 2025	10 Dec 2024

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH1	SE275273.002	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH2	SE275273.004	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH3	SE275273.006	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH4	SE275273.008	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH4	SE275273.010	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
BH5	SE275273.011	LB332329	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024
DDS1	SE275273.012	LB332329	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	14 Jan 2025	10 Dec 2024

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332358	02 Dec 2024	04 Dec 2024	09 Dec 2024	06 Dec 2024	15 Jan 2025	11 Dec 2024
RS2	SE275273.014	LB332358	03 Dec 2024	04 Dec 2024	10 Dec 2024	06 Dec 2024	15 Jan 2025	11 Dec 2024

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH1	SE275273.002	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH2	SE275273.004	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH3	SE275273.006	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	09 Dec 2024
BH4	SE275273.008	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH4	SE275273.010	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH5	SE275273.011	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	09 Dec 2024
DDS1	SE275273.012	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
TS1	SE275273.015	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
TS2	SE275273.016	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	09 Dec 2024

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332543	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	11 Dec 2024
RS2	SE275273.014	LB332543	03 Dec 2024	04 Dec 2024	17 Dec 2024	09 Dec 2024	17 Dec 2024	11 Dec 2024

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE275273.001	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH1	SE275273.002	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH2	SE275273.004	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH3	SE275273.006	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	09 Dec 2024
BH4	SE275273.008	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH4	SE275273.010	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
BH5	SE275273.011	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	09 Dec 2024
DDS1	SE275273.012	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	09 Dec 2024
TS1	SE275273.015	LB332345	02 Dec 2024	04 Dec 2024	16 Dec 2024	05 Dec 2024	16 Dec 2024	10 Dec 2024
TS2	SE275273.016	LB332345	03 Dec 2024	04 Dec 2024	17 Dec 2024	05 Dec 2024	17 Dec 2024	10 Dec 2024

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RS1	SE275273.013	LB332543	02 Dec 2024	04 Dec 2024	16 Dec 2024	09 Dec 2024	16 Dec 2024	11 Dec 2024
RS2	SE275273.014	LB332543	03 Dec 2024	04 Dec 2024	17 Dec 2024	09 Dec 2024	17 Dec 2024	11 Dec 2024

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

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

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1	SE275273.001	%	60 - 130%	101
	BH2	SE275273.004	%	60 - 130%	102
	BH3	SE275273.006	%	60 - 130%	98
	BH4	SE275273.008	%	60 - 130%	104
	BH5	SE275273.011	%	60 - 130%	103
	DDS1	SE275273.012	%	60 - 130%	102

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE275273.001	%	60 - 130%	97
	BH2	SE275273.004	%	60 - 130%	96
	BH3	SE275273.006	%	60 - 130%	93
	BH4	SE275273.008	%	60 - 130%	98
	BH5	SE275273.011	%	60 - 130%	94
	DDS1	SE275273.012	%	60 - 130%	96
d14-p-terphenyl (Surrogate)	BH1	SE275273.001	%	60 - 130%	98
	BH2	SE275273.004	%	60 - 130%	99
	BH3	SE275273.006	%	60 - 130%	96
	BH4	SE275273.008	%	60 - 130%	101
	BH5	SE275273.011	%	60 - 130%	100
	DDS1	SE275273.012	%	60 - 130%	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE275273.001	%	70 - 130%	97
	BH1	SE275273.002	%	70 - 130%	98
	BH2	SE275273.004	%	70 - 130%	96
	BH3	SE275273.006	%	70 - 130%	93
	BH4	SE275273.008	%	70 - 130%	98
	BH4	SE275273.010	%	70 - 130%	100
	BH5	SE275273.011	%	70 - 130%	94
	DDS1	SE275273.012	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	BH1	SE275273.001	%	70 - 130%	98
	BH1	SE275273.002	%	70 - 130%	99
	BH2	SE275273.004	%	70 - 130%	99
	BH3	SE275273.006	%	70 - 130%	96
	BH4	SE275273.008	%	70 - 130%	101
	BH4	SE275273.010	%	70 - 130%	102
	BH5	SE275273.011	%	70 - 130%	100
	DDS1	SE275273.012	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	BH1	SE275273.001	%	70 - 130%	92
	BH1	SE275273.002	%	70 - 130%	91
	BH2	SE275273.004	%	70 - 130%	91
	BH3	SE275273.006	%	70 - 130%	89
	BH4	SE275273.008	%	70 - 130%	93
	BH4	SE275273.010	%	70 - 130%	94
	BH5	SE275273.011	%	70 - 130%	91
	DDS1	SE275273.012	%	70 - 130%	90

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RS1	SE275273.013	%	40 - 130%	90
	RS2	SE275273.014	%	40 - 130%	88
d14-p-terphenyl (Surrogate)	RS1	SE275273.013	%	40 - 130%	90
	RS2	SE275273.014	%	40 - 130%	94
d5-nitrobenzene (Surrogate)	RS1	SE275273.013	%	40 - 130%	86
	RS2	SE275273.014	%	40 - 130%	82

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1	SE275273.001	%	60 - 130%	101
	BH2	SE275273.004	%	60 - 130%	102
	BH3	SE275273.006	%	60 - 130%	98

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

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

PCBs in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH4	SE275273.008	%	60 - 130%	104
	BH5	SE275273.011	%	60 - 130%	103
	DDS1	SE275273.012	%	60 - 130%	102

