
Report on Detailed Site (Contamination) Investigation

Proposed Research and Life Science Development

100 Botany Road, Alexandria NSW

Prepared for Kurraba Group Pty Ltd

Project 221233.03

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author		16 September 2024
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Executive Summary

This Detailed Site (Contamination) Investigation (DSI) has been prepared on behalf of the Kurraba Group (the Proponent) by Douglas Partners Pty Ltd (Douglas). It is intended to be submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) SSD-63067458 for the construction of a new health research facility located at 74-108 Botany Road and 86-100 Wyndham Street, Alexandria (herein referred to as 100 Botany Road or the site, as shown on Drawing 1, Appendix A).

The current investigation comprised review of previous desktop investigations completed by Douglas for 90-108 Botany Road and 86-100 Wyndham Street, and review of intrusive investigations completed by Alliance Geotechnical (AG) for 74-88 Botany Road. Previous reports identified key potential contamination sources including, historic on-site dry cleaner, service station and commercial activities (e.g., motor garage).

Previous information was supplemented by an intrusive soil, groundwater and soil vapour testing regime targeting previously identified potential contamination sources, and systematic site coverage.

Review of previous results (as relevant to the current proposed development) and results of the current intrusive investigation identified the following key results:

- Presence of asbestos in fill as both bonded and friable asbestos, including exceedances of adopted screening criteria protective of human health. Based on observed fill composition including building demolition materials such as brick, tile, terracotta, metal, wood, glass, charcoal, and given the limitations of test methods (boreholes) it considered that further unidentified asbestos may be present throughout the fill;
- Lead in fill, predominately within the norther half of the site, exceeding criteria protective of human health. The high concentrations are also further discussed as relating to preliminary waste classification of soils which currently indicates the potential for restricted solid waste or hazardous waste;
- Additional exceedances of screening criteria in soils protective of human health (currently identified at singular locations) for polycyclic aromatic hydrocarbons, polychlorinated biphenyls and total chromium;
- Minor exceedances of ecological criteria for metals in groundwater; and
- No significant risks are currently identified in soil vapour (i.e., as relating to chlorinated volatile hydrocarbons, or volatile hydrocarbons).

Residual risks to groundwater and soil vapour (given the nature of the potential contamination sources) are considered low based on the current results and given the proposed development requiring excavation of soils for basement formation.

Based on the results of this report it is considered that the site can be made suitable for the proposed commercial development subject to development and implementation of a remediation action plan (RAP) in accordance with NSW EPA guidelines to manage the identified contamination. The RAP is also recommended to include a data gap investigation following demolition to further assess soil contamination, primarily for waste classification purposes

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Report on Detailed Site (Contamination) Investigation Proposed Research and Life Science Development 100 Botany Road, Alexandria NSW

1. Introduction

This Detailed Site (Contamination) Investigation (DSI) has been prepared on behalf of the Kurraba Group (the Proponent) by Douglas Partners Pty Ltd (Douglas). It is intended to be submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) SSD-63067458 for the construction of a new health research facility located at 74-108 Botany Road and 86-100 Wyndham Street, Alexandria (herein referred to as 100 Botany Road or the site, as shown on Drawing 1, Appendix A).

The investigation was undertaken in accordance with Douglas' proposal 221233.02.P.001.Rev0 dated May 2024. The objective of the DSI is to assess the suitability of the site for the proposed development and whether further investigation and / or management is required.

In accordance with section 4.39 of the *Environmental Planning & Assessment Act 1979* (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) for SSD-63067458 were issued on 16 January 2024. This report has been prepared to respond to the relevant issued SEARs, as set out in the table below.

Table 1: Summary relevant SEARs

SEARs item	Section of report and comment
13. Ground and water conditions (acid sulfate soils) Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity and acid sulfate soils.	Section 5, 10, 11 and conclusions provided in Section 13 No further acid sulfate soil management considered necessary
17. Contamination and remediation In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	All sections, with conclusions provided in Section 13. This report provides comment on the suitability of the site in relation to the proposed development and recommendations for further management.

This report must be read in conjunction with all appendices including the notes provided in Appendix B. The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

2. Proposed development

It is understood that the proponent will seek consent for the redevelopment of 100 Botany Road for a new health research facility. Specifically, the SSDA seeks approval for:

- Demolition of all existing buildings, site preparation and remediation works;
- Bulk excavation to create two (2) levels of basement with access from Wyndham Street, including allowance for a below ground Proton Therapy Cancer Treatment Centre, car parking, loading and services;
- Construction and use of two (2) new health research buildings. One (1) building is proposed along Botany Road which has a stepped built form and is between seven (7) storey to the south and eleven (11) storeys to the north. One (1) building is proposed along Wyndham Street which is five (5) storeys in height. The two (2) buildings will include the following:
 - o Ground floor lobby and retail uses fronting Botany Road and Wyndham Street.
 - o Proton Therapy patient lobby from Wyndham Street.
 - o Various laboratories, write up areas and office spaces.
 - o A series of outdoor landscaped terraces within the Botany Road building.
 - o One (1) rooftop plant level on each building.
- Landscaping and public domain works including:
 - o Construction and extension of Wyndham Lane as a shared laneway.
 - o Construction of a pedestrian network including two (2) pathways from Botany Road and an east-west through-site link.
- Extension and augmentation of services and utilities to the development, as required.

3. Scope of work

The scope of work for the current investigation comprised:

- Review of previous reports and any client provided records;
- Review of supplementary desktop information including:
 - o Historical title deeds;
 - o SafeWork NSW search for storage of hazardous goods; and
 - o Additional Section 10.7 Planning Certificates (representative portion of the site).
- Set out and service locating using an accredited service locator;
- Survey and levelling of test locations using a dGPS;
- Concrete coring of test locations (hardstand surfaces);
- Drilling of to 13 test locations using hand tools to a maximum depth of 2 m;
- Collection of soil samples at regular depth intervals, changes in strata or upon signs of contamination (e.g., staining or odours), and opportunistic collection of soil samples from the five geotechnical boreholes undertaken concurrently;

- Field screening of recovered soil samples for volatile organic compounds (VOC) using a photoionisation detector (PID);
- Analysis of selected soil samples at a National Association of Testing Authorities (NATA) accredited laboratory for a general suite of potential contaminants and soil properties including:
 - o Metals / metalloids (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn);
 - o Total recoverable hydrocarbons (TRH);
 - o Benzene, toluene, ethylbenzene and xylenes (BTEX);
 - o Polycyclic aromatic hydrocarbons (PAH);
 - o Organochlorine pesticides (OCP);
 - o Organophosphorus pesticides (OPP);
 - o Polychlorinated biphenyls (PCB);
 - o Phenols;
 - o Per- and poly-fluoroalkyl substances (PFAS);
 - o Asbestos fines and fibrous asbestos (AF / FA);
 - o Asbestos (identification in soil / materials);
 - o Volatile organic compounds (VOC);
 - o Toxicity characteristic leaching procedure;
 - o pH;
 - o CEC; and
 - o Acid sulfate soils (ASS) field screening test.
- Installation of six soil vapour pins using a hand-held rotary hammer drill;
- Field screening of vapour test locations using a PID;
- Collection of four primary soil vapour samples using laboratory prepared vacuum cannisters;
- Analysis of soil vapour samples at a NATA accredited laboratory for air-phase TRH, BTEX, naphthalene, and common chlorinated VOC;
- Collection of five groundwater samples using micro-purge (low flow) techniques. General groundwater parameters will be collected prior to sampling using a water quality meter;
- Analysis of groundwater samples for the following at a NATA accredited laboratory:
 - o Metals / metalloids (including total and dissolved metals, and Iron [III]);
 - o Total petroleum hydrocarbons (TPH);
 - o BTEX;
 - o Low level PAH;
 - o Trace level OCP, OPP and PCB;
 - o Phenols;
 - o Trace PFAS (short suite);

- o VOC;
 - o Total dissolved and total suspended solids (TDS / TSS); and
 - o Hardness.
- Industry standard QA / QC testing for all sampling media, including replicate samples, trip spike / blank pairs and soil vapour field integrity / shroud tests; and
- Preparation of this report.

4. Site information

Site address	74-108 Botany Road and 86-100 Wyndham Street
Legal description	Lot 2 DP 136012 Lot 11 DP 219505 Lot 11 DP 135914 Lot 2 DP 659166 Lot 1 DP 510091 Lot 3 DP 1146614
Area	5,350.6 m ² (per client provided information)
Zoning	MU1 – mixed use
Local Council Area	The Council of the City of Sydney
Current use	Commercial
Surrounding uses	North – Commercial East – Metro Waterloo Station Development South – Residential, commercial West – Residential, commercial

The site boundary is shown on Figure 1.



Figure 1: Site location (imagery provided by Nearmap, Ethos Urban)

5. Environmental setting

Regional Topography	Regional topography is generally low-lying (< 20 m Australian Height Datum (AHD)) sloping to the south-west towards Sydney Park and Alexandria Canal located approximately 1.5 km to the south-west.
Site Topography	Site topography is relatively flat with levels of approximately ~14-16 m AHD, surveyed test locations ranged between 14.6 to 15.6 m AHD.
Soil Landscape	The site is mapped as being within the Aeolian (i.e., wind-blown dune sands) Tuggerah group which generally comprises shallow brown, to bleached / grey sand separated by layers of iron indurated sands (i.e., "coffee rock") further underlain by yellow / yellow-brown sand / silty sands.
Geology	Reference to the NSW Seamless Geology dataset indicates that the site is underlain by Quaternary aeolian sand deposits of transgressive dune sands.

Acid Sulfate Soils (ASS)	The site is mapped in an area of extremely low to no ASS risk. It is however, noted that disturbed (man-made) terrain is mapped ~300 m to the south-east around the periphery of Alexandria Canal. Sediments from the Canal are mapped as high risk and any disturbed terrain has an unknown ASS risk, which would require investigation to characterise. Deeper deposits in Aeolian soil landscapes below the water table (e.g., darker peaty sands) may also potentially contain ASS. This report provides further field assessment of potential ASS, refer Section 10 and 11.
Surface Water	Surface water flows are anticipated to be intercepted by the local stormwater systems. The nearest surface water body is Alexandria Canal, located to the south-west.
Groundwater	Groundwater is expected to follow the regional topography and flow generally to the south and south-west. Review of previous desktop information indicated recorded standing water levels in the order of ~3.5-6 m bgl within the region, indicating the presence of a shallow groundwater aquifer. The site is noted to be located in the Botany Groundwater exclusion zone (Zone 2), which bans domestic uses of groundwater, and any industrial usage requires annual testing. Extraction for the purposes of construction dewatering is noted to be exempt (Botany Sands exemption¹)

6. Summary of previous investigations

6.1 Previous reports

The following previous contamination reports are relevant to the current investigation:

Regarding 74-88 Botany Road:

- Alliance Geotechnical (AG) – Soil Waste Classification (AG, 2017a).
- AG - Remediation Action Plan (AG, 2017b).

Regarding 90-108 Botany Road and 86-100 Wyndham Street:

- Douglas Due Preliminary Contamination Assessment (DP, 2023a); and
- Douglas Geotechnical Desktop Study (DP, 2023b).

¹ Expiration currently dated at 30 June 2025

Relevant previous laboratory results are included alongside current results in Appendix C, and previous borehole logs provided in Appendix D alongside current results.

6.2 74-88 Botany Road

The AG waste classification and RAP notes that a previous Stage 2 (i.e., detailed site investigation) was undertaken for the property (74-88 Botany Road) which included a total of 10 boreholes, with the waste classification including drilling of nine additional test locations as part of an additional data gap assessment. In summary a total of 18 boreholes, and four groundwater monitoring wells were undertaken as part of the previous investigations. Previous AG test locations are shown on extracted figures presented in Appendix A.

6.2.1 Below ground conditions

The AG reports noted a general below ground conditions comprising:

- **HARDSTAND** – concrete slabs to depth of 0.2 m;
- **FILL** – to depths of up to 1.0 m consisting of dark grey to black silty sands, with inclusions of brick, ceramic, concrete, metal, glass, bitumen, potential asbestos containing materials and suspected ash / charcoal. Hydrocarbon odours were noted in the fill materials; and
- **SAND** – natural sand consisting of brown, yellow and grey to white (i.e., pale grey) sands.

The presence of a second suspected buried slab was noted at 74 Botany Road between 0.8 to 0 m below ground level (bgl).

Groundwater was measured in the monitoring wells at depths between 3.3 to 3.5 m bgl. No visual indicators of hydrocarbons e.g., light non-aqueous phase liquid (LNAPL) were observed.

No indications of possible underground storage tanks (UST) were identified in the AG reports, and it was generally noted that ground penetrating radar (GPR) was not suitable to investigate potential locations given the possible presence of a second buried concrete slab.

6.2.2 Analytical results

Previous laboratory results exceeding adopted screening criteria, protective of a generic high-density residential development land-scenario² (NEPC, 2013) were summarised in the AG RAP (AG, 2017b) as follows:

² Generally protective of a land-use scenario including on-site residences, with limited access to soils, e.g. apartments. It is noted that the previous reports considered site development including deep soil planting zones, and therefore considered on-site ecological receptors. The current investigation has assessed against a less conservative commercial / industrial generic land-use (refer Section 7 and 9)

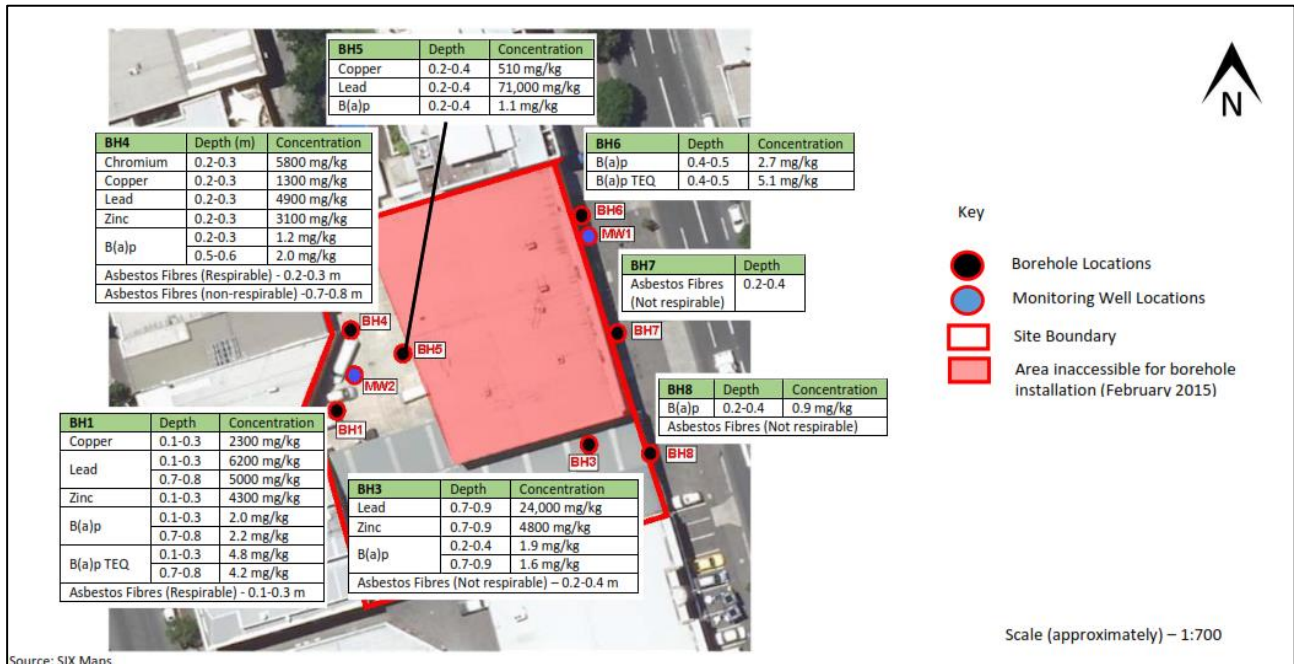


Figure 2: Extracted drawing (Figure 4) from AG (2017b)

Identified potential significant contaminants included:

- Elevated metals, notably as lead with concentrations ranging up to 71,000 mg/kg. Leachability testing indicated leachable concentrations of up to 620 mg/L, i.e., potentially constituting hazardous waste and a potential risk to groundwater;
- PAH – predominately as benzo(a)pyrene, with total concentration of benzo(a)pyrene TEQ up to 7.8 mg/kg;
- TRH / BTEX – limited to exceedances above ecological screening values; and
- Asbestos – including both non-friable, and potential friable materials.

The adopted summary criteria presented in the AG reports also considered assessment for potential ecological receptors which differs from the current investigation (refer Section 7 and Section 9 for further discussion).

Groundwater results summarised in the AG RAP noted no significant detection of TRH, BTEX or VOC above the laboratory detection limit. Low level exceedances of ecological criteria were noted for copper, nickel and zinc. Douglas notes such metals are typical of built urban environments and at the measured concentrations potentially represent background conditions in the region.

Further review of the previous results as relevant to the currently adopted screening criteria is provided in Section 11.

6.2.3 Remediation options and further management

The extent of identified remediation identified in the AG RAP included:

- Soil (fill) located between the two concrete slabs (inferred by Douglas to mean vertically between the ground surface and suspect buried second slab); and
- Fill material below (an inferred) second concrete slab, to depths of up to 2.3 m bgl (assumed by AG to be an average of 2 m depth).

AG reports considered no further management of groundwater to be necessary for contamination purposes. Additional testing / treatment was only considered for the purposes of dewatering and off-site disposal (e.g., stormwater disposal).

Remediation options considered included:

- On-site treatment – including treatment of lead impacted soils including mixing and chemical fixation of the fill. Where successful, the treated soils were considered to be suitable for off-site disposal under a reduced waste classification subject to a specific immobilisation approval from NSW EPA; and
- Off-site disposal of other fill materials – including asbestos impacted soils.

Contingency strategies were considered relating particularly to

- VOC in soil / groundwater such as from off-site sources e.g., due to local drawdown during dewatering; and
- Management of UST if identified during excavation, and potential impacts to soils / groundwater.

6.3 90-108 Botany Road and 86-100 Wyndham Street

Previous reports completed by Douglas included geotechnical and contamination desktop assessment of readily available information sources, and review of relevant nearby reports completed by Douglas.

6.3.1 Preliminary geotechnical model

Based on nearby investigations the reports considered ground conditions to likely comprise:

Table 2: Preliminary geotechnical model

Typical material description	Approximate top of unit (m bgl)
FILL: typically sandy, very loose to loose	0
SAND: loose to medium dense grading to dense to very dense at depth	1-2
CLAY: firm to stiff alluvial overlying very stiff to hard residual	3-10
WEATHERED SHALE: very low to low strength	7-12

Typical material description	Approximate top of unit (m bgl)
SHALE: medium to high strength overlying medium to high strength sandstone	11-16

Groundwater was noted to generally range between ~2.3-4.5 m bgl in the surrounding region.

6.3.2 Site history and registers

A review of historical aerial imagery noted that the investigation area and surrounding area historically comprised a mixture of residential and commercial / industrial land-uses. Specifically, the investigation area was redeveloped circa 1960-70 to the approximate existing configuration, and generally intensified development of the surrounding area beginning circa 1960. More recent significant development has occurred with the construction of the Waterloo Station development to the east.

No notable records were identified on NSW EPA public registers.

Business directory records indicated the following activities present in the assessment area:

- Manufacturing and wholesale / retail: (including inter alia tools, pumps, furniture, boat / ship accessories, motor exhaust / mufflers, metals and welding);
- Motor body repairs / painting;
- Motor garage (circa 1950-60); and
- Dry cleaners (circa 1950).

Records also included the service station located at 74-88 Botany Road (to the north of the assessment area), with records dated circa 1960. Off-site sources also included a dry cleaner to the east within the now current Waterloo Station development site, and another motor garage / service station to the west and north-west.

The location of these potential contaminating activities are shown on Figure 3 below relative to the current site boundary.



Figure 3: On-site and nearby dry cleaners / service stations (showing current site boundary), adapted from DP (2023a)

6.3.3 Recommendations

Key potential contamination risks identified were therefore summarised as follows:

- VOC contaminated groundwater, potentially in direct contact with the final (basement) landform;
- Shallow contaminated groundwater requiring dewatering during basement construction (e.g., on-site or off-site sources);
- Soils, including unexpected finds / untested soils, and given risk of uncontrolled fill / previous demolition, presence of asbestos in soils; and
- Disused / abandoned underground storage tanks (UST).

The investigation recommended the following for further investigation:

- Additional desktop searches not conducted, including SafeWork NSW search for potential dangerous goods (i.e., UST), historical title deed and review of Section 10.7 Planning Certificates; and
- Intrusive investigation including assessment of soils, groundwater and soil vapour.

7. Supplementary desktop information sources

Additional desktop searches are included in Appendix E and discussed in the below sections.

7.1 Section 10.7 planning certificates

A representative portion of lots (four total), including the former service station and dry cleaner were investigated to identify any significant records.

No significant records as related to the Contaminated Land Management Act 1997 were identified on any of the searched records.

No records relating to asbestos (e.g., loose fill asbestos register) was noted on the certificates.

No other significant records as relating to contamination were identified.

7.2 Historical title deeds

Requested, not yet received at time of issuing this report.

7.3 SafeWork NSW

To be undertaken pending permission by site owners. Not available at time of issuing this report.

8. Preliminary conceptual site model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Based on previous investigations, the following potential sources of contamination and associated contaminants of potential concern (CoPC) have been identified and summarised in Table 3.

Table 3: Summary of potential sources

Potential sources and associated CoPC
On-site sources
S1: Fill: Associated with levelling, demolition of former buildings on the site, including potential uncontrolled imported fill. CoPC include metals, PFAS, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos S2: Former service station (on-site), including potentially disused/abandoned UST and appurtenances which may have caused leaks / spills of fuels (e.g. petrol / diesel), fuel additives or oils / greases. CoPC include lead, TRH, BTEX, PAH, phenols and VOC

Potential sources and associated CoPC
On-site sources
S3: Former dry cleaner(on-site), including historical leaks / spills from chlorinated solvent usage / storage CoPC include chlorinated VOC S4: Previous on-site commercial / industrial land-uses, including motor garage / repairs, manufacturing / wholesales etc. CoPC include metals, TRH, BTEX, PAH, phenols, OCP, PFAS and VOC S5: Existing buildings (i.e. risk of cross contamination of soils after demolition) CoPC include asbestos, synthetic mineral fibres (SMF), lead (in paint) and PCB
Off-site sources
S6: Historical motor garages / service stations CoPC include lead, TRH, BTEX, PAH, and VOC

The following potential human and environmental receptors, along with relevant potential pathways, have been identified and summarised in Table 4.

Table 4: Summary of potential receptors and pathways

Potential human receptors
HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial (workers and visitors)] HR4: Adjacent site users [residential, commercial]
Potential environmental receptors
ER1: Surface water [Alexandria Canal] ER2: Groundwater Based on the current and future proposed land-form it is considered that there would be no significant on-site terrestrial ecosystem receptors (i.e., hardstand cover or new basements).
Potential pathways to human receptors
HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours
Potential pathways to environmental receptors
EP1: Surface water run-off (considered limited to risks during construction works given existing hardstand cover) EP2: Leaching of contaminants and vertical migration into groundwater EP3: Lateral migration of groundwater providing base flow to water bodies

Summary of potentially complete exposure pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S6) and receptors are provided in below Table 5.

Table 5: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1: Fill: metals, PFAS, TRH, BTEX, PAH, PCB, OCP, OPP, PCB, phenols and asbestos S4: Previous on-site commercial / industrial land-uses wholesales etc. CoPC include metals, TRH, BTEX, PAH, phenols, OCP, PFAS and VOC	HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours	HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial]	Intrusive investigation principally comprising assessment soils. Secondary assessment for groundwater / vapour as part of investigation other sources below.
	EP1: Surface water run-off EP3: Lateral migration of groundwater providing base flow to water bodies	ER1: Surface water	
	EP2: Leaching of contaminants and vertical migration into groundwater	ER2: Groundwater	
S2: Former service station (on-site), CoPC include lead, TRH, BTEX, PAH, phenols and VOC S3: Former dry cleaner(on-site) CoPC include chlorinated VOC	HP1: Ingestion and dermal contact HP2: Inhalation of vapours	HR1: Current users [commercial] HR2: Construction and maintenance workers	Assessment of groundwater and soil vapour. Potentially determine if UST are present on-site, and if so, if decommissioned.
	HP1: Ingestion and dermal contact HP2: Inhalation of vapours Including direct seepage through groundwater contact with basement	HR2: Construction and maintenance workers HR3: End users [commercial]	
	HP2: Inhalation of vapours	HR4: Adjacent site users [commercial / residential]	
	EP2: Leaching of contaminants and vertical migration into groundwater	ER2: Groundwater	

Source and CoPC	Exposure pathway	Receptor	Risk management action
	EP3: Lateral migration of groundwater providing base flow to water bodies	ER1: Surface water	
S6: Historical motor garages / service stations (off-site) CoPC include lead, TRH, BTEX, PAH, and VOC	HP1: Ingestion and dermal contact HP2: Inhalation of vapours Including direct seepage through groundwater contact with basement	HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial]	Assessment of groundwater (hydraulically upgradient). Secondary assessment of vapour as part of assessing above contamination sources.
S5: Existing buildings (i.e. risk of cross contamination of soils after demolition) CoPC include asbestos, synthetic mineral fibres (SMF), lead (in paint) and PCB	HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours	HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial]	Conduct hazardous building material survey prior to demolition.
	HP2: Inhalation of dust and/or vapours	HR4: Adjacent site users [commercial / residential]	

9. Sampling plan

9.1 Data quality objectives

The DSI was devised with reference to the seven-step data quality objectives (DQO) process which is provided in Appendix B Schedule B2, NEPC (2013). The data quality objective process is outlined below:

Table 6: Data quality objectives

Step	Summary
1: State the problem	The objective of the investigation is to assess the contamination status of the site with respect to the proposed land use, as part of a proposed redevelopment of the site. Previous investigations have indicated the potential for contaminating activities (historical and current) to be present.

Step	Summary
2: Identify the decisions / goal of the study	The goal of the study is to establish whether significant contamination is present which may warrant further investigation and / or management. Key decisions to establish are: • Are USTs present (decommissioned or abandoned)?; • Is significant contamination present in groundwater, e.g., from on-site or off-site sources?; • Are there potential vapour intrusion risks present; • Initial characterisation of fill beneath the site, i.e., depths, composition and risk of uncontrolled fill, and have previous site uses significantly impacted soils? Based on ongoing site usage and existing structures it is considered possible that data gaps (i.e. soils) will likely remain to be addressed at a later stage.
3: Identify the information inputs	Information inputs include the previous investigations (Section 6), supplementary desktop searches, and an intrusive investigation of soils, groundwater and soil vapour. Field assessment will include visual / olfactory assessment, PID screening of soils and soil vapour test locations, and measurement of general groundwater parameters. Ground penetrating radar will be used to scan test locations and opportunistically look for potential UST.
4: Define the study boundaries	The lateral boundaries of the investigation area are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over which the field works were undertaken. Constraints to the assessment are identified and discussed in the conclusions of the report, Section 13.
5: Develop the analytical approach (or decision rule)	Soils Soils are to be analysed for a broad range of potential contaminants per the CSM, analysis of selected soil samples is to provide both systematic site coverage, and targeted assessment based on field observations / screening. Initial comparison will be made to individual results against Tier 1 screening criteria (SAC, based on national guidance documentation) and further statistical assessment if required. Groundwater and Soil Vapour Assessment of groundwater and soil vapour will consider individual results against the SAC. Quality Control Samples Sample quality will be assessed through a mixture of field replicate samples, trip spike and blank pairs, and field (refer Appendix X for assessment of data quality).

Step	Summary
6: Specify the performance or acceptance criteria	Soils Baseline condition: Contaminants at the site and / or statistical analysis of data (in line with NEPC (2013)) exceed the human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site and statistical analysis of data (in line with NEPC (2013)) comply with the human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Statistical analysis is to consider the following to minimise decision errors (NEPC, 2013): • Comparison of a calculated 95% upper confidence limit (UCL) of the data set against the SAC; • Standard deviation less than 0.5 times the SAC; and • No individual results greater than 2.5 times the SAC. Where limited soil data is present due to existing structures recommendations will be made for further testing. Where practicable (and usable) the statistical assessment will be used to infer the potential risks present at un-tested parts of the site. Groundwater and Soil Vapour Baseline condition: Contaminants at the site exceed the human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site comply with the human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true.
7: Optimise the design for obtaining data	The intrusive investigation comprised a mixture of systematic (soils) and targeted / judgemental (groundwater and soil vapour) test locations. Further details regarding the proposed sampling plan are presented in Section 8.

9.2 Soil sampling rationale

Table 2 of NSW EPA (2022) recommends a minimum of 12 sampling points for a site of ~5,400 m² for site characterisation based on the detection of circular hot spots using a systemic grid sampling pattern.

Based on the CSM and data quality objectives (DQO) the following sampling rationale was adopted.

BH1-3	Opportunistic testing from concurrent Geotechnical test locations, generally providing systematic site coverage
BH4	No sampling undertaken given proximity to BH111, utilised only for assessing below ground profile.
BH101 to BH113	Based on a targeted minimum of nine additional systematic test locations and up to four additional test locations used to provide further coverage within separate building footprints.

Soil samples were collected from each borehole / test pit (16 total) at depths of approximately 0.15 m, 0.5 m, 1.0 m and every 0.5 m thereafter, and changes in lithology or signs of contamination.

The general sampling methods are described in the field work methodology, included in Appendix F.

9.3 Soil vapour sampling rationale

In order to assess the current sub-slab soil vapour concentrations at the site and evaluate whether historical / current / off-site land uses have impacted the site, installation and field screening was undertaken from six sampling points:

- SV201 and 202 – within the building occupying the area of the identified former service station;
- SV203 – downgradient of the identified former dry cleaner;
- SV204 and 205 – within the former dry cleaner; and
- SV206 – to provide additional spatial coverage to the west.

Four samples were analysed based on initial field screening (PID) and where no significant indicators were present, based on proximity / risk of the identified contamination sources (refer Section 11.1.3).

The general sampling methods are described in the field work methodology, included in Appendix F.

9.4 Groundwater sampling rationale

Groundwater locations were opportunistically undertaken based on the geotechnical test locations. The locations are noted to provide coverage generally as follows:

- BH1 (possibly upgradient – at the western edge of the site) – screened interval providing assessment of shallow groundwater in sands;
- BH2 (downgradient – southern boundary) - screened interval providing assessment of groundwater in deeper silty sands and residual soils; and
- BH3 (upgradient- northern end of the site). screened interval providing assessment of groundwater in the residual soil / rock profile.

Two additional existing wells were tested to provide further assessment of potential contamination in shallow groundwater (e.g., LNAPL) towards the northern parts of the site (i.e., former service station) as follows:

- MW2 (AG well, upgradient at northern end of site) – 5.5 m deep well screening shallow soils; and
- MW4 (AG well, downgradient / eastern site boundary to Botany Road) 5 m deep well screening shallow soils

The general sampling methods are described in the field work methodology, included in Appendix F.

10. Site assessment criteria

The site assessment criteria (SAC) applied in the current investigation are informed by the CSM (Section 8) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic commercial / industrial land use scenario. The derivation of the SAC is included in Appendix G and the adopted SAC are listed on the summary analytical results tables in Appendix C.

11. Results

11.1 Field work results

11.1.1 Soils

The borehole and test pit logs for this assessment are included in Appendix D. The logs recorded the following general sub-surface profile:

- Hardstand – asphaltic concrete or concrete slabs generally to depths of 0.1 m;

- FILL – generally comprising sand with various inclusions such as brick, tile, terracotta, metal, wood, glass, charcoal, and suspected asbestos containing materials (BH103) generally to depths of ~0.8-1.0 m, and up to a maximum of 1.6 m (BH103);
- SAND – natural aeolian sands, to depth of the contamination boreholes. Aeolian sands were identified extending to depths of up to 7.6-9.5 m in the geotechnical boreholes;
- Silty SAND – isolated bands of silty sand (with organic / peaty inclusions) at BH3 between ~5.5 to 9.5 m; overlying
- Silty CLAY / Gravelly CLAY: residual clays / extremely weathered materials soils between 7.6 to 17.4 m bgl; and
- BEDROCK – comprising shallow shale, laminite and deeper sandstone.

No visual or olfactory evidence (e.g., staining, odours, free phase product) was observed during the investigations to suggest the presence of contamination within the soils or groundwater at the site.

11.1.2 Groundwater

Groundwater levels were gauged on 17 June and 24 June 2024 as part of the geotechnical investigation following well development (14 June 2024), and on 20 June 2024 prior to sampling for the current investigation. The measured water levels prior to sampling are provided in Appendix D and summarised in Table 7.

Table 7: Summary of groundwater level measurements on 20 June

Well ID	Ground level * m (AHD)	17 June 2024		20 June 2024		24 June 2024		26 June 2024	
		SWL m (bgl)	SWL m (AHD)	SWL m (bgl)	SWL m (AHD)	SWL m (bgl)	SWL m (AHD)	SWL m (bgl)	SWL m (AHD)
BH1	15.3	3.1	12.2	3.2	12.1	3.2	12.1	-	-
BH2	14.6	2.0	12.6	2.9	11.7	2.3	12.3	-	-
BH3	15.5	2.8	12.7	2.9	12.6	2.9	12.6	-	-
MW2	15.5**	-	-	-	-	-	-	2.7	12.8
MW4	15.4**	-	-	-	-	-	-	2.8	12.6

Notes:

*Surveyed by dGPS

**Elevation from AG (2017b)

AHD – Australian Height Datum

SWL – standing water level

Based on the groundwater level measurements, groundwater is interpreted to flow to the south/south-west as interpreted from the local and regional topography. Further detail is provided in the concurrent geotechnical report regarding variation of groundwater levels over time. Generally, it should be noted that groundwater levels will vary with time and climatic conditions.

The stabilised groundwater field parameters recorded prior to sampling are shown on the groundwater field sheets included in Appendix D and summarised below.

Table 8: Summary of field parameters (groundwater)

Well / Sample ID	Temp. (°C)	DO (ppm)	TDS (mg/L)	EC (µS/cm)	pH	Redox (mV)
BH1	20.4	0.3	420	600	6.4	-185
BH2	20.8	3.6	350	490	4.1	202
BH3	21.1	0.4	2160	3040	6.0	89
MW2	19.6	7.7	213	295	5.7	200
MW4	20.4	2.1	76	107	6.2	131

The dissolved oxygen levels indicated generally anaerobic conditions (where screened in deeper soil/rock profile) and slightly aerobic in the shallow groundwater; redox potential broadly corresponds to the dissolved oxygen with neutral to slightly reductive conditions associated with low dissolved oxygen, and oxidising conditions with higher dissolved oxygen. Groundwater pH appears slightly acidic, with low to moderate electrical conductivity / solid content which is typical of the soil landscape (i.e., slightly acidic sands, and slightly saline).

No non-aqueous phase liquid (NAPL) was observed whilst sampling by visual inspection, or by an electronic interface meter.

11.1.3 Soil Vapour

Field notes are provided in Appendix D and key observations are summarised below:

Table 9: Summary soil vapour field notes

Sample ID	Location	Field PID reading (ppm)	Bulk gases readings	Comment
SV201	Former service station	-	-	Vacuum induced during purging, presumed obstruction in sub-slab such as a buried second concrete slab
SV202		0 ppm	17.5 – 19% oxygen No detected CH ₄ or CO	Selected for sampling
SV203	South of former dry cleaner	3 ppm	~20% oxygen	Selected for sampling

Sample ID	Location	Field PID reading (ppm)	Bulk gases readings	Comment
SV204	Former dry cleaner	1 ppm	No detected CH ₄ or CO	Selected for sampling
SV205		0 ppm		Selected for sampling
SV206	West	0 ppm	~21% oxygen No detected CH ₄ or CO	Not sampled

11.2 Laboratory analytical results

The results of laboratory analysis are summarised in the following tables in Appendix C:

- Table C1: Summary of results of soil analysis;
- Table C2: Summary of results of water analysis;
- Table C3: Summary of results of soil vapour analysis; and
- Table C4: Summary of waste classification assessment.

Acid sulfate soil screening test results are provided in Section 12.4.

The laboratory certificate of analysis together with the chain of custody and sample receipt information are provided in Appendix H.

12. Discussion

12.1 Soils

Results from the previous AG investigation have been reviewed against the currently adopted SAC, alongside the results of the current investigation.

All results were found to be within the adopted SAC with the exception of the following summarised in Table 10.

Table 10: Summary exceedances of SAC (soils)

Analyte (SAC)	Location	Depth (m)	Result (mg/kg)
Lead (HIL D – 1500 mg/kg)	BH101	0.2-0.3	1,800
	BH101	0.5-0.6	8,100
	BH113	1-1.1	2,900
	BH2	0.2-0.3	21,000
	BH1(AG)	0.1-0.3	6,200
	BH1(AG)	0.7-0.8	5,000

Analyte (SAC)	Location	Depth (m)	Result (mg/kg)
	BH3(AG)	0.7-0.9	24,000
	BH4(AG)	0.2-0.3	4,900
	BH5(AG)	0.2-0.2	71,000
	MW3(AG)	0.5-0.7	2,700
	MW4(AG)	0.2-0.3	1,700
	BH9 (AG)	0.2-0.4	2,100
	BH9 (AG)	1-1.3	5,200
	BH13 (AG)	0.2-0.4	4,200
	BH15(AG)	0.7-0.9	1,600
Total Chromium (HIL D – 3600 mg/kg)	BH4(AG)	0.2-0.3	5,800
BaP TEQ (HIL-D 40 mg/kg)	BH2	0.1-0.2	200
Total PCB (7 mg/kg)	BH2	0.9-1.0	15.8
TRH (F3) Management Limits (3500 mg/kg)	BH3	0.1-0.2	9000
	BH101	0.5-0.6	4300
Asbestos (0.001% w/w [AF/FA] or detection)	BH101	0.2	Detected
		0.5-0.6	Detected, 0.0158 % w/w (AF/FA)
	BH102	0.5-0.6	Detected
	BH103	0.2-0.3	Detected
		0.5-0.6	Detected, 0.0283 % w/w (AF/FA)
	BH106	0.2-0.3	Detected
	BH107	0.2-0.3	Detected
	BH108	0.5-0.6	Detected
	BH1(AG)	0.1-0.3	Detected (including respirable fibres)
		0.7-0.8	Detected (including respirable fibres)
	BH3(AG)	0.2-0.4	Detected
	BH4(AG)	0.2-0.3	Detected (including respirable fibres)
	BH7(AG)	0.2-0.4	Detected

Analyte (SAC)	Location	Depth (m)	Result (mg/kg)
	BH8(AG)	0.2-0.4	Detected
	MW4(AG)	0.2-0.3	Detected

Detections of other analytes above the limit of reporting (but within the SAC) included:

- Heavy metals, predominately as copper and zinc;
- PAH, including benzo(a)pyrene (i.e., excluding BH2/0.1-0.2);
- TRH (excluding BH101/0.5-0.6);
- PFAS; and
- OCP (BH103/0.2-0.3 as Aldrin and Dieldrin).

No BTEX, VOC, OPP or phenols were detected above the limit of reporting.

With reference to further discussion in Section 12.5, the high concentrations of lead detected in soils were also found to correspond to potentially leachable concentrations ranging up to 170 mg/L (under acidic conditions). With the highest leachable rate observed at BH113/1-1.1 (2900 mg/kg primary sample, 170 mg/L leachable), compared to a lower leachability at the peak lead in soil concentration at BH2/0.2-0.3 (21,000 mg/kg primary sample, 44 mg/L leachable), which suggests inherent heterogeneity of the lead contamination.

12.2 Groundwater

All results were below the SAC, with the exception of:

- Copper (filtered metals): 2 to 84 µg/L;
- Zinc (filtered metals): 20 to 283 µg/L;
- Nickel (filtered metals) – 14 µg/L (BH1); and
- PFAS (as PFOS) – 0.003 to 0.297 µg/L.

Based on previous AG results, similar exceedances of metals were identified as follows:

- Copper (filtered metals): 2 to 4 µg/L; and
- Zinc (filtered metals): 20 to 66 µg/L.

It is noted that the following VOC and TRH were detected above the PQL (within the DGV) as follows:

- BH1 - tetrachloroethene (PCE) - 10 µg/L;
- BH2 – trichloromethane (chloroform)- 8 µg/L; and
- BH3 – TRH C10-16 - 150 µg/L.

It is noted that the PFOS DGV (0.00023 µg/L, for 99% protection of species) has been adopted based on a more conservative assumption of a slightly to moderately disturbed receiving water body (95% level of protection), with one level higher protection (99%) adopted based on guidance for PFAS given the potential for bioaccumulation. It is noted however the AG RAP considered adoption of a base 90% level of protection for a highly disturbed system. Comparison to the equivalent 95% DGV for PFOS (accounting for bioaccumulation) equates to a DGV of 0.13 µg/L.

Generally, Douglas notes that no significant PFAS was identified in soils, and no current distinct source of PFAS has been identified from the site history review. It is therefore possible that the PFAS detections are in part attributed to regional groundwater quality (given the sites urban, and nearby historical commercial / industrial land uses). Notwithstanding, slightly higher levels have currently been detected in downgradient wells.

No current indicators of significant hydrocarbon or VOC contamination is present in groundwater which would suggest significant leaks from former site usages, i.e., service station and dry cleaner. Low concentrations of TRH may generally suggest localised spills / leaks from other historical usages (e.g. motor garage), and low levels of chlorinated VOC (as PCE) may suggest either minor historical leaks, and / or use of chlorinated solvents as part of the other land-uses. Further comment is provided in Section 12.3.

The detected heavy metals in groundwater are considered typical of urban groundwater quality, particularly in built-up environments with historical/ongoing commercial / industrial activity. Accordingly, the detected concentrations are not considered likely to be related to a specific on-site source, and therefore may only require management as part of any dewatering process.

The current groundwater quality therefore doesn't indicate the requirement for additional groundwater investigation or management for site contamination purposes, with any management limited to treatment as part of site dewatering.

12.3 Soil vapour

Based on the current results no exceedances of the SAC have been identified in soil vapour.

It is however noted that the following were detected above the laboratory detection limits, which ranging between:

- PCE, 5 - 731 µg/m³;
- Trichloroethene, 6 - 9 µg/m³;
- Benzene, 3 - 4 µg/m³;
- Toluene, 38 - 62 µg/m³;
- Ethylbenzene, 4 - 5 µg/m³;
- m+p Xylenes, 12 - 16 µg/m³;
- o-Xylene, 4 - 5 µg/m³;
- Air-phase TRH F1, 324 - 472 µg/m³; and
- Air-phase TRH F2, 53 - 76 µg/m³.

No further degradation products of PCE, e.g., dichloroethenes, or vinyl chloride were detected above the limit of detection to suggest the presence of a degrading chlorinated solvent plume. Higher chlorinated VOC were detected at SV203 (downgradient of the former dry cleaner) and SV204 (within the former dry cleaner). It is however noted that low level detection ($5 \mu\text{g}/\text{m}^3$) was measured at SV205 which is within the former dry cleaner, near the eastern site boundary. This may either suggest more localised impacts, or more generally that given the groundwater flow direction (or influence of nearby services) that no historical contamination migration was occurring towards Botany Road.

Concentrations of air-phase TRH do not currently indicate a significant risk from potential volatile hydrocarbon contamination. The results generally may indicate low level historical impacts from the noted land-uses, otherwise and may in part be attributed to the chlorinated VOC and / or BTEX concentrations present.

Based on the maximum magnitude of groundwater concentrations ($10 \mu\text{g}/\text{L}$ of tetrachloroethene), and considering the current soil vapour concentrations it is considered unlikely that an exposure scenario for the final landform of direct contact and seepage through basement walls would result in unacceptable vapour risks as relating to chlorinated VOC. Furthermore, the proposed development would necessarily entail removal of potential sources of chlorinated VOC in soils, and to a lesser extent in groundwater during construction dewatering, such that any potential remnant sources would be considered minimal. If a drained basement design is adopted (currently considered unlikely) then further risk assessment may be required to assess the residual risk of vapour intrusion from direct seepage into the basement.

The low concentrations of BTEX are generally suggestive of the historical commercial usages (e.g., motor garages) and potentially minor residual impacts from the historical service station.

12.4 Acid sulfate soils

The results of acid sulfate soils screening tests are summarised below in Table 11, alongside qualitative indicators (Sullivan, et al., 2018) of potential acid sulfate soils (PASS, i.e., soils yet to be oxidised containing reducible inorganic sulfur), and actual acid sulfate soils (AASS, i.e., soils already oxidised).

Table 11: Summary ASS screening results

Sample ID	Depth	pH _r	pH _{rox}	pH Change	Reaction Rate
BH101	1-1.1	6.8	4.5	2.3	Medium
BH102	1-1.1	7.6	4.8	2.8	
BH108	1.3-1.4	7.0	5.2	1.8	
BH109	1.2-1.3	4.4	3.2	1.2	
BH110	1.3-1.4	7.7	5.9	1.8	
BH111	1.5-1.6	4.1	3.3	0.8	
BH3	4-4.5	6.6	5.3	1.3	
BH3	5.5-5.95	6.2	4.9	1.3	

Sample ID	Depth	pH _i	pH _{fox}	pH Change	Reaction Rate
BH3	7-7.45	6.4	4.2	2.2	
BH3	8-8.95	6.3	3.3	3	
PASS Indicators		-	<3	>2-3 units	High / Volcanic
AASS Indicators		<4	-	-	-

Based on the above no initial pH_i, or oxidised pH_{fox} results indicate presence of either PASS/AASS. Low to moderate overall pH changes were observed, however considering the initial / final pH, the reaction rate and the observed soil textures (generally aeolian sands) the results are not considered significant indicators of PASS or AASS. Notably the deeper soils tested at BH3 included a layer of silty sand with organic matter / peat (between 6.7 to 9.0 m, below the water table) which does not have any strong indicators of PASS. Generally, it is noted that aeolian sands (i.e., wind deposited marine sands) may naturally exhibit acidity, however, this is un-related to reducible inorganic sulfur content (RIS) in the soils, and are thus not ASS.

Therefore, based on the current results it is considered that no further ASS investigation or management is required.

12.5 Preliminary waste classification of soils

The following Table 4 presents the results of the six-step procedure outlined in NSW EPA (2014) for determining the type of waste and the waste classification. This process applies to the fill (including surface soils) at the site, which do not meet the definition of VENM.

Step	Comments	Rationale
1. Is the waste special waste?	Yes	Asbestos was detected by the analytical laboratory at the majority of test locations. Based on discussion presented in Section 11.1 it is considered there is a risk of additional unidentified asbestos being present.
2. Is the waste liquid waste?	No	The fill comprised a soil matrix.
3. Is the waste "pre-classified"?	No	The fill is not pre-classified with reference to NSW EPA (2014).
4. Does the waste possess hazardous waste characteristics?	No	The fill was not observed to contain or considered at risk to contain explosives, gases, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.

Step	Comments	Rationale
5. Determining a wastes classification using chemical assessment	Conducted	Refer to Table C4 and previous results (extracted Table 2) in Appendix C.
6. Is the waste putrescible or non-putrescible?	Non-putrescible	The fill does not contain materials considered to be putrescible ^a .

Note: ^a wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural, forestry and crop materials, and natural fibrous organic and vegetative materials (NSW EPA, 2014).

Based on current results exceedances of contaminant thresholds (CT) for general solid waste (CTI) were identified as follows:

- Lead (multiple samples), ranging between 120 – 10340 mg/kg (CTI – 100 mg/kg);
- Benzo(a)pyrene, generally ranging between 0.88 to 1.9 mg/kg (CTI – 0.7 mg/kg). Higher results of 150 mg/kg were detected at BH2/0.2-0.3;
- Nickel BH101/0.5-0.6 (210 mg/kg), and BH1/0.2-0.3 (40 mg/kg) (CTI – 40 mg/kg); and
- Mercury (BH101/0.5-0.6, 7.9 mg/kg, and BH110-0.2-0.3, 8.5 mg/kg (CTI – 4 mg/kg).

Exceedances of specific contamination concentrations (SCC) for GSW and potentially exceeding restricted solid waste are noted as follows:

- Lead exceeding SCC1 – 1500 mg/kg (BH101/0.2-0.3 and 0.5-0.6, BH113/1-1.1 and BH1/0.2-0.3);
- Lead exceeding SCC2 – 6000 mg/kg (BH1); and
- Benzo(a)pyrene exceeding SCC1 (10 mg/kg) and SCC2 (23 mg/kg) – BH2/0.1-0.2.

Additional toxicity characteristic leaching procedure (TCLP) testing was conducted on worst case samples for lead, metals and PAH. The following is noted from the results:

- PAH, nickel and mercury concentrations are generally non-leaching, suggesting further analysis may demonstrate suitability of classifying in conjunction with the SCC concentrations; and
- Lead concentrations ranged from low 0.1 mg/L to high 170 mg/L, including exceedings of TCLP1 (5 mg/L) and TCLP2 (20 mg/L). Current results indicatively show where exceedances of SCC1 or SCC2 occur, corresponding exceedances of the TCLP criteria exist. As noted in Section 12.1, higher SCC concentrations did not directly correspond to higher TCLP concentrations such that there likely exists inherent heterogeneity of the lead contamination in the fill.

Based on current results it is considered likely that additional asbestos is present throughout all fill soils until further assessed (e.g., further visual assessment / screening through test pitting following removal of hardstand). Current and previous results have identified both non-friable and friable asbestos, which would need to be managed accordingly.

Presence of PCB at BH2/0.9-1.0, OCP at BH103 above 2 mg/kg indicates materials in this area will need to be managed as per the NSW EPA Scheduled Chemical Wastes Chemical Control Order 2004. As the concentrations are less than a total of 50 mg/kg the materials may be transported off-site in accordance with the Order, to a receiving facility which can receive in accordance with their Environmental Protection Licence (EPL).

Previous AG results (attached in Appendix C) identified exceedances (relevant to 74-88 Botany Road) of SCC1 criteria, and limited exceedance of SCC2 (BH5[AG]) with corresponding exceedances of TCLP2 for lead.

Based on the current and previous AG results it is considered that preliminary waste classifications are as follows:

- Restricted solid waste – special waste (asbestos). Currently identified at BH2/0.9-1, BH101/0.2-0.3, and more generally for the area at 74-88 Botany Road based on the previous AG results;
- Hazardous solid waste– special waste asbestos. Currently identified at/near BH5[AG], BH2/0.2-0.3, BH101/0.5-0.6, BH113/1-1.1; and
- Materials to be managed as per the Scheduled Chemical Waste Control Order – BH2 and BH103.

Further assessment following demolition is recommended to provide additional data which may facilitate statistical analysis (particularly for lead in soils), and provide further information inputs for potential management / treatment options.

The AG RAP further considered remediation options for the elevated lead concentrations including on-site treatment (stabilisation) which depending on the success of the treatment and application for a site specific immobilisation order may potential downgraded the above classifications (excluding requirements for management of special waste). This would however have to be managed with respect to the known asbestos (including friable asbestos) in soils.

The high benzo(a)pyrene concentrations at BH2/0.1-0.2 may also potentially represent fragments of bitumen in the shallow sample beneath existing hardstand. Additional testing following excavation may be used to re-assess classification in this area.

12.6 Data quality assurance and quality control

The data quality assurance and quality control (QA / QC) results are included in Appendix I. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

13. Revised conceptual site model

The data collected for this DSI has generally confirmed that certain potential contaminant sources outlined in the CSM outlined in Section 8 pose a potentially complete pathway to the identified receptor(s) whilst others do not. Comments specific to each potential contamination source are provided below.

Table 12: Revised potential contamination sources

Potential sources and associated CoPC	
On-site sources	Comment
S1: Fill: Associated with levelling, demolition of former buildings on the site, including potential uncontrolled fill.	No BTEX, OPP, phenols identified above limits of reporting. BTEX potentially remains relevant based on risk of unidentified UST. Revised CoPC includes: Metals (notably lead), PAH, asbestos (friable and non-friable). With secondary CoPC as OCP, PCB, TRH, BTEX, PFAS. No significant impacts from soils have been identified in groundwater, however, based on previous results there remains a risk of leaching of metals (i.e., lead) to groundwater, particularly given high leachable lead concentrations (under acidic conditions).
S2: Former service station (on-site), including potentially disused/abandoned UST and appurtenances which may have caused leaks / spills of fuels (e.g. petrol / diesel), fuel additives or oils / greases. CoPC include lead, TRH, BTEX, PAH, phenols and VOC	UST not positively identified, however, remain a risk. No significant impacts identified in groundwater to suggest significant off-site migration, therefore off-site receptors (e.g., vapour inhalation are no longer considered significant). No significant risks for current site users identified.
S3: Former dry cleaner(on-site), including historical leaks / spills from chlorinated solvent usage / storage CoPC include chlorinated VOC	No significant impacts identified in groundwater to suggest significant off-site migration, therefore off-site receptors (e.g., vapour inhalation are no longer considered significant). No significant risks for current site users identified. Risks for final landform considered not significant given removal of soils, and construction dewatering further minimising potential sources of chlorinated VOC.
S4: Previous on-site commercial / industrial land-uses, including motor garage / repairs, manufacturing / wholesales etc. CoPC include metals, TRH, BTEX, PAH, phenols, OCP, PFAS and VOC	Data does not suggest significantly distinct areas/sources to Source S1. Therefore, this source may be combined into S1 for management purposes. No VOC detected in soils.

Potential sources and associated CoPC	
On-site sources	Comment
S5: Existing buildings (i.e. risk of cross contamination of soils after demolition) CoPC include asbestos, synthetic mineral fibres (SMF), lead (in paint) and PCB	No changes
Off-site sources	
S6: Historical motor garages / service stations CoPC include lead, TRH, BTEX, PAH, and VOC	No significant evidence of on-site migration of contaminants have been detected in groundwater or soil vapour. Therefore, this source has been removed. A residual risk remains for drawdown during dewatering which may require management.

Table 13: Updated summary of potentially complete exposure pathways (proposed land use)

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1/S4: Fill CoPC include metals, PAH, asbestos Secondary CoPC: TRH, BTEX, PFAS	HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours	HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial]	Data gap investigation following demolition to provide, principally for waste classification purposes to facilitate off-site disposal (all fill) during basement formation.
	EP3: Lateral migration of groundwater providing base flow to water bodies	ER1: Surface water	
	EP2: Leaching of contaminants and vertical migration into groundwater	ER2: Groundwater	
S2: Former service station (on-site),	HP1: Ingestion and dermal contact HP2: Inhalation of vapours	HR2: Construction and maintenance workers	Decomissioning of UST during site excavation works.

Source and CoPC	Exposure pathway	Receptor	Risk management action
CoPC include lead, TRH, BTEX, PAH, phenols and VOC S3: Former dry cleaner(on-site) CoPC include chlorinated VOC	HP1: Ingestion and dermal contact HP2: Inhalation of vapours Including direct seepage through groundwater contact with basement	HR2: Construction and maintenance workers HR3: End users [commercial]	Localised soil / water impacts may be present (e.g. tank pits) Residual vapour intrusion risks considered to be not significant dependent on a tanked basement design Manage residual risk to groundwater as part of dewatering planning
	EP2: Leaching of contaminants and vertical migration into groundwater	ER2: Groundwater	
	EP3: Lateral migration of groundwater providing base flow to water bodies	ER1: Surface water	
S5: Existing buildings (i.e. risk of cross contamination of soils after demolition) CoPC include asbestos, synthetic mineral fibres (SMF), lead (in paint) and PCB	HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours	HR1: Current users [commercial] HR2: Construction and maintenance workers HR3: End users [commercial]	Conduct hazardous building material survey prior to demolition.
	HP2: Inhalation of dust and/or vapours	HR4: Adjacent site users [commercial / residential]	

14. Conclusions and recommendations

Based on the results of the DSI it is considered that the site can be made suitable for the proposed commercial development subject to successful implementation of the implementation of the Douglas RAP (DP, 2024) dated 12 July 2024.

15. References

AG. (2017a). *Waste Classification Assessment, 74-88 Botany Road, Alexandria, NSW*. Reference 1726/ER-1-6.

AG. (2017b). *Remediation Action Plan, 74-88 Botany Road, Alexandria, NSW*. Reference 1726/ER-1-3 (Revision 3).

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

DP. (2023a). *Preliminary Contamination Assessment. Due Diligence Assessment, 100 Botany Road, Alexandria*. Reference 221233.01.R.001.Rev0 dated 27 April 2023.

DP. (2023b). *Report on Geotechnical Desktop Study. Due Diligence Assessment, 100 Botany Road, Alexandria*. Reference 221233.00.R.001.rev0 dated 26 April 2023.

DP. (2024). *Remediation Action Plan. 100 Botany Road, Alexandria*. . Reference 221233.03.R.002.Rev1 dated 12 July 2024.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

NSW EPA. (2022). *Contaminated Sites, Sampling Design Guidelines*. NSW Environment Protection Authority.

Sullivan, L, Ward, N., Toppler, N., & Lancaster, G. (2018). *National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Sampling and Identification Methods Manual*. Canberra ACT CC BY 4.0: Department of Agriculture and Water Resources.

16. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at 100 Botany Road, Alexandria NSW in accordance with Douglas' proposal 221233.02.P.001.Rev0, dated 2 May 2024 and acceptance received from Lachlan Clancy dated 22 May 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Kurraba Group Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and / or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and / or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable

geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and / or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

Asbestos has been detected by observation and by laboratory analysis, in fill materials at the test locations sampled and analysed. Building demolition materials, such as brick, tile, terracotta, metal, wood and glass were also, located in below-ground fill , and these are considered as indicative of the possible presence of additional hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to parts of the site being inaccessible and not available for inspection / sampling. It is therefore considered possible that additional HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

Drawings



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	INITIAL ISSUE	28.06.2024	EC / J3H

SCALE: 0 5 10 15 20 25 m
1:499.9999 A3

Douglas
PARTNERS

OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02)9809 0666

CLIENT:
Kurraba Group Pty Ltd

NOTE:
1: Basemap from Metromap (Dated 25.03.2024)

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

PROJECT NAME:
Proposed Research and Life Science Development

PROJECT ADDRESS:
100 Botany Road, Waterloo

DRAWING TITLE:
TEST LOCATION PLAN

PROJECT NO:
221233.03

DRAWING NO:
1

REVISION:
0



Figure 3 – Sample Locations



KEY

- BH1 Borehole Locations – Previous Investigations.
- BH9 Borehole Locations – Current Investigations.
- MW1 Monitoring Well- Previous Investigations.
- MW3 Monitoring Well- Current Investigations.
- Approximate Site Boundary
- Approximate Extent of Second Concrete Slab

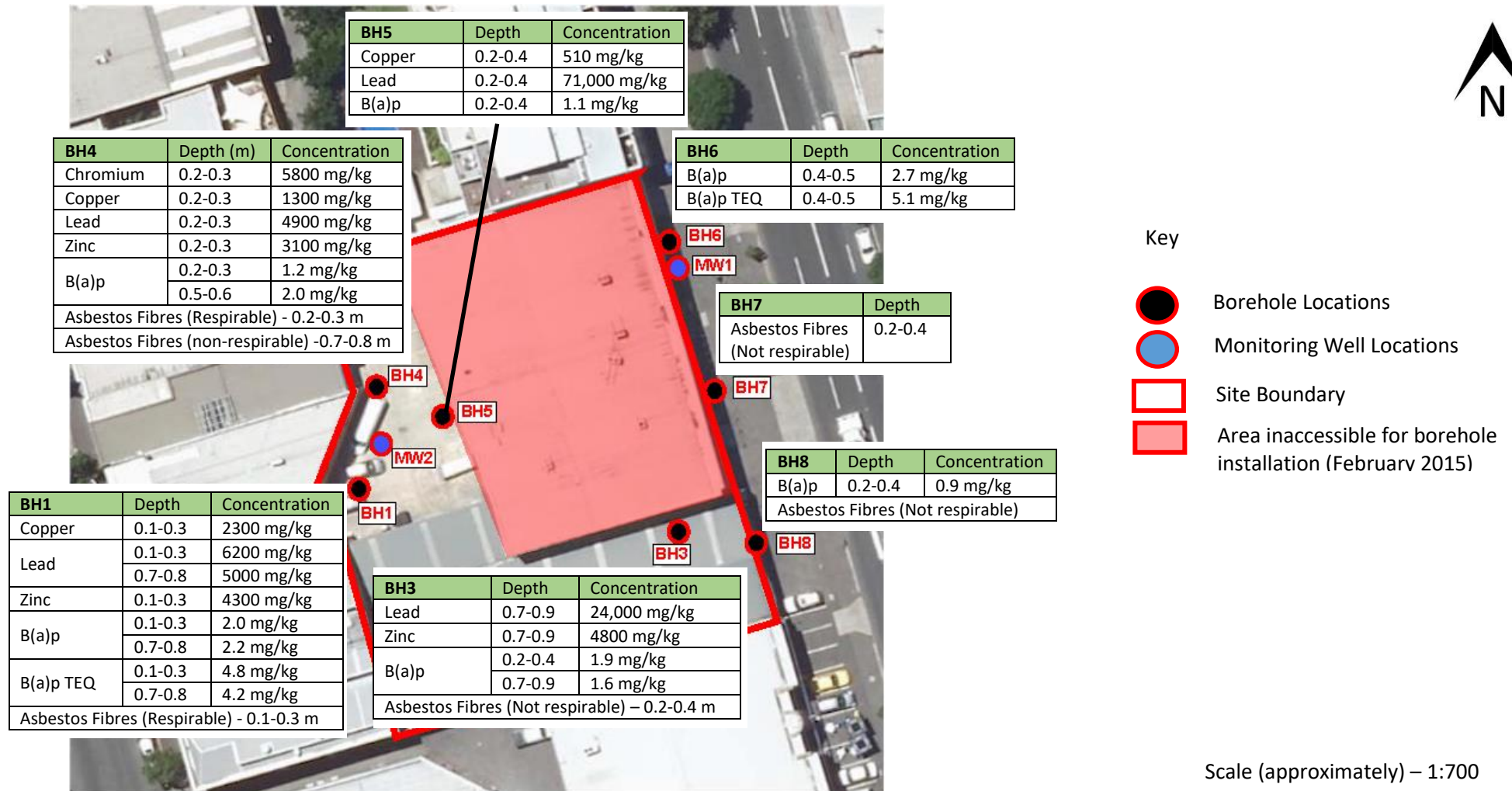
Source: <http://maps.six.nsw.gov.au/>

Your On-Site Geotechnical Specialists
Phone Us Today – 1800 288 188

Client: City West Housing
Project: 74-88 Botany Road, Alexandria, NSW
Location: 74-88 Botany Road, Alexandria, NSW

Job Number: 1726
Report Number: 1760-ER-1-6 REV 1
Report Date: 19/04/2017

Figure 4 – Detailed Site Investigation Sample Criteria Exceedances



Source: SIX Maps

Your On-Site Geotechnical Specialists
Phone Us Today - 02 9675 1777

Client: City West Housing Pty Ltd
Project: Remediation Action Plan – Rev1
Location: 74-88 Botany Road, Alexandria, NSW

Job Number: 1726
Report Number: 1726-ER-1-3 Rev2
Report Date: 29/09/2016

Appendix B

About This Report

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

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

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

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

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at

the time of construction as are indicated in the report; and

- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix C

Summary Results

			Priority metals								Priority PAH				Priority TRH						Silica Gel TRH	
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ (BaP TEQ)	Total PAH	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	0.1	0.05	0.5	0.05	25	50	25	50	100	100	100	100
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH3	0.1 - 0.2 m	5/06/2024	<4	<0.4	22	83	49	<0.1	24	63	3.8	150	200	1,200	<25	<500	<25	<500	9,000	4,100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH3	0.5 - 0.6 m	5/06/2024	4	<0.4	4	39	460	10	3	180	<1	2.1	3	19	<25	<50	<25	<50	160	110	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH1	0.1 - 0.2 m	3/06/2024	<4	<0.4	37	68	62	<0.1	34	140	<1	0.09	<0.5	0.09	<25	<50	<25	<50	520	670	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH2	0.2 - 0.3 m	4/06/2024	59	7.5	42	780	21,000	1.9	50	2,100	<1	0.4	0.6	3.3	<25	<50	<25	<50	240	190	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH2	0.5 - 0.6 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH2	0.9 - 1 m	4/06/2024	<4	<0.4	3	31	200	2.7	2	60	<1	0.3	<0.5	3.2	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH2 - [TRIPLICATE]	0.2 - 0.3 m	4/06/2024	16	4	22	450	8,800	2.4	43	1,400	-	-	-	-	-	-	-	-	-	-	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH101	0.2 - 0.3 m	07/06/24	5	1	11	140	1,800	0.8	11	560	<1	0.2	<0.5	1.8	<25	<50	<25	<50	250	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH101	0.5 - 0.6 m	07/06/24	29	15	59	5,100	8,100	7.9	210	5,200	<1	1.9	3	22	<25	180	<25	180	4,300	550	2800	290
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH101	0.8 - 0.9 m	07/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH101	1.6 - 1.7 m	07/06/24	<4	<0.4	3	9	36	0.1	<1	25	<1	0.2	<0.5	1.4	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	370 -	NL -	- -	- -	- -	- -
BH102	0.2 - 0.3 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH102	0.5 - 0.6 m	06/06/24	<4	<0.4	30	90	250	0.6	26	190	<1	0.56	0.9	6.7	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH103	0.2 - 0.3 m	06/06/24	5	0.6	8	110	1,300	0.4	5	1,100	<1	1.1	1.6	14	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BD3/20240606	0.2 - 0.3 m	05/06/24	<4	0.6	6	81	390	0.4	5	1,700	<1	1.2	1.7	10	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH103	0.5 - 0.6 m	06/06/24	<4	0.4	6	81	400	0.5	4	970	<1	1.1	1.6	9.2	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH103 / PACM1	0.3 - 0.35 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH103	1 - 1.1 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH103/PACM2	0.6 - 0.65 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH104	0.2 - 0.3 m	06/06/24	<4	<0.4	4	45	230	0.2	3	540	<1	0.86	1.3	12	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH104	0.6 - 0.7 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH105	0.2 - 0.28 m	06/06/24	5	0.6	9	42	120	0.1	17	150	<1	0.3	<0.5	3.2	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -

			Priority metals								Priority PAH				Priority TRH						Silica Gel TRH	
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene ^b	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	F3 (>C16-C34)	F4 (>C34-C40)
		PQL	4	0.4	1	1	1	0.1	1	1	0.1	0.05	0.5	0.05	25	50	25	50	100	100	100	100
BH106	0.2 - 0.3 m	06/06/24	<4	2	53	210	830	1.2	14	450	<1	0.92	1.4	12	<25	<50	<25	<50	170	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH107	0.2 - 0.3 m	05/06/24	<4	<0.4	3	4	19	<0.1	<1	170	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH108	0.2 - 0.3 m	05/06/24	5	0.5	5	30	220	0.2	3	280	<1	0.1	<0.5	0.58	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH108	0.5 - 0.6 m	05/06/24	4	0.6	4	32	250	0.2	4	250	<1	0.2	<0.5	1.8	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH108	1 - 1.1 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH109	0.2 - 0.3 m	05/06/24	<4	<0.4	4	36	390	0.5	4	200	<1	0.3	<0.5	3.2	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH109	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH110	0.2 - 0.3 m	05/06/24	<4	<0.4	5	20	170	8.5	3	260	<1	0.3	<0.5	3.9	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BD1/20240605	0.2 - 0.3 m	05/06/24	<4	<0.4	4	19	160	1	3	230	<1	0.3	<0.5	1.5	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH110	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH110	1 - 1.1 m	05/06/24	<4	<0.4	4	15	200	0.8	3	140	<1	0.2	<0.5	1.5	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	370 -	NL -	- -	- -	- -	- -
BH111	0.2 - 0.3 m	05/06/24	<4	<0.4	4	12	17	<0.1	3	39	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH111	0.5 - 0.6 m	05/06/24	<4	<0.4	4	50	250	0.6	4	220	<1	1.4	2	14	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH111	1 - 1.1 m	05/06/24	<4	<0.4	<1	7	13	<0.1	<1	23	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	370 -	NL -	- -	- -	- -	- -
BH112	0.2 - 0.3 m	05/06/24	<4	<0.4	3	16	100	<0.1	2	45	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH112	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH113	0.2 - 0.3 m	05/06/24	<4	<0.4	1	1	2	<0.1	<1	3	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	260 -	NL -	- -	- -	- -	- -
BH113	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BH113	1 - 1.1 m	05/06/24	8	0.7	9	250	2,900	0.3	9	1,300	<1	0.88	1.1	6.2	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	370 -	NL -	- -	- -	- -	- -
BH113	1.4 - 1.5 m	05/06/24	<4	<0.4	2	12	21	0.1	<1	67	<1	0.7	1	7.8	<25	<50	<25	<50	<100	<100	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	NL -	- -	40 -	4,000 -	- -	- -	370 -	NL -	- -	- -	- -	- -
BH105 - [TRIPLICATE]	0.2 - 0.28 m	06/06/24	<4	0.5	9	42	120	0.1	15	170	-	-	-	-	-	-	-	-	-	-	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	-	-	-	-	-	-	-	-	-	-	-	-
BH111 - [TRIPLICATE]	0.2 - 0.3 m	05/06/24	<4	<0.4	4	13	34	<0.1	3	39	-	-	-	-	-	-	-	-	-	-	-	-
			3,000 -	900 -	3,600 -	240,000 -	1,500 -	730 -	6,000 -	400,000 -	-	-	-	-	-	-	-	-	-	-	-	-

HIL/HSL exceedance

EIL/ESL exceedance

HIL/HSL and EIL/ESL exceedance

ML exceedance

ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report

Blue = DC exceedance

Red = EGV-indirect exceedance

HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

- a

QA/QC replicate of sample listed directly below the primary sample
- b

Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL
- c

EIL criteria applies to DDT only

Lab result	
HIL/HSL value	EIL/ESL/EGV value

			BTEX				VOC	Priority phenol	OCP		OPP	PCB	Priority PFAS					Asbestos			
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Positive VOC	Total Phenolics	Aldrin + Dieldrin	Total Positive OCP	Total Positive OPP	Total PCB	Total Positive PFAS	PFOA	PFOS + PFHxS	PFOS	PFHxS	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos ID (soil / material)
		PQL	0.2	0.5	1	1	1	5	0.1	0.1	0.1	0.1	0.0001	0.0001	0.0001	0.0001	0.0001			0.001	0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g	g	%(w/w)	-
BH3	0.1 - 0.2 m	5/06/2024	<0.2	<0.5	<1	<1	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	<0.001	NAD
			3	-	NL	-	230	-	-	-	660	-	45	-	530	-	2,000	-	7	-	
BH3	0.5 - 0.6 m	5/06/2024	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	NAD
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	0.001	
BH1	0.1 - 0.2 m	3/06/2024	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH2	0.2 - 0.3 m	4/06/2024	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH2	0.5 - 0.6 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	0.0003	<0.0001	0.0003	0.0003	<0.0001	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	50	20	20	20	-	-	-	
BH2	0.9 - 1 m	4/06/2024	<0.2	<0.5	<1	<1	-	<5	<0.1	<0.1	<0.1	15.8	-	-	-	-	-	-	-	<0.001	-
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	-	-	-	0.001	
BH2 - [TRIPLICATE]	0.2 - 0.3 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH101	0.2 - 0.3 m	07/06/24	<0.2	<0.5	<1	<1	<1	<5	<0.1	<0.1	<0.1	0.8	-	-	-	-	-	0.0146	0.0057	<0.001	Detected
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	-	-	-	0.001	
BH101	0.5 - 0.6 m	07/06/24	<0.2	<0.5	<1	<1	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	0.4108	0.0864	0.0158	Detected
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	-	-	-	0.001	
BH101	0.8 - 0.9 m	07/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	50	20	20	20	-	-	-	
BH101	1.6 - 1.7 m	07/06/24	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			3	-	NL	-	NL	-	NL	-	-	-	-	-	-	-	-	-	-	-	
BH102	0.2 - 0.3 m	06/06/24	<0.2	<0.5	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH102	0.5 - 0.6 m	06/06/24	<0.2	<0.5	<1	<1	-	<5	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	0.0005	<0.001	Detected
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	50	20	20	20	0.001
BH103	0.2 - 0.3 m	06/06/24	<0.2	<0.5	<1	<1	-	<5	13.8	13.8	<0.1	<0.1	0.0004	<0.0001	0.0004	0.0004	<0.0001	-	0.0058	<0.001	Detected
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	50	20	20	20	0.001
BD3/20240606	0.2 - 0.3 m	05/06/24	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH103	0.5 - 0.6 m	06/06/24	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	0.2244	0.0283	Detected
			3	-	NL	-	230	-	-	-	-	-	-	-	-	-	-	-	-	0.001	
BH103 / PACM1	0.3 - 0.35 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Detected
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH103	1 - 1.1 m	06/06/24	<0.2	<0.5	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			3	-	NL	-	NL	-	NL	-	-	-	-	-	-	-	-	-	-	-	
BH103/PACM2	0.6 - 0.65 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Detected
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH104	0.2 - 0.3 m	06/06/24	<0.2	<0.5	<1	<1	-	<5	0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	<0.001	-
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	-	-	-	0.001	
BH104	0.6 - 0.7 m	06/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	50	20	20	20	-	-	-	
BH105	0.2 - 0.28 m	06/06/24	<0.2	<0.5	<1	<1	-	<5	<0.1	<0.1	<0.1	<0.1	0.0002	<0.0001	0.0002	0.0002	<0.0001	-	-	<0.001	-
			3	-	NL	-	230	-	660	-	45	-	2,000	-	7	-	50	20	20	20	0.001

Table C2: Summary Groundwater Results

			Dissolved Metals									Total Metals							
			Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
Practical Quantitation Limit (PQL)			1	0.1	1	1	-	1	0.05	1	1	1	0.1	1	1	1	0.05	1	1
ANZG (2018) Marine DGV 95% LOP			24 /13	0.7	4.4	1.3	-	4.4	0.1	7	8	24 /13	0.7	4.4	1.3	4.4	0.1	7	8
NPEC (2013) HSL - D for vapour intusion																			
HEPA (2020) Interim Marine DGV 99 % LOP																			
Sample ID	Sampling depth (m)	Sample Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
MW2	4.5-5	26/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW2	5.5-6	26/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH1	12-12.5	20/06/2024	<1	<0.1	4	2	28000	<1	<0.05	2	3	2	<0.1	15	25	9	<0.05	4	10
BH2	5.5-6	20/06/2024	<1	0.6	<1	84	130	1	<0.05	14	280	3	1	7	110	11	<0.05	18	320
BH3	8-8.5	20/06/2024	<1	0.2	<1	<1	4200	<1	<0.05	1	21	<1	1	3	2	3	<0.05	2	30
BD1	8-8.5	20/06/2024	<1	0.2	<1	<1	4400	<1	<0.05	<1	19	-	-	-	-	-	-	-	

Notes:

- * QA/QC replicate of sample listed directly below the primary sample
- PQL Practical quantitation limit
- No criterion / not defined / not tested / not applicable

Shaded cell is exceedance of guideline value

Where one or more guideline value is exceeded, the cell is shaded to the colour of the highest guideline value exceeded

NHMRC Recreational Water Screening Levels derived from 10 times Australian Drinking Water Guidelines 6 Ver 3.8 Updated September 2022

Table C2: Summary Groundwater Results

			TRH						BTEXN						VOC			Total +vePAH's	All Analysed OCP	All Analysed OPP	All Analysed PCB	Total Phenolics (as Phenol)	PFAS		
			TRH C6 - C10	VTPH C6 - C10 lessBTEX (F1)	TRH >C10 - C16less Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Total +ve TRH C40)	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-xylene	Naphthalene	Chloroform	Tetrachloroethene	All Analysed VOCs						Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Total Positive PFAS
Practical Quantitation Limit (PQL)			10	10	50	100	100	50	1	1	1	-	3	1			-	0.1-0.5	0.001-0.002	0.004-0.1	-	5	0.0002	0.0002	0.0002
ANZG (2018) Marine DGV 95% LOP								500	180	80	75 / 200	350	50	370	330	-	-	-	-	-	-	11	-	-	-
NPEC (2013) HSL - D for vapour intusion			NL	NL				30 000	NL	NL	NL	NL	NL												
HEPA (2020) Interim Marine DGV 99 % LOP																						0.00023	19		
Sample ID	Sampling depth (m)	Sample Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
MW2	4.5-5	26/06/2024	<10	<10	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1	1	<1	1	-	-	-	-	-	-	-	-
MW2	5.5-6	26/06/2024	<10	<10	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-
BH1	12-12.5	20/06/2024	<10	<10	150	<100	<100	<50	<1	<1	<1	<2	<1	<1	8	<1	8	<PQL	<PQL	<PQL	<0.01	<0.05	0.0032	0.002	0.039
BH2	5.5-6	20/06/2024	13	13	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1	<1	10	10	<PQL	<PQL	<PQL	<0.01	<0.05	0.11	0.015	0.013
BH3	8-8.5	20/06/2024	14	14	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1	<1	<1	<1	<PQL	<PQL	<PQL	<0.01	<0.05	0.29	0.026	0.38
BD1	8-8.5	20/06/2024	11	11	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1	-	-	-	<PQL	-	-	-	-	-	-	-

Notes:

- * QA/QC replicate of sample listed directly below the primary sample
- PQL Practical quantitation limit
- No criterion / not defined / not tested / not applicable

Shaded cell is exceedance of guideline value

Where one or more guideline value is exceeded, the cell is shaded to the colour of the highest guideline value exceeded

NHMRC Recreational Water Screening Levels derived from 10 times Australian Drinking Water Guidelines 6 Ver 3.8 Updated September 2022

Table C3: Summary of Laboratory Results – Soil Vapour.