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE275273.001	%	60 - 130%	103
	BH1	SE275273.002	%	60 - 130%	105
	BH2	SE275273.004	%	60 - 130%	102
	BH3	SE275273.006	%	60 - 130%	97
	BH4	SE275273.008	%	60 - 130%	97
	BH4	SE275273.010	%	60 - 130%	107
	BH5	SE275273.011	%	60 - 130%	86
	DDS1	SE275273.012	%	60 - 130%	98
d4-1,2-dichloroethane (Surrogate)	BH1	SE275273.001	%	60 - 130%	110
	BH1	SE275273.002	%	60 - 130%	113
	BH2	SE275273.004	%	60 - 130%	106
	BH3	SE275273.006	%	60 - 130%	104
	BH4	SE275273.008	%	60 - 130%	110
	BH4	SE275273.010	%	60 - 130%	110
	BH5	SE275273.011	%	60 - 130%	91
	DDS1	SE275273.012	%	60 - 130%	112
d8-toluene (Surrogate)	BH1	SE275273.001	%	60 - 130%	122
	BH1	SE275273.002	%	60 - 130%	125
	BH2	SE275273.004	%	60 - 130%	120
	BH3	SE275273.006	%	60 - 130%	117
	BH4	SE275273.008	%	60 - 130%	122
	BH4	SE275273.010	%	60 - 130%	130
	BH5	SE275273.011	%	60 - 130%	101
	DDS1	SE275273.012	%	60 - 130%	124

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RS1	SE275273.013	%	40 - 130%	102
	RS2	SE275273.014	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	RS1	SE275273.013	%	40 - 130%	97
	RS2	SE275273.014	%	40 - 130%	97
d8-toluene (Surrogate)	RS1	SE275273.013	%	40 - 130%	87
	RS2	SE275273.014	%	40 - 130%	88

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE275273.001	%	60 - 130%	103
	BH1	SE275273.002	%	60 - 130%	105
	BH2	SE275273.004	%	60 - 130%	102
	BH3	SE275273.006	%	60 - 130%	97
	BH4	SE275273.008	%	60 - 130%	97
	BH4	SE275273.010	%	60 - 130%	107
	BH5	SE275273.011	%	60 - 130%	86
	DDS1	SE275273.012	%	60 - 130%	98
d4-1,2-dichloroethane (Surrogate)	BH1	SE275273.001	%	60 - 130%	110
	BH1	SE275273.002	%	60 - 130%	113
	BH2	SE275273.004	%	60 - 130%	106
	BH3	SE275273.006	%	60 - 130%	104
	BH4	SE275273.008	%	60 - 130%	110
	BH4	SE275273.010	%	60 - 130%	110
	BH5	SE275273.011	%	60 - 130%	91
	DDS1	SE275273.012	%	60 - 130%	112
d8-toluene (Surrogate)	BH1	SE275273.001	%	60 - 130%	122
	BH1	SE275273.002	%	60 - 130%	125
	BH2	SE275273.004	%	60 - 130%	120
	BH3	SE275273.006	%	60 - 130%	117

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH4	SE275273.008	%	60 - 130%	122
	BH4	SE275273.010	%	60 - 130%	130
	BH5	SE275273.011	%	60 - 130%	101
	DDS1	SE275273.012	%	60 - 130%	124

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RS1	SE275273.013	%	40 - 130%	102
	RS2	SE275273.014	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	RS1	SE275273.013	%	60 - 130%	97
	RS2	SE275273.014	%	60 - 130%	97
d8-toluene (Surrogate)	RS1	SE275273.013	%	40 - 130%	87
	RS2	SE275273.014	%	40 - 130%	88

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

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

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB332697.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB332342.001	Mercury	mg/kg	0.05	<0.05

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB332399.001	Arsenic, As	mg/L	0.02	<0.02
	Cadmium, Cd	mg/L	0.001	<0.001
	Chromium, Cr	mg/L	0.005	<0.005
	Copper, Cu	mg/L	0.005	<0.005
	Lead, Pb	mg/L	0.02	<0.02
	Nickel, Ni	mg/L	0.005	<0.005
	Zinc, Zn	mg/L	0.01	<0.01

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332329.001		Alpha BHC	mg/kg	0.1	<0.1
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Lindane (gamma BHC)	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.1	<0.1
		Endrin	mg/kg	0.1	<0.1
		Beta Endosulfan	mg/kg	0.1	<0.1
		p,p'-DDD	mg/kg	0.1	<0.1
		Endrin aldehyde	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endrin ketone	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	104

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332329.001		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	99
		d14-p-terphenyl (Surrogate)	%	-	99

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332329.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	96
		2-fluorobiphenyl (Surrogate)	%	-	99
		d14-p-terphenyl (Surrogate)	%	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB332358.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	66
		2-fluorobiphenyl (Surrogate)	%	-	70
		d14-p-terphenyl (Surrogate)	%	-	82

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332329.001		Arochlor 1016	mg/kg	0.1	<0.1
		Arochlor 1232	mg/kg	0.1	<0.1
		Arochlor 1242	mg/kg	0.1	<0.1
		Arochlor 1248	mg/kg	0.1	<0.1
		Arochlor 1254	mg/kg	0.1	<0.1
		Arochlor 1260	mg/kg	0.1	<0.1
		Total PCBs	mg/kg	0.1	<0.1
	Surrogates	TCMX (Surrogate)	%	-	104

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN295

Sample Number	Parameter	Units	LOR	Result
LB332584.001	Total Phenols	mg/kg	0.5	<0.5