		Isopropyl Alcohol	Vinyl chloride	Trichloroethene	1,1-Dichloroethene	trans-1,2-dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Benzene	Toluene	Ethylbenzene	m- & p-Xylene	o-Xylene	Naphthalene	TRH F1	TRH F2
	PQL	12	0.8	1.6	2	2	2	3.4	1.6	1.9	2.2	4.3	2.2	2.6		
Interrim HIL-D Commercial / Industrial		-	100	80	-	-	300	8000	-	-	-	-		-	-	-
NEPC (2013) HSL D - Sand 0-1m		-	-	-	-	-	-	-	4000	4 800 000	1 300 000	840 000		3000	680 000	500 000
Sample ID	Sample Date	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
SV202	20/06/2024	330	<0.8	6	<2	<2	<2	4	4	62	5	20	5	<2.6	<200	80
SV203	20/06/2024	410	<0.8	9	<2	<2	<2	570	3	53	5	10	5	<2.6	470	60
SV204	20/06/2024	190	<0.8	<1.6	<2	<2	<2	710	2	38	4	10	4	<2.6	320	<40
BD1	20/06/2024	200	<0.8	<1.6	<2	<2	<2	730	2	40	4	10	4	<2.6	370	<40
SV205	20/06/2024	290	<0.8	<1.6	<2	<2	<2	5	3	58	5	10	4	<2.6	<200	50
Shroud	20/06/2024	1300000	-	-	-	-	-	-	-		-	-	-	-	-	-

Notes:

- *

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PQL

-
- QA/QC replicate of sample listed directly below the primary sample

Isopropyl alcohol used as QA analyte and hence detections have not been considered from a site suitability perspective

Practical quantitation limit

No criterion / not defined / not tested / not applicable

Shaded cell is an exceedance of the guideline value

Where one or more guideline value is exceeded, the cell is shaded to the colour of the highest guideline value exceeded

			Metals													TRH		BTEX			
			Total Arsenic	Total Arsenic TCLP	Cadmium	Cadmium TCLP	Total Chromium	Total Chromium TCLP	Lead	Lead TCLP	Mercury (inorganic)	Mercury TCLP	Nickel	Nickel TCLP	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	
		PQL	4	<0.05	0.4	<0.01	1	<0.01	1	0.03	0.1	<0.0005	1	<0.02	25	50	0.2	0.5	1	1	
Sample ID	Depth	Sample Date	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
BH3	0.1 - 0.2 m	5/06/2024	<4	-	<0.4	-	22	-	49	-	<0.1	-	24	-	<25	21,700	<0.2	<0.5	<1	<1	
BH3	0.5 - 0.6 m	5/06/2024	4	-	<0.4	-	4	-	460	0.1	10	-	3	-	<25	220	<0.2	<0.5	<1	<1	
BH1	0.1 - 0.2 m	3/06/2024	<4	-	<0.4	-	37	-	62	-	<0.1	-	34	-	<25	1,440	<0.2	<0.5	<1	<1	
BH2	0.2 - 0.3 m	4/06/2024	59	<0.05	7.5	0.05	42	<0.01	21,000	44	1.9	<0.0005	50	0.1	<25	600	<0.2	<0.5	<1	<1	
BH2	0.5 - 0.6 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH2	0.9 - 1 m	4/06/2024	<4	-	<0.4	-	3	-	200	18	2.7	-	2	-	<25	<50	<0.2	<0.5	<1	<1	
BH2 - [TRIPLICATE]	0.2 - 0.3 m	4/06/2024	16	-	4	-	22	-	8,800	-	2.4	-	43	-	-	-	-	-	-	-	
BH101	0.2 - 0.3 m	07/06/24	5	-	1	-	11	-	1,800	9.8	0.8	-	11	-	<25	380	<0.2	<0.5	<1	<1	
BH101	0.5 - 0.6 m	07/06/24	29	<0.05	15	0.17	59	<0.01	8,100	88	7.9	<0.0005	210	0.33	<25	9,373	<0.2	<0.5	<1	<1	
BH101	0.8 - 0.9 m	07/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH101	1.6 - 1.7 m	07/06/24	<4	-	<0.4	-	3	-	36	-	0.1	-	<1	-	<25	<50	<0.2	<0.5	<1	<1	
BH102	0.2 - 0.3 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1	
BH102	0.5 - 0.6 m	06/06/24	<4	-	<0.4	-	30	-	250	-	0.6	-	26	-	<25	<50	<0.2	<0.5	<1	<1	
BH102	1 - 1.1 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH103	0.2 - 0.3 m	06/06/24	5	-	0.6	-	8	-	1,300	0.67	0.4	-	5	-	<25	<50	<0.2	<0.5	<1	<1	
BD3/20240606	0.2 - 0.3 m	05/06/24	<4	-	0.6	-	6	-	390	-	0.4	-	5	-	<25	<50	<0.2	<0.5	<1	<1	
BH103	0.5 - 0.6 m	06/06/24	<4	-	0.4	-	6	-	400	-	0.5	-	4	-	<25	<50	<0.2	<0.5	<1	<1	
BH103 / PACM1	0.3 - 0.35 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH103	1 - 1.1 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1	
BH103/PACM2	0.6 - 0.65 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH104	0.2 - 0.3 m	06/06/24	<4	-	<0.4	-	4	-	230	-	0.2	-	3	-	<25	<50	<0.2	<0.5	<1	<1	
BH104	0.6 - 0.7 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH105	0.2 - 0.28 m	06/06/24	5	-	0.6	-	9	-	120	-	0.1	-	17	-	<25	<50	<0.2	<0.5	<1	<1	
BH106	0.2 - 0.3 m	06/06/24	<4	-	2	-	53	-	830	6.5	1.2	-	14	-	<25	260	<0.2	<0.5	<1	<1	
BH107	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	3	-	19	-	<0.1	-	<1	-	<25	<50	<0.2	<0.5	<1	<1	
BH108	0.2 - 0.3 m	05/06/24	5	-	0.5	-	5	-	220	-	0.2	-	3	-	<25	<50	<0.2	<0.5	<1	<1	
BH108	0.5 - 0.6 m	05/06/24	4	-	0.6	-	4	-	250	-	0.2	-	4	-	<25	<50	<0.2	<0.5	<1	<1	
BH108	1 - 1.1 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH108	1.3 - 1.4 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH109	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	4	-	390	0.1	0.5	-	4	-	<25	<50	<0.2	<0.5	<1	<1	
BH109	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1	
BH110	0.2 - 0.3 m	05/06/24	<4	<0.05	<0.4	<0.01	5	<0.01	170	0.2	8.5	<0.0005	3	<0.02	<25	<50	<0.2	<0.5	<1	<1	
BD1/20240605	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	4	-	160	-	1	-	3	-	<25	<50	<0.2	<0.5	<1	<1	
BH110	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1	
BH110	1 - 1.1 m	05/06/24	<4	-	<0.4	-	4	-	200	-	0.8	-	3	-	<25	<50	<0.2	<0.5	<1	<1	
BH111	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	4	-	17	-	<0.1	-	3	-	<25	<50	<0.2	<0.5	<1	<1	
BH111	0.5 - 0.6 m	05/06/24	<4	-	<0.4	-	4	-	250	-	0.6	-	4	-	<25	<50	<0.2	<0.5	<1	<1	
BH111	1 - 1.1 m	05/06/24	<4	-	<0.4	-	<1	-	13	-	<0.1	-	<1	-	<25	<50	<0.2	<0.5	<1	<1	
BH112	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	3	-	100	-	<0.1	-	2	-	<25	<50	<0.2	<0.5	<1	<1	
BH112	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

			Metals												TRH		BTEX			
			Total Arsenic	Total Arsenic TCLP	Cadmium	Cadmium TCLP	Total Chromium	Total Chromium TCLP	Lead	Lead TCLP	Mercury (inorganic)	Mercury TCLP	Nickel	Nickel TCLP	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes
		PQL	4	<0.05	0.4	<0.01	1	<0.01	1	0.03	0.1	<0.0005	1	<0.02	25	50	0.2	0.5	1	1
Sample ID	Depth	Sample Date	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH113	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	1	-	2	-	<0.1	-	<1	-	<25	<50	<0.2	<0.5	<1	<1
BH113	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1
BH113	1 - 1.1 m	05/06/24	8	-	0.7	-	9	-	2,900	170	0.3	-	9	-	<25	<50	<0.2	<0.5	<1	<1
BH113	1.4 - 1.5 m	05/06/24	<4	-	<0.4	-	2	-	21	-	0.1	-	<1	-	<25	<50	<0.2	<0.5	<1	<1
BH105 - [TRIPLICATE]	0.2 - 0.28 m	06/06/24	<4	-	0.5	-	9	-	120	-	0.1	-	15	-	-	-	-	-	-	-
BH111 - [TRIPLICATE]	0.2 - 0.3 m	05/06/24	<4	-	<0.4	-	4	-	34	-	<0.1	-	3	-	-	-	-	-	-	-
Waste Classification Criteria ^f																				
CT1			100	-	20	-	100	-	100	-	4	-	40	-	-	10,000	10	288	600	1000
SCC1			500	-	100	-	1,900	-	1,500	-	50	-	1,050	-	-	10,000	18	518	1,080	1,800
TCLP1			-	5	-	1	-	5	-	5	-	0.2	-	2	-	-	-	-	-	-
CT2			400	-	80	-	400	-	400	-	16	-	160	-	-	40,000	40	1,152	2,400	4,000
SCC2			2,000	-	400	-	7,600	-	6,000	-	200	-	4,200	-	-	40,000	72	2,073	4,320	7,200
TCLP2			-	20	-	4	-	20	-	20	-	0.8	-	8	-	-	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

- Notes:
- a

QA/QC replicate of sample listed directly below the primary sample
- b

Total chromium used as initial screen for chromium(VI).
- c

Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)
- d

Criteria for scheduled chemicals used as an initial screen
- e

Criteria for Chlorpyrifos used as initial screen
- f

NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste
- PQL

Practical quantitation limit
- CT1

Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
- SCC1

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
- TCLP1

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
- CT2

Maximum values of specific contaminant concentration (SCC) for classification without TCLP: Restricted solid waste
- SCC2

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste
- TCLP2

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste

Table C4. Preliminary waste classification (soils)

			PAH				Phenols	OCP	OPP	PCB	Scheduled Chemical Waste	VOC	PFAS				Asbestos			
			Benzo(a)pyrene (BaP)	BaP TCLP	Total PAH	Total PAH TCLP	Total Phenolics	Total Analysed OCP	Total Analysed OPP	Total PCB		Total Positive VOC	PFOA	TCLP PFOA	PFOS + PFHxS	TCLP PFOS + PFHxS	Asbestos ID (soil/ material)	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
		PQL	0.05	<0.001	0.05	-	5	0.1	0.1	0.1	0.1	1	0.0001	0.00001	0.0001	0.00001				0.001
Sample ID	Depth	Sample Date	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/L	-	g	g	%(w/w)
BH3	0.1 - 0.2 m	5/06/2024	150	-	1,200	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	NAD	-	-	<0.001
BH3	0.5 - 0.6 m	5/06/2024	2.1	-	19	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	<0.001
BH1	0.1 - 0.2 m	3/06/2024	0.09	-	0.09	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	-
BH2	0.2 - 0.3 m	4/06/2024	0.4	-	3.3	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	-
BH2	0.5 - 0.6 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	<0.0001	-	0.0003	-	-	-	-	-
BH2	0.9 - 1 m	4/06/2024	0.3	-	3.2	-	<5	<0.1	<0.1	15.8	15.8	-	-	-	-	-	NAD	-	-	<0.001
BH2 - [TRIPLICATE]	0.2 - 0.3 m	4/06/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH101	0.2 - 0.3 m	07/06/24	0.2	-	1.8	-	<5	<0.1	<0.1	0.8	<0.1	<1	-	-	-	-	Detected	0.0146	0.0057	<0.001
BH101	0.5 - 0.6 m	07/06/24	1.9	<0.001	22	<PQL	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	Detected	0.4108	0.0864	0.0158
BH101	0.8 - 0.9 m	07/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.00001	<0.0001	<0.00001	-	-	-	-
BH101	1.6 - 1.7 m	07/06/24	0.2	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH102	0.2 - 0.3 m	06/06/24	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-
BH102	0.5 - 0.6 m	06/06/24	0.56	-	6.7	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	<0.00001	<0.0001	<0.00001	Detected	-	0.0005	<0.001
BH102	1 - 1.1 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH103	0.2 - 0.3 m	06/06/24	1.1	<0.001	14	<PQL	<5	13.8	<0.1	<0.1	13.8	-	<0.0001	<0.00001	0.0004	<0.00001	Detected	-	0.0058	<0.001
BD3/20240606	0.2 - 0.3 m	05/06/24	1.2	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH103	0.5 - 0.6 m	06/06/24	1.1	-	9.2	-	-	-	-	-	-	-	-	-	-	-	Detected	-	0.2244	0.0283
BH103 / PACM1	0.3 - 0.35 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Detected	-	-	-
BH103	1 - 1.1 m	06/06/24	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-
BH103/PACM2	0.6 - 0.65 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Detected	-	-	-
BH104	0.2 - 0.3 m	06/06/24	0.86	-	12	-	<5	0.1	<0.1	<0.1	0.1	-	-	-	-	-	-	-	-	<0.001
BH104	0.6 - 0.7 m	06/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	<0.00001	<0.0001	<0.00001	-	-	-	-
BH105	0.2 - 0.28 m	06/06/24	0.3	-	3.2	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	<0.00001	0.0002	<0.00001	NAD	-	-	<0.001
BH106	0.2 - 0.3 m	06/06/24	0.92	-	12	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	-	<0.0001	-	Detected	-	0.0016	<0.001
BH107	0.2 - 0.3 m	05/06/24	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	Detected	-	0.0006	<0.001
BH108	0.2 - 0.3 m	05/06/24	0.1	-	0.58	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	NAD	-	-	<0.001
BH108	0.5 - 0.6 m	05/06/24	0.2	-	1.8	-	-	-	-	-	-	-	-	-	-	-	Detected	-	0.0005	<0.001
BH108	1 - 1.1 m	05/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	-	-	-	-
BH108	1.3 - 1.4 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH109	0.2 - 0.3 m	05/06/24	0.3	-	3.2	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	-	<0.0001	-	NAD	-	-	<0.001
BH109	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-
BH110	0.2 - 0.3 m	05/06/24	0.3	-	3.9	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	NAD	-	-	<0.001
BD1/20240605	0.2 - 0.3 m	05/06/24	0.3	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH110	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	<1	<0.0001	-	<0.0001	-	-	-	-	-
BH110	1 - 1.1 m	05/06/24	0.2	-	1.5	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	<0.001
BH111	0.2 - 0.3 m	05/06/24	<0.05	-	<0.05	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	-	<0.0001	-	NAD	-	-	<0.001
BH111	0.5 - 0.6 m	05/06/24	1.4	<0.001	14	<PQL	-	-	-	-	-	-	-	-	-	-	NAD	-	-	<0.001
BH111	1 - 1.1 m	05/06/24	<0.05	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH112	0.2 - 0.3 m	05/06/24	<0.05	-	<0.05	-	<5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	NAD	-	-	<0.001
BH112	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	-	-	-	-

Table C4. Preliminary waste classification (soils)

			PAH				Phenols	OCP	OPP	PCB	Scheduled Chemical Waste	VOC	PFAS				Asbestos			
			Benzo(a)pyrene (BaP)	BaP TCLP	Total PAH	Total PAH TCLP	Total Phenolics	Total Analysed OCP	Total Analysed OPP	Total PCB		Total Positive VOC	PFOA	TCLP PFOA	PFOS + PFHxS	TCLP PFOS + PFHxS	Asbestos ID (soil/ material)	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation
		PQL	0.05	<0.001	0.05	-	5	0.1	0.1	0.1	0.1	1	0.0001	0.00001	0.0001	0.00001				0.001
Sample ID	Depth	Sample Date	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/L	-	g	g	%(w/w)
BH113	0.2 - 0.3 m	05/06/24	<0.05	-	<0.05	-	<5	<0.1	<0.1	<0.1	<0.1	-	<0.0001	-	<0.0001	-	NAD	-	-	<0.001
BH113	0.5 - 0.6 m	05/06/24	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	-
BH113	1 - 1.1 m	05/06/24	0.88	-	6.2	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	<0.001
BH113	1.4 - 1.5 m	05/06/24	0.7	-	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH105 - [TRIPLICATE]	0.2 - 0.28 m	06/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH111 - [TRIPLICATE]	0.2 - 0.3 m	05/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									Waste Classification Criteria ^f											
CT1			0.8	-	200	-	288	-	4	<50	<50	-	-	-	-	-	-	-	-	-
SCC1			10	-	200	-	518	-	7.5	<50	<50	-	18	-	1.8	-	-	-	-	-
TCLP1			-	0.04	-	-	-	-	-	-	-	-	-	0.5	-	0.05	-	-	-	-
CT2			3.2	-	800	-	1,152	-	16	<50	<50	-	-	-	-	-	-	-	-	-
SCC2			23	-	800	-	2,073	-	30	<50	<50	-	72	-	7.2	-	-	-	-	-
TCLP2			-	0.16	-	-	-	-	-	-	-	-	-	2	-	0.2	-	-	-	-

CT1 exceedance TCLP1 and/or SCC1 exceedance CT2 exceedance TCLP2 and/or SCC2 exceedance Asbestos detection

- = Not tested, no criteria or not applicable NAD = no asbestos detected

- Notes:
- a

QA/QC replicate of sample listed directly below the primary sample
- b

Total chromium used as initial screen for chromium(VI).
- c

Total recoverable hydrocarbons (TRH) used as an initial screen for total petroleum hydrocarbons (TPH)
- d

Criteria for scheduled chemicals used as an initial screen
- e

Criteria for Chlorpyrifos used as initial screen
- f

NSW EPA, 2014, Waste Classification Guidelines Part 1; Classifying Waste
- PQL

Practical quantitation limit
- CT1

Maximum values of specific contaminant concentration (SCC) for classification without TCLP: General solid waste
- SCC1

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
- TCLP1

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: General solid waste
- CT2

Maximum values of specific contaminant concentration (SCC) for classification without TCLP: Restricted solid waste
- SCC2

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste
- TCLP2

Maximum values for leachable concentration (TCLP) and specific contaminant concentration (SCC) when used together: Restricted solid waste



Figure 3 – Sample Locations



KEY

- BH1 Borehole Locations – Previous Investigations.
- BH9 Borehole Locations – Current Investigations.
- MW1 Monitoring Well- Previous Investigations.
- MW3 Monitoring Well- Current Investigations.
- Approximate Site Boundary
- Approximate Extent of Second Concrete Slab

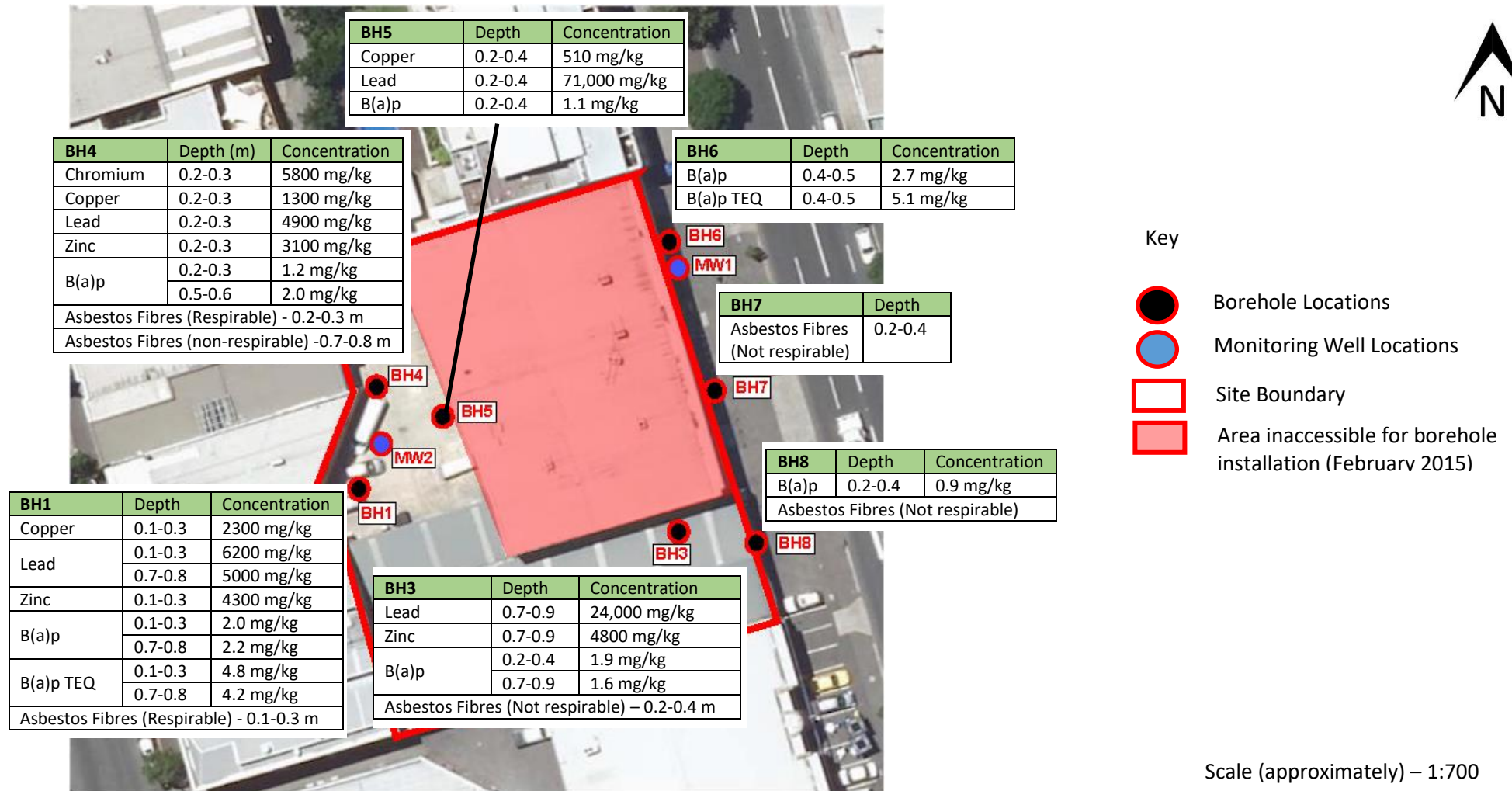
Source: <http://maps.six.nsw.gov.au/>

Your On-Site Geotechnical Specialists
Phone Us Today – 1800 288 188

Client: City West Housing
Project: 74-88 Botany Road, Alexandria, NSW
Location: 74-88 Botany Road, Alexandria, NSW

Job Number: 1726
Report Number: 1760-ER-1-6 REV 1
Report Date: 19/04/2017

Figure 4 – Detailed Site Investigation Sample Criteria Exceedances



Source: SIX Maps

Your On-Site Geotechnical Specialists
Phone Us Today - 02 9675 1777

Client: City West Housing Pty Ltd
Project: Remediation Action Plan – Rev1
Location: 74-88 Botany Road, Alexandria, NSW

Job Number: 1726
Report Number: 1726-ER-1-3 Rev2
Report Date: 29/09/2016

Table 1
74 - 88 Botany Road, Alexandria, NSW
Soil Results & Adopted Site Criteria - Fill Material Between Slabs at 74 Botany Road
1726-ER-1-6 (REV 1)

Table 1 74 - 88 Botany Road, Alexandria, NSW Soil Results & Adopted Site Criteria - Fill Material Between Slabs at 74 Botany Road 1726-ER-1-6 (REV 1)												Reference		SE163058.007	SE163058.011	SE163058.012	SE163058.013	
												Sample ID		BH9-0.2-0.4	BH10-0.2-0.4	BH13-0.2-0.4	BH15-0.4-0.6	
												Date Sampled		10-03-17	10-03-17	10-03-17	10-03-17	
												Sample Matrix		Soil	Soil	Soil	Soil	
Group	Analyte	Units	PQL	GSW Criteria CT1	RSW Criteria CT2	GSW Criteria TCLP1 (mg/L)	GSW Criteria SCC1 (mg/kg)	RSW Criteria TCLP2 (mg/L)	RSW Criteria SCC2 (mg/kg)	ENM Maximum Average	ENM Absolute Maximum	DATASET AVERAGE	DATASET MINIMUM	DATASET MAXIMUM	Fill	Fill	Fill	Fill
Metals	Arsenic	mg/kg	2	100	400	#	500	#	2,000	20	40	9.7	< 3	17	8	4	17	<3
	Cadmium	mg/kg	0.4	20	80	#	100	#	400	0.5	1	1.6	<0.3	3.4	3.4	0.6	0.9	<0.3
	Chromium	mg/kg	5	100	400	-	1,900	-	7,600	75	150	9	1.3	17	17	7.5	11	1.3
	Chromium (TCLP)	mg/L	-	-	-	5	-	20	-	-	-	-	-	0	-	-	-	-
	Copper	mg/kg	5	*	*	#	*	#	*	100	200	128	12	330	330	28	140	12
	Lead	mg/kg	5	100	400	-	1,500	-	6,000	50	100	1,621	64	4200	2,100	120	4,200	64
	Lead (TCLP)	mg/L	-	-	-	5	-	20	-	-	-	2	-	1.9	2	-	-	-
	Mercury	mg/kg	0.05	4	16	#	50	#	200	0.5	1	1	< 0.05	1	1	0.24	0.61	<0.05
	Nickel	mg/kg	5	40	160	-	1,050	-	4,200	30	60	32	1.4	110	110	7.6	7.7	1.4
	Nickel (TCLP)	mg/L	-	-	-	2	-	8	-	-	-	0	-	0.2	0.2	-	-	-
	Zinc	mg/kg	5	*	*	#	*	#	*	150	300	474	35	1100	1,100	210	550	35
PAHS	Acenaphthene	mg/kg	0.5	*	*	*	*	*	*	*	*	0	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	Acenaphthylene	mg/kg	0.5	*	*	*	*	*	*	*	*	0	<0.1	1.1	1.1	<0.1	0.2	0.1
	Anthracene	mg/kg	0.5	*	*	*	*	*	*	*	*	1	<0.1	2.2	2.2	<0.1	0.2	0.2
	Benz(a)anthracene	mg/kg	0.5	*	*	*	*	*	*	*	*	1.8	0.2	5.1	5.1	0.2	1.5	0.3
	Benz(a)pyrene	mg/kg	0.5	0.8	3.2	-	10	-	23	0.5	1	1.9	0.4	5.5	5.5	0.2	1.5	0.4
	Benz(a)pyrene (TCLP)	mg/L	-	-	-	0.04	-	0.16	-	-	-	-	-	<0.1	-	-	<0.1	-
	Benz(a)pyrene TEQ (lower bound) *	mg/kg	0.5	*	*	*	*	*	*	*	*	3.5	<0.2	7.8	7.8	<0.2	2.3	0.5
	Benz(a)pyrene TEQ (medium bound) *	mg/kg	0.5	*	*	*	*	*	*	*	*	2.8	0.3	7.8	7.8	0.3	2.3	0.6
	Benz(a)pyrene TEQ (upper bound) *	mg/kg	0.5	*	*	*	*	*	*	*	*	2.7	0.2	7.8	7.8	0.2	2.3	0.5
	Benz(b&j)fluoranthene	mg/kg	0.5	*	*	*	*	*	*	*	*	2.2	0.2	6.3	6.3	0.2	1.9	0.3
	Benz(g,h,i)perylene	mg/kg	0.5	*	*	*	*	*	*	*	*	1.2	0.1	3.3	3.3	0.1	1.2	0.3
	Benz(k)fluoranthene	mg/kg	0.5	*	*	*	*	*	*	*	*	0.9	0.1	2.4	2.4	0.1	0.8	0.2
	Chrysene	mg/kg	0.5	*	*	*	*	*	*	*	*	1.5	0.1	4.4	4.4	0.1	1.2	0.3
	Dibenz(a,h)anthracene	mg/kg	0.5	*	*	*	*	*	*	*	*	0.4	<0.1	0.6	0.6	<0.1	0.2	<0.1
	Fluoranthene	mg/kg	0.5	*	*	*	*	*	*	*	*	4.1	0.3	13	13	0.3	2.2	0.8
	Fluorene	mg/kg	0.5	*	*	*	*	*	*	*	*	0.5	<0.1	0.8	0.8	<0.1	<0.1	0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	*	*	*	*	*	*	*	*	1.3	<0.1	2.8	2.8	<0.1	1.0	0.2
	Naphthalene	mg/kg	0.5	*	*	*	*	*	*	*	*	0.2	<0.1	0.4	0.4	<0.1	0.1	0.1
	Phenanthrene	mg/kg	0.5	*	*	*	*	*	*	*	*	2.7	0.2	8.7	8.7	0.2	1.0	0.9
	Pyrene	mg/kg	0.5	*	*	*	*	*	*	*	*	3.8	0.3	12	12	0.3	2.3	0.7
	Total PAH*	mg/kg	0.5	200	800	N/A	200	N/A	800	20	40	22.3	1.5	68	68	1.5	15	4.8
TRH/BTEX	Naphthalene	mg/kg	0.5	*	*	*	*	*	*	*	*	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TRH C ₁ - C ₉	mg/kg	20	650	2,600	N/A	650	N/A	2,600	*	*	<20	<20	<20	<20	<20	<20	<20
	TRH C ₁₀ -C ₁₆	mg/kg	50	10,000	40,000	N/A	10,000	N/A	40,000	250	500	137.5	<110	220	220	<110	<110	<110
	Benzene	mg/kg	0.1	10	40	#	18	#	72	*	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1	600	2,400	#	1,080	#	4,320	*	25	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1	288	1,152	#	518	#	2,073	*	65	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylenes - Total	mg/kg	0.3	1,000	4,000	#	1,800	#	7,200	*	15	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Asbestos	Asbestos ID			Detection	Detection	Detection	Detection	Detection	Detection	Detection	Detection				-	No asbestos detected.	No asbestos detected.	No asbestos detected.

Concentration exceeding General Solid Waste Criteria CT1 (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria CT2 (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria TCLP1 (mg/L) (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria TCLP2 (mg/L) SCC1 (mg/kg) (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria SCC1 (mg/kg) (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria SCC2 (mg/kg) (NSW EPA Waste Classification Guidelines)
Concentration exceeding Excavated Natural Material Absolute Maximum Criteria (ENM Order 2014)
Concentration exceeding Excavated Natural Material Maximum Average Criteria (ENM Order 2014)
Special Waste due to asbestos detected

Guidelines not included as no sample analysed using this method
* =
No currently available criterion
- =
No sample analysed
N/A =
No TCLP analysis required
NC =
Not calculated

Table 2
74 - 88 Botany Road, Alexandria, NSW
Soil Results & Adopted Site Criteria - Fill Material
1726-ER-1-6 (REV 1)

[illegible]

	Concentration exceeding General Solid Waste Criteria CT1 (NSW EPA Waste Classification Guidelines)
	Concentration exceeding General Solid Waste Criteria CT2 (NSW EPA Waste Classification Guidelines)
	Concentration exceeding General Solid Waste Criteria TCLP1 (mg/L) (NSW EPA Waste Classification Guidelines)
	Concentration exceeding General Solid Waste Criteria TCLP2 (mg/L) SCC1 (mg/kg) (NSW EPA Waste Classification Guidelines)
	Concentration exceeding General Solid Waste Criteria SCC1 (mg/kg) (NSW EPA Waste Classification Guidelines)
	Concentration exceeding General Solid Waste Criteria SCC2 (mg/kg) (NSW EPA Waste Classification Guidelines)
	Concentration exceeding Excavated Natural Material Absolute Maximum Criteria (ENM Order 2014)
	Concentration exceeding Excavated Natural Material Maximum Average Criteria (ENM Order 2014)
	Special Waste due to asbestos detected
#	Guidelines not included as no sample analysed using this method
* =	No currently available criterion
- =	No sample analysed
N/A =	No TCLP analysis required
NC =	Not calculated

Table 3
74 - 88 Botany Road, Alexandria, NSW
Soil Results & Adopted Site Criteria - Natural Soils
1726-ER-1-6 REV 1

74 - 88 Botany Road, Alexandria, NSW									Reference											
Soil Results & Adopted Site Criteria - Natural Soils 1726-ER-1-6 REV 1									Sample ID		S15-Fe19206	S15-Fe19213	S15-Fe14137	S15-Fe14140	S15-Fe14142	SE163058.003	SE163058.006	SE163058.010	SE163058A.017	
									Date Sampled		BH1-1.0-1.2	BH5 1.2-1.3	BH6 1.4-1.5	BH7 0.6-0.8	BH8 0.6-0.8	MW3-2.8-3.0	MW4 2.8-3.0	BH9-2.1-2.3	BH9-2.8-3.0	
									Sample Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Group	Analyte	Units	PQL	GSW Criteria CT1	GSW Criteria TCLP1 (mg/L)	GSW Criteria SCC1 (mg/kg)	ENM Maximum Average	ENM Absolute Maximum	DATASET AVERAGE	DATASET MINIMUM	DATASET MAXIMUM	Nat - dark brown SAND	Nat - light brown/grey gravelly, sandy CLAY	Nat - light brown SAND	Nat - white grey SAND	Nat - coffee rock SAND	Nat - yellow SAND	Nat - yellow/brown SAND	Nat - grey/white SAND	Nat - grey / white / brown SAND
Metals	Arsenic	mg/kg	2	100	#	500	20	40	2.2	<1	<3	<2	<2	<2	<2	<2	<3	<3	<3	<1
	Cadmium	mg/kg	0.4	20	#	100	0.5	1	0.4	<0.3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.3	<0.3	<0.3	<0.3
	Chromium	mg/kg	5	100	-	1,900	75	150	3	<0.7	<5	<5	<5	<5	<5	<5	0.7	0.7	1.3	0.7
	Chromium (TCLP)	mg/L	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Copper	mg/kg	5	*	#	*	100	200	4	<0.5	10	<5	<5	<5	<5	<5	<0.5	<0.5	10	2.7
	Lead	mg/kg	5	100	-	1,500	50	100	37	<1	100	100	96	6.8	9	<5	1	<1	94	23
	Lead (TCLP)	mg/L	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mercury	mg/kg	0.05	4	#	50	0.5	1	0.1	<0.05	0.08	0.07	<0.05	0.06	<0.05	0.06	<0.05	<0.05	0.08	0.06
	Nickel	mg/kg	5	40	-	1,050	30	60	2	<0.5	<5	<5	<5	<5	<5	<5	<0.5	0.6	2	0.7
	Nickel (TCLP)	mg/L	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	*	#	*	150	300	65	8	310	35	19	310	9	8.4	9.9	9.4	160	21	
PAH5	Acenaphthene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	Acenaphthylene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	Anthracene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.1	-
	Benz(a)anthracene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.3	-
	Benzo(a)pyrene	mg/kg	0.5	0.8	-	10	0.5	1	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.2	-
	Benzo(a)pyrene (TCLP)	mg/L	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	*	*	*	*	*	0.4	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	0.3	-
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	*	*	*	*	*	0.4	<0.3	0.6	0.6	0.6	0.6	0.6	0.6	<0.3	<0.3	0.4	-
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	*	*	*	*	*	0.8	<0.2	1.2	1.2	1.2	1.2	1.2	1.2	<0.2	<0.2	0.4	-
	Benzo(b&j)fluoranthene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.3	-
	Benzo(g,h,i)perylene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.2	-
	Benzo(k)fluoranthene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.1	-
	Chrysene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.2	-
	Dibenz(a,h)anthracene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	Fluoranthene	mg/kg	0.5	*	*	*	*	*	0.4	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.7	-
	Fluorene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.1	-
	Naphthalene	mg/kg	0.5	*	*	*	*	*	0.3	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	Phenanthrene	mg/kg	0.5	*	*	*	*	*	0.4	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.5	-
	Pyrene	mg/kg	0.5	*	*	*	*	*	0.4	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	0.6	-
TRH/BTEX	Total PAH*	mg/kg	0.5	200	N/A	200	20	40	0.8	<0.5	<0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.8	<0.8	3.3	-
	Naphthalene	mg/kg	0.5	*	*	*	*	*	0.2	<0.1	<0.5	-	-	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	-
	TRH C ₆ - C ₉	mg/kg	20	650	N/A	650	*	*	<20	<20	<20	-	-	-	-	-	<20	<20	<20	-
	TRH C ₁₀ -C ₁₆	mg/kg	50	10,000	N/A	10,000	250	500	<110	<110	<110	-	-	-	-	-	<110	<110	<110	-
	Benzene	mg/kg	0.1	10	#	18	*	0.5	<0.1	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1	<0.1	-
	Ethylbenzene	mg/kg	0.1	600	#	1,080	*	25	<0.1	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1	<0.1	-
	Toluene	mg/kg	0.1	288	#	518	*	65	<0.1	<0.1	<0.1	-	-	-	-	-	<0.1	<0.1	<0.1	-
	Xylenes - Total	mg/kg	0.3	1,000	#	1,800	*	15	<0.3	<0.3	<0.3	-	-	-	-	-	<0.3	<0.3	<0.3	-
Asbestos																				
	Asbestos ID			Detection	Detection	Detection	Detection	Detection				No asbestos detected.	-	-	No asbestos detected.	-	No asbestos detected.	-	-	-

Concentration exceeding General Solid Waste Criteria CT1 (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria TCLP1 (mg/L) (NSW EPA Waste Classification Guidelines)
Concentration exceeding General Solid Waste Criteria SCC1 (mg/kg) (NSW EPA Waste Classification Guidelines)
Concentration exceeding Excavated Natural Material Absolute Maximum Criteria (ENM Order 2014)
Concentration exceeding Excavated Natural Material Maximum Average Criteria (ENM Order 2014)
Guidelines not included as no sample analysed using this method
* = No currently available criterion
- = No sample analysed
N/A = No TCLP analysis required
NC = Not calculated

Table 2
74 - 88 Botany Road, Alexandria, NSW
Groundwater Analytical Data
1726-ER-1-3

Group	Analyte	Units	LOR	Drinking Water Criteria ¹	Aquatic Ecosystem Criteria ²	Recreational criteria- primary and secondary contact ³	Health Screening Levels - Residential - NEPM (2013) ⁴	DATASET MINIMUM	DATASET MAXIMUM								
Metals (filtered)	Arsenic	mg/L	0.001	0.01	-	0.05	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Cadmium	mg/L	0.0001	0.002	0.0007	0.005	-	0	0	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	-	-	-
	Chromium	mg/L	0.001	0.05	0.0044	0.5	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Copper	mg/L	0.001	2	0.0013	1	-	0.002	0.004	0.002	0.002	0.002	0.004	0.003	-	-	-
	Lead	mg/L	0.001	0.01	0.0044	0.05	-	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	-	-	-
	Mercury	mg/L	0.0001	0.001	0.0001	0.001	-	0.0001	0.0002	0.0002	< 0.0001	0.0001	< 0.0001	< 0.0001	-	-	-
	Nickel	mg/L	0.001	0.02	0.007	0.1	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Zinc	mg/L	0.005	-	0.015	5	-	0.02	0.066	0.066	0.02	0.024	0.063	0.043	-	-	-
Metals (Total)	Arsenic	mg/L	0.001	0.01	-	0.05	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Cadmium	mg/L	0.0001	0.002	0.0007	0.005	-	0	0	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	-	-	-
	Chromium	mg/L	0.001	0.05	0.0044	0.5	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Copper	mg/L	0.001	2	0.0013	1	-	0.001	0.002	< 0.001	0.001	0.001	0.002	0.001	-	-	-
	Lead	mg/L	0.001	0.01	0.0044	0.05	-	0.002	0.004	< 0.001	0.002	0.004	< 0.001	0.004	-	-	-
	Mercury	mg/L	0.0001	0.001	0.0001	0.001	-	0	0	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	-	-	-
	Nickel	mg/L	0.001	0.02	0.007	0.1	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Zinc	mg/L	0.005	-	0.015	5	-	0.02	0.056	0.052	0.02	0.028	0.056	0.029	-	-	-
TRH	Naphthalene	mg/L	0.01	-	-	-	-	0	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	TRH >C10-C16	mg/L	0.05	-	-	-	-	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-
	TRH >C10-C16 less Naphthalene (F2)	mg/L	0.05	-	-	-	1	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-
	TRH >C16-C34	mg/L	0.1	-	-	-	NL	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	-
	TRH >C34-C40	mg/L	0.1	-	-	-	NL	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	-
	TRH C6-C10	mg/L	0.02	-	-	-	-	0	0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-
	TRH C6-C10 less BTEX (F1)	mg/L	0.02	-	-	-	1	0	0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-
	1.1.1.2-Tetrachloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
Halogenated Volatile Organics	1.1.1-Trichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.1.2.2-Tetrachloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.1.2-Trichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.1-Dichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.1-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.2.3-Trichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.2-Dibromoethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.2-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.2-Dichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.2-Dichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.3-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.3-Dichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	1.4-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Bromodichloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Bromoform	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Bromomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Carbon Tetrachloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Chlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Chloroform	mg/L	< 0.005	-	-	-	-	0	0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-
	Chloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	cis-1.2-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	cis-1.3-Dichloropropene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Dibromochloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Dibromomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Iodomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Methylene Chloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	Tetrachloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
	trans-1.2-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-
trans-1.3-Dichloropropene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-	
Trichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-	
Trichlorofluoromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-	
Vinyl chloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	-	-	
VOCs	1.1.1.2-Tetrachloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.1.1-Trichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.1.2.2-Tetrachloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.1.2-Trichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.1-Dichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.1-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2.3-Trichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2.4-Trimethylbenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2-Dibromoethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2-Dichloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1.2-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 2
74 - 88 Botany Road, Alexandria, NSW
Groundwater Analytical Data
1726-ER-1-3

								Reference	S17-Ma25699	S17-Ma25700	S17-Ma25701	S17-Ma25702	S17-Ma25703	S17-Ma25704	S17-Ma25705
								Sample ID	MW1	MW2	MW3	MW4	QC1	RINSATE BLANK	TRIP BLANK
								Date Sampled	23-03-17	23-03-17	23-03-17	23-03-17	23-03-17	23-03-17	23-03-17
								Sample Matrix	Water	Water	Water	Water	Water	Water	Water
Group	Analyte	Units	LOR	Drinking Water Criteria ¹	Aquatic Ecosystem Criteria ²	Recreational criteria- primary and secondary contact ³	Health Screening Levels - Residential - NEPM (2013) ⁴	DATASET MINIMUM	DATASET MAXIMUM						
	1,2-Dichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1,3,5-Trimethylbenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1,3-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1,3-Dichloropropane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	1,4-Dichlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	2-Butanone (MEK)	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	2-Propanone (Acetone)	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	4-Chlorotoluene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Allyl chloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Benzene	mg/L	< 0.001	0.001	0.9	0.01	0.8	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Bromobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Bromochloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Bromodichloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Bromoform	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Bromomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Carbon disulfide	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Carbon Tetrachloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Chlorobenzene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Chloroethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Chloroform	mg/L	< 0.005	-	-	-	-	0	0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	Chloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	cis-1,2-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	cis-1,3-Dichloropropene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Dibromochloromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Dibromomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Dichlorodifluoromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Ethylbenzene	mg/L	< 0.001	0.3	-	-	NL	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Iodomethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Isopropyl benzene (Cumene)	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	m&p-Xylenes	mg/L	< 0.002	-	-	-	-	0	0	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	Methylene Chloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	o-Xylene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Styrene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Tetrachloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Toluene	mg/L	< 0.001	0.8	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	trans-1,2-Dichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	trans-1,3-Dichloropropene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Trichloroethene	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Trichlorofluoromethane	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Vinyl chloride	mg/L	< 0.001	-	-	-	-	0	0	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Xylenes - Total	mg/L	< 0.003	0.6	-	-	-	0	0	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Notes

1. Groundwater Investigation Levels - Drinking Water (NEPC 2013)

2. Groundwater Investigation Levels - Marine Waters (NEPC 2013)

3. Groundwater Health Screening Levels for Vapour Intrusion, Residential, Sand (2m - <4m)/(NEPC 2013)

4. Recreational Trigger Values for Primary and Secondary Contact Recreation (ANZECC/ARMCANZ 2000)

LOR - Level of Reporting

-- No Guideline

NL - Not Limiting "If the derived groundwater HSL exceeds the water solubility limit, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario."