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

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

Sample Number	Parameter	Units	LOR

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

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

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

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

Sample Number	Parameter	Units	LOR	Result
LB332339.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB332329.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB332358.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332345.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	116
		d8-toluene (Surrogate)	%	-	129
		Bromofluorobenzene (Surrogate)	%	-	106
	Totals	Total BTEX*	mg/kg	0.3	<0.3

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB332543.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	85
		Bromofluorobenzene (Surrogate)	%	-	101

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB332345.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	116

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB332543.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	85
		Bromofluorobenzene (Surrogate)	%	-	101

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

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

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

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

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275273.010	LB332342.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE275299.006	LB332342.023	Mercury	mg/kg	0.05	0.33	0.38	44	14

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275273.010	LB332352.011	% Moisture	%w/w	1	8.1	7.9	42	2
SE275299.006	LB332352.020	% Moisture	%w/w	1	14.5	12.9	37	12

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0
			Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
			Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.53	0.51	30	5

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014	Naphthalene	mg/kg	0.1	0.1	0.2	87	65
		2-methylnaphthalene	mg/kg	0.1	0.1	0.2	86	41
		1-methylnaphthalene	mg/kg	0.1	0.1	0.2	97	37

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

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	0.3	0.4	59	17
			Fluorene	mg/kg	0.1	0.3	0.3	65	12
			Phenanthrene	mg/kg	0.1	0.9	1.2	40	36
			Anthracene	mg/kg	0.1	0.1	0.2	101	28
			Fluoranthene	mg/kg	0.1	1.1	1.4	38	17
			Pyrene	mg/kg	0.1	1.0	1.2	39	17
			Benzo(a)anthracene	mg/kg	0.1	0.5	0.5	49	1
			Chrysene	mg/kg	0.1	0.7	0.8	43	6
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.5	0.5	50	10
			Benzo(k)fluoranthene	mg/kg	0.1	0.5	0.4	51	21
			Benzo(b&j&k)fluoranthene	mg/kg	0.2	1.0	1.0	50	5
			Benzo(a)pyrene	mg/kg	0.1	0.5	0.5	50	7
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.4	0.3	57	12
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	144	0
			Benzo(ghi)perylene	mg/kg	0.1	0.4	0.3	60	14
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.7	0.7	38	6
				TEQ (mg/kg)	0.2	0.7	0.7	38	6
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.8	0.7	37	6
				TEQ (mg/kg)	0.2	0.8	0.7	37	6
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.8	0.8	47	5
				TEQ (mg/kg)	0.3	0.8	0.8	47	5
			Total PAH (18)	mg/kg	0.1	7.6	8.7	31	13
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.47	0.42	30	12
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.49	0.47	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.50	0.49	30	3

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0
			Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0
			Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	TCMX (Surrogate)	mg/kg	-	0.53	0.51	30	5

pH in soil (1:5)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275273.010	LB332549.024	pH	pH Units	0.1	5.5	5.6	32	1
SE275331.010	LB332549.014	pH	pH Units	0.1	6.5	6.7	32	3

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN295

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275273.012	LB332584.010	Total Phenols	mg/kg	0.5	<0.5	<0.5	200	0

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275273.010	LB332339.014	Arsenic, As	mg/kg	1	8	9	42	3
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	6.6	6.2	38	7
		Copper, Cu	mg/kg	0.5	26	22	32	15
		Nickel, Ni	mg/kg	0.5	6.0	5.1	39	17
		Lead, Pb	mg/kg	1	15	13	37	16
		Zinc, Zn	mg/kg	2	43	35	35	19
SE275299.006	LB332339.023	Arsenic, As	mg/kg	1	4	4	54	12
		Cadmium, Cd	mg/kg	0.3	0.7	0.8	70	6
		Chromium, Cr	mg/kg	0.5	46	43	31	7

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

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

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

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

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

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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.006	LB332339.023		Copper, Cu	mg/kg	0.5	1700	1500	30	8
			Nickel, Ni	mg/kg	0.5	46	58	31	24
			Lead, Pb	mg/kg	1	69	65	31	6
			Zinc, Zn	mg/kg	2	2200	1900	30	12

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.002	LB332329.014		TRH C10-C14	mg/kg	20	34	48	79	34
			TRH C15-C28	mg/kg	45	480	550	39	13
			TRH C29-C36	mg/kg	45	420	480	40	12
			TRH C37-C40	mg/kg	100	240	260	70	7
			TRH C10-C36 Total	mg/kg	110	940	1100	41	13
			TRH >C10-C40 Total (F bands)	mg/kg	210	1200	1300	47	11
		TRH F Bands	TRH >C10-C16	mg/kg	25	63	88	63	32
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	63	88	63	32
			TRH >C16-C34 (F3)	mg/kg	90	790	880	41	11
			TRH >C34-C40 (F4)	mg/kg	120	330	360	65	8
SE275299.006	LB332329.019		TRH C10-C14	mg/kg	20	35	37	85	6
			TRH C15-C28	mg/kg	45	440	550	39	21
			TRH C29-C36	mg/kg	45	740	830	36	11
			TRH C37-C40	mg/kg	100	550	610	47	10
			TRH C10-C36 Total	mg/kg	110	1200	1400	38	15
			TRH >C10-C40 Total (F bands)	mg/kg	210	1800	2000	41	13
		TRH F Bands	TRH >C10-C16	mg/kg	25	41	43	90	5
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	41	43	90	5
			TRH >C16-C34 (F3)	mg/kg	90	1000	1200	38	17
			TRH >C34-C40 (F4)	mg/kg	120	730	800	46	9

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275261.001	LB332358.028		TRH C10-C14	µg/L	50	200	190	56	9
			TRH C15-C28	µg/L	200	890	890	52	0
			TRH C29-C36	µg/L	200	660	660	60	1
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	1900	1900	47	1
		TRH F Bands	TRH >C10-C16	µg/L	60	310	290	50	6
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	310	290	50	6
			TRH >C16-C34 (F3)	µg/L	500	1400	1400	66	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.001	LB332345.023	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	173	0
			m/p-xylene	mg/kg	0.2	0.3	<0.2	119	26
			o-xylene	mg/kg	0.1	0.2	0.2	78	31
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.6	9.2	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.9	9.8	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.7	50	3
		Totals	Total BTEX*	mg/kg	0.3	0.5	<0.3	119	50
			Total Xylenes*	mg/kg	0.3	0.5	0.4	99	31
SE275299.006	LB332345.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	0.4	0.3	88	53
			o-xylene	mg/kg	0.1	0.6	0.4	51	48
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	0.1	<0.1	134	2
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11	11	50	3
			d8-toluene (Surrogate)	mg/kg	-	10	10	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	10	8.9	50	13

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

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

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

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

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

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.006	LB332345.021	Totals	Total BTEX*	mg/kg	0.3	1.0	0.6	67	50
			Total Xylenes*	mg/kg	0.3	1.0	0.6	67	50

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275247.002	LB332543.030	Monocyclic	Benzene	µg/L	0.5	<5	<5	200	0
		Aromatic	Toluene	µg/L	0.5	<5	<5	126	0
			Ethylbenzene	µg/L	0.5	<5	<5	200	0
			m/p-xylene	µg/L	1	<10	<10	189	0
			o-xylene	µg/L	0.5	<5	<5	167	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<5	<5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	8.3	30	16
			d8-toluene (Surrogate)	µg/L	-	8.4	9.1	30	7
			Bromofluorobenzene (Surrogate)	µg/L	-	10	9.0	30	11
		Totals	Total BTEX	µg/L	3	<30	<30	200	0
SE275273.014	LB332543.029	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	8.1	30	18
			d8-toluene (Surrogate)	µg/L	-	8.8	8.9	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	8.6	30	18
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275299.001	LB332345.023		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.6	9.2	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.9	9.8	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.7	50	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE275299.006	LB332345.021		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11	11	50	3
			d8-toluene (Surrogate)	mg/kg	-	10	10	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	10	8.9	50	13
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275247.002	LB332543.030		TRH C6-C10	µg/L	50	<500	<500	136	0
			TRH C6-C9	µg/L	40	<400	<400	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	8.3	30	16
			d8-toluene (Surrogate)	µg/L	-	8.4	9.1	30	7
			Bromofluorobenzene (Surrogate)	µg/L	-	10	9.0	30	11
		VPH F Bands	Benzene (F0)	µg/L	0.5	<5	<5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<500	<500	136	0
SE275273.014	LB332543.029		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	8.1	30	18
			d8-toluene (Surrogate)	µg/L	-	8.8	8.9	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	8.6	30	18
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332342.002	Mercury	mg/kg	0.05	0.22	0.2	80 - 120	111

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332399.002	Arsenic, As	mg/L	0.02	0.57	0.5	80 - 120	113
	Cadmium, Cd	mg/L	0.001	0.53	0.5	80 - 120	106
	Chromium, Cr	mg/L	0.005	0.52	0.5	80 - 120	105
	Copper, Cu	mg/L	0.005	0.54	0.5	80 - 120	107
	Lead, Pb	mg/L	0.02	0.52	0.5	80 - 120	105
	Nickel, Ni	mg/L	0.005	0.52	0.5	80 - 120	104
	Zinc, Zn	mg/L	0.01	0.55	0.5	80 - 120	111

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332329.002		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	104
		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	97
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	120
		Dieldrin	mg/kg	0.1	0.2	0.2	60 - 140	118
		Endrin	mg/kg	0.1	0.3	0.2	60 - 140	138
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	70
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.55	0.5	40 - 130	109

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332329.002		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	2	60 - 140	110
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	101
		Dichlorvos	mg/kg	0.5	2.0	2	60 - 140	98
		Ethion	mg/kg	0.2	2.0	2	60 - 140	102
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	104
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	101

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332329.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	104
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
		Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	106
		Phenanthrene	mg/kg	0.1	4.7	4	60 - 140	118
		Anthracene	mg/kg	0.1	4.5	4	60 - 140	112
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	113
		Benzo(a)pyrene	mg/kg	0.1	5.3	4	60 - 140	132
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.50	0.5	70 - 130	99
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.52	0.5	70 - 130	104
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.50	0.5	70 - 130	101

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332358.002		Naphthalene	µg/L	0.1	33	40	60 - 140	81
		Acenaphthylene	µg/L	0.1	37	40	60 - 140	91
		Acenaphthene	µg/L	0.1	38	40	60 - 140	95
		Phenanthrene	µg/L	0.1	42	40	60 - 140	104
		Anthracene	µg/L	0.1	42	40	60 - 140	105
		Fluoranthene	µg/L	0.1	42	40	60 - 140	105
		Pyrene	µg/L	0.1	41	40	60 - 140	103
		Benzo(a)pyrene	µg/L	0.1	44	40	60 - 140	109
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	76
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	96