Appendix D

Fieldwork Results

Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style **XW**. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

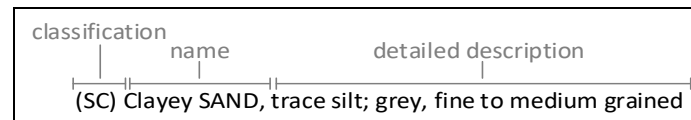
Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Introduction

All materials which are not considered to be “in-situ rock” are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The “classification” comprises a two character “group symbol” providing a general summary of dominant soil characteristics. The “name” summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either “fine grained” (also known as “cohesive” behaviour) or “coarse grained” (“non cohesive” behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as “oversize”	
Cobble	63 - 200		
Gravel ¹	2.36 - 63	Coarse	>65%
Sand ¹	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

¹ – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer “component proportions” below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a “Sandy CLAY”, this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a “primary”, “secondary”, or “minor” component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition ¹	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor ²	Present in the soil, but not significant to its engineering properties	All other components	All other components

¹ As defined in AS1726-2017 6.1.4.4

² In the detailed material description, minor components are split into two further sub-categories. Refer “identification of minor components” below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, “INTERBEDDED Silty CLAY AND SAND”.

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component ¹	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

¹ – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type	Particle size (mm)	
	Coarse	Fine
Gravel	19 - 63	6.7 - 19
	6.7 - 19	2.36 - 6.7
	2.36 - 6.7	0.6 - 2.36
Sand	0.6 - 2.36	0.21 - 0.6
	0.21 - 0.6	0.075 - 0.21
	0.075 - 0.21	

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code **NDF**, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as “extremely weathered material” in reports and by the abbreviation code **XWM** on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than ‘very low’ as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be “oversize” may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with “MIXTURE OF”.

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Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:

SAMPLE			DEPTH (m)	TESTING	
SAMPLE REMARKS	TYPE	INTERVAL		TEST TYPE	RESULTS AND REMARKS
	SPT		1.0 1.45	SPT	4,9,11 N=20

Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U ¹
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

¹ – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y = x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(L)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD ¹
Air Track	AT
Diatube	DT ¹
Hand auger	HA ¹
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA ¹
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT ¹
Ripping tyne/ripper	R
Rock roller	RR ¹
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON ¹
Mud/blade bucket	MB ¹
Toothed bucket	TB ¹
Vibrocure	VC ¹
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB ¹

¹ – numeric suffixes indicate tool diameter/width in mm

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.3 AHD
COORDINATE: E:333462.6, N:6247699.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 221233.02
DATE: 03/06/24 - 04/06/24
SHEET: 1 of 4

CONDITIONS ENCOUNTERED																SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS.(%)	DENSITY.(g)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE							
	0.05	ASPHLATIC CONCRETE: dark grey. 50mm thick.		FILL					ES	0.10												
	0.30	FILL / SAND, with concrete, with gravel: dark grey; coarse; angular to sub-angular, blue metal and sandstone gravel.		FILL		ND			ES	0.50												
	0.80	FILL / SAND, trace ceramic, trace gravel: grey; coarse; angular to sub-angular, sandstone gravel.		AEO		VL			ES	0.90												
	1	Silty SAND (SM): brown to grey; fine to medium; <10% non plastic fines.					M		ES	1.40			1,0,1 N=1									
	1.50	SAND (SP): light brown; fine to medium.																				
	2																					
	2																					
	3											SPT	2,6,7 N=13									
	3																					
	4			MAR		MD																
	4											SPT	2,4,8 N=12									
	5																					
	5																					
	6											SPT	13,19,25 N=44									
	6					D																
	6.40						W															
	7	Silty SAND, trace gravel: dark brown; fine to medium; fine to medium, sub-angular to sub-rounded, sandstone gravel; with peat/lenses. Organic odour.																				
	7											SPT	4,11,17 N=28									
	8			MAR		MD																
	8																					
	9											SPT	10,10,8 N=18									
	9																					
	9.50	Silty CLAY (CL), trace gravel: grey mottled red-brown; low plasticity; angular to sub-angular, shale gravel.		RS		F	w>PL															

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 15.0m, NMLC to 21.9m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 4.3m, then HQ to 15m, then HWT to 17.1m



Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.3 AHD
COORDINATE: E:333462.6, N:6247699.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 221233.02
DATE: 03/06/24 - 04/06/24
SHEET: 2 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	5		[CONT] Silty CLAY (CL), trace gravel: grey mottled red-brown; low plasticity; angular to sub-angular, shale gravel.										SPT	0,1,4 N=5		
	11					F						11				
	12				RS			w>PL				12	SPT	6,7,12 N=19		
	13					VSt						13				
	14											14				
	14.70															
	15.00		SHALE: pale grey and red-brown; with indurated beds of red-brown ironstone. Ashfield Shale Continued as rock									15	SPT	9,19,25/100		
	16											16				
	17											17				
	18											18				
	19											19				
	20											20				
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	100											100				

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

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PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 15.0m, NMLC to 21.9m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 4.3m, then HQ to 15m, then HWT to 17.1m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.3 AHD
COORDINATE: E:333462.6, N:6247699.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 221233.02
DATE: 03/06/24 - 04/06/24
SHEET: 3 of 4

CONDITIONS ENCOUNTERED										SAMPLE				TESTING					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH. [BS XW HW MW SW FR] DW	DEPTH (m)	STRENGTH [VL M H VH EH]	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	5																		
	11																		
	4																		
	12																		
	3																		
	13																		
	2																		
	14																		
	1																		
	15		Continued from soil																
	0		SHALE: pale grey and red-brown; with indurated beds or red-brown ironstone. Ashfield Shale		XW	15.00		100	72		14.50m: , Unless otherwise stated below, defects are B0°-10°; PR, SM, CN 15.16m: , ST, CT Clay, SM 15.28m: , IR, SN Fe, RF 15.58m: , UN, CT Clay, RF 15.65m: , CT Clay					PLT — PL(A)=0.7MPa PLT — PL(A)=0.4MPa			
	16																		
	16.35		LAMINITE: 80% shale and 20% siltstone. Ashfield Shale		HW	15.90	VL	100	83		16.03m: , ST, SN Fe, RF					PLT — PL(A)=0.1MPa PLT — PL(A)=2.8MPa			
	17																		
	17.10		SANDSTONE: light brown becoming grey, fine to medium grained; laminated to medium bedded. Hawkesbury Sandstone		SW	17.10	L				17.20m: , ST, RF 17.26m: , UN, RF					PLT — PL(A)=0.1MPa PLT — PL(A)=0.2MPa			
	17.50				HW	17.30	VL to L												
	17.58				SW	17.58	L				17.65m: B, 20°, UN, CN, RF 17.68m: , CN, RF 17.74m: , CN, RF 17.75m: , RF 18.05m: , RF					PLT — PL(A)=1MPa			
	17.65					17.65													
	17.75					17.75													
	18		SANDSTONE: brown, medium to coarse grained, thinly bedded		SW to MW		L to M	95	67		18.48m: , RF 18.49m: , RF 18.56m: , RF 18.94m: , UN, INF Clay, RF								
	19		SANDSTONE: grey and brown, fine to medium grained, laminated to medium bedded		SW to FR	19.00	M to H	100	81		19.25m: , UN, CT M, RF 19.49m: , UN, RF, sand INF					PLT — PL(A)=0.3MPa PLT — PL(A)=0.9MPa			
	19																		

NOTES: 1. Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 15.0m, NMLC to 21.9m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ

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BOREHOLE LOG

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DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 221233.02
DATE: 03/06/24 - 04/06/24
SHEET: 4 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.			DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	-5		[CONT] SANDSTONE: grey and brown, fine to medium grained, laminated to medium bedded		SW to FR																

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 15.0m, NMLC to 21.9m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 4.3m, then HQ to 15m, then HWT to 17.1m

Refer to explanatory notes for symbol and abbreviation definitions

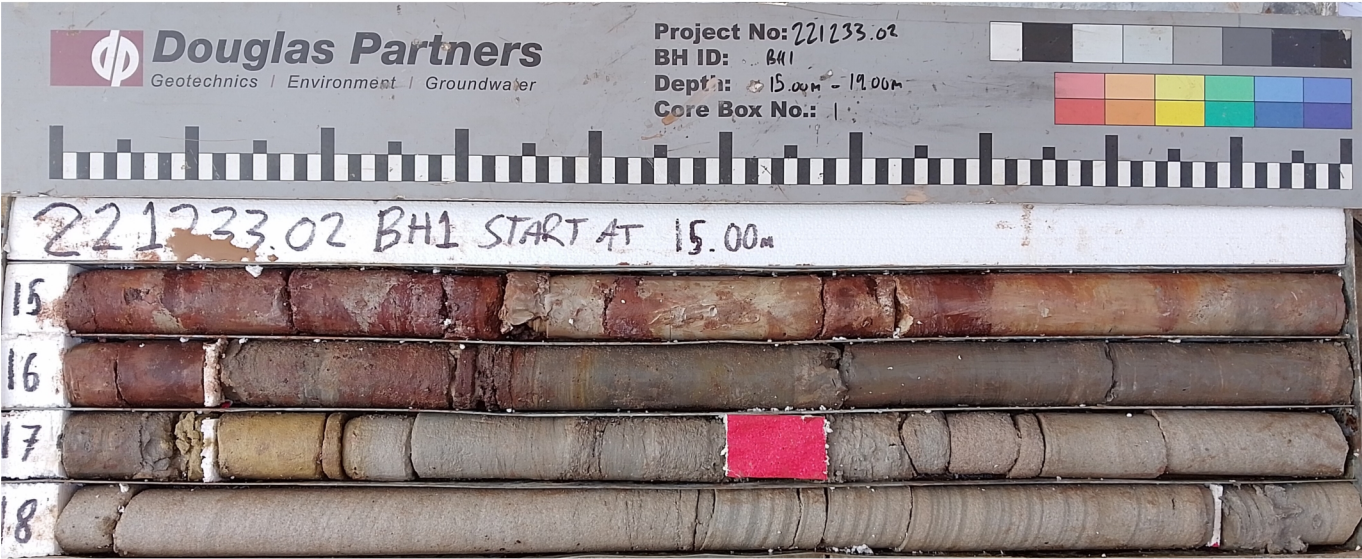


CORE PHOTO LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.3 AHD
COORDINATE: E:333462.6, N:6247699.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 221233.02
DATE: 03/06/24 - 04/06/24
SHEET: 1 of 1



15.00-19.00 m depth



19.00-21.90 m depth

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 14.6 AHD
COORDINATE: E:333501.5, N:6247669.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 221233.02
DATE: 04/06/24
SHEET: 1 of 4

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°) ■ DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
04/06/24 ▼		0.20	FILL / Gravelly SAND: dark grey; medium to coarse; angular to sub-angular, blue metal gravel.		FILL		D		ES	0.10						
			SAND (SP): grey; fine to medium.			ID			ES	0.40						
		1									0.90					
			From 0.60m: brown to light brown; trace angular to sub-angular shale gravel			L	M				1.00		SPT	3,2,4 N=6		
		2									2					
		3			MAR						3	SPT	7,14,18 N=32			
		4									4	SPT	13,22,36 N=58			
		5				D	W				5					
		5.50		Silty SAND (SM), with gravel: grey; fine to medium gravel; <10% non plastic fines.								6	SPT	14,19,25 N=44		
		6				MAR						7	SPT	14,19,12 N=31		
	7.60		Silty CLAY (CL), trace gravel: grey mottled red-brown; low plasticity; angular to sub-angular, ironstone gravel.								8					
	8				RS	St	w=PL				9	SPT	3,5,7 N=12			
	9															

NOTES: ^aSoil origin is "probable" unless otherwise stated. ^bConsistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 17.5m, NMLC to 20.3m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 11.2m

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 14.6 AHD
COORDINATE: E:333501.5, N:6247669.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 221233.02
DATE: 04/06/24
SHEET: 2 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE						
			[CONT] Silty CLAY (CL), trace gravel: grey mottled red-brown; low plasticity; angular to sub-angular, ironstone gravel.		RS	St		w=PL					SPT	8,12,16 N=28		Bentonite						
		11																				
		12																			SPT	10,14,18 N=32
		12.50																				
		13	Shaly CLAY (CL): grey and red-brown; low plasticity; trace shale fragments, relic rock texture.			H		w<PL						16,28,25/90								
		14																				
		15																				
		16																				
		17																				
		17.50	Continued as rock																			
		18																				
		19																				

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 17.5m, NMLC to 20.3m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 11.2m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 14.6 AHD
COORDINATE: E:333501.5, N:6247669.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 221233.02
DATE: 04/06/24
SHEET: 3 of 4

CONDITIONS ENCOUNTERED										SAMPLE				TESTING						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.		DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
					PS XW HW MW SW FR	D W														
	4	11																		
	3	12																		
	2	13																		
	1	14																		
	0	15																		
	-1	16																		
	-2	17																		
	-3	18	Continued from soil SANDSTONE: grey, fine to medium grained, thinly bedded to thinly laminated; trace carbonaceous laminations. Hawkesbury Sandstone		MW		17.50 17.75	L M to H									PLT	PL(A)=0.1MPa		
	-4	19		FR			18.90	H	96	91		18.23m: B, 10°, UN, CN, RF 18.28m: B, 10°, UN, CN, RF 18.34m: B, 5°, UN, CN, RF 18.46m: B, 10°, UN, CN, RF 18.61m: B, 0°, PR, CN, RF 18.72m: B, 0°, PR, CN, RF 18.91m: B, 0°, UN, CN, RF 19.58m: B, 0°, PR, CT M, RF 19.72m: B, 0°, PR, CT M, RF					PLT	PL(A)=0.3MPa		
	-5																	PL(A)=0.4MPa		
																		PL(A)=1.8MPa		
																			Bentonite	

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 17.5m, NMLC to 20.3m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 11.2m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 14.6 AHD
COORDINATE: E:333501.5, N:6247669.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 221233.02
DATE: 04/06/24
SHEET: 4 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
		20.18	[CONT] SANDSTONE: grey, fine to medium grained, thinly bedded to thinly laminated; trace carbonaceous laminations. Hawkesbury Sandstone					96	91		19.90m: B 0°, UN, CN, RF					PLT	PL(A)=1.3MPa		
	20.6	21																	
	20.7	22	Borehole discontinued at 20.30m depth. Target depth reached.																
	20.8	23																	
	20.9	24																	
	21.0	25																	
	21.1	26																	
	21.2	27																	
	21.3	28																	
	21.4	29																	
	21.5																		

NOTES: #Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: AD to 4.0m, WB to 17.5m, NMLC to 20.3m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 11.2m

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

CLIENT: Kurraba Group Pty Ltd

PROJECT: Proposed Research and Life Science Development

LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 14.6 AHD

COORDINATE: E:333501.5, N:6247669.1

DATUM/GRID: MGA2020 Zone 56

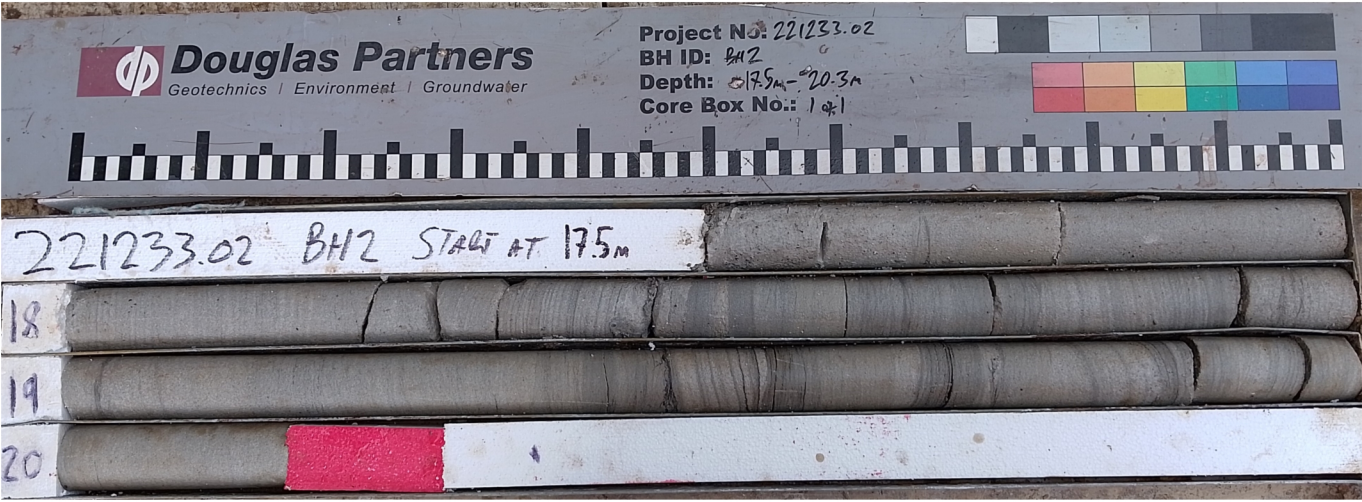
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2

PROJECT No: 221233.02

DATE: 04/06/24

SHEET: 1 of 1



17.50-20.30 m depth

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333471.3, N:6247733.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 221233.02
DATE: 05/06/24 - 07/06/24
SHEET: 1 of 4

[illegible]

NOTES: [#]Soil origin is "probable" unless otherwise stated. [¶]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305

OPERATOR: Ground Test (LC)

LOGGED: JJ

METHOD: DT to 0.15m, AD to 4.0m, WB to 16.0m, NMLC to 21.8m

CASING: HWT to 15m

REMARKS:

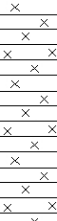
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333471.3, N:6247733.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 221233.02
DATE: 05/06/24 - 07/06/24
SHEET: 2 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	5		[CONT] Silty CLAY (CL), trace gravel: grey mottled red-brown; low plasticity; angular to sub-angular, ironstone gravel.		RS	F		w=PL					SPT	1,3,3 N=6		
	11											11				
	11.50															
	12		Shaly CLAY (CL): grey and red-brown; low plasticity; trace shale fragments, relic rock texture.									12	SPT	13,17,18 N=35		
	13											13				
	14				XWM	H		w<PL				14				
	15											15	SPT	19,24,21 N=45		
	16.00		Continued as rock									16				
	17											17				
	18											18				
	19											19				
	20															
	21															
	22															
	23															
	24															

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: DT to 0.15m, AD to 4.0m, WB to 16.0m, NMLC to 21.8m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 15m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333471.3, N:6247733.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 221233.02
DATE: 05/06/24 - 07/06/24
SHEET: 3 of 4

CONDITIONS ENCOUNTERED										SAMPLE				TESTING					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
					RS XW HW MW SW FR		VL L M H VH	EH											
		5																	
		11																	
		4																	
		12																	
		3																	
		13																	
		2																	
		14																	
		1																	
		0																	
		16	Continued from soil																
	16.10		SHALE: dark grey and red-brown. Ashfield Shale		XW	16.00 - 16.10					16.00-16.10m: FC					PLT	PL(A)=0.15MPa		
			SHALE: dark grey and grey, laminated. Ashfield Shale		HW		VL				16.30-16.40m CZ 16.34m: INF Clay					PLT	PL(A)=0.03MPa		
		17																	
		17.35				17.35		100	73							PLT	PL(A)=0.09MPa		
		17.55	SANDSTONE: brown and grey, medium to coarse grained, laminated to thinly bedded				L to M				17.53m CS, 30mm 17.65m: 15°					PLT	PL(A)=0.4MPa		
		18	SANDSTONE: pale grey, fine to medium grained, laminated to thinly bedded. Hawkesbury Sandstone		MW to SW	18.00	M to H												
		19									18.88m: CS, 10mm 19.06m: JT, 50°, UN, CN, RF					PLT	PL(A)=0.96MPa		
		19.11																	
		19.27	19.27m-19.40m: dark grey and grey shale bed			19.28		95	82		19.27-19.40m: FC								
		19.40			SW to FR	19.40	M				19.73m: B, 5°, UN, CN, RF					PLT	PL(A)=0.3MPa		

Generated with CORE-GS by Ceroc - Split Soil-Rock Log

NOTES: [#]Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: DT to 0.15m, AD to 4.0m, WB to 16.0m, NMLC to 21.8m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 15m

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333471.3, N:6247733.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 221233.02
DATE: 05/06/24 - 07/06/24
SHEET: 4 of 4

CONDITIONS ENCOUNTERED											SAMPLE			TESTING								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.				DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
		15	SANDSTONE: pale grey, fine to medium grained, laminated to thinly bedded. Hawkesbury Sandstone		PS XW HW MW SW FR	VL L M H VH												21	PLT	PL(A)=0.4MPa		
		21	SANDSTONE: fine to medium grained, thinly laminated to thinly bedded																			
		22	Borehole discontinued at 21.80m depth. Target depth reached.																			
		23																				
		24																				
		25																				
		26																				
		27																				
		28																				
		29																				

NOTES: #Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: DT to 0.15m, AD to 4.0m, WB to 16.0m, NMLC to 21.8m
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 15m

CORE PHOTO LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333471.3, N:6247733.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 221233.02
DATE: 05/06/24 - 07/06/24
SHEET: 1 of 1



16.00-20.00 m depth



20.00-21.80 m depth

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:333515.1, N:6247722.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 221233.02
DATE: 14/06/24 - 17/06/24
SHEET: 1 of 4

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾ DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
RL (m)															
14/06/24	0.15	CONCRETE: 150mm thick.													
	0.60	FILL / SAND, with gravel: dark grey; fine to coarse; angular to sub-angular, brick gravel.		FILL	ND			ES	0.20 0.30						
	1	SAND (SP): grey; fine to medium.						ES	0.80 1.00		SPT	2,3,2 N=5			
	1.4	From 1.30m: dark brown			L			SPT	1.50 1.60						
	2					M		ES	2						
	3	From 2.80m: brown						SPT	2.50 2.95		SPT	5,7,9 N=16			
	4			MAR	MD				4.00 4.45		SPT	3,8,21 N=29			
	5	From 4.30m: pale grey			D				5						
	6								6 6.10		SPT	4,4,5 N=9			
	6.20	Silty SAND (SM): dark brown; fine to medium.			MD	W		SPT	6.55						
	7	7.00m-8.00m: trace peat/lenses and organic odour		MAR	D			SPT	7.00 7.45		SPT	10,11,11 N=22			
	8.00	Silty CLAY (CI): grey; medium plasticity.							8 8.50		SPT	3,6,9 N=15			
	9			RS	VSt	w=PL		SPT	8.95						

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: DT to 0.15, AD to 5.5, WB to 17.40, NMLC to 21.5
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 5.8m

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:333515.1, N:6247722.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 221233.02
DATE: 14/06/24 - 17/06/24
SHEET: 2 of 4

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%)	DENSITY. (%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE				
	5		[CONT] Silty CLAY (CI): grey; medium plasticity.		RS															
	11																			
	11.50		Shaly CLAY (CL), trace gravel: grey and red brown; low plasticity; angular to sub-angular, shale gravel.							SPT		11.50	SPT	2,8,18 N=26						
	12											11.95								
	13																			
	14																			
	15				XWM			VSt	w=PL											
	14.50									SPT		14.50	SPT	29,25,25/70						
	15											14.95								
	16																			
	17																			
	17.40		Continued as rock																	
	18																			
	19																			
	20																			

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commachio Geo305
METHOD: DT to 0.15, AD to 5.5, WB to 17.40, NMLC to 21.5
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 5.8m

Refer to explanatory notes for symbol and abbreviation definitions

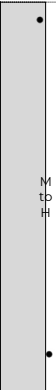


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:333515.1, N:6247722.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 221233.02
DATE: 14/06/24 - 17/06/24
SHEET: 3 of 4

CONDITIONS ENCOUNTERED										SAMPLE			TESTING									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.			DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
					PS SW HW MW SW FR				VL L M H VH													
	5																					
	11																					
	4																					
	12																					
	3																					
	13																					
	2																					
	14																					
	1																					
	15																					
	0																					
	16																					
	-1																					
	17																					
	-2		Continued from soil SANDSTONE: grey, fine to medium grained, laminated to thinly bedded. Hawkesbury Sandstone				17.40			100	93		17.40m: Unless otherwise stated, defects are B0°-10°, CN, PR, RF					PLT	PL(A)=0.6MPa			
	18												17.92m: B, 15° 17.94m JT, 30°, UN, CN, RF 17.96m: JT, 30°, UN, CN, RF 18.23m: B, 15°									
	-3					FR to SW		M to H										PLT	PL()=0.9MPa			
	19									100	85											
	-4												19.44m: B, 15°					PLT	PL(A)=1.2MPa			

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: DT to 0.15, AD to 5.5, WB to 17.40, NMLC to 21.5
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 5.8m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:333515.1, N:6247722.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 221233.02
DATE: 14/06/24 - 17/06/24
SHEET: 4 of 4

CONDITIONS ENCOUNTERED											SAMPLE			TESTING								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.				DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	15	21	[CONT] SANDSTONE: grey, fine to medium grained, laminated to thinly bedded. Hawkesbury Sandstone		PS	SW	FW	DW	MW	SW	FR							21	PLT	PL(A)=0.9MPa		
	16	22	Borehole discontinued at 21.50m depth. Target Depth Reached.																			
	17	23																				
	18	24																				
	19	25																				
	20	26																				
	21	27																				
	22	28																				
	23	29																				

NOTES: #Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Commachio Geo305
METHOD: DT to 0.15, AD to 5.5, WB to 17.40, NMLC to 21.5
REMARKS:

OPERATOR: Ground Test (LC)

LOGGED: JJ
CASING: HWT to 5.8m

CORE PHOTO LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2060

SURFACE LEVEL: 15.6 AHD
COORDINATE: E:333515.1, N:6247722.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 221233.02
DATE: 14/06/24 - 17/06/24
SHEET: 1 of 1



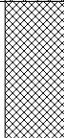
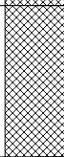
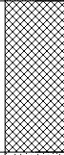
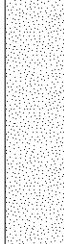
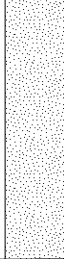
17.40-21.50 m depth

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL: 15.5 AHD
COORDINATE: E:333472.3, N:6247783.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH101
PROJECT No: 221233.03
DATE: 07/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.12	CONCRETE: 120 mm thick					NA											
			FILL / SAND, with gravel: brown; fine to coarse; fine to medium, sandstone gravel; brick fragments, trace wood, igneous (blue metal) gravel, metal, glass.		FILL					*	ES	0.20 0.30	PID	1.1ppm					
		0.40	FILL / SAND, with igneous (blue-metal) gravel: pale brown; fine to medium, trace brick fragments, charcoal.		FILL						ES	0.50 0.60	PID	1.0ppm					
		0.70	FILL / SAND, with gravel: pale brown; fine to coarse; fine to medium, igneous (blue metal) gravel; trace brick fragments, charcoal.		FILL						ES	0.80 0.90	PID	<1ppm					
		1.00	SAND (SP): pale grey; fine to medium.			ND		M			ES	1.00 1.10	PID	1.2ppm					
		1.4	1.50m: dark brown and pale grey		AEO						ES	1.60 1.70	PID	1.4ppm					
		2	Borehole discontinued at 2.00m depth. Target depth reached.																
		2.3																	

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools

OPERATOR: (SR)

LOGGED: SR

METHOD: DT to 0.12m, HA to 2.0m

CASING: Uncased

REMARKS: *Blind duplicate BD5/20240507 taken at 0.2-0.3m.
No free groundwater observed

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333486.4, N:6247700.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH102
PROJECT No: 221233.03
DATE: 07/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽¹⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
		0.07	ASPHALTIC CONCRETE: 70mm thick					NA									
			FILL / GRAVEL: dark grey; fine to medium, angular to sub-angular; fine to coarse sand, trace glass.		FILL			W		ES	0.20 0.30	PID	3.2ppm				
		0.30	FILL / SAND, with gravel: dark grey; fine to coarse; sandstone gravel; trace bricks, glass, tile.		FILL			M		ES	0.50 0.60	PID	2.4ppm				
			0.70m: additional brick fragments														
		0.90	SAND (SP): pale grey and dark grey; fine to medium.			ND			ES	1.00 1.10	PID	2.2ppm					
		1			AEO		M		ES	1.50 1.60	PID	<1ppm					
			1.60m: pale brown and pale grey														
		2	Borehole discontinued at 2.00m depth. Target depth reached.														

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.07m, HA to 2.0m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333469.2, N:6247656.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH103
PROJECT No: 221233.03
DATE: 06/05/24
SHEET: 1 of 1

GROUNDWATER		CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS	
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	0.10	CONCRETE: 100mm thick					NA						
		FILL / SAND: grey; fine to coarse; with bricks, trace tile, glass, metal, coarse sandstone gravel, terracotta pipe fragments.									0.20		
		0.30m: 1x potential asbestos containing fragment							ES		0.30		
									ES		0.35		
		0.60m: 3x potential asbestos containing fragment							ES		0.50		
									ES		0.60		
											0.65		
	1	1.10m: increased inclusions of glass							ES		1.00		
		1.30m: pale grey and inclusion of metal rods and glass							ES		1.10		
											1.50		
									ES		1.60		
		Borehole discontinued at 1.60m depth. Practical refusal in fill (brick fragments).											

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools

OPERATOR: (SR)

LOGGED: SR

METHOD: DT to 0.1m, HA to 1.6m

CASING: Uncased

REMARKS: *Blind duplicate BD3/20240506 taken at 0.2-0.3m.
 No free groundwater observed

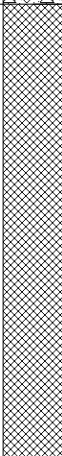
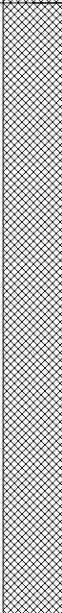
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333492.1, N:6247662.9
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH104
PROJECT No: 221233.03
DATE: 06/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽¹⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS						
		0.10	CONCRETE: 100mm thick					NA												
			FILL / SAND: dark grey; fine to medium; trace tile, brick, coarse sandstone gravel, metal, glass.		FILL			D		ES		0.20 0.30	PID	<1ppm						
		0.40	FILL / SAND: pale brown; fine to coarse; with igneous gravel.			ND														
					FILL			D		ES		0.60 0.70	PID	<1ppm						
			0.80m: increased inclusions of glass, brick, sandstone gravel, tile, concrete and brick fragments																	
			Borehole discontinued at 0.85m depth. Practical refusal in fill (brick fragments).																	

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.1m, HA to 0.85m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

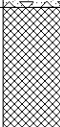


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333500.5, N:6247728.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH105
PROJECT No: 221233.03
DATE: 06/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.20	CONCRETE: 200mm thick			ND		NA											
			FILL / SAND: pale brown; fine to coarse; with coarse sandstone gravel, bricks, trace igneous gravel, glass, tile.		FILL			M		ES		0.20	PID	<1ppm					
			Borehole discontinued at 0.28m depth. Practical refusal in fill (brick fragments).									0.28							

NOTES: [#]Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.2m, HA to 0.28m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

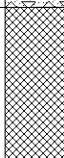


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333484.1, N:6247749.7
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH106
PROJECT No: 221233.03
DATE: 06/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
		0.20	CONCRETE: 200mm thick					NA										
			FILL / SAND: dark grey; fine to coarse; with coarse sandstone gravel, bricks, and trace glass.		FILL	ND		M		* ES		0.20	PID	<1ppm				
			Borehole discontinued at 0.30m depth. Refusal on inferred concrete slab.									0.30						

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools

OPERATOR: (SR)

LOGGED: SR

METHOD: DT to 0.2m, HA to 0.3m

CASING: Uncased

REMARKS: *Blind duplicate BD4/20240506 taken at 0.2-0.3m.
 No free groundwater observed

Refer to explanatory notes for symbol and abbreviation definitions

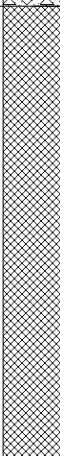


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333527.4, N:6247674.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH107
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.10	CONCRETE: 100mm thick					NA											
			FILL / SAND: pale brown; fine to coarse; with sandstone, igneous gravel, tile, glass.		FILL	ND		M		ES		0.20 0.30	PID	<1ppm					
Borehole discontinued at 0.40m depth. Refusal on inferred concrete slab.																			

NOTES: [#]Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.1m, HA to 0.4m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

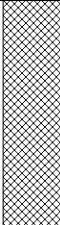
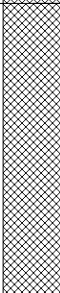
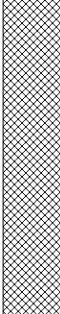
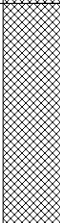
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333508.6, N:6247671.9
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH108
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.10	CONCRETE: 100mm thick					NA											
			FILL / SAND: yellow-brown; fine to coarse; with coarse sandstone and igneous gravel, glass, tile, bricks.		FILL					ES		0.20 0.30	PID	2.4ppm					
		0.40	FILL / SAND: pale grey and yellow-brown; fine to coarse; with silt, sandstone and igneous gravel, tile, glass, terracotta pipe fragments, bricks.							ES		0.50 0.60	PID	3.2ppm					
						ND													
		1	1.00m: pale grey and dark grey		FILL			M		ES		1.00 1.10	PID	2.0ppm					
		1.20	FILL / SAND: pale grey and dark grey; fine to coarse; with sandstone gravel, trace bricks.		FILL					ES		1.30 1.40	PID	<1ppm					
		Borehole discontinued at 1.50m depth. Practical refusal in fill (coarse sandstone gravel).																	
NOTES: ^(*) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																			

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.1m, HA to 1.5m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

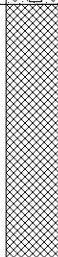
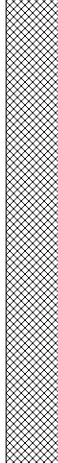


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333488.1, N:6247681.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH109
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.15	CONCRETE: 150mm thick																
		FILL / SAND: pale grey; fine to coarse; with sandstone, coarse gravel, bricks, tile, glass, and metal.		FILL	NA														
		0.50m: dark grey, increased inclusions of bricks													ES	0.20 - 0.30	PID — 3.4ppm		
																		ES	0.50 - 0.60
1																			
1.10			SAND (SP): pale grey, dark grey; fine to coarse.		AEO			M											
			Borehole discontinued at 1.50m depth. Target depth reached.																

NOTES: ^(#) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.15m, HA to 1.5m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333509.3, N:6247698.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH110
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.10	CONCRETE: 100mm thick					NA						
			FILL / SAND: pale grey to dark grey; fine to medium; with coarse sandstone gravel, concrete, bricks, tile, terracotta, pipe fragments, plastic, and glass.							*	ES	0.20 0.30	PID	4.6ppm
											ES	0.50 0.60	PID	4.0ppm
			0.70m: fine to coarse, dark grey		FILL			D						
		1									ES	1.00 1.10	PID	<1ppm
		1.20	SAND (SP): pale grey; fine to medium.		AEO			M			ES	1.30 1.40	PID	<1ppm
			Borehole discontinued at 1.50m depth. Target depth reached.											