PCBs in Soil

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

Sample Number	Parameter	Units	LOR

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

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

PCBs in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332329.002		Arochlor 1260	mg/kg	0.1	0.4	0.4	60 - 140	107
	Surrogates	TCMX (Surrogate)	mg/kg	-	0.55	0.5	40 - 130	109

pH in soil (1:5)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332549.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN295

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332584.002	Total Phenols	mg/kg	0.5	19	20	80 - 120	97

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332339.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	4.2	4.81	70 - 130	87
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	102
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	96
	Zinc, Zn	mg/kg	2	260	273	80 - 120	96

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332329.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	99
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	92
	TRH F Bands	TRH >C10-C16	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	92
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	93

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332358.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	91
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	101
		TRH C29-C36	µg/L	200	1200	1200	60 - 140	100
	TRH F Bands	TRH >C10-C16	µg/L	60	1200	1200	60 - 140	98
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	102
		TRH >C34-C40 (F4)	µg/L	500	600	600	60 - 140	100

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332345.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	5.2	5	60 - 140	104
		Toluene	mg/kg	0.1	6.1	5	60 - 140	123
		Ethylbenzene	mg/kg	0.1	5.0	5	60 - 140	100
		m/p-xylene	mg/kg	0.2	9.8	10	60 - 140	98
		o-xylene	mg/kg	0.1	5.2	5	60 - 140	105

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332543.002	Monocyclic Aromatic	Benzene	µg/L	0.5	52	45.45	60 - 140	115
		Toluene	µg/L	0.5	50	45.45	60 - 140	111
		Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	114
		m/p-xylene	µg/L	1	100	90.9	60 - 140	113
		o-xylene	µg/L	0.5	52	45.45	60 - 140	114
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.0	10	60 - 140	100
		d8-toluene (Surrogate)	µg/L	-	10.0	10	70 - 130	100
		Bromofluorobenzene (Surrogate)	µg/L	-	10.4	10	70 - 130	104

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332345.002		TRH C6-C10	mg/kg	25	75	92.5	60 - 140	82
		TRH C6-C9	mg/kg	20	63	80	60 - 140	79
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	62.5	60 - 140	71

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB332543.002		TRH C6-C10	µg/L	50	760	946.63	60 - 140	81
		TRH C6-C9	µg/L	40	680	818.71	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.0	10	60 - 140	100
		d8-toluene (Surrogate)	µg/L	-	10.0	10	70 - 130	100
		Bromofluorobenzene (Surrogate)	µg/L	-	10.4	10	70 - 130	104
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	450	639.67	60 - 140	71

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332342.004	Mercury	mg/kg	0.05	0.26	<0.05	0.2	113

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004		Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	106
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	92
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	114
			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	-	-
			Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.1	0.2	<0.1	0.2	111
			Endrin	mg/kg	0.1	0.2	<0.1	0.2	123
			Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.1	<0.1	0.2	69
			Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total OC Pesticides	mg/kg	0.1	1.2	<0.1	-	-
			Total OC VIC EPA IWRG621	mg/kg	0.1	1.2	<0.1	-	-
			Total Other OCP VIC EPA IWRG621	mg/kg	0.1	0.6	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.52	0.51	-	105

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	<0.2	2	108
			Diazinon (Dimpylate)	mg/kg	0.5	1.9	<0.5	2	95
			Dichlorvos	mg/kg	0.5	1.9	<0.5	2	95
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.0	<0.2	2	102
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	8.0	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	100
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004	Naphthalene	mg/kg	0.1	4.0	<0.1	4	100
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.1	<0.1	4	103
		Acenaphthene	mg/kg	0.1	4.1	<0.1	4	103
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.5	<0.1	4	113
		Anthracene	mg/kg	0.1	4.2	<0.1	4	105
		Fluoranthene	mg/kg	0.1	4.0	<0.1	4	101

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004		Pyrene	mg/kg	0.1	4.2	<0.1	4	106
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j&k)fluoranthene	mg/kg	0.2	<0.2	<0.2	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.9	<0.1	4	124
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	4.9	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	5.0	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	5.1	<0.3	-	-
			Total PAH (18)	mg/kg	0.1	34	<0.1	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.47	0.46	-	94
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.50	0.48	-	100
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.48	0.49	-	96

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1232	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1242	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1248	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1254	mg/kg	0.1	<0.1	<0.1	-	-
			Arochlor 1260	mg/kg	0.1	0.4	<0.1	0.4	105
			Total PCBs	mg/kg	0.1	0.4	<0.1	-	-
		Surrogates	TCMX (Surrogate)	mg/kg	-	0.53	0.51	-	105

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

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332339.004		Arsenic, As	mg/kg	1	46	8	50	76
			Cadmium, Cd	mg/kg	0.3	40	<0.3	50	80
			Chromium, Cr	mg/kg	0.5	45	5.3	50	80
			Copper, Cu	mg/kg	0.5	67	27	50	79
			Nickel, Ni	mg/kg	0.5	47	7.6	50	78
			Lead, Pb	mg/kg	1	59	20	50	78
			Zinc, Zn	mg/kg	2	85	49	50	72

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332329.004		TRH C10-C14	mg/kg	20	42	<20	40	104
			TRH C15-C28	mg/kg	45	60	<45	40	108
			TRH C29-C36	mg/kg	45	47	<45	40	102
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	150	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	44	<25	40	105
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	108
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332345.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	5.5	<0.1	5	110
			Toluene	mg/kg	0.1	6.3	<0.1	5	125
			Ethylbenzene	mg/kg	0.1	5.2	<0.1	5	104
			m/p-xylene	mg/kg	0.2	10	<0.2	10	100
			o-xylene	mg/kg	0.1	5.3	<0.1	5	105
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11	11	-	112
			d8-toluene (Surrogate)	mg/kg	-	13	12	-	126
			Bromofluorobenzene (Surrogate)	mg/kg	-	11	10	-	110

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

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

VOC's in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332345.004	Totals	Total BTEX*	mg/kg	0.3	32	<0.3	-	-
			Total Xylenes*	mg/kg	0.3	15	<0.3	-	-

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.013	LB332543.031	Monocyclic	Benzene	µg/L	0.5	52	<0.5	45.45	114
		Aromatic	Toluene	µg/L	0.5	52	<0.5	45.45	115
			Ethylbenzene	µg/L	0.5	50	<0.5	45.45	109
			m/p-xylene	µg/L	1	98	<1	90.9	107
			o-xylene	µg/L	0.5	49	<0.5	45.45	108
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	46	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.1	9.7	-	91
			d8-toluene (Surrogate)	µg/L	-	9.7	8.7	-	97
			Bromofluorobenzene (Surrogate)	µg/L	-	9.6	10.2	-	96
		Totals	Total BTEX	µg/L	3	300	<3	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.001	LB332345.004		TRH C6-C10	mg/kg	25	72	<25	92.5	77
			TRH C6-C9	mg/kg	20	67	<20	80	84
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11	11	-	112
			d8-toluene (Surrogate)	mg/kg	-	13	12	-	126
			Bromofluorobenzene (Surrogate)	mg/kg	-	11	10	-	110
		VPH F	Benzene (F0)	mg/kg	0.1	5.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	<25	62.5	62

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275273.013	LB332543.031		TRH C6-C10	µg/L	50	880	<50	946.63	91
			TRH C6-C9	µg/L	40	760	<40	818.71	92
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.1	9.7	-	91
			d8-toluene (Surrogate)	µg/L	-	9.7	8.7	-	97
			Bromofluorobenzene (Surrogate)	µg/L	-	9.6	10.2	-	96
		VPH F	Benzene (F0)	µg/L	0.5		<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	580	<50	639.67	88

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

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

GEOTECHNIQUE PTY LTD

1 LEMKO PLACE PENRITH NSW 2750

CHAIN OF CUSTODY

Results Required By: Normal Turnaround **Date:** Wednesday, 11 December 2024

Except pH Results Required By 3 days **Date:** Monday, 9 December 2024

Your Reference No.:

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

Sampled By: JH Ref No: 20468/5 Project Manager: JOHN XU

Location: Melrose Park

	Location	Depth (m)	Date	Soil	Water	Material	Metals As Cd Cr Cu Pb Hg Ni Zn	pH	CEC	CL8 TRH BTEX PAH	CL10 Metals* TRH BTEX PAH	CL17 Metals* TRH BTEX PAH OC OP PCB	Be B Co Mn Se	Mn	BTEX	TRH & BTEX	PAH	OCP	PCB	OCP & PCB	OPP&PCB	OCP,OPP& PCB	Cyanide	VOC	Phenol	PFAS	TCLP PAH	TCLP	Metals (Retest)
1	BH1	0.0-0.15	2/12/2024	G		Clay						✔													✔				
2	BH1	0.2-0.3	2/12/2024	G		Clay					✔																		
3	BH1	1.0-1.1	2/12/2024	G		Clay	✔	✔	✔																				
4	BH2	0.0-0.15	2/12/2024	G		Clay		✔	✔			✔														✔				
5	BH2	0.35-0.45	2/12/2024	G		Clay	✔																						
6	BH3	0.0-0.15	3/12/2024	G		Clay		✔	✔			✔																		
7	BH3	0.35-0.45	3/12/2024	G		Clay	✔	✔	✔																				
8	BH4	0.0-0.15	2/12/2024	G		Clay		✔	✔			✔														✔				
9	BH4	0.2-0.3	2/12/2024	G		Clay	✔																						
10	BH4	1.2-1.3	2/12/2024	G		Clay		✔	✔		✔															✔				
11	BH5	0.0-0.15	3/12/2024	G		Clay						✔														✔				
12	DDS1		2/12/2024	G		Clay						✔														✔				
13	RS1		2/12/2024		Vial+WG						✔																		
14	RS2		3/12/2024		Vial+WG						✔																		
15	TS1		2/12/2024	Vial											✔														
16	TS2		3/12/2004	Vial											✔														

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
JOHN XU	JX	4/12/2024			04/12/24 @ 2.40

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

SGS EHS Sydney
SE275273

SAMPLE RECEIPT ADVICE

SE275273

CLIENT DETAILS

Contact	John Xu
Client	Geotechnique
Address	P.O. Box 880 NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	john.xu@geotech.com.au
Project	**20468/5 Melrose Park**
Order Number	**20468/5**
Samples	16

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 4/12/2024
Report Due	Wed 11/12/2024
SGS Reference	**SE275273**

SUBMISSION DETAILS

This is to confirm that 16 samples were received on Wednesday 4/12/2024. Results are expected to be ready by COB Wednesday 11/12/2024.
Please quote SGS reference SE275273 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	14 Soil/Clay, 2 Water	Type of documentation received	COC
Date documentation received	4/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.6°C
Sample container provider	SGS	Turnaround time requested	Three Days/Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