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by GeroC - Soil Log

PLANT: Hand Tools

OPERATOR: (SR)

LOGGED: SR

METHOD: DT to 0.1m, HA to 1.5m

CASING: Uncased

REMARKS: *Blind duplicate BD1/20240505 taken at 0.2-0.3m.
No free groundwater observed

Refer to explanatory notes for symbol and abbreviation definitions

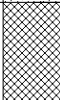
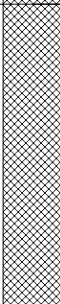
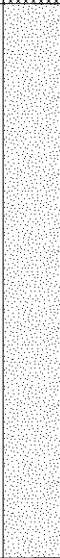


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333502.4, N:6247717.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH111
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.10	CONCRETE: 100mm thick																
			FILL / SAND: yellow-brown; with coarse igneous and shale gravel, and fine to medium sandstone gravel.		FILL			NA			ES	0.20 0.30	PID	4.2ppm					
		0.30	FILL / SAND: dark grey and pale grey; fine to coarse; with sandstone, igneous and shale gravel.		FILL						ES	0.50 0.60	PID	<1ppm					
		0.90	SAND (SP): grey; fine to medium.			ND					ES	1.00 1.10	PID	<1ppm					
		1						M											
			1.30m: pale grey		AEO														
			1.50m: dark grey								ES	1.50 1.60	PID	<1ppm					
		2	Borehole discontinued at 2.00m depth. Target depth reached.																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.1m, HA to 2.0m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

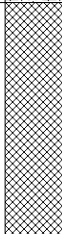


BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333482.2, N:6247714.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH112
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(*)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		0.10	CONCRETE: 100mm thick					NA											
			FILL / SAND: yellow-brow; fine to coarse; with sandstone gravel, igneous gravel, and bricks.		FILL	ND		D											
			0.50m: increased inclusions of brick fragments							ES		0.20	PID	<1ppm					
												0.30							
										ES		0.50	PID	<1ppm					
												0.60							
		1	Borehole discontinued at 0.70m depth. Practical refusal in fill (brick fragments).																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: DT to 0.1m, HA to 0.7m
REMARKS: No free groundwater observed

OPERATOR: (SR)

LOGGED: SR
CASING: Uncased

BOREHOLE LOG

CLIENT: Kurraba Group Pty Ltd
PROJECT: Proposed Research and Life Science Development
LOCATION: 100 Botany Road, Waterloo, NSW 2017

SURFACE LEVEL:
COORDINATE: E:333466.8, N:6247615.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH113
PROJECT No: 221233.03
DATE: 05/05/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(##)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
								ND											
		0.10	CONCRETE: 100mm thick																
			FILL / SAND: pale grey; fine to coarse; trace sandstone gravel.		FILL														
		0.30	FILL / SAND: dark grey; fine to coarse; with sandstone gravel, igneous gravel, brick, metal rods; trace clay.		FILL														
					FILL			ND											
					FILL			M											
		1			FILL														
					FILL														
		1.30	SAND (SP): pale grey and dark grey; fine to medium.		AEO														
					AEO														
					AEO														
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NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools

OPERATOR: (SR)

LOGGED: SR

METHOD: DT to 0.1m, HA to 1.7m

CASING: Uncased

REMARKS: *Blind duplicate BD2/20240505 taken at 0.2-0.3m.
 No free groundwater observed

Refer to explanatory notes for symbol and abbreviation definitions





Borehole Log

Client: City West Housing						Started: 19-2-15		
Project: Remediation Action Plan						Finished: 19-2-15		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm		
Rig Type: Solid Flight Auger			Hole Location: Refer to Figure 3			Driller:		Logged: BR
RL Surface:			Contractor:			Bearing: ---		Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
No Groundwater Encountered			0.0			CONCRETE			PAVEMENT
			0.1			FILL: Gravelly SAND, dark brown, fine grained, with some ash, charcoal, and suspected asbestos. HC odours	BH1-0.1-0.3 (QA1/QC1)	SM	HC Odours
			0.5						
			0.7				BH1-0.7-0.8		
			1.0						
No Groundwater Encountered			1.0			NATURAL: SAND, coffee rock, dark brown and fine grained. No odours or staining	BH1-1.0-1.2	SM	No Odours
			1.5						
			1.5				NATURAL: SAND, light brown/grey, medium grained, dry-damp, homogenous and soft. No odour	BH1-1.5-1.7	SM
No Groundwater Encountered			2.0						
			2.5						
			3.0						
			3.5						
No Groundwater Encountered			4.0			Borehole BH1 terminated at 2.5m			



BH No: BH2
Sheet: 1 of 1
Job No:1726

Client: City West Housing					Started: 19-2-15					
Project: Remediation Action Plan					Finished: 19-2-15					
Location: 74-88 Botany Road, Alexandria, NSW					Borehole Size: 100mm					
Rig Type: Hand Auger			Hole Location: Refer to Figure 3			Driller:		Logged: BR		
RL Surface:			Contractor:			Bearing: ---		Checked:		
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
No Groundwater Encountered			0.5			Concrete	BH2-0.2-0.4		SM	PAVEMENT
						FILL: Gravelly SAND, dark brown, fine grained, with some ash and rubble				No Odours
			1.0			Borehole BH2 terminated at 0.4m				Refusal on Bricks
			1.5							
			2.0							



Borehole Log

Client: City West Housing						Started: 19-2-15		
Project: Remediation Action Plan						Finished: 19-2-15		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm		
Rig Type: Hand Auger		Hole Location: Refer to Figure 3			Driller:		Logged: BR	
RL Surface:		Contractor:			Bearing: ---		Checked:	

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/ Density Index	Additional Observations
No Groundwater Encountered			0.0			CONCRETE			PAVEMENT
			0.5			FILL: Gravelly SAND, dark brown, fine grained, with ash, ceramic and brick fragments	BH3-0.2-0.4	SM	No Odours
			1.0			FILL: Gravelly SAND, light brown and fine grained.	BH3-0.7-0.9	SM	
			1.0			Borehole BH3 terminated at 1m			
			1.5						
			2.0						
			2.5						
			3.0						

Borehole Log

Client: City West Housing

Started: 19-2-15

Project: Remediation Action Plan

Finished: 19-2-15

Location: 74-88 Botany Road, Alexandria, NSW

Borehole Size: 100mm

Rig Type: Solid Flight Auger

Hole Location: Refer to Figure 3

Driller:

Logged: BR

RL Surface:

Contractor:

Bearing: ---

Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
No Groundwater Encountered			0.0			CONCRETE			PAVEMENT
			0.2			FILL: Gravelly SAND, dark brown, fine grained, with some brick, metal, ceramic, and suspected asbestos, HC odours	BH4-0.2-0.3	SM	HC Odours
			0.5				BH4-0.5-0.6		
			1.0			NATURAL: SAND, light brown/grey, medium grained, homogenous. No odour	BH4-1.0-1.2	SM	No Odours
			1.5			Borehole BH4 terminated at 1.5m			
			2.0						
			2.5						
			3.0						



Borehole Log

Client: City West Housing						Started: 19-2-15		
Project: Remediation Action Plan						Finished: 19-2-15		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm		
Rig Type: Solid Flight Auger			Hole Location: Refer to Figure 3			Driller:		Logged: BR
RL Surface:			Contractor:			Bearing: ---		Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
No Groundwater Encountered			0.0			CONCRETE				PAVEMENT
			0.5			FILL: Gravelly, Silty, SAND, minor clay, dark brown, with some brick, metal and ceramic, sand is fine grained. HC odour	BH5-0.2-0.4	SM	HC Odours	
			1.0			NATURAL: Gravelly, Silty, Sandy, CLAY, light brown/grey, medium grained, homogenous. No odour	BH5-1.2-1.3	SM	No Odours	
			1.5							
			2.0			Borehole BH5 terminated at 1.8m				
			2.5							
			3.0							
			3.5							
			4.0							

Borehole Log

Client: City West Housing

Started: 19-2-15

Project: Remediation Action Plan

Finished: 19-2-15

Location: 74-88 Botany Road, Alexandria, NSW

Borehole Size: 100mm

Rig Type: Solid Flight Auger

Hole Location: Refer to Figure 3

Driller:

Logged: BR

RL Surface:

Contractor:

Bearing: ---

Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/ Density Index	Additional Observations
No Groundwater Encountered						BITUMEN and ROADBASE			PAVEMENT
			0.5			FILL: Silty SAND, dark brown, fine grained, loose, with some ash	BH6-0.4-0.5	SM	No Odours
			1.0			NATURAL: SAND, coffee rock, fine grained.		SM	No Odours
			1.5			NATURAL: SAND, light brown/grey, medium grained.	BH6-1.4-1.5	SM	
			2.0						
			2.5				BH6-2.5-2.6		
			3.0			Borehole BH6 terminated at 2.6m			
			3.5						
			4.0						



Borehole Log

Client: City West Housing						Started: 19-2-15		
Project: Remediation Action Plan						Finished: 19-2-15		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm		
Rig Type: Solid Flight Auger		Hole Location: Refer to Figure 3		Driller:		Logged: BR		
RL Surface:		Contractor:		Bearing: ---		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
No Groundwater Encountered			0.5			BITUMEN and ROADBASE				PAVEMENT
						FILL: Gravelly Silty SAND, dark brown, fine grained, loose, with some ash, brick, metal, and suspected ACM	BH7-0.2-0.4	SM	No Odours	
						NATURAL: SAND, white/grey, fine to coarse grained, and homogenous	BH7-0.6-0.8	M	No Odours	
						Borehole BH7 terminated at 1.5m				
			2.0							
			2.5							
			3.0							



Borehole Log

Client: City West Housing						Started: 19-2-15		
Project: Remediation Action Plan						Finished: 19-2-15		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm		
Rig Type: Solid Flight Auger		Hole Location: Refer to Figure 3		Driller:		Logged: BR		
RL Surface:		Contractor:		Bearing: ---		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/ Density Index	Additional Observations
No Groundwater Encountered			0.5			BITUMEN and ROADBASE		SM	PAVEMENT
						FILL: Silty SAND, dark brown, fine grained, loose, with some ash brick, and metal fragments	BH8 0.2-0.8	SM	No Odours
						NATURAL: SAND, coffee rock, fine grained, homogenous.	BH8 0.6-0.8	SM	No Odours
						Borehole BH8 terminated at 1.5m			
			1.5						
			2.0						
			2.5						
			3.0						



Borehole Log

Client: City West Housing						Started: 19-2-15			
Project: Remediation Action Plan						Finished: 19-2-15			
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm			
Rig Type: Solid Flight Auger		Hole Location: Refer to Figure 3		Driller:		Logged: BR			
RL Surface:		Contractor:		Bearing: ---		Checked:			

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
							FILL: Bitumen and road base				PAVEMENT
							FILL: Silty SAND, dark brown, fine grained, minor ash				No Odour
							SAND, dark brown, fine grained (coffee rock)				No Odour
				1							
				2			SAND, light brown/grey, medium grained				
				3							
				4							
				5							
				6			Borehole MW1 terminated at 5.5m				

Groundwater Encountered 3.289m



Borehole Log

Client: City West Housing						Started: 19-2-15			
Project: Remediation Action Plan						Finished: 19-2-15			
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size: 100mm			
Rig Type: Solid Flight Auger		Hole Location: Refer to Figure 3		Driller:		Logged: BR			
RL Surface:		Contractor:		Bearing: ---		Checked:			

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
							CONCRETE				PAVEMENT
							FILL: Gravelly Silty SAND, dark brown with brick, metal and ceramic				HC Odours
				1			SAND, light brown/grey, medium coarse				No Odours
				2							
				3							
				4							
				5							
				6			Borehole MW2 terminated at 5.5m				

Groundwater Encountered 3.478m



Borehole Log

Client: City West Housing						Started: 10-3-17						
Project: Remediation Action Plan						Finished: 10-3-17						
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:						
Rig Type: Dando Mini Rig			Hole Location: See Figure 2			Northing		Logged: BR				
RL Surface:			Contractor: BG Drilling Pty Ltd			Easting:		Checked:				
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description		Samples Tests Remarks		Moisture Condition	Consistency/ Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE.				D		No observed ACM hydrocarbon odours or staining.
			0.5		FILL	Silty SAND, dark grey to black, moist, well graded, fine to course grained with gravels including brick, concrete, glass and bitumen observed.		BH9-0.2-0.4		M		No observed ACM hydrocarbon odours or staining.
			1.0									
			1.5		BH9-1.0-1.3							
			2.0		BH9-1.8-2.0							
			2.5		BH9-2.1-2.3							
			2.5		NAT	Brown coffee rock.				M		No observed ACM hydrocarbon odours or staining.
					NAT	Grey/white/brown.				M		
			3.0		BH9-2.8-3.0							
							End of hole BH09.					
			3.5									
			4.0									
			4.5									
			5.0									
			5.5									

Borehole BH09 terminated at 3m



Borehole Log

Client: City West Housing						Started: 10-3-17		
Project: Remediation Action Plan						Finished: 10-3-17		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:		
Rig Type: Dando Mini Rig		Hole Location: See Figure 2		Northing		Logged: BR		
RL Surface:		Contractor: BG Drilling Pty Ltd		Easting:		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/ Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE		D	No observed ACM hydrocarbon odours or staining.
			0.5		FILL	Silty SAND, dark brown/grey, moist, loose to medium density with brick and concrete observed.	BH10-0.2-0.4	M	No observed ACM hydrocarbon odours or staining.
			1.0			End of hole BH10, refusal at concrete slab.			
			1.5						
			2.0						
			2.5						
			3.0						
			3.5						
			4.0						
			4.5						
			5.0						
			5.5						

Borehole BH10 terminated at 1m



Borehole Log

Client: City West Housing						Started: 10-3-17			
Project: Remediation Action Plan						Finished: 10-3-17			
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:			
Rig Type: Dando Mini Rig		Hole Location: See Figure 2		Northing		Logged: BR			
RL Surface:		Contractor: BG Drilling Pty Ltd		Easting:		Checked:			
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
Dando Mini Rig			0.5		TS	CONCRETE		D	No observed ACM hydrocarbon odours or staining.
					FILL	Silty SAND, dark brown/grey, moist, loose to medium dense with bricks, sandstones, concrete and bitumen observed.	BH11-02-0.4	M	No observed ACM hydrocarbon odours or staining.
			1.0			End of hole BH11, refusal at concrete slab.			
			1.5						
			2.0						
			2.5						
			3.0						
			3.5						
			4.0						
			4.5						
			5.0						
			5.5						

Borehole BH11 terminated at 0.8m



Borehole Log

Client: City West Housing						Started: 10-3-17		
Project: Remediation Action Plan						Finished: 10-3-17		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:		
Rig Type: Dando Mini Rig		Hole Location: See Figure 2		Northing		Logged: BR		
RL Surface:		Contractor: BG Drilling Pty Ltd		Easting:		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/ Density Index	Additional Observations
Dando Mini Rig			0.5		TS	CONCRETE.		D	No observed ACM hydrocarbon odours or staining.
					FILL	Silty SAND, dark brown, dry with brick observed.	BH12-0.2-0.4	D	No observed ACM hydrocarbon odours or staining.
			1.0			End of hole BH12, refusal at concrete slab.			
			1.5						
			2.0						
			2.5						
			3.0						
			3.5						
			4.0						
			4.5						
			5.0						
			5.5						

Borehole BH12 terminated at 0.7m

Borehole Log

Client: City West Housing						Started: 10-3-17		
Project: Remediation Action Plan						Finished: 10-3-17		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:		
Rig Type: Dando Mini Rig		Hole Location: See Figure 2		Northing		Logged: BR		
RL Surface:		Contractor: BG Drilling Pty Ltd		Easting:		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE.		D		No observed ACM hydrocarbon odours or staining.
			0.5		FILL	Silty SAND, yellow/brown, dry, loose to medium dense with brick, concrete and bitumen observed.	BH13-0.2-0.4	D		No observed ACM hydrocarbon odours or staining.
					FILL	Darker brown.	BH13-0.5-0.7	D		No observed ACM hydrocarbon odours or staining.
			1.0			End of hole BH13, refusal at concrete slab.				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							
			5.5							

Borehole BH13 terminated at 0.7m

Borehole Log

Client: City West Housing						Started: 10-3-17		
Project: Remediation Action Plan						Finished: 10-3-17		
Location: 74-88 Botany Road, Alexandria, NSW						Borehole Size:		
Rig Type: Dando Mini Rig		Hole Location: See Figure 2		Northing		Logged: BR		
RL Surface:		Contractor: BG Drilling Pty Ltd		Easting:		Checked:		

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations	
Dando Mini Rig					TS	CONCRETE.		D		No observed ACM hydrocarbon odours or staining.	
					FILL	Silty SAND, brown, dry to moist, medium dense with brick observed.	BH14-0.2-0.4	M		No observed ACM hydrocarbon odours or staining.	
			0.5		FILL	Dark brown.	BH14-0.4-0.5	M		No observed ACM hydrocarbon odours or staining.	
						End of hole BH14, refusal at concrete slab.					No observed ACM hydrocarbon odours or staining.
			1.0								
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								
			5.5								

Borehole BH14 terminated at 0.5m

Borehole Log

Client: City West Housing

Started: 10-3-17

Project: Remediation Action Plan

Finished: 10-3-17

Location: 74-88 Botany Road, Alexandria, NSW

Borehole Size:

Rig Type: Dando Mini Rig

Hole Location: See Figure 2

Northing

Logged: BR

RL Surface:

Contractor: BG Drilling Pty Ltd

Easting:

Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE.		D	No observed ACM hydrocarbon odours or staining.
			0.5		FILL	SAND, yellow/grey, moist, medium dense, fine to coarse grained.	BH15-0.4-0.6	M	No observed ACM hydrocarbon odours or staining.
			1.0		FILL	SAND, dark brown/grey, very moist, dense, fine to medium grained with potential staining observed.	BH15-0.7-0.9	VM	No observed ACM hydrocarbon odours or staining.
			1.5						
			2.0		FILL	Slightly moist to moist with a piece of glass observed at 1.9 meters.	BH15-1.7-1.9	M	No observed ACM hydrocarbon odours or staining.
			2.5						
			3.0				BH15-2.7-2.9		
			3.5		FILL	SAND, yellow/brown, moist, dense, fine to coarse grained.	BH15-3.3-3.5	M	No observed ACM hydrocarbon odours or staining.
			4.0						
			4.5			End of hole BH15.			
			5.0						
			5.5						

Borehole BH15 terminated at 4m



Borehole Log

Client: City West Housing

Started: 10-3-17

Project: Remediation Action Plan

Finished: 10-3-17

Location: 74-88 Botany Road, Alexandria, NSW

Borehole Size:

Rig Type: Dando Mini Rig

Hole Location: See Figure 2

Northing

Logged: BR

RL Surface:

Contractor: BG Drilling Pty Ltd

Easting:

Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE.		D	No observed ACM hydrocarbon odours or staining.
					FILL	SAND, yellow/grey, moist, medium dense.	MW3-0.2-0.4	M	Insufficient sample for bag.
			0.5		FILL	BRICK.		D	No observed ACM hydrocarbon odours or staining.
					FILL	Silty SAND, dark grey to black, moist, medium dense, fine grained. Becoming light grey at 1.1 meters.	MW3-0.5-0.7	M	No observed ACM hydrocarbon odours or staining.
							MW3-0.8-1.0		No observed ACM hydrocarbon odours or staining.
			1.0						
					FILL	SAND, light brown, dry to moist, fine to medium grained.		M	No observed ACM hydrocarbon odours or staining.
			1.5		FILL	Black with minor igneous gravels.	MW3-1.4-1.6	M	No observed ACM hydrocarbon odours or staining.
					FILL	SAND, white/grey, moist, fine to medium grained.	MW3-1.6-1.8	M	No observed ACM hydrocarbon odours or staining.
					FILL	Gravelly SAND, black, dry, fine grained with igneous gravels observed.	MW3-1.8-2.0	D	No observed ACM hydrocarbon odours or staining.
			2.0						
					NAT	SAND, grey to light grey, dry to moist, fine to course grained.	MW3-2.2-2.4	M	No observed ACM hydrocarbon odours or staining.
			2.5						
					NAT	Light brown.		M	No observed ACM hydrocarbon odours or staining.
			3.0		NAT	SAND, yellow, wet, dense, fine to course grained. Suspected water table at 2.8-2.9 meters.	MW3-2.8-3.0	W	No observed ACM hydrocarbon odours or staining.
			3.5						
			4.0						
			4.5						
			5.0			End of hole MW03			
			5.5						

Borehole MW03 terminated at 5m



Borehole Log

Client: City West Housing

Started: 10-3-17

Project: Remediation Action Plan

Finished: 10-3-17

Location: 74-88 Botany Road, Alexandria, NSW

Borehole Size:

Rig Type: Dando Mini Rig

Hole Location: See Figure 2

Northing

Logged: BR

RL Surface:

Contractor: BG Drilling Pty Ltd

Easting:

Checked:

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition Consistency/Density Index	Additional Observations
Dando Mini Rig					TS	CONCRETE/BITUMEN.		D	No observed ACM hydrocarbon odours or staining.
					FILL	GRAVEL including shale.	MW4-0.2-0.3	D	ACM observed
			0.5		FILL	SAND, dark grey, moist, medium dense, fine to coarse grained.	MW4-0.3-0.4	M	No observed ACM hydrocarbon odours or staining.
					FILL	White/grey, dry to moist, well graded.	MW4-0.5-0.6	M	No observed ACM hydrocarbon odours or staining.
			1.0						
					NAT	SAND, black, dry, dense, fine grained with suspected organic matter observed.	MW4-1.2-1.4	D	No observed ACM hydrocarbon odours or staining.
			1.5		NAT	Becoming light brown with less organic matter.		D	No observed ACM hydrocarbon odours or staining.
					NAT	Yellow/brown, moist, fine to coarse grained with no suspected organic matter observed.	MW4-1.8-2.0	M	No observed ACM hydrocarbon odours or staining.
			2.0						
			2.5		NAT	Wet soil, suspected water table.	MW4-2.4-2.5	w	No observed ACM hydrocarbon odours or staining.
			3.0				MW4-2.8-3.0		No observed ACM hydrocarbon odours or staining.
			3.5						
			4.0						
			4.5						
			5.0			End of hole MW04.			
			5.5						

Borehole MW04 terminated at 5m

Groundwater (GW) Field Sheet

Project and Bore Installation Details					
Project Name / Site Location		Well ID		Project Number	
Well Construction Details		BH3	Drilling Method	Hole Diameter (m)	
		Well Depth (m bgl)	Screened (m bgl)	Stick Up (m)	
Survey Information	Easting		Northing	Elevation RL	
GW Level During Drilling		m bgl			
Contaminants/Comments					

Well Development Details

Date / Time / Weather Conditions				Purged By	
Purge Method / Equipment					
Product observed / Thickness		mm	Confirmed with Bailer? (Y / N)		
GW Level (pre-purge)		m bgl	Observed Well Depth		m bgl
Height of Water Column (H)		m bgl	Estimated Bore Volume*		L
GW Level (post-purge)		m bgl	Total Volume Purged**		L
Appearance/Comments					

Sampling Details

Date / Time / Weather Conditions		20/6/24 1:30 PM Sunny		Sampled By SR	
Sampling Method / Equipment		Bladder pump ysf Im			
WQM Model		ysf		WQM Calibration Date -	
Product observed / Thickness		-		Confirmed with Bailer? (Y / N)	
GW Level (pre-micropurge)		2.85 m bgl		Observed Well Depth 11.15 m bgl	
Height of Water Column		8.30 m bgl		Estimated Bore Volume* - L	
GW Level (post sample)		2.88 m bgl		Total Volume of Micro-Purged 22 L	

Water Quality Parameters

[illegible]

Notes:

Considered stabilised if three DO values are less than 0.5 mg/L

^ Considered stabilised if three Turbidity values are less than 5 NTU

Sample Details

Sampling Depth (rationale)	8.0-8.5	m bgl,	Between water column.			
Sample Observations (e.g. colour, sediment, sheen, odour)	Pale brown, no odour, no silt; Fast exchange rate.					
Sample ID	BH3					
QA/QC Samples	Replicate	BD1	Triplicate		Other	
Sample Containers	Amber glass	1	Plastic	1	PFAS (no teflon)	2
Quantity / Preservation / Filtration	Metals (F/UF) (HNO3)	2	Phenols/COD/NH3 (H2SO4)	1	Vials (HCl)	2
	Ferrous/Ferric Iron (HCl)		Cyanides/Chromium (NaOH)		Other	
Comments						

*Estimated Well Volume = H * F	Std. Drilling Diameter (m)	NMLC (0.075)	HQ (0.096)	PQ (0.1226)	SFA (0.125)	HFA (0.194)
**Puree Target: min. 3 well volumes	Factor (F):	2.8	3.7	5.2	5.4	11.1

Soil Vapour Sampling Sheet		 Douglas Partners Geotechnics Environment Groundwater				
Project and Bore Installation Details						
Project Name:	Waterloo					
Project Number:	221293-03					
Client:						
Sample ID / Bore No.:	SV201					
Site Location:	76 Botany Road					
GPS Co-ord:						
Elevation (RL, m AHD):						
Installation Date:						
Well / Pin Construction Details:	Soil Vapour pin					
Weather:	Humidity 52%	Temperature 13°C	Barometric 1017			
Canister Flow Controller:	100 mL/min					
Carbon / TD Tube Flow Controller:	100 mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge			
Pump ID:	SKC-220-1000TC					
Date/Time:	20/6/24 12:20 PM					
Sampled By:	SR					
Purge Details / Field Readings						
Pre Purge PID Reading	ppm					
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
		0				
		1				
		2				
		3				
Purge Method:						
Post Purge PID Reading	ppm					
Approximate Volume Purged	L					
Pre-Start QA Tests						
Shut In Test						
	Canister		Carbon Tube / TD Setup			
Vacuum Applied	in Hg		kPa			
Duration	min		min			
Pass / Fail						
Leak Test	PID in Sample Train		PID in Shroud			
	ppm		ppm			
Pass / Fail						
Sampling Details - Primary						
	Canister		Carbon Tube / TD Tube			
ID Number						
Regulator Number			N/A			
Start Time	min		min			
Start Vacuum	in Hg		kPa			
Stop Time	min		min			
Stop Vacuum	in Hg		kPa			
Approximate Sample Volume	mL		mL			
		Note: recommended end vacuum of -7 in Hg (~75% full)	Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)			
Sampling Details - Replicate						
	Canister		Carbon Tube / TD Tube			
ID Number						
Regulator Number			N/A			
Start Time	min		min			
Start Vacuum	in Hg		kPa			
Stop Time	min		min			
Stop Vacuum	in Hg		kPa			
Approximate Sample Volume	mL		mL			
Sampling Details - Shroud						
Carbon / TD Tube ID						
Start Time	min					
Stop Time	min					
Sample Time	min					
Approximate Sample Volume	mL					
Comments / Observations:	No sample available during purging. Presumably Second Slab.					

Soil Vapour Sampling Sheet				 Douglas Partners Geotechnics Environment Groundwater		
Project and Bore Installation Details						
Project Name:	Glebe Waterloo					
Project Number:	2101004 221233.03					
Client	SV202					
Sample ID / Bore No.						
Site Location:	82 Wentworth Park Road, Glebe NSW 76 Botany Road					
GPS Co-ord:						
Elevation (RL, m AHD)						
Installation Date:	27/03/2024					
Well / Pin Construction Details	Soil Vapour pin Soil Vapour Well / Implant					
Weather	Humidity	52	Temperature	14°C	Barometric	1017
Canister Flow Controller	100	mL/min				
Carbon / TD Tube Flow Controller	84.5	100	mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge	
Pump ID	11528213 SKC-220-1000TC					
Date/Time:	28/03/2024 20/6/24 12:00 PM					
Sampled By:	SR/JZ SR					
Purge Details / Field Readings						
Pre Purge PID Reading	0.0		ppm			
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
	0.00			18.8	0	0
	1			18.1	0	0
	2			17.7	0	0
	3			17.6	0	0
	4			17.5	0	0
Purge Method	GA5000 PID 6 - PID + Gas meter					
Post Purge PID Reading	0.0		ppm			
Approximate Volume Purged	~2.5		L			
Pre-Start QA Tests						
Shut In Test						
	Canister		Carbon Tube / TD Setup			
Vacuum Applied	-30	in Hg	3.0	kPa		
Duration	1	min	1	min		
Pass / Fail	PASS					
Leak Test						
	PID in Sample Train		PID in Shroud			
	0.0	ppm	14.6	ppm		
Pass / Fail	PASS					
Sampling Details - Primary						
	Canister		Carbon Tube / TD Tube			
ID Number	2555		0909144030			
Regulator Number	612		N/A			
Start Time	0	min	0	min		
Start Vacuum	-28	in Hg	0.2	kPa		
Stop Time	8	min	5	min		
Stop Vacuum	-7	in Hg	0.2	kPa		
Approximate Sample Volume	~800		500		mL	
		Note: recommended end vacuum of -7 in Hg (-75% full)		Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)		
Sampling Details - Replicate						
	Canister		Carbon Tube / TD Tube			
ID Number			N/A			
Regulator Number						
Start Time		min		min		
Start Vacuum		in Hg		kPa		
Stop Time		min		min		
Stop Vacuum		in Hg		kPa		
Approximate Sample Volume		mL		mL		
Sampling Details - Shroud						
Carbon / TD Tube ID						
Start Time		min				
Stop Time		min				
Sample Time		min				
Approximate Sample Volume		mL				
Comments / Observations:						

Soil Vapour Sampling Sheet				 Douglas Partners Geotechnics Environment Groundwater		
Project and Bore Installation Details						
Project Name:	Waterloo					
Project Number:	221238-03					
Client:						
Sample ID / Bore No.:	SV203					
Site Location:	100 Botany Road					
GPS Co-ord:						
Elevation (RL, m AHD)						
Installation Date:						
Well / Pin Construction Details	SV pin					
Weather	Humidity	82%	Temperature	16°C	Barometric	1017
Canister Flow Controller	100	mL/min				
Carbon / TD Tube Flow Controller	84.5	mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge		
Pump ID	11528213					
Date/Time:	20/6/24					
Sampled By:	SR					
Purge Details / Field Readings						
Pre Purge PID Reading	2.0	ppm				
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
	0			20.4	0	0
	1			20.2	0	0
	2			20.2	0	0
	3			20.1	0	0
Purge Method	PID 6					
Post Purge PID Reading	3.0	ppm				
Approximate Volume Purged	~2.5	L				
Pre-Start QA Tests						
Shut In Test	Canister		Carbon Tube / TD Setup			
Vacuum Applied	-30	in Hg	3.0	kPa		
Duration	1	min	1	min		
Pass / Fail						
Leak Test	PID in Sample Train		PID in Shroud			
	2.0	ppm	164.2	ppm		
Pass / Fail						
Sampling Details - Primary						
	Canister		Carbon Tube / TD Tube			
ID Number	3509		0909143448			
Regulator Number	399		N/A			
Start Time	0	min	0	min		
Start Vacuum	-28	in Hg	-0.2	kPa		
Stop Time	8	min	5	min		
Stop Vacuum	-7	in Hg	-0.2	kPa		
Approximate Sample Volume	~800	mL	~500	mL		
		Note: recommended end vacuum of -7 in Hg (~75% full)		Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)		
Sampling Details - Replicate						
	Canister		Carbon Tube / TD Tube			
ID Number						
Regulator Number			N/A			
Start Time		min		min		
Start Vacuum		in Hg		kPa		
Stop Time		min		min		
Stop Vacuum		in Hg		kPa		
Approximate Sample Volume		mL		mL		
Sampling Details - Shroud						
Carbon / TD Tube ID	0909143439 / Shroud					
Start Time	0	min				
Stop Time	1	min				
Sample Time	1	min				
Approximate Sample Volume	84.5	mL				
Comments / Observations:						

Soil Vapour Sampling Sheet				 Douglas Partners Geotechnics Environment Groundwater		
Project and Bore Installation Details						
Project Name:	Waterloo					
Project Number:	221233-00					
Client:						
Sample ID / Bore No.:	SV204					
Site Location:	100 Botany Rd					
GPS Co-ord:						
Elevation (RL, m AHD)						
Installation Date:						
Well / Pin Construction Details	SV pin					
Weather	Humidity	52%	Temperature	14 C	Barometric	1017
Canister Flow Controller	100 mL/min					
Carbon / TD Tube Flow Controller	845 100 100	mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge		
Pump ID	SKC - 220-1000TC					
Date/Time:	20/6/24 11:30 AM					
Sampled By:	SR					
Purge Details / Field Readings						
Pre Purge PID Reading	1.0		ppm			
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
	0			20.1	0	0
	1			19.9	0	0
	2			19.8	0	0
	3			19.8	0	0
Purge Method	PID 0 - PID + Gas meter					
Post Purge PID Reading	1.0		ppm			
Approximate Volume Purged	~2.5		L			
Pre-Start QA Tests						
Shut In Test	Canister		Carbon Tube / TD Setup			
Vacuum Applied	-30	in Hg	3.0	kPa		
Duration	1	min	1	min		
Pass / Fail	PASS		PASS			
Leak Test	PID in Sample Train		PID in Shroud			
Pass / Fail	2.0	ppm	153.6	ppm		
	PASS		PASS			
Sampling Details - Primary						
	Canister		Carbon Tube / TD Tube			
ID Number	2280		0909144082			
Regulator Number	1874		N/A			
Start Time	0	min	0	min		
Start Vacuum	-27	in Hg	0.2	kPa		
Stop Time	16	min	5	min		
Stop Vacuum	-7	in Hg	0.2	kPa		
Approximate Sample Volume	~800		~500			
		Note: recommended end vacuum of -7 in Hg (~75% full)		Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)		
Sampling Details - Replicate						
	Canister		Carbon Tube / TD Tube			
ID Number	3524		N/A			
Regulator Number	1874					
Start Time	0	min	5	min		
Start Vacuum	-27	in Hg		kPa		
Stop Time	16	min		min		
Stop Vacuum	-7	in Hg		kPa		
Approximate Sample Volume	~800		mL			
Sampling Details - Shroud						
Carbon / TD Tube ID	0909143440 / S-1					
Start Time	0	min				
Stop Time	1	min				
Sample Time	~1	min				
Approximate Sample Volume	~100		mL			
Comments / Observations:						

Soil Vapour Sampling Sheet		 Douglas Partners Geotechnics Environment Groundwater				
Project and Bore Installation Details						
Project Name:	Waterloo					
Project Number:	221233-03					
Client:						
Sample ID / Bore No.:	SV205					
Site Location:	100 Botany Road					
GPS Co-ord:						
Elevation (RL, m AHD):						
Installation Date:						
Well / Pin Construction Details:	SV pin					
Weather:	Humidity 52%	Temperature 16°C	Barometric 1014			
Canister Flow Controller:	100 mL/min					
Carbon / TD Tube Flow Controller:	100 mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge			
Pump ID:	SKC-220-100TC					
Date/Time:	20/6/24 12:30 PM					
Sampled By:	SR					
Purge Details / Field Readings						
Pre Purge PID Reading:	0.0	ppm				
Bulk Gas readings	Time	Concentration (% v/v)		H ₂ S (ppm)	CO (ppm)	
		CH ₄	CO ₂			O ₂
	0			20.9	0	0
	1			20.6	0	0
	2			20.4	0	0
	3			20.4	0	0
4			20.4	0	0	
Purge Method:	PID-6 - PID + Gas meter					
Post Purge PID Reading:	0.0	ppm				
Approximate Volume Purged:	2.5	L				
Pre-Start QA Tests						
Shut In Test						
	Canister		Carbon Tube / TD Setup			
Vacuum Applied:	-30	in Hg	3.0 kPa			
Duration:	1	min	1 min			
Pass / Fail:	PASS		PASS			
Leak Test	PID in Sample Train		PID in Shroud			
	0.0	ppm	136.2 ppm			
Pass / Fail:	PASS		PASS			
Sampling Details - Primary						
	Canister		Carbon Tube / TD Tube			
ID Number:	24T2		0909143447			
Regulator Number:	1876		N/A			
Start Time:	0	min	0 min			
Start Vacuum:	-29	in Hg	0.2 kPa			
Stop Time:	9	min	5 min			
Stop Vacuum:	-7	in Hg	0.2 kPa			
Approximate Sample Volume:	900	mL	~500 mL			
		Note: recommended end vacuum of -7 in Hg (~75% full)	Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)			
Sampling Details - Replicate						
	Canister		Carbon Tube / TD Tube			
ID Number:						
Regulator Number:			N/A			
Start Time:		min	min			
Start Vacuum:		in Hg	kPa			
Stop Time:		min	min			
Stop Vacuum:		in Hg	kPa			
Approximate Sample Volume:		mL	mL			
Sampling Details - Shroud						
Carbon / TD Tube ID:						
Start Time:		min				
Stop Time:		min				
Sample Time:		min				
Approximate Sample Volume:		mL				
Comments / Observations:						

Soil Vapour Sampling Sheet		 Douglas Partners Geotechnics Environment Groundwater				
Project and Bore Installation Details						
Project Name:	Waterloo					
Project Number:	221233-03					
Client:						
Sample ID / Bore No.:	SV206					
Site Location:	Wyndham Street, Alexandria					
GPS Co-ord:						
Elevation (RL, m AHD):						
Installation Date:						
Well / Pin Construction Details:	SV pin					
Weather:	Humidity 55%	Temperature 18°C	Barometric 1016			
Canister Flow Controller:	100 mL/min					
Carbon / TD Tube Flow Controller:	mL/min	Type	Rotameter, flow flow adaptor and vacuum gauge			
Pump ID:						
Date/Time:	20/6/24 3:00 PM					
Sampled By:	QR					
Purge Details / Field Readings						
Pre Purge PID Reading:	0.0	ppm				
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
	0			21.7	0	0
	1			21.6	0	0
	2			21.4	0	0
	3			21.4	0	0
Purge Method:	PID 6 - PID + Gas meter					
Post Purge PID Reading:	0.0	ppm				
Approximate Volume Purged:	~2.5	L				
Pre-Start QA Tests						
Shut In Test						
Canister		Carbon Tube / TD Setup				
Vacuum Applied	in Hg	kPa				
Duration	min	min				
Pass / Fail						
PID in Sample Train		PID in Shroud				
Leak Test	ppm	ppm				
Pass / Fail						
Sampling Details - Primary						
Canister		Carbon Tube / TD Tube				
ID Number						
Regulator Number	N/A					
Start Time	min	min				
Start Vacuum	in Hg	kPa				
Stop Time	min	min				
Stop Vacuum	in Hg	kPa				
Approximate Sample Volume	mL	mL				
Note: recommended end vacuum of -7 in Hg (~75% full)		Note: recommended < 2.5 kPa induced vacuum (ASTM D7663)				
Sampling Details - Replicate						
Canister		Carbon Tube / TD Tube				
ID Number						
Regulator Number	N/A					
Start Time	min	min				
Start Vacuum	in Hg	kPa				
Stop Time	min	min				
Stop Vacuum	in Hg	kPa				
Approximate Sample Volume	mL	mL				
Sampling Details - Shroud						
Carbon / TD Tube ID						
Start Time	min					
Stop Time	min					
Sample Time	min					
Approximate Sample Volume	mL					
Comments / Observations:	No sample taken.					