SAMPLE RECEIPT ADVICE

SE275273

CLIENT DETAILS

Client Geotechnique

Project 20468/5 Melrose Park

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	pH in soil (1:5)	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1 0.0-0.15	27	14	27	8	-	10	11	7
002	BH1 0.2-0.3	-	-	27	-	-	10	11	7
003	BH1 1.0-1.1	-	-	-	-	1	-	-	-
004	BH2 0.0-0.15	27	14	27	8	1	10	11	7
006	BH3 0.0-0.15	27	14	27	8	1	10	11	7
007	BH3 0.35-0.45	-	-	-	-	1	-	-	-
008	BH4 0.0-0.15	27	14	27	8	1	10	11	7
010	BH4 1.2-1.3	-	-	27	-	1	10	11	7
011	BH5 0.0-0.15	27	14	27	8	-	10	11	7
012	DDS1	27	14	27	8	-	10	11	7
015	TS1	-	-	-	-	-	-	11	-
016	TS2	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE275273

CLIENT DETAILS

Client Geotechnique

Project 20468/5 Melrose Park

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	Mercury in Soil	Moisture Content	Total Phenolics in Soil	Total Recoverable Elements in Soil/Waste	VOCs in Water
001	BH1 0.0-0.15	-	1	1	1	7	-
002	BH1 0.2-0.3	-	-	1	-	-	-
003	BH1 1.0-1.1	9	1	1	-	7	-
004	BH2 0.0-0.15	9	1	1	1	7	-
005	BH2 0.35-0.45	-	1	1	-	7	-
006	BH3 0.0-0.15	9	1	1	-	7	-
007	BH3 0.35-0.45	9	1	1	-	7	-
008	BH4 0.0-0.15	9	1	1	1	7	-
009	BH4 0.2-0.3	-	1	1	-	7	-
010	BH4 1.2-1.3	9	1	1	1	7	-
011	BH5 0.0-0.15	-	1	1	1	7	-
012	DDS1	-	1	1	1	7	-
013	RS1	-	-	-	-	-	11
014	RS2	-	-	-	-	-	11

CONTINUED OVERLEAF

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Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE275273

CLIENT DETAILS

Client Geotechnique

Project 20468/5 Melrose Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	PAH (Polynuclear Aromatic Hydrocarbons) in Water	TRH (Total Recoverable Hydrocarbons) in Water	Volatile Petroleum Hydrocarbons in Water
013	RS1	1	7	22	9	7
014	RS2	1	7	22	9	7

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

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

CERTIFICATE OF ANALYSIS 368121

Client Details

Client	Geotechnique Pty Ltd
Attention	John Xu
Address	PO Box 880, Penrith, NSW, 2751

Sample Details

Your Reference	**20468/5, Melrose Park**
Number of Samples	1 Soil
Date samples received	04/12/2024
Date completed instructions received	04/12/2024

Analysis Details

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

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

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

Report Details

Date results requested by	11/12/2024
Date of Issue	11/12/2024

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

Results Approved By
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Jenny He, Inorganic Team Leader
Nancy Zhang, Laboratory Manager, Sydney

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	10/12/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	114

svTRH (C10-C40) in Soil		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	06/12/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	91

PAHs in Soil		
Our Reference	UNITS	368121-1
Your Reference		DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	06/12/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	71

Organochlorine Pesticides in soil		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	06/12/2024
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	75

Organophosphorus Pesticides in Soil		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	06/12/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	75

PCBs in Soil		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date extracted	-	05/12/2024
Date analysed	-	06/12/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	71

Misc Soil - Inorg		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date prepared	-	05/12/2024
Date analysed	-	06/12/2024
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil		
Our Reference	UNITS	368121-1
Your Reference		DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date prepared	-	05/12/2024
Date analysed	-	05/12/2024
Arsenic	mg/kg	10
Cadmium	mg/kg	<0.4
Chromium	mg/kg	26
Copper	mg/kg	24
Lead	mg/kg	28
Mercury	mg/kg	<0.1
Nickel	mg/kg	9
Zinc	mg/kg	42

Moisture		
Our Reference		368121-1
Your Reference	UNITS	DSS1
Date Sampled		02/12/2024
Type of sample		Soil
Date prepared	-	05/12/2024
Date analysed	-	06/12/2024
Moisture	%	17

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

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

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			09/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	105	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	107	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	68	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	85	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	85	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	92	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	74	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	76	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Fenthion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Phosalone	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	76	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	73	[NT]	[NT]	[NT]	[NT]	70	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	108	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

CoC 4/12/24, 1554

GEOTECHNIQUE PTY LTD

1 LEMKO PLACE PENRITH NSW 2750

CHAIN OF CUSTODY

Results Required By: Normal Turnaround **Date:** Wednesday, 11 December 2024

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

Your Reference No.:

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

Sampled By: JH
Project Manager: JOHN XU

Ref No: **20468/5**
Location: **Melrose Park**

Location	Depth (m)	Date	Soil	Material	Metals As Cd Cr Cu Pb Hg Ni Zn	TRH & BTEX	PAH	OCP	OP	PCB	PHENOL	CYANIDE	COMBO NO	PFAS (extended)	TCLP PFAS (water–routine level, short) (PFOS+PFHxS, PFOA)	COAL TAR (RTA Test Method T542)2
DSS1		2/12/2024	G		✔	✔	✔	✔	✔	✔	✔		8			

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
JOHN XU	JX	4/12/2024	Dannielle Luff	DLuff	04/12/24 1520

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

ENVIROLAB GROUP

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

Job No: 368121

Date Received: 04/12/24
Time Received: 1520
Received By: DLuff
Temp: Cool/Ambient
Cooling: Ice/Icepack 12°C
Security: Intact/Broken/None

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Geotechnique Pty Ltd
Attention	John Xu

Sample Login Details

Your reference	20468/5, Melrose Park
Envirolab Reference	368121
Date Sample Received	04/12/2024
Date Instructions Received	04/12/2024
Date Results Expected to be Reported	11/12/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 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	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Misc Soil - Inorg	Acid Extractable metalsin soil
DSS1	✓	✓	✓	✓	✓	✓	✓	✓

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.

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET123149 / 126329 / 1 – 5
Your ref : 20468/5 – Corner Wharf Road and Hope Street Melrose Park
NATA Accreditation No: 14484

06 December 2024

Geotechnique Pty Ltd
1 Lemko Place
Penrith NSW 2750

Accredited for compliance with ISO/IEC 17025 - Testing.

Attn: Mr John Xu

Dear John

Asbestos Identification
This report presents the results of five samples, forwarded by Geotechnique Pty Ltd on 04 December 2024, for analysis for asbestos.

1.Introduction: Five samples forwarded were examined and analysed for the presence of asbestos on 06 December 2024.

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

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

3. Results : **Sample No. 1. ASET123149 / 126329 / 1. BH1 - 0.0 - 0.15.**
Approx dimensions 10.0 cm x 10.0 cm x 9.5 cm
Approximate total dry weight of soil = 1282.0 g.
The sample consisted of a mixture of clayish sandy soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 2. ASET123149 / 126329 / 2. BH2 - 0.0 - 0.15.
Approx dimensions 10.0 cm x 10.0 cm x 9.5 cm
Approximate total dry weight of soil = 1280.0 g.
The sample consisted of a mixture of clayish sandy soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 3. ASET123149 / 126329 / 3. BH3 - 0.0 - 0.15.
Approx dimensions 10.0 cm x 10.0 cm x 7.1 cm
Approximate total dry weight of soil = 779.0 g.
The sample consisted of a mixture of clayish soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 4. ASET123149 / 126329 / 4. BH4 - 0.0 - 0.15.
Approx dimensions 10.0 cm x 10.0 cm x 9.7 cm
Approximate total dry weight of soil = 1306.0 g.
The sample consisted of a mixture of clayish sandy soil, stone, sandstone, paint flakes, plant matter and organic fibres.
No asbestos detected.

Sample No. 5. ASET123149 / 126329 / 5. BH5 - 0.0 - 0.15.
Approx dimensions 10.0 cm x 10.0 cm x 6.3 cm
Approximate total dry weight of soil = 700.0 g.
The sample consisted of a mixture of clayish soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Reported by,

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

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

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

Disclaimers;

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

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

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

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

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

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

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

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

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

CHAIN OF CUSTODY RECORD

ASET JOB NO: ASET123149/126329/1-5				Contact Name:	JOHN XU	Asbestos in Material	Asbestos in Soil (+/-)	Asbestos WA/ NEPM 500mL	Asbestos Fibre Count	Asbestos in Water	Asbestos in Dust	Lead Analysis
Name/ Company Name: Geotechnique				Job No:	20468/5							
Address: 1 Lemko Place Penrith				Project Address:	Corner Wharf Road and Hope Street, Melrose Park							
				Purchase Order:								
Contact Ph: 0247222700				Email Results to:								
	Sample ID	Date	Type	Container	Sample Depth (m)							
1	BH1	2/12/2024	Soil	P	0.0-0.15			√				
2	BH2	2/12/2024	Soil	P	0.0-0.15			√				
3	BH3	3/12/2024	Soil	P	0.0-0.15			√				
4	BH4	2/12/2024	Soil	P	0.0-0.15			√				
5	BH5	3/12/2024	Soil	P	0.0-0.15			√				
Relinquished By:		JOHN XU		Received By:		Turn around time					Shipment Method	
Date:		4/12/2024		Date & Time:	4:10 pm	Same Day	24 hrs	48 hrs	3 Days	5 days		
Signature:		JX		Signature:					✓			

RECEIVED
04 DEC 2024
BY: .....

APPENDIX E

UNEXPECTED FINDS MANAGEMENT PROTOCOL

GEOTECHNIQUE® PTY LTD
ABN 64 002 841 063
An eiaustralia company

Unexpected Finds Management Protocol
Proposed Melrose Park New High School
37 Hope Street, Melrose Park

In the event that unexpected finds and / or suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets / pieces / pipes, ash material, imported fill materials (which are different to those encountered during this and previous assessments), etc.) are encountered during future earthworks / site preparation, the following actions are to be undertaken.

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

- Works are to be ceased.
- An Environmental Consultant is to be engaged to take appropriate action.
- If contamination is identified, the contaminated materials must be disposed of at an EPA licensed landfill facility with an appropriate waste classification.

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

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

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

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

APPENDIX F

ENVIRONMENTAL NOTES

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

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

REASONS FOR AN ENVIRONMENTAL ASSESSMENT

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

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

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

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

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

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

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

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

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

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

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

STABILITY OF SUB-SURFACE CONDITIONS

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

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

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

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

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

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

LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

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

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

READ RESPONSIBILITY CLAUSES CLOSELY

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