Appendix E

Desktop Information

DOUGLAS PARTNERS PTY LTD
96 Hermitage Rd

WEST RYDE NSW 2114

PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Applicant: DOUGLAS PARTNERS PTY LTD

Your reference:

Address of property: 100 Botany Road , ALEXANDRIA NSW 2015

Owner: C & A BERK HOLDINGS PTY LTD

Description of land: Lot 11 DP 135914

Certificate No.: 2024305014

Certificate Date: 24/06/24

Receipt No: APC-60417

Fee: \$156.00

Paid: 19/06/24

Title information and description of land are provided from data supplied by the Valuer General and shown where available.



Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:

Ph: 9265 9333

**PLANNING CERTIFICATE UNDER SECTION 10.7 (2) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979**

**MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 2 -
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2021, CLAUSES (1) - (2).**

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

Zone MU1 Mixed Use (Sydney Local Environmental Plan 2012)

1 Objectives of zone

- To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities.
- To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.
- To ensure land uses support the viability of nearby centres.
- To integrate suitable business, office, residential, retail and other land uses in accessible locations that maximise public transport patronage and encourage walking and cycling.

2 Permitted without consent

Home occupations

3 Permitted with consent

Amusement centres; Boarding houses; Car parks; Centre-based child care facilities; Commercial premises; Community facilities; Entertainment facilities; Function centres; Information and education facilities; Light industries; Local distribution premises; Medical centres; Oyster aquaculture; Passenger transport facilities; Places of public worship; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Vehicle repair stations; Any other development not specified in item 2 or 4

4 Prohibited

Extractive industries; Heavy industrial storage establishments; Heavy industries; Pond-based aquaculture

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012 NSW Legislation Website.

Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)

HERITAGE

State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)

This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application form or by downloading the application form from

www.heritage.nsw.gov.au

STATE PLANNING INSTRUMENTS

Full copies of State Environmental Planning Policies are available online at www.planning.nsw.gov.au.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

State Environmental Planning Policy (Housing) 2021

The principles of this Policy are as follows:

- (a) enabling the development of diverse housing types, including purpose-built rental housing,
- (b) encouraging the development of housing that will meet the needs of more vulnerable members of the community, including very low to moderate income households, seniors and people with a disability,
- (c) ensuring new housing development provides residents with a reasonable level of amenity,
- (d) promoting the planning and delivery of housing in locations where it will make good use of existing and planned infrastructure and services,
- (e) minimising adverse climate and environmental impacts of new housing development,
- (f) reinforcing the importance of designing housing in a way that reflects and enhances its locality,
- (g) supporting short-term rental accommodation as a home-sharing activity and contributor to local economies, while managing the social and environmental impacts from this use,
- (h) mitigating the loss of existing affordable rental housing.

State Environmental Planning Policy (Planning Systems) 2021

- identifies State or regionally significant development, State significant Infrastructure, and critical State significant infrastructure.
- provides for consideration of development delivery plans by local Aboriginal land councils in planning assessment.
- allows the Planning Secretary to elect to be the concurrence authority for certain development that requires concurrence under nominated State environmental planning policies.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

This SEPP contains:

- planning rules and controls for the clearing of native vegetation in NSW on land zoned for urban and environmental purposes that is not linked to a development application.
- the land use planning and assessment framework for koala habitat.
- provisions which establish a consistent and co-ordinated approach to environmental planning and assessment along the River Murray.
- provisions seeking to protect and preserve bushland within public open space zones and reservations.
- provisions which aim to prohibit canal estate development.
- provisions to support the water quality objectives for the Sydney drinking water catchment.
- provisions to protect the environment of the Hawkesbury-Nepean River system.
- provisions to manage and improve environmental outcomes for Sydney Harbour and its tributaries.
- provisions to manage and promote integrated catchment management policies along the Georges River and its tributaries.
- provisions which seek to protect, conserve and manage the World Heritage listed Willandra Lakes property.

State Environmental Planning Policy (Resilience and Hazards) 2021

This SEPP contains planning provisions:

- for land use planning within the coastal zone, in a manner consistent with the objects of the Coastal Management Act 2016.
- to manage hazardous and offensive development.
- which provides a state-wide planning framework for the remediation of contaminated land and to minimise the risk of harm.

State Environmental Planning Policy (Transport and Infrastructure) 2021

This SEPP contains planning provisions:

- for infrastructure in NSW, such as hospitals, roads, railways, emergency services, water supply and electricity delivery.
- for child-care centres, schools, TAFEs and Universities.
- planning controls and reserves land for the protection of three corridors (North South Rail Line, South West Rail Link extension and Western Sydney Freight Line).
- the land use planning and assessment framework for appropriate development at Port Kembla, Port Botany and Port of Newcastle.

State Environmental Planning Policy (Industry and Employment) 2021

This SEPP contains planning provisions:

- applying to employment land in western Sydney.
- for advertising and signage in NSW.

State Environmental Planning Policy (Resources and Energy) 2021

This SEPP contains planning provisions:

- for the assessment and development of mining, petroleum production and extractive material resource proposals in NSW.
- which aim to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance.

State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021

This SEPP contains planning provisions for precinct planning, which is a form of strategic planning applied to a specified geographic area. The precincts in this SEPP are located in the Eastern Harbour City. This city is based the strategic planning vision of the ‘three cities’ regions identified in the Greater Sydney Region Plan – A Metropolis of Three Cities.

State Environmental Planning Policy (Sustainable Buildings) 2022

Encourages the design and delivery of more sustainable buildings across NSW. It sets sustainability standards for residential and non-residential development and starts the process of measuring and reporting on the embodied emissions of construction materials.

The standards for energy use that apply to large commercial development contained in the SEPP do not apply to land in the City of Sydney LGA except to the extent the development relates to prescribed serviced apartments.

(3) Contribution plans

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2020 – in operation 26 th November 2021	NO
▪ City of Sydney Development Contributions Plan 2015 – in operation 1 st July 2016	YES
▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16 th May 2007	NO

Notes:

- An affordable housing contribution may be payable as part of a development application or planning proposal under The City of Sydney Affordable Housing Program (Program) – Adopted 26 June 2023.
- The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2023 applies. Housing and Productivity Contributions may be payable to the NSW Government for certain new development. Details of these contributions are available here: <https://www.planning.nsw.gov.au/policy-and-legislation/infrastructure/infrastructure-funding/improving-the-infrastructure-contributions-system#housing-and-productivity-contribution>. Inquiries can be directed to the NSW Government through this email address: hpc.enquiry@planning.nsw.gov.au

(4) Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A (1) (c) to (e), (2), (3) or (4), 1.18(1)(c3) or 1.19.
- (2) If complying development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of complying development. Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

Housing Code, Industrial and Business Buildings Code and Low Rise Housing Diversity Code

Complying development **may not** be carried out on the land under the Housing Code, the Commercial and Industrial (New Buildings and Additions) and the Low Rise Housing Diversity Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**.

Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Industrial and Business Buildings) Code.	NO
Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the <i>Heritage Act 1977</i> or that is subject to an interim heritage order under the <i>Heritage Act 1977</i>.	NO
Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	NO
Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the <i>Wilderness Act 1987</i>.	NO
Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	NO
Clause 1.19(1)a. or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	NO
Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	NO
Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	NO
Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	NO
Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	NO
Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	NO
Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies to the Housing Code & Low Rise Housing Diversity Code)	NO
Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	NO
Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	NO

Housing Alterations Code

Complying development under the Housing Alterations Code **may** be carried out on the land.

Industrial and Business Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code

Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code

The Rural Housing Code does not apply to this Local Government Area.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

(5) Exempt Development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. because of that Policy, clause 1.16(1)(b1)-(d) or 1.16A.
- (2) If exempt development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of exempt development. Council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

All Exempt and Complying Development Codes

Exempt development under each of the exempt development codes **may** be carried out on the land.

(6) Affected building notices and building product rectification orders

(1)

- (a) The land to which the certificate relates is not subject to any affected building notice of which Council is aware.
- (b) The land to which the certificate relates is not subject to any building product rectification order of which Council is aware and has not been fully complied with.
- (c) The land to which the certificate relates is not subject to any notice of intention to make a building product rectification order of which Council is aware and is outstanding.

(2) In this clause:

affected building notice has the same meaning as in Part 4 of the [Building Products \(Safety\) Act 2017](#).

building product rectification order has the same meaning as in the [Building Products \(Safety\) Act 2017](#).

(7) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

(8) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land **is not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(8) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(9) Flood related development controls information.

- (1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

Property is within the flood planning area	YES
Property is outside the flood planning area	NO
Property is within a buffer zone	NO

- (2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

Property is between the flood planning area and probable maximum flood.	YES
Property is outside the flood planning area and probable maximum flood	NO
Property is within a buffer zone	NO

- (3) In this section:

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the *Flood Risk Management Manual* (ISBN 978-1-923076-17-4) published 30 June 2023 by the NSW Government.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

(10) Council and other public authorities policies on hazard risk restrictions:

- (a) The land **is not** affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and
- (b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Loose-fill asbestos insulation

Not Applicable.

(13) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 2017.

(14) Paper subdivision information

Not Applicable.

(15) Property vegetation plans

Not Applicable.

(16) Biodiversity stewardship sites

Not Applicable.

(17) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(18) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(19) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council: The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the

Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. “Existing coastal protection works” are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before 1 January 2011.

(20) Western Sydney Aerotropolis

Not Applicable.

(21) Development consent conditions for seniors housing

[State Environmental Planning Policy \(Housing\) 2021](#), Chapter 3, Part 5 *does not* apply to the land *to which the certificate relates*.

(22) Site compatibility certificates and development conditions for affordable rental housing

- (1) The land to which the certificate relates is not subject to a current site compatibility certificate under [State Environmental Planning Policy \(Housing\) 2021](#), and is not subject to a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land.
- (2) [State Environmental Planning Policy \(Housing\) 2021](#), Chapter 2, Part 2, Division 1 or 5 does not apply to the land which the certificate relates.
- (3) The land to which the certificate relates is not subject to any conditions of development consent in relation to land of a kind referred to in [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#), clause 17(1) or 38(1).
- (4) In this section:

former site compatibility certificate means a site compatibility certificate issued under [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#)

(23) Water or sewerage services

Water or sewerage services are not provided to the land under the Water Industry Competition Act 2006

Note—

A public water utility may not be the provider of some or all of the services to the land. If a water or sewerage service is provided to the land by a licensee under the [Water Industry Competition Act 2006](#), a contract for the service will be deemed to have been entered into between the licensee and the owner of the land. A register relating to approvals and licences necessary for the provision of water or sewerage services under the [Water Industry Competition Act 2006](#) is maintained by the Independent Pricing and Regulatory Tribunal and provides information about the areas serviced, or to be serviced, under that Act. Purchasers should check the register to understand who will service the property. Outstanding charges for water or sewerage services provided under the [Water Industry Competition Act 2006](#) become the responsibility of the purchaser.

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.
- (b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.
- (c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.
- (d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.
- (e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 10.7 (2) INFORMATION:

Information provided in accordance with planning certificate section 10.7 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

PLANNING CERTIFICATE UNDER SECTION 10.7 (5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

PLANNING CERTIFICATE SECTION 10.7 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.

Contaminated Land Potential:

Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 10.7 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

Hazard Risk Restriction:

Some City of Sydney Local Environmental Plans incorporate Acid Sulfate soil maps.

Development on the land identified in those maps should have regard to the acid sulfate soil clause within the relevant Local Environmental Plan.

Construction Noise and View Loss Advice:

Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

Outstanding Notice & Order information

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order under Part 2 of Schedule 5 of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. **Neighbourhood Parking Policy**

The City of Sydney co-ordinates a Resident Permit Parking Scheme and a Visitor Permit Parking scheme. This property may be restricted from participating in either scheme. Eligibility may change after the date of this certificate, as parking supply and other traffic demands change. For more information contact Council's call centre on 9265 9333.

ADVICE FROM OTHER BODIES

Advice provided in accordance with planning certificate section 10.7 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 10.7 (6) of the Environmental Planning and Assessment Act, 1979).

Planning certificate section 10.7 (2), local planning controls are available are available online at www.cityofsydney.nsw.gov.au

General Enquiries:

Telephone: 02 9265 9333

Town Hall House

Level 2

Town Hall House

456 Kent Street

Sydney

9am – 5pm Monday - Friday

State planning controls are available online at www.legislation.nsw.gov.au

Where planning certificate section 10.7 (5) matters are supplied, complete details are available by writing to:

Chief Executive Officer
City of Sydney
G.P.O. Box 1591
Sydney NSW 2000

End of Document

DOUGLAS PARTNERS PTY LTD
96 Hermitage Rd

WEST RYDE NSW 2114

PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Applicant: DOUGLAS PARTNERS PTY LTD

Your reference:

Address of property: 108 Botany Road , ALEXANDRIA NSW 2015

Owner: C & A BERK HOLDINGS PTY LTD

Description of land: Lot 2 DP 659166

Certificate No.: 2024305015

Certificate Date: 24/06/24

Receipt No: APC-60417

Fee: \$156.00

Paid: 19/06/24

Title information and description of land are provided from data supplied by the Valuer General and shown where available.



Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:

Ph: 9265 9333

**PLANNING CERTIFICATE UNDER SECTION 10.7 (2) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979**

**MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 2 -
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2021, CLAUSES (1) - (2).**

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

Zone MU1 Mixed Use (Sydney Local Environmental Plan 2012)

1 Objectives of zone

- To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities.
- To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.
- To ensure land uses support the viability of nearby centres.
- To integrate suitable business, office, residential, retail and other land uses in accessible locations that maximise public transport patronage and encourage walking and cycling.

2 Permitted without consent

Home occupations

3 Permitted with consent

Amusement centres; Boarding houses; Car parks; Centre-based child care facilities; Commercial premises; Community facilities; Entertainment facilities; Function centres; Information and education facilities; Light industries; Local distribution premises; Medical centres; Oyster aquaculture; Passenger transport facilities; Places of public worship; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Vehicle repair stations; Any other development not specified in item 2 or 4

4 Prohibited

Extractive industries; Heavy industrial storage establishments; Heavy industries; Pond-based aquaculture

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012 NSW Legislation Website.

Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)

HERITAGE

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This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application form or by downloading the application form from

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State Environmental Planning Policy (Housing) 2021

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- (d) promoting the planning and delivery of housing in locations where it will make good use of existing and planned infrastructure and services,
- (e) minimising adverse climate and environmental impacts of new housing development,
- (f) reinforcing the importance of designing housing in a way that reflects and enhances its locality,
- (g) supporting short-term rental accommodation as a home-sharing activity and contributor to local economies, while managing the social and environmental impacts from this use,
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- identifies State or regionally significant development, State significant Infrastructure, and critical State significant infrastructure.
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- to manage hazardous and offensive development.
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The standards for energy use that apply to large commercial development contained in the SEPP do not apply to land in the City of Sydney LGA except to the extent the development relates to prescribed serviced apartments.

(3) Contribution plans

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2020 – in operation 26 th November 2021	NO
▪ City of Sydney Development Contributions Plan 2015 – in operation 1 st July 2016	YES
▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16 th May 2007	NO

Notes:

- An affordable housing contribution may be payable as part of a development application or planning proposal under The City of Sydney Affordable Housing Program (Program) – Adopted 26 June 2023.
- The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2023 applies. Housing and Productivity Contributions may be payable to the NSW Government for certain new development. Details of these contributions are available here: <https://www.planning.nsw.gov.au/policy-and-legislation/infrastructure/infrastructure-funding/improving-the-infrastructure-contributions-system#housing-and-productivity-contribution>. Inquiries can be directed to the NSW Government through this email address: hpc.enquiry@planning.nsw.gov.au

(4) Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A (1) (c) to (e), (2), (3) or (4), 1.18(1)(c3) or 1.19.
- (2) If complying development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of complying development. Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

Housing Code, Industrial and Business Buildings Code and Low Rise Housing Diversity Code

Complying development **may not** be carried out on the land under the Housing Code, the Commercial and Industrial (New Buildings and Additions) and the Low Rise Housing Diversity Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**.

Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Industrial and Business Buildings) Code.	NO
Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the <i>Heritage Act 1977</i> or that is subject to an interim heritage order under the <i>Heritage Act 1977</i>.	NO
Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	NO
Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the <i>Wilderness Act 1987</i>.	NO
Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	NO
Clause 1.19(1)a. or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	NO
Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	NO
Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	NO
Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	NO
Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	NO
Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	NO
Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies to the Housing Code & Low Rise Housing Diversity Code)	NO
Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	NO
Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	NO

Housing Alterations Code

Complying development under the Housing Alterations Code **may** be carried out on the land.

Industrial and Business Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code

Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code

The Rural Housing Code does not apply to this Local Government Area.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

(5) Exempt Development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. because of that Policy, clause 1.16(1)(b1)-(d) or 1.16A.
- (2) If exempt development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of exempt development. Council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.

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All Exempt and Complying Development Codes

Exempt development under each of the exempt development codes **may** be carried out on the land.

(6) Affected building notices and building product rectification orders

(1)

- (a) The land to which the certificate relates is not subject to any affected building notice of which Council is aware.
- (b) The land to which the certificate relates is not subject to any building product rectification order of which Council is aware and has not been fully complied with.
- (c) The land to which the certificate relates is not subject to any notice of intention to make a building product rectification order of which Council is aware and is outstanding.

(2) In this clause:

affected building notice has the same meaning as in Part 4 of the [Building Products \(Safety\) Act 2017](#).

building product rectification order has the same meaning as in the [Building Products \(Safety\) Act 2017](#).

(7) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

(8) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land **is not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(8) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(9) Flood related development controls information.

- (1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

Property is within the flood planning area	YES
Property is outside the flood planning area	NO
Property is within a buffer zone	NO

- (2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

Property is between the flood planning area and probable maximum flood.	YES
Property is outside the flood planning area and probable maximum flood	NO
Property is within a buffer zone	NO

- (3) In this section:

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the *Flood Risk Management Manual* (ISBN 978-1-923076-17-4) published 30 June 2023 by the NSW Government.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

(10) Council and other public authorities policies on hazard risk restrictions:

- (a) The land **is not** affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and
- (b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Loose-fill asbestos insulation

Not Applicable.

(13) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 2017.

(14) Paper subdivision information

Not Applicable.

(15) Property vegetation plans

Not Applicable.

(16) Biodiversity stewardship sites

Not Applicable.

(17) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(18) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(19) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council: The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the

Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. “Existing coastal protection works” are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before 1 January 2011.

(20) Western Sydney Aerotropolis

Not Applicable.

(21) Development consent conditions for seniors housing

[State Environmental Planning Policy \(Housing\) 2021](#), Chapter 3, Part 5 *does not* apply to the land *to which the certificate relates*.

(22) Site compatibility certificates and development conditions for affordable rental housing

- (1) The land to which the certificate relates is not subject to a current site compatibility certificate under [State Environmental Planning Policy \(Housing\) 2021](#), and is not subject to a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land.
- (2) [State Environmental Planning Policy \(Housing\) 2021](#), Chapter 2, Part 2, Division 1 or 5 does not apply to the land which the certificate relates.
- (3) The land to which the certificate relates is not subject to any conditions of development consent in relation to land of a kind referred to in [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#), clause 17(1) or 38(1).
- (4) In this section:

former site compatibility certificate means a site compatibility certificate issued under [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#)

(23) Water or sewerage services

Water or sewerage services are not provided to the land under the Water Industry Competition Act 2006

Note—

A public water utility may not be the provider of some or all of the services to the land. If a water or sewerage service is provided to the land by a licensee under the [Water Industry Competition Act 2006](#), a contract for the service will be deemed to have been entered into between the licensee and the owner of the land. A register relating to approvals and licences necessary for the provision of water or sewerage services under the [Water Industry Competition Act 2006](#) is maintained by the Independent Pricing and Regulatory Tribunal and provides information about the areas serviced, or to be serviced, under that Act. Purchasers should check the register to understand who will service the property. Outstanding charges for water or sewerage services provided under the [Water Industry Competition Act 2006](#) become the responsibility of the purchaser.

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.
- (b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.
- (c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.
- (d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.
- (e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 10.7 (2) INFORMATION:

Information provided in accordance with planning certificate section 10.7 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

PLANNING CERTIFICATE UNDER SECTION 10.7 (5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

PLANNING CERTIFICATE SECTION 10.7 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.

Contaminated Land Potential:

Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 10.7 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

Hazard Risk Restriction:

Some City of Sydney Local Environmental Plans incorporate Acid Sulfate soil maps.

Development on the land identified in those maps should have regard to the acid sulfate soil clause within the relevant Local Environmental Plan.

Construction Noise and View Loss Advice:

Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

Outstanding Notice & Order information

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order under Part 2 of Schedule 5 of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. **Neighbourhood Parking Policy**

The City of Sydney co-ordinates a Resident Permit Parking Scheme and a Visitor Permit Parking scheme. This property may be restricted from participating in either scheme. Eligibility may change after the date of this certificate, as parking supply and other traffic demands change. For more information contact Council's call centre on 9265 9333.

ADVICE FROM OTHER BODIES

Advice provided in accordance with planning certificate section 10.7 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 10.7 (6) of the Environmental Planning and Assessment Act, 1979).

Planning certificate section 10.7 (2), local planning controls are available are available online at www.cityofsydney.nsw.gov.au

General Enquiries:

Telephone: 02 9265 9333

Town Hall House

Level 2

Town Hall House

456 Kent Street

Sydney

9am – 5pm Monday - Friday

State planning controls are available online at www.legislation.nsw.gov.au

Where planning certificate section 10.7 (5) matters are supplied, complete details are available by writing to:

Chief Executive Officer
City of Sydney
G.P.O. Box 1591
Sydney NSW 2000

End of Document

DOUGLAS PARTNERS PTY LTD
96 Hermitage Rd

WEST RYDE NSW 2114

PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Applicant: DOUGLAS PARTNERS PTY LTD

Your reference:

Address of property: 74 Botany Road , ALEXANDRIA NSW 2015

Owner: CITY WEST HOUSING PTY LIMITED

Description of land: Lot 2 DP 136012

Certificate No.: 2024305017

Certificate Date: 24/06/24

Receipt No: -APC-60417

Fee: \$156.00

Paid: 19/06/24

Title information and description of land are provided from data supplied by the Valuer General and shown where available.



Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:

Ph: 9265 9333

**PLANNING CERTIFICATE UNDER SECTION 10.7 (2) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979**

**MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 2 -
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2021, CLAUSES (1) - (2).**

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

Zone MU1 Mixed Use (Sydney Local Environmental Plan 2012)

1 Objectives of zone

- To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities.
- To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.
- To ensure land uses support the viability of nearby centres.
- To integrate suitable business, office, residential, retail and other land uses in accessible locations that maximise public transport patronage and encourage walking and cycling.

2 Permitted without consent

Home occupations

3 Permitted with consent

Amusement centres; Boarding houses; Car parks; Centre-based child care facilities; Commercial premises; Community facilities; Entertainment facilities; Function centres; Information and education facilities; Light industries; Local distribution premises; Medical centres; Oyster aquaculture; Passenger transport facilities; Places of public worship; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Vehicle repair stations; Any other development not specified in item 2 or 4

4 Prohibited

Extractive industries; Heavy industrial storage establishments; Heavy industries; Pond-based aquaculture

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012 NSW Legislation Website.

Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)

HERITAGE

State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)

This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application form or by downloading the application form from

www.heritage.nsw.gov.au

STATE PLANNING INSTRUMENTS

Full copies of State Environmental Planning Policies are available online at www.planning.nsw.gov.au.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

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Notes:

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- The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2023 applies. Housing and Productivity Contributions may be payable to the NSW Government for certain new development. Details of these contributions are available here: <https://www.planning.nsw.gov.au/policy-and-legislation/infrastructure/infrastructure-funding/improving-the-infrastructure-contributions-system#housing-and-productivity-contribution>. Inquiries can be directed to the NSW Government through this email address: hpc.enquiry@planning.nsw.gov.au

(4) Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A (1) (c) to (e), (2), (3) or (4), 1.18(1)(c3) or 1.19.
- (2) If complying development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of complying development. Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

Housing Code, Industrial and Business Buildings Code and Low Rise Housing Diversity Code

Complying development **may not** be carried out on the land under the Housing Code, the Commercial and Industrial (New Buildings and Additions) and the Low Rise Housing Diversity Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**.

Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Industrial and Business Buildings) Code.	NO
Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the <i>Heritage Act 1977</i> or that is subject to an interim heritage order under the <i>Heritage Act 1977</i>.	NO
Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	NO
Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the <i>Wilderness Act 1987</i>.	NO
Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	NO
Clause 1.19(1)a. or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	NO
Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	NO
Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	NO
Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	NO
Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	NO
Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	NO
Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies to the Housing Code & Low Rise Housing Diversity Code)	NO
Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	NO
Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	NO

Housing Alterations Code

Complying development under the Housing Alterations Code **may** be carried out on the land.

Industrial and Business Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code

Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code

The Rural Housing Code does not apply to this Local Government Area.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

(5) Exempt Development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. because of that Policy, clause 1.16(1)(b1)-(d) or 1.16A.
- (2) If exempt development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of exempt development. Council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

All Exempt and Complying Development Codes

Exempt development under each of the exempt development codes **may** be carried out on the land.

(6) Affected building notices and building product rectification orders

(1)

- (a) The land to which the certificate relates is not subject to any affected building notice of which Council is aware.
- (b) The land to which the certificate relates is not subject to any building product rectification order of which Council is aware and has not been fully complied with.
- (c) The land to which the certificate relates is not subject to any notice of intention to make a building product rectification order of which Council is aware and is outstanding.

(2) In this clause:

affected building notice has the same meaning as in Part 4 of the [Building Products \(Safety\) Act 2017](#).

building product rectification order has the same meaning as in the [Building Products \(Safety\) Act 2017](#).

(7) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

(8) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land is **not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(8) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(9) Flood related development controls information.

- (1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

Property is within the flood planning area	YES
Property is outside the flood planning area	NO
Property is within a buffer zone	NO

- (2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

Property is between the flood planning area and probable maximum flood.	YES
Property is outside the flood planning area and probable maximum flood	NO
Property is within a buffer zone	NO

- (3) In this section:

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the *Flood Risk Management Manual* (ISBN 978-1-923076-17-4) published 30 June 2023 by the NSW Government.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

(10) Council and other public authorities policies on hazard risk restrictions:

- (a) The land **is not** affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and
- (b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Loose-fill asbestos insulation

Not Applicable.

(13) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 2017.

(14) Paper subdivision information

Not Applicable.

(15) Property vegetation plans

Not Applicable.

(16) Biodiversity stewardship sites

Not Applicable.

(17) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(18) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(19) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council: The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the

Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. “Existing coastal protection works” are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before 1 January 2011.

(20) Western Sydney Aerotropolis

Not Applicable.

(21) Development consent conditions for seniors housing

[State Environmental Planning Policy \(Housing\) 2021](#), Chapter 3, Part 5 *does not* apply to the land *to which the certificate relates*.

(22) Site compatibility certificates and development conditions for affordable rental housing

- (1) The land to which the certificate relates is not subject to a current site compatibility certificate under [State Environmental Planning Policy \(Housing\) 2021](#), and is not subject to a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land.
- (2) [State Environmental Planning Policy \(Housing\) 2021](#), Chapter 2, Part 2, Division 1 or 5 does not apply to the land which the certificate relates.
- (3) The land to which the certificate relates is not subject to any conditions of development consent in relation to land of a kind referred to in [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#), clause 17(1) or 38(1).
- (4) In this section:

former site compatibility certificate means a site compatibility certificate issued under [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#)

(23) Water or sewerage services

Water or sewerage services are not provided to the land under the Water Industry Competition Act 2006

Note—

A public water utility may not be the provider of some or all of the services to the land. If a water or sewerage service is provided to the land by a licensee under the [Water Industry Competition Act 2006](#), a contract for the service will be deemed to have been entered into between the licensee and the owner of the land. A register relating to approvals and licences necessary for the provision of water or sewerage services under the [Water Industry Competition Act 2006](#) is maintained by the Independent Pricing and Regulatory Tribunal and provides information about the areas serviced, or to be serviced, under that Act. Purchasers should check the register to understand who will service the property. Outstanding charges for water or sewerage services provided under the [Water Industry Competition Act 2006](#) become the responsibility of the purchaser.

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.
- (b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.
- (c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.
- (d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.
- (e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 10.7 (2) INFORMATION:

Information provided in accordance with planning certificate section 10.7 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

PLANNING CERTIFICATE UNDER SECTION 10.7 (5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

PLANNING CERTIFICATE SECTION 10.7 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.

Contaminated Land Potential:

Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 10.7 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

Hazard Risk Restriction:

Some City of Sydney Local Environmental Plans incorporate Acid Sulfate soil maps.

Development on the land identified in those maps should have regard to the acid sulfate soil clause within the relevant Local Environmental Plan.

Construction Noise and View Loss Advice:

Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

Outstanding Notice & Order information

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order under Part 2 of Schedule 5 of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. **Neighbourhood Parking Policy**

Owners and occupiers of this address are **not eligible** to participate in the resident and visitor permit parking schemes.

ADVICE FROM OTHER BODIES

Advice provided in accordance with planning certificate section 10.7 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 10.7 (6) of the Environmental Planning and Assessment Act, 1979).

Planning certificate section 10.7 (2), local planning controls are available are available online at www.cityofsydney.nsw.gov.au

General Enquiries:

Telephone: 02 9265 9333

Town Hall House

Level 2

Town Hall House

456 Kent Street

Sydney

9am – 5pm Monday - Friday

State planning controls are available online at www.legislation.nsw.gov.au

Where planning certificate section 10.7 (5) matters are supplied, complete details are available by writing to:

*Chief Executive Officer
City of Sydney
G.P.O. Box 1591
Sydney NSW 2000*

End of Document

DOUGLAS PARTNERS PTY LTD
96 Hermitage Rd

WEST RYDE NSW 2114

PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Applicant:	DOUGLAS PARTNERS PTY LTD
Your reference:	
Address of property:	86-96 Wyndham Street , ALEXANDRIA NSW 2015
Owner:	A W WECHSLER PTY LTD
Description of land:	Lot 1 DP 510091
Certificate No.:	2024305018
Certificate Date:	24/06/24
Receipt No:	APC-60417
Fee:	\$156.00
Paid:	19/06/24

Title information and description of land are provided from data supplied by the Valuer General and shown where available.



Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:

Ph: 9265 9333

**PLANNING CERTIFICATE UNDER SECTION 10.7 (2) OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979**

**MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 2 -
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2021, CLAUSES (1) - (2).**

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

Zone MU1 Mixed Use (Sydney Local Environmental Plan 2012)

1 Objectives of zone

- To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities.
- To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.
- To ensure land uses support the viability of nearby centres.
- To integrate suitable business, office, residential, retail and other land uses in accessible locations that maximise public transport patronage and encourage walking and cycling.

2 Permitted without consent

Home occupations

3 Permitted with consent

Amusement centres; Boarding houses; Car parks; Centre-based child care facilities; Commercial premises; Community facilities; Entertainment facilities; Function centres; Information and education facilities; Light industries; Local distribution premises; Medical centres; Oyster aquaculture; Passenger transport facilities; Places of public worship; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Vehicle repair stations; Any other development not specified in item 2 or 4

4 Prohibited

Extractive industries; Heavy industrial storage establishments; Heavy industries; Pond-based aquaculture

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012 NSW Legislation Website.

Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)

HERITAGE

State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)

This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application form or by downloading the application form from

www.heritage.nsw.gov.au

STATE PLANNING INSTRUMENTS

Full copies of State Environmental Planning Policies are available online at www.planning.nsw.gov.au.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

State Environmental Planning Policy (Housing) 2021

The principles of this Policy are as follows:

- (a) enabling the development of diverse housing types, including purpose-built rental housing,
- (b) encouraging the development of housing that will meet the needs of more vulnerable members of the community, including very low to moderate income households, seniors and people with a disability,
- (c) ensuring new housing development provides residents with a reasonable level of amenity,
- (d) promoting the planning and delivery of housing in locations where it will make good use of existing and planned infrastructure and services,
- (e) minimising adverse climate and environmental impacts of new housing development,
- (f) reinforcing the importance of designing housing in a way that reflects and enhances its locality,
- (g) supporting short-term rental accommodation as a home-sharing activity and contributor to local economies, while managing the social and environmental impacts from this use,
- (h) mitigating the loss of existing affordable rental housing.

State Environmental Planning Policy (Planning Systems) 2021

- identifies State or regionally significant development, State significant Infrastructure, and critical State significant infrastructure.
- provides for consideration of development delivery plans by local Aboriginal land councils in planning assessment.
- allows the Planning Secretary to elect to be the concurrence authority for certain development that requires concurrence under nominated State environmental planning policies.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

This SEPP contains:

- planning rules and controls for the clearing of native vegetation in NSW on land zoned for urban and environmental purposes that is not linked to a development application.
- the land use planning and assessment framework for koala habitat.
- provisions which establish a consistent and co-ordinated approach to environmental planning and assessment along the River Murray.
- provisions seeking to protect and preserve bushland within public open space zones and reservations.
- provisions which aim to prohibit canal estate development.
- provisions to support the water quality objectives for the Sydney drinking water catchment.
- provisions to protect the environment of the Hawkesbury-Nepean River system.
- provisions to manage and improve environmental outcomes for Sydney Harbour and its tributaries.
- provisions to manage and promote integrated catchment management policies along the Georges River and its tributaries.
- provisions which seek to protect, conserve and manage the World Heritage listed Willandra Lakes property.

State Environmental Planning Policy (Resilience and Hazards) 2021

This SEPP contains planning provisions:

- for land use planning within the coastal zone, in a manner consistent with the objects of the Coastal Management Act 2016.
- to manage hazardous and offensive development.
- which provides a state-wide planning framework for the remediation of contaminated land and to minimise the risk of harm.

State Environmental Planning Policy (Transport and Infrastructure) 2021

This SEPP contains planning provisions:

- for infrastructure in NSW, such as hospitals, roads, railways, emergency services, water supply and electricity delivery.
- for child-care centres, schools, TAFEs and Universities.
- planning controls and reserves land for the protection of three corridors (North South Rail Line, South West Rail Link extension and Western Sydney Freight Line).
- the land use planning and assessment framework for appropriate development at Port Kembla, Port Botany and Port of Newcastle.

State Environmental Planning Policy (Industry and Employment) 2021

This SEPP contains planning provisions:

- applying to employment land in western Sydney.
- for advertising and signage in NSW.

State Environmental Planning Policy (Resources and Energy) 2021

This SEPP contains planning provisions:

- for the assessment and development of mining, petroleum production and extractive material resource proposals in NSW.
- which aim to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance.

State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021

This SEPP contains planning provisions for precinct planning, which is a form of strategic planning applied to a specified geographic area. The precincts in this SEPP are located in the Eastern Harbour City. This city is based the strategic planning vision of the ‘three cities’ regions identified in the Greater Sydney Region Plan – A Metropolis of Three Cities.

State Environmental Planning Policy (Sustainable Buildings) 2022

Encourages the design and delivery of more sustainable buildings across NSW. It sets sustainability standards for residential and non-residential development and starts the process of measuring and reporting on the embodied emissions of construction materials.

The standards for energy use that apply to large commercial development contained in the SEPP do not apply to land in the City of Sydney LGA except to the extent the development relates to prescribed serviced apartments.

(3) Contribution plans

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2020 – in operation 26 th November 2021	NO
▪ City of Sydney Development Contributions Plan 2015 – in operation 1 st July 2016	YES
▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16 th May 2007	NO

Notes:

- An affordable housing contribution may be payable as part of a development application or planning proposal under The City of Sydney Affordable Housing Program (Program) – Adopted 26 June 2023.
- The subject land is within the Greater Sydney region to which the Environmental Planning and Assessment (Housing and Productivity Contribution) Order 2023 applies. Housing and Productivity Contributions may be payable to the NSW Government for certain new development. Details of these contributions are available here: <https://www.planning.nsw.gov.au/policy-and-legislation/infrastructure/infrastructure-funding/improving-the-infrastructure-contributions-system#housing-and-productivity-contribution>. Inquiries can be directed to the NSW Government through this email address: hpc.enquiry@planning.nsw.gov.au

(4) Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.17A (1) (c) to (e), (2), (3) or (4), 1.18(1)(c3) or 1.19.
- (2) If complying development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of complying development. Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

Housing Code, Industrial and Business Buildings Code and Low Rise Housing Diversity Code

Complying development **may not** be carried out on the land under the Housing Code, the Commercial and Industrial (New Buildings and Additions) and the Low Rise Housing Diversity Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**.

Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Industrial and Business Buildings) Code.	NO
Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the <i>Heritage Act 1977</i> or that is subject to an interim heritage order under the <i>Heritage Act 1977</i>.	NO
Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	NO
Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the <i>Wilderness Act 1987</i>.	NO
Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	NO
Clause 1.19(1)a. or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	NO
Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	NO
Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	NO
Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	NO
Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	NO
Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	NO
Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies to the Housing Code & Low Rise Housing Diversity Code)	NO
Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	NO
Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	NO

Housing Alterations Code

Complying development under the Housing Alterations Code **may** be carried out on the land.

Industrial and Business Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code

Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code

The Rural Housing Code does not apply to this Local Government Area.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

(5) Exempt Development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. because of that Policy, clause 1.16(1)(b1)-(d) or 1.16A.
- (2) If exempt development may not be carried out on that land because of 1 of those clauses, the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.
- (4) If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land.

Note: If any restrictions apply to this land, or to part of this land, which may preclude the carrying out of exempt development. Council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.

Clause 1.12 does not apply to the land in the City of Sydney LGA

All Exempt and Complying Development Codes

Exempt development under each of the exempt development codes **may** be carried out on the land.

(6) Affected building notices and building product rectification orders

(1)

- (a) The land to which the certificate relates is not subject to any affected building notice of which Council is aware.
- (b) The land to which the certificate relates is not subject to any building product rectification order of which Council is aware and has not been fully complied with.
- (c) The land to which the certificate relates is not subject to any notice of intention to make a building product rectification order of which Council is aware and is outstanding.

(2) In this clause:

affected building notice has the same meaning as in Part 4 of the [Building Products \(Safety\) Act 2017](#).

building product rectification order has the same meaning as in the [Building Products \(Safety\) Act 2017](#).

(7) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

(8) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land is **not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(8) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(9) Flood related development controls information.

- (1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

Property is within the flood planning area	YES
Property is outside the flood planning area	NO
Property is within a buffer zone	NO

- (2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

Property is between the flood planning area and probable maximum flood.	YES
Property is outside the flood planning area and probable maximum flood	NO
Property is within a buffer zone	NO

- (3) In this section:

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the *Flood Risk Management Manual* (ISBN 978-1-923076-17-4) published 30 June 2023 by the NSW Government.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

(10) Council and other public authorities policies on hazard risk restrictions:

- (a) The land **is not** affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and
- (b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Loose-fill asbestos insulation

Not Applicable.

(13) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 2017.

(14) Paper subdivision information

Not Applicable.

(15) Property vegetation plans

Not Applicable.

(16) Biodiversity stewardship sites

Not Applicable.

(17) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(18) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(19) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council: The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the

Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. “Existing coastal protection works” are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before 1 January 2011.

(20) Western Sydney Aerotropolis

Not Applicable.

(21) Development consent conditions for seniors housing

[State Environmental Planning Policy \(Housing\) 2021](#), Chapter 3, Part 5 *does not* apply to the land *to which the certificate relates*.

(22) Site compatibility certificates and development conditions for affordable rental housing

- (1) The land to which the certificate relates is not subject to a current site compatibility certificate under [State Environmental Planning Policy \(Housing\) 2021](#), and is not subject to a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land.
- (2) [State Environmental Planning Policy \(Housing\) 2021](#), Chapter 2, Part 2, Division 1 or 5 does not apply to the land which the certificate relates.
- (3) The land to which the certificate relates is not subject to any conditions of development consent in relation to land of a kind referred to in [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#), clause 17(1) or 38(1).
- (4) In this section:

former site compatibility certificate means a site compatibility certificate issued under [State Environmental Planning Policy \(Affordable Rental Housing\) 2009](#)

(23) Water or sewerage services

Water or sewerage services are not provided to the land under the Water Industry Competition Act 2006

Note—

A public water utility may not be the provider of some or all of the services to the land. If a water or sewerage service is provided to the land by a licensee under the [Water Industry Competition Act 2006](#), a contract for the service will be deemed to have been entered into between the licensee and the owner of the land. A register relating to approvals and licences necessary for the provision of water or sewerage services under the [Water Industry Competition Act 2006](#) is maintained by the Independent Pricing and Regulatory Tribunal and provides information about the areas serviced, or to be serviced, under that Act. Purchasers should check the register to understand who will service the property. Outstanding charges for water or sewerage services provided under the [Water Industry Competition Act 2006](#) become the responsibility of the purchaser.

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.
- (b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.
- (c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.
- (d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.
- (e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 10.7 (2) INFORMATION:

Information provided in accordance with planning certificate section 10.7 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

PLANNING CERTIFICATE UNDER SECTION 10.7 (5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

PLANNING CERTIFICATE SECTION 10.7 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.

Contaminated Land Potential:

Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 10.7 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

Hazard Risk Restriction:

Some City of Sydney Local Environmental Plans incorporate Acid Sulfate soil maps.

Development on the land identified in those maps should have regard to the acid sulfate soil clause within the relevant Local Environmental Plan.

Construction Noise and View Loss Advice:

Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

Outstanding Notice & Order information

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order under Part 2 of Schedule 5 of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under clause 41 of Schedule 5 of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act. **Neighbourhood Parking Policy**

The City of Sydney co-ordinates a Resident Permit Parking Scheme and a Visitor Permit Parking scheme. This property may be restricted from participating in either scheme. Eligibility may change after the date of this certificate, as parking supply and other traffic demands change. For more information contact Council's call centre on 9265 9333.

ADVICE FROM OTHER BODIES

Advice provided in accordance with planning certificate section 10.7 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 10.7 (6) of the Environmental Planning and Assessment Act, 1979).

Planning certificate section 10.7 (2), local planning controls are available are available online at www.cityofsydney.nsw.gov.au

General Enquiries:

Telephone: 02 9265 9333

Town Hall House

Level 2

Town Hall House

456 Kent Street

Sydney

9am – 5pm Monday - Friday

State planning controls are available online at www.legislation.nsw.gov.au

Where planning certificate section 10.7 (5) matters are supplied, complete details are available by writing to:

Chief Executive Officer
City of Sydney
G.P.O. Box 1591
Sydney NSW 2000

End of Document

Appendix F

Sampling Methodology

1. Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- HEPA *PFAS National Environmental Management Plan (NEMP)* (HEPA, 2020).
- ASTM *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapour Intrusion Evaluations* (ASTM D7663-12, 2018).
- USEPA *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air* (USEPA, 1999a).
- USEPA *Compendium Method TO-15 Determination of Volatile Organic Compounds (VOCs) In Air Collected in Specially-Prepared Canisters and Analysed By Gas Chromatography Mass Spectrometry (GC/MS)* (USEPA, 1999b).
- NSW EPA *Assessment and Management of Hazardous Ground Gases* (NSW EPA, 2020).

2. Soil sampling

Soil sampling is carried out in accordance with Douglas' standard operating procedures. The general sampling and sample management procedures comprise:

- Collect soil samples directly from the solid flight (hand tool / drill rig) auger;
- Transfer samples in laboratory-prepared glass jars with Teflon lined lids by hand, capping immediately and minimising headspace within the sample jar;
- Transfer samples in laboratory-prepared container (specific for PFAS) by hand, capping immediately and minimising headspace within the sample jar;
- Collect replicate samples in zip-lock bags for photoionisation detector (PID) screening;
- Collect ~500 ml samples for fibrous asbestos and asbestos fines (FA and AF) analysis;
- Collect ~40 g to 50 g samples in zip-lock bags for asbestos (presence / absence) analysis (where insufficient sample return for 500 mL samples);
- Wear a new disposable nitrile glove for each sample point thereby minimising potential for cross-contamination;
- Collect 10% replicate samples for quality control (QC) purposes;
- Label sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable);
- Place samples into a cooled, insulated and sealed container for transport to the laboratory;
- Collect soil samples for acid sulfate soils analysis at every 0.5 m depth interval and at least one sample for every change in strata observed. Place immediately into zip-lock plastic bags after minimising air content and potential for moisture loss and immediately place on ice in a cooled, insulated and sealed container for transport to the laboratory. Once in the laboratory place the samples in a freezer; and

- Use chain of custody documentation.

Reference was made to HEPA (2020) for requirements specific to PFAS.

2.1 Field testing

Field testing is carried out in accordance with Douglas' standard operating procedures. The general sampling and sample management procedures comprise:

PID field test

- Calibrate the PID with isobutylene gas at 100 ppm and with fresh air prior to commencement of each successive day's field work;
- Allow the headspace in the PID zip-lock bag samples to equilibrate; and
- Screen using the PID.

3. Soil vapour sampling

3.1 Vapour pin installation

Vapour pin installation comprises the following steps:

- Drill a 38 mm pilot hole into the pavement to a depth of approximately 50 mm using a rotary hammer drill and masonry bit;
- Drill a second hole with a diameter of 16 mm to fully penetrate the pavement (approximately 150 mm);
- Insert a pre-fabricated stainless-steel vapour pin with a silicon sleeve (with an outer diameter approximately 20 mm) into the drilled hole and then drive into the pavement using a hammer. The silicon sleeve holds the pin in place. No glues, cements or other binding products are applied to the installation;
- Place a plastic cap on the inlet to the pin and screw a stainless-steel cap into place; and
- Allow the pins to sit for approximately 60 minutes to equilibrate to ambient conditions before purging.

3.2 Soil vapour sampling

The soil vapour sampling is carried out in accordance with Douglas' standard operating procedures based on ASTM (2018) and current industry practice. The general sampling and sample management procedures comprise:

- Connect sample tubing directly to the vapour pin outlet following removal of the stainless-steel cap and plastic cap;
- Collect the primary soil vapour sample to a Summa canister and the backup sample on carbon tubes. Attach Summa canisters directly to the sample point via disposable tubing. Collect the back-up sample using an air sampling pump, with the flow rate monitored using a rotameter and vacuum gauge;

- Perform shut in tests (minimum 30 seconds) following assembly of the sampling apparatus comprising:
 - o Summa canister: Assemble the sample apparatus to the extent practical (i.e., connecting the Summa canister to the regulator), then open the canister valve to apply the vacuum (of between -29 mm Hg to -30 mm Hg) to the sampling train, while the regulator is still capped; and
 - o Carbon back-up tube: Assemble the sample train (fittings to attach to vapour well, carbon tube, vacuum gauge, rotameter and pump plus the associated tubing connecting the sample train) then clamp the sampling tube between the vapour port and carbon tube, activate the pump until a vacuum of 15 in Hg is achieved and then the sampling train is clamped at the pump.
- Purge the soil vapour well prior to sampling by removing one volume of air / vapour from the well (~500 ml);
- Introduce liquid isopropyl alcohol (IPA) into the sampling shroud to act as a tracer gas for leaks in the soil vapour well and / or the sampling train. All samples are analysed for IPA as part of the TO15 analysis;
- Take PID readings from the soil vapour well prior to and following application of the IPA tracer gas. Take a PID reading inside the shroud to provide a field indication of potential leaks;
- Measure general bulk gas parameters from the soil vapour well using a multi gas meter;
- Checking cannister vacuum prior to sampling against laboratory specified vacuum;
- Collect primary samples directly from the soil vapour port into 1 L Summa canisters with a flow regulator set by the analytical laboratory (approximately 100 ml/min). The regulators are supplied by the analytical laboratory and are decontaminated by the laboratory prior to shipment;
- Collect an intra-laboratory QC duplicate soil vapour sample;
- Collect back-up samples directly onto carbon tubes using an SKC constant flow air-sampling pump, low flow adapter and rotameter to confirm the flow rate;
- Collect a shroud sample on a carbon tube to conduct analysis for IPA and determine the concentration of the tracer compound in the shroud;
- Checking induced vacuum during sampling does not exceed -2.5 kPa;
- Collect the VOC sample from the sample point directly into the sorbent tube / canister so as not to pass through the pump, rotameter or tubing which has the potential to contaminate the samples (rotameter not required for canisters); and
- Label the sample canisters and tubes and record on chain of custody documentation. Complete field sampling sheets and transport samples to the laboratory in an appropriate sealed container.

4. Groundwater sampling

4.1 Monitoring well installation

Monitoring wells are constructed using class 18 uPVC machine slotted screen and blank sections with screw threaded joints. The screened section of each well is backfilled with a washed sand filter pack to approximately 0.5 m above the screened interval. Each well is completed with a hydrated bentonite plug of at least 0.5 m thick and then bentonite / cement grout to the surface, finished as with a cast iron road-box.

4.2 Monitoring well development

Groundwater monitoring wells are developed as soon as practicable following well installation. The purpose of well development is to remove sediments and / or drilling fluid introduced to the well during drilling and to facilitate connection of the monitoring well to the aquifer. The wells are developed by pumping / bailing to remove a minimum of three to five well volumes, or until dry.

4.3 Groundwater sampling

Groundwater sampling is carried out in accordance with Douglas' standard operating procedures. Groundwater samples are collected using a low flow peristaltic pump via the micro-purge (minimal drawdown) method. The sampling method is described as follows:

- Measure the static water level using an electronic interface probe and record the thickness of any LNAPL (if encountered);
- Decontaminate the interface probe and cable between monitoring wells by rinsing in a diluted Liquinox solution and then rinsing in demineralised water;
- Lower the well-dedicated tubing into the well then clamped at a level estimated to be 1 m below the top of the water column (provided the depth of the pump is within the screened section) or to the approximate mid-point of the well screen;
- Set the pump at the lowest rate possible to minimise drawdown of the water column;
- Measure physical parameters by continuously passing the purged water through a flow cell; and
- Following stabilisation of the field parameters, collect samples in laboratory-prepared bottles minimising headspace within the sample bottle and cap immediately.

The general groundwater sample handling and management procedures comprise:

- Collect 10% replicate samples for QC purposes;
- Label sample containers with individual and unique identification details, including project number and sample location;
- Place the sample jars into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

5. References

ASTM D7663-12. (2018). *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapour Intrusion Evaluations*. 2018 e1 (editorial change to 2012 revision); American Society for Testing and Materials.

HEPA. (2020). *PFAS National Environmental Management Plan (NEMP)*. Version 2.0: Heads of EPAs Australia and New Zealand and Australian Government Department of the Environment.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2020). *Assessment and Management of Hazardous Ground Gases*. NSW Environment Protection Authority.

USEPA. (1999a). *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. Second Edition: United States Environment Protection Agency.

USEPA. (1999b). *Compendium Method TO-15 Determination of Volatile Organic Compounds (VOCs) In Air Collected in Specially-Prepared Canisters and Analysed By Gas Chromatography Mass Spectrometry (GC/MS)*. United States Environment Protection Agency.

Appendix G

Site Assessment Criteria

1. Introduction

1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).
- HEPA *PFAS National Environmental Management Plan (NEMP)* (HEPA, 2020).
- ANZG *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018).
- NHMRC *Guidelines for Managing Risks In Recreational Water* (NHMRC, 2008).
- NHMRC, NRMCC *Australian Drinking Water Guidelines 6 2011, Version 3.2* (NHMRC, NRMCC, 2022).
- ANZECC *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000).

1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and/or derivation of the SAC:

- Land use: health facility, representative of a commercial land-use (workers) as the key site receptors.
 - Corresponding to land use category 'D', commercial / industrial such as shops, offices, factories and industrial sites.
- Soil type: sand.

2. Soils

2.1 Health investigation and screening levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL and HSL for the contaminants of concern are in Table 1 and Table 2.

Table 1: Health investigation levels (mg/kg)

Contaminant	HIL-D
Metals	
Arsenic	3000
Cadmium	900
Chromium (VI)	3600
Copper	240 000
Lead	1500
Mercury (inorganic)	730
Nickel	6000
Zinc	400 000
PAH	
B(a)P TEQ	40
Total PAH	4000
Phenols	
Phenol	240 000
Pentachlorophenol	660
OCP	
DDT+DDE+DDD	3600
Aldrin and dieldrin	45
Chlordane	530
Endosulfan	2000
Endrin	100
Heptachlor	50
HCB	80
Methoxychlor	2500
OPP	
Chlorpyrifos	2000
PCB	
PCB	7

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

The soil saturation concentration (C_{sat}) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds C_{sat}, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

Table 2: Health screening levels (mg/kg)

Contaminant	HSL-D	HSL-D	HSL-D	HSL-D
SAND	0 m to <1 m	1 m to <2 m	2 m to <4 m	4 m+
Benzene	3	3	3	3
Toluene	NL	NL	NL	NL
Ethylbenzene	NL	NL	NL	NL
Xylenes	230	NL	NL	NL
Naphthalene	NL	NL	NL	NL
TRH F1	260	370	630	NL
TRH F2	NL	NL	NL	NL

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

The soil saturation concentration (C_{sat}) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds C_{sat}, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health screening levels for direct contact (mg/kg)

Contaminant	DC HSL-A	DC HSL-B	DC HSL-C	DC HSL-D	DC HSL-IMW
Benzene	100	140	120	430	1100
Toluene	14 000	21 000	18 000	99 000	120 000
Ethylbenzene	4500	5900	5300	27 000	85 000
Xylenes	12 000	17 000	15 000	81 000	130 000
Naphthalene	1400	2200	1900	11 000	29 000
TRH F1	4400	5600	5100	26 000	82 000
TRH F2	3300	4200	3800	20 000	62 000
TRH F3	4500	5800	5300	27 000	85 000
TRH F4	6300	8100	7400	38 000	120 000

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

2.2 Health investigation levels for per- and poly-fluoroalkyl substances in soil

The laboratory analytical results for per- and poly-fluoroalkyl substances (PFAS) in soil have been assessed against HIL published in HEPA (2020). The HIL represent a nationally-agreed suite that should be used to inform site investigations. The HIL are intentionally conservative, and an exceedance of these criteria may not constitute a risk if other exposure pathways are controlled. An exceedance of the HIL should trigger further investigations, such as a site-specific risk assessment. At the time of this investigation, screening values were available only for perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS).

The HIL derived from Table 2 of HEPA (2020) are in Table 4.

Table 4: Health investigation levels (mg/kg)

Contaminant	HIL-D
PFOS and PFHxS *	20
PFOA	50

Notes: * Includes PFOS only, PFHxS only and the sum of the two.

2.3 Asbestos in soil

The HSL for asbestos in soil are based on likely exposure levels for different scenarios published in NEPC (2013) for the following forms of asbestos:

- Bonded asbestos containing material (ACM); and
- Fibrous asbestos and asbestos fines (FA and AF).

The HSL are in Table 5.

Table 5: Health screening levels for asbestos

Form of asbestos	HSL-D
ACM	0.05%
FA and AF	0.001%
FA and AF and ACM	No visible asbestos for surface soil *

Notes: Surface soils defined as top 10 cm.

* Based on site observations at the sampling points and the analytical results of surface samples.

Where limited sample return is available (e.g. boreholes) the presence or absence of asbestos at a limit of reporting of 0.1 g/kg (AS:4964) has been adopted for this investigation / assessment as an initial screen.

2.4 Management limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);

- Fire and explosion hazards; and
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services.

The adopted management limits are in Table 6.

Table 6: Management limits (mg/kg)

Contaminant	Soil type	ML-D
TRH F1	Coarse	700
TRH F2	Coarse	1000
TRH F3	Coarse	3500
TRH F4	Coarse	10 000

Notes: TRH F1 is TRH C₆-C₁₀ including BTEX
 TRH F2 is TRH >C₁₀-C₁₆ including naphthalene
 ML-A-B-C residential, parkland and public open space

3. Soil Vapour

3.1 Interim soil vapour health investigation levels

Soil vapour interim HIL for specific chlorinated VOC were published by NEPC (2013) to assess the vapour intrusion exposure pathway.

The interim HIL for chlorinated VOC methodology employs a simple though conservative approach using an attenuation factor that relates the concentration of a volatile contaminant in indoor air to the concentration in soil gas immediately below a building foundation slab.

The interim health investigation levels (IHIL) derived from NEPC (2013) are in Table 7.

Table 7: Soil vapour interim health investigation levels, chlorinated hydrocarbons (µg/m³)

Chemical	Common / trade names	IHIL-D
trichloroethene	trichloroethylene, TCE	80
1,1,1-trichloroethane	TCA / 1,1,1-TCA	230 000
tetrachloroethene	Perchloroethylene, perc, PCE	8000
cis,1-2,dichloroethene	dichloroethylene, cis-DCE	300
chloromethane	Vinyl chloride, VC	100

3.2 Health screening levels

Soil vapour HSL for petroleum hydrocarbons were published by NEPC (2013) to assess the vapour intrusion exposure pathway.

The HSL derived from NEPC (2013) are in Table 8.

Table 8: Soil vapour health screening levels for vapour intrusion ($\mu\text{g}/\text{m}^3$)

Contaminant	HSL-D	HSL-D	HSL-D	HSL-D	HSL-D
SAND	0-1 m	1-2 m	2-4 m	4-8 m	>8 m
Benzene	4000	10000	30 000	6 5000	130 000
Toluene	4 800 000	16 000 000	39 000 000	84 000 000	NL
Ethylbenzene	1 300 000	4 600 000	11 000 000	25 000 000	53 000 000
Xylene Total	840 000	3 200 000	8 000 000	18 000 000	37 000 000
Naphthalene	3000	15 000	35 000	75 000	150 000
TRH F1	680 000	2 800 000	7 000 000	15 000 000	32 000 000
TRH F2	500 000	2 400 000	NL	NL	NL

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

The maximum possible soil vapour concentrations have been calculated based on vapour pressures of the pure chemicals. Where soil vapour HSL exceed these values, a soil-specific source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

4. Groundwater

4.1 Introduction

The groundwater investigation levels (GIL) used for interpretation of the groundwater data (as a Tier 1 assessment) have been selected based on the potential risks posed from contamination sourced from the site to receptors at or down-gradient of the site, as identified by the conceptual site model (CSM). The receptors, exposure points and pathways are summarised in Table 9.

Table 9: Summary of potential receptors and potential risks

Receptor	Location	Exposure point	Exposure pathway
Surface water aquatic ecosystem	Down-gradient from site.	Receiving surface water body (Alexandria Canal – Botany Bay) at the groundwater discharge point.	Exposure to contaminants.
Occupants of buildings	On site and down-gradient from site.	Enclosed buildings (existing / proposed).	Inhalation of VOC (including TRH and BTEX) overlying VOC impacted groundwater via the vapour intrusion pathway.

The rationale for the selection of GIL is in Table 10.

Table 10: Groundwater investigation level rationale

Receptor / beneficial use	GIL	Source	Comments / rationale
Aquatic ecosystem	DGV	ANZG (2018)	Marine water 99% LOP for bioaccumulative contaminants 95% LOP for non-bioaccumulative contaminants
Aquatic ecosystem	DGV	HEPA (2020)	Marine water 99% LOP as recommended for potential bioaccumulation Screening values were only available for PFOS and PFOA at the time of this investigation.
Building occupants (vapour intrusion)	HSL	NEPC (2013)	2 m to <4 m

Notes: DGV default guideline value
 % LOP percentage level of protection of species
 HSL health screening level

4.2 Groundwater investigation levels for aquatic ecosystems

The DGV for the protection of aquatic ecosystems derived from ANZG (2018) are in Table 11.

Table 11: Groundwater investigation levels for protection of aquatic ecosystems (µg/L)

Contaminant	Marine DGV 95% LOP	Notes
Metals / metalloids		
Arsenic	24 / 13	Levels provided for As III / As IV respectively as adopted from freshwater criteria in absence of marine criteria. Unknown reliability.
Cadmium	0.7	99% LOP adopted as recommended due to potential for bioaccumulation. Very high reliability.
Chromium (VI)	4.4	Chromium VI levels adopted as initial screen for total chromium. Very high reliability.
Copper	1.3	Very high reliability.
Lead	4.4	Low reliability.
Mercury (inorganic)	0.1	99% LOP adopted as recommended due to potential for bioaccumulation. Very high reliability.
Nickel	7	99% LOP adopted as recommended to protect key species from chronic toxicity. Very high reliability.
Zinc	8	Very high reliability.

Contaminant	Marine DGV 95% LOP	Notes
BTEX		
Benzene	500	99% LOP adopted as recommended to protect key species from chronic toxicity. Moderate reliability.
Ethylbenzene	80	Unknown reliability.
m-Xylene	75	Unknown reliability.
o-xylene	350	Adopted from freshwater criteria for in absence of marine criteria. Unknown reliability.
p-Xylene	200	Adopted from freshwater criteria for in absence of marine criteria. Unknown reliability.
Toluene	180	Unknown reliability.
PAH		
Anthracene	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Benzo(a)pyrene	0.1	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Fluoranthene	1	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Naphthalene	50	99% LOP adopted as recommended to protect key species from chronic toxicity. Moderate reliability.
Phenanthrene	0.6	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Phenols		
Phenol	400	Moderate reliability.
Pentachlorophenol	11	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
OCP		
Aldrin	0.003	Unknown reliability and LOP.
Chlordane	0.001	Unknown reliability and LOP.
DDT	0.0004	Unknown reliability and LOP.
Dieldrin	0.01	Freshwater criteria adopted in absence of marine criteria. Unknown reliability and LOP.
Endosulfan	0.005	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Endrin	0.004	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.

Contaminant	Marine DGV 95% LOP	Notes
Heptachlor	0.0004	Unknown reliability and LOP.
Methoxychlor	0.004	Unknown reliability and LOP.
OPP		
Chlorpyrifos	0.009	Low reliability.
Diazinon	0.01	Freshwater criteria adopted in absence of marine criteria. Unknown reliability.
Dimethoate	0.15	Freshwater criteria adopted in absence of marine criteria. Unknown reliability.
Fenitrothion	0.001	Unknown reliability and LOP.
Malathion	0.05	Freshwater criteria adopted in absence of marine criteria. Unknown reliability.
Parathion	0.004	Freshwater criteria adopted in absence of marine criteria. Unknown reliability.
PCB		
Aroclor 1242	0.3	Adopted from freshwater criteria for in absence of marine criteria. 99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Aroclor 1254	0.01	Adopted from freshwater criteria for in absence of marine criteria. 99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
VOC		
Tetrachloroethene (PCE)	70	Unknown reliability.
Trichloroethene (TCE)	330	Unknown reliability.
cis-1,2-dichloroethene (DCE)	700	Unknown reliability.
Chloroethene (vinyl chloride / VC)	100	Unknown reliability.
Tetrachloromethane (carbon tetrachloride / CT)	240	Unknown reliability.
Trichloromethane (chloroform / TCM)	370	99% LOP adopted as recommended to protect key species from chronic toxicity. Unknown reliability.

Notes: 95% LOP for non-bioaccumulative contaminants
 99% LOP for bioaccumulative contaminants

The DGV for the protection of aquatic ecosystems derived from HEPA (2020) are in Table 12.

Table 12: Groundwater investigation levels for protection of aquatic ecosystems (µg/L)

Contaminant / LOP	Freshwater DGV	Interim marine water DGV
PFOS 99% LOP	0.00023	0.00023
PFOA 99% LOP	19	19
PFOS 95% LOP	0.13	0.13
PFOA 95% LOP	220	220

4.3 Health screening levels for vapour intrusion

The HSL to evaluate potential vapour intrusion risks derived from NEPC (2013) are in Table 16.

Table 13: Groundwater health screening levels for vapour intrusion (µg/L)

Contaminant	HSL-D	HSL-D	HSL-D	Solubility limit
SAND	2 m to <4 m	4 m to <8 m	8 m+	-
Benzene	5000	5000	5000	59 000
Toluene	NL	NL	NL	61 000
Ethylbenzene	NL	NL	NL	3900
Xylenes	NL	NL	NL	21 000
Naphthalene	NL	NL	NL	170
TRH F1	6000	6000	7000	9000
TRH F2	NL	NL	NL	3000

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

The solubility limit is defined as the groundwater concentration at which the water cannot dissolve any more of an individual chemical based on a petroleum mixture. The soil vapour that is in equilibrium with the groundwater will be at its maximum. If the derived groundwater HSL exceeds the water solubility limit, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'.

5. References

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Warne, M., Batley, G., van Dam, R., Chapman, J., Fox, D., Hickey, C., & Stauber, J. (2018). *Revised Method for Deriving Australian and New Zealand Water Quality Guideline Values for Toxicants*. Canberra: Australian Government Department of Agriculture and Water Resources.

Appendix H

Laboratory Documentation

CERTIFICATE OF ANALYSIS 353485

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03 Waterloo</u>
Number of Samples	45 Soil, 2 Material
Date samples received	07/06/2024
Date completed instructions received	07/06/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	17/06/2024
Date of Issue	17/06/2024
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Asbestos Approved By

Analysed by Asbestos Approved Analyst: Sneha Shakya
 Authorised by Asbestos Approved Signatory: Lucy Zhu

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 Dragana Tomas, Senior Chemist
 Jack Wallis, Chemist (FAS)
 Lucy Zhu, Asbestos Supervisor
 Sean McAlary, Chemist (FAS)
 Tabitha Roberts, Chemist
 Timothy Toll, Senior Chemist

VOCs in soil						
Our Reference		353485-1	353485-6	353485-13	353485-26	353485-29
Your Reference	UNITS	BH101	BH102	BH103	BH109	BH110
Depth		0.2-0.3	0.2-0.3	1-1.1	0.5-0.6	0.5-0.6
Date Sampled		07/06/2024	6/06/24	6/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date Analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
Bromochloromethane	mg/kg	<1	<1	<1	<1	<1
Chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-Dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
Carbon Tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
Trichloroethene	mg/kg	<1	<1	<1	<1	<1
Bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
Dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-Dibromoethane	mg/kg	<1	<1	<1	<1	<1
Tetrachloroethene	mg/kg	<1	<1	1	9	<1
1,1,1,2-Tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
Chlorobenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		353485-1	353485-6	353485-13	353485-26	353485-29
Your Reference	UNITS	BH101	BH102	BH103	BH109	BH110
Depth		0.2-0.3	0.2-0.3	1-1.1	0.5-0.6	0.5-0.6
Date Sampled		07/06/2024	6/06/24	6/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
Bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-Xylene	mg/kg	<2	<2	<2	<2	<2
Styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	mg/kg	<1	<1	<1	<1	<1
Isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
Bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-Propylbenzene	mg/kg	<1	<1	<1	<1	<1
2-Chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-Chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	mg/kg	<1	<1	<1	<1	<1
tert-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	mg/kg	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-Isopropyltoluene	mg/kg	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	102	106	103	103
Surrogate aaa-Trifluorotoluene	%	85	86	81	92	94
Surrogate Toluene-d ₈	%	106	104	108	106	107
Surrogate 4-Bromofluorobenzene	%	94	94	94	94	94

VOCs in soil		
Our Reference		353485-39
Your Reference	UNITS	BH113
Depth		0.5-0.6
Date Sampled		5/06/24
Type of sample		Soil
Date Extracted	-	12/06/2024
Date Analysed	-	17/06/2024
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-Dichloroethene	mg/kg	<1
1,1-Dichloroethane	mg/kg	<1
cis-1,2-Dichloroethene	mg/kg	<1
Bromochloromethane	mg/kg	<1
Chloroform	mg/kg	<1
2,2-Dichloropropane	mg/kg	<1
1,2-Dichloroethane	mg/kg	<1
1,1,1-Trichloroethane	mg/kg	<1
1,1-Dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
Carbon Tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
Dibromomethane	mg/kg	<1
1,2-Dichloropropane	mg/kg	<1
Trichloroethene	mg/kg	<1
Bromodichloromethane	mg/kg	<1
trans-1,3-Dichloropropene	mg/kg	<1
cis-1,3-Dichloropropene	mg/kg	<1
1,1,2-Trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-Dichloropropane	mg/kg	<1
Dibromochloromethane	mg/kg	<1
1,2-Dibromoethane	mg/kg	<1
Tetrachloroethene	mg/kg	1
1,1,1,2-Tetrachloroethane	mg/kg	<1
Chlorobenzene	mg/kg	<1

VOCs in soil		
Our Reference		353485-39
Your Reference	UNITS	BH113
Depth		0.5-0.6
Date Sampled		5/06/24
Type of sample		Soil
Ethylbenzene	mg/kg	<1
Bromoform	mg/kg	<1
m+p-Xylene	mg/kg	<2
Styrene	mg/kg	<1
1,1,2,2-Tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1
1,2,3-Trichloropropane	mg/kg	<1
Isopropylbenzene	mg/kg	<1
Bromobenzene	mg/kg	<1
n-Propylbenzene	mg/kg	<1
2-Chlorotoluene	mg/kg	<1
4-Chlorotoluene	mg/kg	<1
1,3,5-Trimethylbenzene	mg/kg	<1
tert-Butylbenzene	mg/kg	<1
1,2,4-Trimethylbenzene	mg/kg	<1
1,3-Dichlorobenzene	mg/kg	<1
sec-Butylbenzene	mg/kg	<1
1,4-Dichlorobenzene	mg/kg	<1
4-Isopropyltoluene	mg/kg	<1
1,2-Dichlorobenzene	mg/kg	<1
n-Butylbenzene	mg/kg	<1
1,2-Dibromo-3-chloropropane	mg/kg	<1
1,2,4-Trichlorobenzene	mg/kg	<1
Hexachlorobutadiene	mg/kg	<1
1,2,3-Trichlorobenzene	mg/kg	<1
Surrogate Dibromofluoromethane	%	105
Surrogate aaa-Trifluorotoluene	%	90
Surrogate Toluene-d ₈	%	109
Surrogate 4-Bromofluorobenzene	%	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		353485-1	353485-2	353485-5	353485-7	353485-10
Your Reference	UNITS	BH101	BH101	BH101	BH102	BH103
Depth		0.2-0.3	0.5-0.6	1.6-1.7	0.5-0.6	0.2-0.3
Date Sampled		07/06/2024	7/06/24	7/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	89	85	80	85

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		353485-11	353485-16	353485-18	353485-19	353485-20
Your Reference	UNITS	BH103	BH104	BH105	BH106	BH107
Depth		0.5-0.6	0.2-0.3	0.2-0.28	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	79	89	93	87	90

vTRH(C6-C10)/BTEXN in Soil

Our Reference		353485-21	353485-22	353485-25	353485-28	353485-30
Your Reference	UNITS	BH108	BH108	BH109	BH110	BH110
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	90	87	95	93

vTRH(C6-C10)/BTEXN in Soil

Our Reference		353485-32	353485-33	353485-34	353485-36	353485-38
Your Reference	UNITS	BH111	BH111	BH111	BH112	BH113
Depth		0.2-0.3	0.5-0.6	1-1.1	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	93	99	89	92

vTRH(C6-C10)/BTEXN in Soil

Our Reference		353485-40	353485-41	353485-42	353485-44	353485-46
Your Reference	UNITS	BH113	BH113	BD1/20240605	BD3/20240606	TS
Depth		1-1.1	1.4-1.5	-	-	-
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	[NA]
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	105%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	105%
Ethylbenzene	mg/kg	<1	<1	<1	<1	106%
m+p-xylene	mg/kg	<2	<2	<2	<2	106%
o-Xylene	mg/kg	<1	<1	<1	<1	106%
Naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	91	85	95	92	105

vTRH(C6-C10)/BTEXN in Soil

Our Reference		353485-47
Your Reference	UNITS	TB
Depth		-
Date Sampled		5/06/24
Type of sample		Soil
Date extracted	-	12/06/2024
Date analysed	-	17/06/2024
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	%	96

svTRH (C10-C40) in Soil						
Our Reference	UNITS	353485-1	353485-2	353485-5	353485-7	353485-10
Your Reference		BH101	BH101	BH101	BH102	BH103
Depth		0.2-0.3	0.5-0.6	1.6-1.7	0.5-0.6	0.2-0.3
Date Sampled		07/06/2024	7/06/24	7/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	14/06/2024	13/06/2024	13/06/2024	13/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	73	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	190	3,500	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	1,100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	190	4,700	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	180	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	180	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	250	4,300	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	550	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	250	5,000	<50	<50	<50
Surrogate o-Terphenyl	%	91	#	85	84	86

svTRH (C10-C40) in Soil						
Our Reference	UNITS	353485-11	353485-16	353485-18	353485-19	353485-20
Your Reference		BH103	BH104	BH105	BH106	BH107
Depth		0.5-0.6	0.2-0.3	0.2-0.28	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	130	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	130	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	170	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	170	<50
Surrogate o-Terphenyl	%	82	85	83	87	82

svTRH (C10-C40) in Soil

Our Reference		353485-21	353485-22	353485-25	353485-28	353485-30
Your Reference	UNITS	BH108	BH108	BH109	BH110	BH110
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	14/06/2024	14/06/2024	14/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	82	83	86	85

svTRH (C10-C40) in Soil

Our Reference		353485-32	353485-33	353485-34	353485-36	353485-38
Your Reference	UNITS	BH111	BH111	BH111	BH112	BH113
Depth		0.2-0.3	0.5-0.6	1-1.1	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	84	83	82	73

svTRH (C10-C40) in Soil					
Our Reference		353485-40	353485-41	353485-42	353485-44
Your Reference	UNITS	BH113	BH113	BD1/20240605	BD3/20240606
Depth		1-1.1	1.4-1.5	-	-
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	82	83	83	79

PAHs in Soil						
Our Reference		353485-1	353485-2	353485-5	353485-7	353485-10
Your Reference	UNITS	BH101	BH101	BH101	BH102	BH103
Depth		0.2-0.3	0.5-0.6	1.6-1.7	0.5-0.6	0.2-0.3
Date Sampled		07/06/2024	7/06/24	7/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	14/06/2024	13/06/2024	13/06/2024
Naphthalene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.2	<0.1	0.1	0.3
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Phenanthrene	mg/kg	<0.1	0.9	0.1	0.5	1.6
Anthracene	mg/kg	<0.1	0.3	<0.1	0.1	0.5
Fluoranthene	mg/kg	0.2	3.8	0.2	1.0	2.4
Pyrene	mg/kg	0.3	3.8	0.2	1.0	2.3
Benzo(a)anthracene	mg/kg	0.2	2.6	0.2	0.7	1.3
Chrysene	mg/kg	0.1	2.0	0.2	0.6	1.0
Benzo(b,j+k)fluoranthene	mg/kg	0.3	3.5	0.2	1	2
Benzo(a)pyrene	mg/kg	0.2	1.9	0.2	0.56	1.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	1.2	<0.1	0.4	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.4	<0.1	0.1	0.2
Benzo(g,h,i)perylene	mg/kg	0.2	1.6	<0.1	0.5	0.6
Total +ve PAH's	mg/kg	1.8	22	1.4	6.7	14
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	3.0	<0.5	0.9	1.6
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	3.0	<0.5	0.9	1.6
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	3.0	<0.5	0.9	1.6
Surrogate <i>p</i> -Terphenyl-d14	%	109	114	107	111	107

PAHs in Soil						
Our Reference		353485-11	353485-16	353485-18	353485-19	353485-20
Your Reference	UNITS	BH103	BH104	BH105	BH106	BH107
Depth		0.5-0.6	0.2-0.3	0.2-0.28	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	14/06/2024	13/06/2024	13/06/2024	13/06/2024	14/06/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.3	<0.1	0.2	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.6	1.4	0.2	1.1	<0.1
Anthracene	mg/kg	0.2	0.5	<0.1	0.3	<0.1
Fluoranthene	mg/kg	1.5	2.0	0.5	2.2	<0.1
Pyrene	mg/kg	1.5	2.0	0.5	2.1	<0.1
Benzo(a)anthracene	mg/kg	1.0	1.2	0.4	1.2	<0.1
Chrysene	mg/kg	0.8	0.8	0.3	0.8	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	1	1	0.5	2	<0.2
Benzo(a)pyrene	mg/kg	1.1	0.86	0.3	0.92	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.6	0.4	0.2	0.5	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.2	0.1	<0.1	0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	0.5	0.3	0.6	<0.1
Total +ve PAH's	mg/kg	9.2	12	3.2	12	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.6	1.3	<0.5	1.4	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.6	1.3	<0.5	1.4	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.6	1.3	0.5	1.4	<0.5
Surrogate p-Terphenyl-d14	%	109	112	106	105	110

PAHs in Soil						
Our Reference		353485-21	353485-22	353485-25	353485-28	353485-30
Your Reference	UNITS	BH108	BH108	BH109	BH110	BH110
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	14/06/2024	13/06/2024	13/06/2024	14/06/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.2	0.5	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	0.2	0.3	0.5	0.8	0.2
Pyrene	mg/kg	0.2	0.2	0.5	0.7	0.2
Benzo(a)anthracene	mg/kg	0.1	0.2	0.4	0.4	0.1
Chrysene	mg/kg	<0.1	0.2	0.2	0.3	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.3	0.6	0.5	0.3
Benzo(a)pyrene	mg/kg	0.1	0.2	0.3	0.3	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	0.2	0.2	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	0.3	0.2	0.2
Total +ve PAH's	mg/kg	0.58	1.8	3.2	3.9	1.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	0.5	0.5	<0.5
Surrogate p-Terphenyl-d14	%	110	112	110	107	110

PAHs in Soil						
Our Reference		353485-32	353485-33	353485-34	353485-36	353485-38
Your Reference	UNITS	BH111	BH111	BH111	BH112	BH113
Depth		0.2-0.3	0.5-0.6	1-1.1	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	14/06/2024	14/06/2024	13/06/2024	13/06/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	1.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	1.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	2.3	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	1.8	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	1.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	1.2	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	1.4	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	14	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	2.0	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	2.0	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	2.0	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	109	113	103	103

PAHs in Soil					
Our Reference		353485-40	353485-41	353485-42	353485-44
Your Reference	UNITS	BH113	BH113	BD1/20240605	BD3/20240606
Depth		1-1.1	1.4-1.5	-	-
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.1	<0.1	0.2
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	0.3	0.8	<0.1	0.8
Anthracene	mg/kg	0.1	0.2	<0.1	0.3
Fluoranthene	mg/kg	0.8	1.6	0.2	1.5
Pyrene	mg/kg	0.8	1.1	0.2	1.5
Benzo(a)anthracene	mg/kg	0.6	0.7	0.1	1.0
Chrysene	mg/kg	0.6	0.8	0.2	0.8
Benzo(b,j+k)fluoranthene	mg/kg	1	1	0.3	1
Benzo(a)pyrene	mg/kg	0.88	0.70	0.3	1.2
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	0.4	0.2	0.6
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.1	<0.1	0.2
Benzo(g,h,i)perylene	mg/kg	0.4	0.2	0.2	0.5
Total +ve PAH's	mg/kg	6.2	7.8	1.5	10
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.1	1.0	<0.5	1.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.2	1.0	<0.5	1.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	1.0	<0.5	1.7
Surrogate p-Terphenyl-d14	%	108	108	110	106

Organochlorine Pesticides in soil						
Our Reference		353485-1	353485-2	353485-7	353485-10	353485-16
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH104
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	2.8	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	11	0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	88	96	105	100	105

Organochlorine Pesticides in soil						
Our Reference		353485-18	353485-19	353485-21	353485-25	353485-28
Your Reference	UNITS	BH105	BH106	BH108	BH109	BH110
Depth		0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	96	100	100	97

Organochlorine Pesticides in soil				
Our Reference		353485-32	353485-36	353485-38
Your Reference	UNITS	BH111	BH112	BH113
Depth		0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	97	95

Organophosphorus Pesticides in Soil						
Our Reference		353485-1	353485-2	353485-7	353485-10	353485-16
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH104
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	88	96	105	100	105

Organophosphorus Pesticides in Soil

Our Reference		353485-18	353485-19	353485-21	353485-25	353485-28
Your Reference	UNITS	BH105	BH106	BH108	BH109	BH110
Depth		0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	96	100	100	97

Organophosphorus Pesticides in Soil				
Our Reference		353485-32	353485-36	353485-38
Your Reference	UNITS	BH111	BH112	BH113
Depth		0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	97	95

PCBs in Soil						
Our Reference	UNITS	353485-1	353485-2	353485-7	353485-10	353485-16
Your Reference		BH101	BH101	BH102	BH103	BH104
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	86	92	98	94	99

PCBs in Soil						
Our Reference	UNITS	353485-18	353485-19	353485-21	353485-25	353485-28
Your Reference		BH105	BH106	BH108	BH109	BH110
Depth		0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	92	92	96	96	92

PCBs in Soil				
Our Reference		353485-32	353485-36	353485-38
Your Reference	UNITS	BH111	BH112	BH113
Depth		0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date extracted	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	93	93	92

Acid Extractable metals in soil

Our Reference		353485-1	353485-2	353485-5	353485-7	353485-10
Your Reference	UNITS	BH101	BH101	BH101	BH102	BH103
Depth		0.2-0.3	0.5-0.6	1.6-1.7	0.5-0.6	0.2-0.3
Date Sampled		07/06/2024	7/06/24	7/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	5	29	<4	<4	5
Cadmium	mg/kg	1	15	<0.4	<0.4	0.6
Chromium	mg/kg	11	59	3	30	8
Copper	mg/kg	140	5,100	9	90	110
Lead	mg/kg	1,800	8,100	36	250	1,300
Mercury	mg/kg	0.8	7.9	0.1	0.6	0.4
Nickel	mg/kg	11	210	<1	26	5
Zinc	mg/kg	560	5,200	25	190	1,100

Acid Extractable metals in soil

Our Reference		353485-11	353485-16	353485-18	353485-19	353485-20
Your Reference	UNITS	BH103	BH104	BH105	BH106	BH107
Depth		0.5-0.6	0.2-0.3	0.2-0.28	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	<4	<4	5	<4	<4
Cadmium	mg/kg	0.4	<0.4	0.6	2	<0.4
Chromium	mg/kg	6	4	9	53	3
Copper	mg/kg	81	45	42	210	4
Lead	mg/kg	400	230	120	830	19
Mercury	mg/kg	0.5	0.2	0.1	1.2	<0.1
Nickel	mg/kg	4	3	17	14	<1
Zinc	mg/kg	970	540	150	450	170

Acid Extractable metals in soil

Our Reference		353485-21	353485-22	353485-25	353485-28	353485-30
Your Reference	UNITS	BH108	BH108	BH109	BH110	BH110
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	5	4	<4	<4	<4
Cadmium	mg/kg	0.5	0.6	<0.4	<0.4	<0.4
Chromium	mg/kg	5	4	4	5	4
Copper	mg/kg	30	32	36	20	15
Lead	mg/kg	220	250	390	170	200
Mercury	mg/kg	0.2	0.2	0.5	8.5	0.8
Nickel	mg/kg	3	4	4	3	3
Zinc	mg/kg	280	250	200	260	140

Acid Extractable metals in soil

Our Reference		353485-32	353485-33	353485-34	353485-36	353485-38
Your Reference	UNITS	BH111	BH111	BH111	BH112	BH113
Depth		0.2-0.3	0.5-0.6	1-1.1	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	4	4	<1	3	1
Copper	mg/kg	12	50	7	16	1
Lead	mg/kg	17	250	13	100	2
Mercury	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Nickel	mg/kg	3	4	<1	2	<1
Zinc	mg/kg	39	220	23	45	3

Acid Extractable metals in soil

Our Reference		353485-40	353485-41	353485-42	353485-44	353485-48
Your Reference	UNITS	BH113	BH113	BD1/20240605	BD3/20240606	BH105 - [TRIPLICATE]
Depth		1-1.1	1.4-1.5	-	-	0.2-0.28
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	8	<4	<4	<4	<4
Cadmium	mg/kg	0.7	<0.4	<0.4	0.6	0.5
Chromium	mg/kg	9	2	4	6	9
Copper	mg/kg	250	12	19	81	42
Lead	mg/kg	2,900	21	160	390	120
Mercury	mg/kg	0.3	0.1	1	0.4	0.1
Nickel	mg/kg	9	<1	3	5	15
Zinc	mg/kg	1,300	67	230	1,700	170

Acid Extractable metals in soil

Our Reference		353485-49
Your Reference	UNITS	BH111 - [TRIPLICATE]
Depth		0.2-0.3
Date Sampled		5/06/24
Type of sample		Soil
Date prepared	-	14/06/2024
Date analysed	-	14/06/2024
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	13
Lead	mg/kg	34
Mercury	mg/kg	<0.1
Nickel	mg/kg	3
Zinc	mg/kg	39

Misc Soil - Inorg

Our Reference		353485-1	353485-2	353485-7	353485-10	353485-16
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH104
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		353485-18	353485-19	353485-21	353485-25	353485-28
Your Reference	UNITS	BH105	BH106	BH108	BH109	BH110
Depth		0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		353485-32	353485-36	353485-38
Your Reference	UNITS	BH111	BH112	BH113
Depth		0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5

Moisture						
Our Reference	UNITS	353485-1	353485-2	353485-3	353485-5	353485-6
Your Reference		BH101	BH101	BH101	BH101	BH102
Depth		0.2-0.3	0.5-0.6	0.8-0.9	1.6-1.7	0.2-0.3
Date Sampled		07/06/2024	7/06/24	7/06/24	7/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	14	16	15	13	12

Moisture						
Our Reference	UNITS	353485-7	353485-10	353485-11	353485-13	353485-16
Your Reference		BH102	BH103	BH103	BH103	BH104
Depth		0.5-0.6	0.2-0.3	0.5-0.6	1-1.1	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	17	9.4	8.4	8.5	4.6

Moisture						
Our Reference	UNITS	353485-17	353485-18	353485-19	353485-20	353485-21
Your Reference		BH104	BH105	BH106	BH107	BH108
Depth		0.6-0.7	0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	4.8	9.8	14	5.1	4.8

Moisture						
Our Reference	UNITS	353485-22	353485-23	353485-25	353485-26	353485-28
Your Reference		BH108	BH108	BH109	BH109	BH110
Depth		0.5-0.6	1-1.1	0.2-0.3	0.5-0.6	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	4.8	16	6.3	1.5	6.1

Moisture						
Our Reference	UNITS	353485-29	353485-30	353485-32	353485-33	353485-34
Your Reference		BH110	BH110	BH111	BH111	BH111
Depth		0.5-0.6	1-1.1	0.2-0.3	0.5-0.6	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	9.5	4.2	7.8	10	3.0

Moisture						
Our Reference	UNITS	353485-36	353485-37	353485-38	353485-39	353485-40
Your Reference		BH112	BH112	BH113	BH113	BH113
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Moisture	%	8.1	12	2.8	8.5	9.0

Moisture				
Our Reference	UNITS	353485-41	353485-42	353485-44
Your Reference		BH113	BD1/20240605	BD3/20240606
Depth		1.4-1.5	-	-
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024	13/06/2024
Moisture	%	18	5.6	8.6

Asbestos ID - soils NEPM						
Our Reference		353485-1	353485-2	353485-7	353485-10	353485-11
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.5-0.6
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
Sample mass tested	g	619.18	545.2	859.86	767.22	794.26
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	0.9120	<0.1	<0.1	0.2825
Asbestos ID in soil <0.1g/kg*	-	Chrysotile Amosite	See Above	Chrysotile	Chrysotile	See Above
ACM >7mm Estimation*	g	0.0146	0.4108	—	—	—
FA and AF Estimation*	g	0.0057	0.0864	0.0005	0.0058	0.2244
FA and AF Estimation*#2	%(w/w)	<0.001	0.0158	<0.001	<0.001	0.0283
Asbestos comments	-	YES	YES	YES	YES	YES

Asbestos ID - soils NEPM

Our Reference		353485-16	353485-18	353485-19	353485-20	353485-21
Your Reference	UNITS	BH104	BH105	BH106	BH107	BH108
Depth		0.2-0.3	0.2-0.28	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		6/06/24	6/06/24	6/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
Sample mass tested	g	803.31	50.86	878.79	970.34	724.29
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	Chrysotile	Chrysotile	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	0.0016	0.0006	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	YES	YES	Nil

Asbestos ID - soils NEPM						
Our Reference		353485-22	353485-25	353485-28	353485-30	353485-32
Your Reference	UNITS	BH108	BH109	BH110	BH110	BH111
Depth		0.5-0.6	0.2-0.3	0.2-0.3	1-1.1	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
Sample mass tested	g	770.92	804.91	830.72	757.54	824.99
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	Amosite	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	0.0005	—	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	YES	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM					
Our Reference		353485-33	353485-36	353485-38	353485-40
Your Reference	UNITS	BH111	BH112	BH113	BH113
Depth		0.5-0.6	0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024
Sample mass tested	g	597.86	452.24	810.58	686.26
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—
FA and AF Estimation*	g	—	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil

PFAS in Soils Short						
Our Reference		353485-3	353485-7	353485-10	353485-17	353485-18
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0.8-0.9	0.5-0.6	0.2-0.3	0.6-0.7	0.2-0.28
Date Sampled		7/06/24	6/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	<0.1	<0.1	0.4	<0.1	0.2
Perfluorooctanoic acid PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
6:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
8:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate ¹³ C ₈ PFOS	%	102	100	100	97	101
Surrogate ¹³ C ₂ PFOA	%	97	100	98	98	98
Extracted ISTD ¹⁸ O ₂ PFHxS	%	99	94	106	109	104
Extracted ISTD ¹³ C ₄ PFOS	%	100	92	100	107	102
Extracted ISTD ¹³ C ₄ PFOA	%	108	93	108	111	114
Extracted ISTD ¹³ C ₂ 6:2FTS	%	114	108	104	116	132
Extracted ISTD ¹³ C ₂ 8:2FTS	%	128	104	129	145	172
Total Positive PFHxS & PFOS	µg/kg	<0.1	<0.1	0.4	<0.1	0.2
Total Positive PFOS & PFOA	µg/kg	<0.1	<0.1	0.4	<0.1	0.2
Total Positive PFAS	µg/kg	<0.1	<0.1	0.4	<0.1	0.2

PFAS in Soils Short						
Our Reference		353485-19	353485-20	353485-23	353485-25	353485-29
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0.2-0.3	0.2-0.3	1-1.1	0.2-0.3	0.5-0.6
Date Sampled		6/06/24	5/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorooctanoic acid PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
6:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
8:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate ¹³ C ₈ PFOS	%	102	101	103	100	100
Surrogate ¹³ C ₂ PFOA	%	95	99	99	95	98
Extracted ISTD ¹⁸ O ₂ PFHxS	%	96	105	99	99	106
Extracted ISTD ¹³ C ₄ PFOS	%	93	100	95	97	105
Extracted ISTD ¹³ C ₄ PFOA	%	104	103	102	106	113
Extracted ISTD ¹³ C ₂ 6:2FTS	%	105	105	108	120	93
Extracted ISTD ¹³ C ₂ 8:2FTS	%	148	103	132	122	94
Total Positive PFHxS & PFOS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive PFOS & PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive PFAS	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

PFAS in Soils Short				
Our Reference		353485-32	353485-37	353485-38
Your Reference	UNITS	BH111	BH112	BH113
Depth		0.2-0.3	0.5-0.6	0.2-0.3
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	12/06/2024	12/06/2024	12/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	<0.1	<0.1	<0.1
Perfluorooctanoic acid PFOA	µg/kg	<0.1	<0.1	<0.1
6:2 FTS	µg/kg	<0.1	<0.1	<0.1
8:2 FTS	µg/kg	<0.2	<0.2	<0.2
Surrogate ¹³ C ₈ PFOS	%	104	99	103
Surrogate ¹³ C ₂ PFOA	%	99	98	98
Extracted ISTD ¹⁸ O ₂ PFHxS	%	103	100	108
Extracted ISTD ¹³ C ₄ PFOS	%	100	100	103
Extracted ISTD ¹³ C ₄ PFOA	%	108	106	112
Extracted ISTD ¹³ C ₂ 6:2FTS	%	93	88	87
Extracted ISTD ¹³ C ₂ 8:2FTS	%	96	86	93
Total Positive PFHxS & PFOS	µg/kg	<0.1	<0.1	<0.1
Total Positive PFOS & PFOA	µg/kg	<0.1	<0.1	<0.1
Total Positive PFAS	µg/kg	<0.1	<0.1	<0.1

PFAS in TCLP Short						
Our Reference		353485-3	353485-7	353485-10	353485-17	353485-18
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0.8-0.9	0.5-0.6	0.2-0.3	0.6-0.7	0.2-0.28
Date Sampled		7/06/24	6/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
pH of soil for fluid# determ.	pH units	8.0	8.0	8.2	8.6	9.2
pH of soil TCLP (after HCl)	pH units	1.6	1.7	1.7	1.7	1.7
Extraction fluid used		1	1	1	1	1
pH of final Leachate	pH units	4.9	5.0	5.2	5.1	5.3
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate ¹³ C ₈ PFOS	%	103	100	99	103	106
Surrogate ¹³ C ₂ PFOA	%	98	98	98	96	99
Extracted ISTD ¹⁸ O ₂ PFHxS	%	105	107	105	105	104
Extracted ISTD ¹³ C ₄ PFOS	%	100	100	98	99	98
Extracted ISTD ¹³ C ₄ PFOA	%	108	105	106	104	104
Extracted ISTD ¹³ C ₂ 6:2FTS	%	109	102	114	97	101
Extracted ISTD ¹³ C ₂ 8:2FTS	%	97	100	109	103	89
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOS & PFOA	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01

sPOCAS field test

Our Reference		353485-4	353485-8	353485-24	353485-27	353485-31
Your Reference	UNITS	BH101	BH102	BH108	BH109	BH110
Depth		1-1.1	1-1.1	1.3-1.4	1.2-1.3	1.3-1.4
Date Sampled		7/06/24	6/06/24	5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	12/06/2024	12/06/2024	12/06/2024	12/06/2024	12/06/2024
pH _F (field pH test)	pH Units	6.8	7.6	7.0	4.4	7.7
pH _{FOX} (field peroxide test)	pH Units	4.5	4.8	5.2	3.2	5.9
Reaction Rate*	-	Medium reaction	Medium reaction	Medium reaction	Medium reaction	Medium reaction

sPOCAS field test

Our Reference		353485-35
Your Reference	UNITS	BH111
Depth		1.5-1.6
Date Sampled		5/06/24
Type of sample		Soil
Date prepared	-	12/06/2024
Date analysed	-	12/06/2024
pH _F (field pH test)	pH Units	4.1
pH _{FOX} (field peroxide test)	pH Units	3.3
Reaction Rate*	-	Medium reaction

Asbestos ID - materials			
Our Reference		353485-12	353485-14
Your Reference	UNITS	BH103 / PACM1	BH103/PACM2
Depth		0.3-0.35	0.6-0.65
Date Sampled		6/06/24	6/06/24
Type of sample		Material	Material
Date analysed	-	13/06/2024	13/06/2024
Mass / Dimension of Sample	-	40x30x5mm/12.0 1g	95x90x5mm/80.2 0g
Sample Description	-	Grey fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	[NT]	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
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.

Method ID	Methodology Summary
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.
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)-BTX 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)-BTX 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.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date Extracted	-			12/06/2024	1	12/06/2024	12/06/2024		12/06/2024	[NT]
Date Analysed	-			17/06/2024	1	17/06/2024	17/06/2024		17/06/2024	[NT]
Dichlorodifluoromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
trans-1,2-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-Dichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	94	[NT]
cis-1,2-Dichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	mg/kg	1	Org-023	<1	1	<1	<1	0	103	[NT]
2,2-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	90	[NT]
1,1,1-Trichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	81	[NT]
1,1-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon Tetrachloride	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	87	[NT]
Dibromomethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	78	[NT]
Bromodichloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	84	[NT]
trans-1,3-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-Dichloropropene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-Trichloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	90	[NT]
1,3-Dichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	mg/kg	1	Org-023	<1	1	<1	<1	0	82	[NT]
1,2-Dibromoethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	mg/kg	1	Org-023	<1	1	<1	<1	0	86	[NT]
1,1,1,2-Tetrachloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	[NT]
Bromoform	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-Xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	87	[NT]
Styrene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	[NT]
1,2,3-Trichloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-Propylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-Chlorotoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-Chlorotoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-Trimethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
tert-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-Trimethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
sec-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-Isopropyltoluene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-Butylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-Dibromo-3-chloropropane	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-Trichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-Trichlorobenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	106	1	104	103	1	99	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	106	1	85	83	2	89	[NT]
Surrogate Toluene-d ₈	%		Org-023	108	1	106	104	2	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	94	1	94	94	0	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	1	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			17/06/2024	1	17/06/2024	17/06/2024		17/06/2024	17/06/2024
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	88	75
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	88	75
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	87	73
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	90	74
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	76
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	87	76
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	76
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	106	1	85	83	2	89	75

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	18	12/06/2024	12/06/2024		12/06/2024	[NT]
Date analysed	-			[NT]	18	17/06/2024	17/06/2024		17/06/2024	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	18	<25	<25	0	88	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	18	<25	<25	0	88	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	18	<0.2	<0.2	0	87	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	18	<0.5	<0.5	0	90	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	88	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	18	<2	<2	0	88	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	89	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	18	93	77	19	90	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	17/06/2024	17/06/2024		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	32	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	32	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	32	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	32	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	32	93	92	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	18	<50	<50	0	124	90
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	18	<100	<100	0	117	105
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	18	<100	<100	0	100	123
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	18	<50	<50	0	124	90
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	18	<100	<100	0	117	105
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	18	<100	<100	0	100	123
Surrogate o-Terphenyl	%		Org-020	85	18	83	81	2	84	85

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		12/06/2024	[NT]
Date analysed	-			[NT]	32	14/06/2024	14/06/2024		14/06/2024	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	32	<50	<50	0	132	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	32	<100	<100	0	122	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	32	<100	<100	0	114	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	32	<50	<50	0	132	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	32	<100	<100	0	122	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	32	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	32	83	80	4	86	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	100	103
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	96	90
Fluorene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	98	95
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	18	0.2	0.2	0	100	#
Anthracene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	18	0.5	0.6	18	106	#
Pyrene	mg/kg	0.1	Org-022/025	<0.1	18	0.5	0.6	18	102	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	18	0.4	0.4	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	18	0.3	0.3	0	86	#
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	18	0.5	0.6	18	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	18	0.3	0.4	29	82	#
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	18	0.2	0.2	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	18	0.3	0.3	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	101	18	106	107	1	94	86

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		12/06/2024	[NT]
Date analysed	-			[NT]	32	13/06/2024	13/06/2024		14/06/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	114	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	120	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	118	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	122	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	126	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	120	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	120	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	32	<0.05	<0.05	0	140	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	32	105	104	1	109	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	102	90
HCB	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	84	86
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	114	108
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	122	120
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	128	108
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	116	98
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	112	108
Endrin	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	116	122
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	116	120
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	94	66
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	90	18	97	98	1	94	102

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	13/06/2024	13/06/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	32	97	97	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	118	104
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	126	114
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	124	124
Malathion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	116	76
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	112	94
Fenthion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	94	80
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	132	140
Phosalone	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	90	18	97	98	1	94	102

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	13/06/2024	13/06/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	32	97	97	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date extracted	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	124	120
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	87	18	92	93	1	90	98

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	13/06/2024	13/06/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	32	93	93	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	353485-19
Date prepared	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Arsenic	mg/kg	4	Metals-020	<4	1	5	5	0	89	73
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	1	0.8	22	89	71
Chromium	mg/kg	1	Metals-020	<1	1	11	13	17	90	##
Copper	mg/kg	1	Metals-020	<1	1	140	110	24	93	##
Lead	mg/kg	1	Metals-020	<1	1	1800	1500	18	95	#
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.8	0.7	13	91	115
Nickel	mg/kg	1	Metals-020	<1	1	11	8	32	89	##
Zinc	mg/kg	1	Metals-020	<1	1	560	540	4	86	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			[NT]	18	14/06/2024	14/06/2024		14/06/2024	[NT]
Date analysed	-			[NT]	18	14/06/2024	14/06/2024		14/06/2024	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	18	5	<4	22	94	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	18	0.6	0.5	18	93	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	18	9	24	91	94	[NT]
Copper	mg/kg	1	Metals-020	[NT]	18	42	36	15	98	[NT]
Lead	mg/kg	1	Metals-020	[NT]	18	120	97	21	95	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	18	0.1	0.2	67	82	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	18	17	32	61	94	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	18	150	150	0	90	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	14/06/2024	14/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	14/06/2024	14/06/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	32	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	32	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	32	4	13	106	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	32	12	53	126	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	32	17	11	43	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	32	3	9	100	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	32	39	22	56	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	353485-2
Date prepared	-			12/06/2024	18	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			13/06/2024	18	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	18	<5	<5	0	100	100

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	32	13/06/2024	13/06/2024		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	32	<5	<5	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Soils Short					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	353485-7
Date prepared	-			12/06/2024	3	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			12/06/2024	3	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	3	<0.1	<0.1	0	99	103
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	3	<0.1	<0.1	0	103	109
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	3	<0.1	<0.1	0	98	101
6:2 FTS	µg/kg	0.1	Org-029	<0.1	3	<0.1	<0.1	0	108	100
8:2 FTS	µg/kg	0.2	Org-029	<0.2	3	<0.2	<0.2	0	115	107
Surrogate ¹³ C ₈ PFOS	%		Org-029	98	3	102	102	0	99	101
Surrogate ¹³ C ₂ PFOA	%		Org-029	99	3	97	100	3	100	99
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	106	3	99	99	0	106	93
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	110	3	100	99	1	109	90
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	116	3	108	105	3	114	95
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	94	3	114	100	13	108	95
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	93	3	128	113	12	113	112

QUALITY CONTROL: PFAS in Soils Short					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	29	12/06/2024	12/06/2024		[NT]	[NT]
Date analysed	-			[NT]	29	12/06/2024	12/06/2024		[NT]	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	[NT]	29	<0.1	<0.1	0	[NT]	[NT]
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	[NT]	29	<0.1	<0.1	0	[NT]	[NT]
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	[NT]	29	<0.1	<0.1	0	[NT]	[NT]
6:2 FTS	µg/kg	0.1	Org-029	[NT]	29	<0.1	<0.1	0	[NT]	[NT]
8:2 FTS	µg/kg	0.2	Org-029	[NT]	29	<0.2	<0.2	0	[NT]	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	[NT]	29	100	100	0	[NT]	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	[NT]	29	98	97	1	[NT]	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	[NT]	29	106	105	1	[NT]	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	[NT]	29	105	104	1	[NT]	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	[NT]	29	113	114	1	[NT]	[NT]

QUALITY CONTROL: PFAS in Soils Short						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	[NT]	29	93	101	8	[NT]	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	[NT]	29	94	94	0	[NT]	[NT]

QUALITY CONTROL: PFAS in TCLP Short					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	353485-7
Date prepared	-			12/06/2024	3	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Date analysed	-			12/06/2024	3	12/06/2024	12/06/2024		12/06/2024	12/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	3	<0.01	<0.01	0	104	99
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	3	<0.01	<0.01	0	107	103
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	3	<0.01	<0.01	0	103	99
6:2 FTS	µg/L	0.01	Org-029	<0.01	3	<0.01	<0.01	0	105	97
8:2 FTS	µg/L	0.02	Org-029	<0.02	3	<0.02	<0.02	0	97	95
Surrogate ¹³ C ₈ PFOS	%		Org-029	102	3	103	104	1	102	103
Surrogate ¹³ C ₂ PFOA	%		Org-029	101	3	98	100	2	98	95
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	99	3	105	102	3	97	108
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	94	3	100	98	2	95	99
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	100	3	108	102	6	98	107
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	97	3	109	98	11	93	105
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	92	3	97	97	0	123	121

QUALITY CONTROL: sPOCAS field test						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/06/2024	[NT]	[NT]	[NT]	[NT]	12/06/2024	[NT]
Date analysed	-			12/06/2024	[NT]	[NT]	[NT]	[NT]	12/06/2024	[NT]
pH _F (field pH test)	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
pH _{FOX} (field peroxide test)	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

TRH Soil C10-C40 NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in sample 353485-2 have caused interference.

PAH_S:# Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample/s 353485-19 have caused interference.

Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 353485-18 for Cr & Ni. Therefore a triplicate result has been issued as laboratory sample number 353485-48.

- The laboratory RPD acceptance criteria has been exceeded for 353485-32 for Cr, Cu, Pb, Zn & Ni. Therefore a triplicate result has been issued as laboratory sample number 353485-49.

- # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

- ## Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos-ID in soil: NEPM

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

Factual description of asbestos identified in the soil samples: NEPM

Sample 353485-1; Chrysotile & Amosite asbestos identified in 0.0974g of fibre cement material >7mm

Sample 353485-1; Chrysotile & Amosite asbestos identified in 0.0071g of fibrous matted material

Sample 353485-2; Chrysotile & Amosite asbestos identified in 2.7388g of fibre cement material >7mm

Sample 353485-2; Chrysotile & Amosite asbestos identified in 0.1080g of fibrous matted material

Sample 353485-7; Chrysotile asbestos identified in 0.0006g of fibrous matted material

Sample 353485-10; Chrysotile asbestos identified in 0.0072g of fibrous matted material

Sample 353485-11; Chrysotile & Amosite asbestos identified in 0.2805g of fibrous matted material

Sample 353485-19; Chrysotile asbestos identified in 0.0016g of loose fibre bundles

Sample 353485-20; Chrysotile asbestos identified in 0.0006g of loose fibre bundles

Sample 353485-22; Amosite asbestos identified in 0.0006g of fibrous matted material

CERTIFICATE OF ANALYSIS 353485-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03 Waterloo</u>
Number of Samples	Additional analysis
Date samples received	07/06/2024
Date completed instructions received	27/06/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	01/07/2024
Date of Issue	01/07/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager

Authorised By

Nancy Zhang, Laboratory Manager

sTPH in Soil (C10-C40)-Silica		
Our Reference		353485-A-2
Your Reference	UNITS	BH101
Depth		0.5-0.6
Date Sampled		7/06/24
Type of sample		Soil
Date extracted	-	28/06/2024
Date analysed	-	29/06/2024
TPH C ₁₀ - C ₁₄	mg/kg	<50
TPH C ₁₅ - C ₂₈	mg/kg	2,400
TPH C ₂₉ - C ₃₆	mg/kg	600
TPH >C ₁₀ -C ₁₆	mg/kg	120
TPH >C ₁₆ -C ₃₄	mg/kg	2,800
TPH >C ₃₄ -C ₄₀	mg/kg	290
Surrogate 1-Chlorooctadecane	%	#

TCLP Preparation - Acid

Our Reference		353485-A-1	353485-A-2	353485-A-10	353485-A-19	353485-A-25
Your Reference	UNITS	BH101	BH101	BH103	BH106	BH109
Depth		0.2-0.3	0.5-0.6	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
pH of soil for fluid# determ.	pH units	9.3	8.8	8.8	9.4	8.6
pH of soil TCLP (after HCl)	pH units	2.0	1.9	1.8	1.8	1.8
Extraction fluid used		1	1	1	1	1
pH of final Leachate	pH units	5.9	5.4	5.1	5.1	5.0

TCLP Preparation - Acid

Our Reference		353485-A-28	353485-A-33	353485-A-40
Your Reference	UNITS	BH110	BH111	BH113
Depth		0.2-0.3	0.5-0.6	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
pH of soil for fluid# determ.	pH units	8.7	8.2	8.3
pH of soil TCLP (after HCl)	pH units	1.8	1.9	1.8
Extraction fluid used		1	1	1
pH of final Leachate	pH units	5.2	4.9	5.2

PAHs in TCLP (USEPA 1311)				
Our Reference		353485-A-2	353485-A-10	353485-A-33
Your Reference	UNITS	BH101	BH103	BH111
Depth		0.5-0.6	0.2-0.3	0.5-0.6
Date Sampled		7/06/24	6/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date extracted	-	01/07/2024	01/07/2024	01/07/2024
Date analysed	-	01/07/2024	01/07/2024	01/07/2024
Naphthalene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Acenaphthylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Acenaphthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Fluorene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Phenanthrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Fluoranthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(a)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Chrysene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(b,k)fluoranthene in TCLP	mg/L	<0.0002	<0.0002	<0.0002
Benzo(a)pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.0001	<0.0001	<0.0001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	76	70	88

Metals from Leaching Fluid pH 2.9 or 5

Our Reference		353485-A-1	353485-A-2	353485-A-7	353485-A-10	353485-A-19
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH106
Depth		0.2-0.3	0.5-0.6	0.5-0.6	0.2-0.3	0.2-0.3
Date Sampled		07/06/2024	7/06/24	6/06/24	6/06/24	6/06/24
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/07/2024	01/07/2024	01/07/2024	01/07/2024	01/07/2024
Date analysed	-	01/07/2024	01/07/2024	01/07/2024	01/07/2024	01/07/2024
Arsenic	mg/L	[NA]	<0.05	[NA]	[NA]	[NA]
Cadmium	mg/L	[NA]	0.17	[NA]	[NA]	[NA]
Chromium	mg/L	[NA]	<0.01	[NA]	[NA]	[NA]
Copper	mg/L	[NA]	24	[NA]	[NA]	[NA]
Lead	mg/L	9.8	88	0.08	0.67	6.5
Mercury	mg/L	[NA]	<0.0005	[NA]	[NA]	[NA]
Nickel	mg/L	[NA]	0.33	[NA]	[NA]	[NA]
Zinc	mg/L	[NA]	20	[NA]	[NA]	[NA]

Metals from Leaching Fluid pH 2.9 or 5

Our Reference		353485-A-25	353485-A-28	353485-A-40
Your Reference	UNITS	BH109	BH110	BH113
Depth		0.2-0.3	0.2-0.3	1-1.1
Date Sampled		5/06/24	5/06/24	5/06/24
Type of sample		Soil	Soil	Soil
Date extracted	-	01/07/2024	01/07/2024	01/07/2024
Date analysed	-	01/07/2024	01/07/2024	01/07/2024
Arsenic	mg/L	[NA]	<0.05	[NA]
Cadmium	mg/L	[NA]	<0.01	[NA]
Chromium	mg/L	[NA]	<0.01	[NA]
Copper	mg/L	[NA]	0.02	[NA]
Lead	mg/L	0.1	0.2	170
Mercury	mg/L	[NA]	<0.0005	[NA]
Nickel	mg/L	[NA]	<0.02	[NA]
Zinc	mg/L	[NA]	3.1	[NA]

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Metals-021	Determination of Mercury by Cold Vapour AAS following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Leachates are extracted with Dichloromethane and analysed by GC-MS/GC-MSMS.

QUALITY CONTROL: sTPH in Soil (C10-C40)-Silica					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			28/06/2024	2	28/06/2024	28/06/2024		28/06/2024	[NT]
Date analysed	-			29/06/2024	2	29/06/2024	29/06/2024		29/06/2024	[NT]
TPH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	2	<50	<50	0	98	[NT]
TPH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	2	2400	2700	12	92	[NT]
TPH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	2	600	680	12	114	[NT]
TPH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	2	120	130	8	98	[NT]
TPH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	2	2800	3100	10	92	[NT]
TPH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	2	290	350	19	114	[NT]
Surrogate 1-Chlorooctadecane	%		Org-020	101	2	#	#		89	[NT]

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			01/07/2024	[NT]	[NT]	[NT]	[NT]	01/07/2024	[NT]
Date analysed	-			01/07/2024	[NT]	[NT]	[NT]	[NT]	01/07/2024	[NT]
Naphthalene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	68	[NT]
Acenaphthylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	70	[NT]
Fluorene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	83	[NT]
Phenanthrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	77	[NT]
Anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	77	[NT]
Pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	77	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	62	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.0002	Org-022/025	<0.0002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	66	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	81	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	353485-A-2
Date extracted	-			01/07/2024	1	01/07/2024	01/07/2024		01/07/2024	01/07/2024
Date analysed	-			01/07/2024	1	01/07/2024	01/07/2024		01/07/2024	01/07/2024
Arsenic	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	100	87
Cadmium	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	93	74
Chromium	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	80
Copper	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	105	74
Lead	mg/L	0.03	Metals-020	<0.03	1	9.8	9.8	0	96	#
Mercury	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	116	94
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	95	76
Zinc	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	98	#

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

TRH_S_SI_NEPM- # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in samples 353485-a-2,2d have caused interference.

Metals in TCLP USEPA1311 - # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Anna Bui

From: Joel James-Hall <joel.james-hall@douglaspartners.com.au>
Sent: Thursday, 27 June 2024 11:44 AM
To: Customer Service
Subject: Additional analysis 353485 & 354744

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

Hi Team,

Can we schedule additional analysis for the following (2-day TAT):

Report 353485

Metals TCLP

- 2 • BH101 0.5-0.6.
- 28 • BH110 0.2-0.3

Silica GEL

- 2 • BH101 0.5-0.6

Lead TCLP

- 1 • BH101 0.2-0.3
- 7 • BH102 0.5-0.6
- 10 • BH103 0.2-0.3
- 19 • BH106 0.2-0.3
- 25 • BH109 0.2-0.3
- 40 • BH113 1-1.1

PAH

- 2 • BH101 0.5-0.6.
- 10 • BH103 0.2-0.3
- 33 • BH111 0.5-0.6

PFAS

- ~~10~~ • BH103 0.2-0.3
- ~~18~~ • BH105 0.2-0.28

ELS REF: 353485-A

TAT: 2 DAY

DUE: 1/7/24

AB

Report 354744 (in progress), noting previous request on sample IDs – just using ELS current numbers here:

Metals TCLP

- 354744-4

Lead TCLP

- 354744-2
- 354744-6

Thanks heaps.

Joel James-Hall | Associate / Environmental Engineer

☎ 02 9809 0666 📞 +61 447 371 916 📧 joel.james-hall@douglaspartners.com.au

Anna Bui

From: Anna Bui
Sent: Thursday, 27 June 2024 3:58 PM
To: Joel James-Hall; Stuart Chen; Customer Service; Samplereceipt
Subject: RE: Additional analysis 353485 & 354744

Sorry, we've also already completed PFAS TCLP on the below samples. I won't reschedule.

Thanks,

Kind Regards,

Anna Bui | Customer Service | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

Follow us on: [LinkedIn](#) | [Facebook](#) | [Twitter](#)

Samples will be analysed per our T&C's.

From: Anna Bui <ABui@envirolab.com.au>
Sent: Thursday, June 27, 2024 3:52 PM
To: Joel James-Hall <joel.james-hall@douglaspartners.com.au>; Stuart Chen <SChen2@envirolab.com.au>; Customer Service <CustomerService@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>
Subject: RE: Additional analysis 353485 & 354744

No worries. Thanks, Joel

Kind Regards,

Anna Bui | Customer Service | Envirolab Services

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T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

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Samples will be analysed per our T&C's.

From: Joel James-Hall <joel.james-hall@douglaspartners.com.au>
Sent: Thursday, June 27, 2024 3:50 PM
To: Anna Bui <ABui@envirolab.com.au>; Stuart Chen <SChen2@envirolab.com.au>; Customer Service <CustomerService@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>
Subject: RE: Additional analysis 353485 & 354744

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

Sorry, yep TCLP for all (excluding the one Silica gel).

Cheers

Joel James-Hall | Associate / Environmental Engineer

☎ 02 9809 0666 📞 +61 447 371 916 ✉ joel.james-hall@douglaspartners.com.au

🌐 www.douglaspartners.com.au 📍 96 Hermitage Road, West Ryde
NSW 2114 | Wallumedegal Country
PO Box 472, West Ryde, NSW 1685



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From: Anna Bui <ABui@envirolab.com.au>

Sent: Thursday, June 27, 2024 3:48 PM

To: Stuart Chen <SChen2@envirolab.com.au>; Joel James-Hall <joel.james-hall@douglaspartners.com.au>;
Customer Service <CustomerService@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>

Subject: RE: Additional analysis 353485 & 354744

Hi Joel,

Just to clarify, were you after TCLP PAH & TCLP PFAS for 353485?

Kind Regards,

Anna Bui | Customer Service | Envirolab Services

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12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

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Samples will be analysed per our T&C's.

From: Stuart Chen <SChen2@envirolab.com.au>

Sent: Thursday, June 27, 2024 3:01 PM

To: Joel James-Hall <joel.james-hall@douglaspartners.com.au>; Customer Service
<CustomerService@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>

Subject: RE: Additional analysis 353485 & 354744

Hi Joel,

No worries we will arrange this for you.

[@Samplereceipt](#) A-job please.

Kind Regards,

Stuart Chen | Reporting Coordinator | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 221233:03					Suburb: Waterloo					To: Envirolab Services				
Project Manager: Joel James-Hall					Order Number:					Sampler: SR				
Email: joel.james-hall@douglaspartners.com.au; srikanth.raghuraman@douglaspartners.com.au					Attn: Sample Receipt									
Turnaround time ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day					(02) 9910 6200					samplereceipt@envirolab.com				
Prior Storage ☐ Fridge ☐ Freezer ☒ Esky ☐ Shelf					Do samples contain 'potential' HBM? ☐ No ☒ Yes (YES, handle, transport, store in accordance with FPM HAZID)									

Lab ID	Sample ID			Date Sampled	Sample Type S - soil W - water M - Material	Container Type G - glass P - plastic	Analytes										Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To				Combo 8AN	Combo 3AN	VOC	PFAS (Short suite)	TCLP PFAS	pH, CEC	Combo 3	ASS Screening	Asbestos ID in Materials		
1	BH101	0.2	0.3	7/06/24	S	G/P	x		x								
2	BH101	0.5	0.6	7/06/24	S	G/P	x										
3	BH101	0.8	0.9	7/06/24	S	G/P				x	x						
4	BH101	1	1.1	7/06/24	S	G/P							x				Test from asbestos bag
5	BH101	1.6	1.7	7/06/24	S	G/P						x					
6	BH102	0.2	0.3	6/06/24	S	G/P			x								
7	BH102	0.5	0.6	6/06/24	S	G/P	x			x	x						
8	BH102	1	1.1	6/06/24	S	G/P							x				Test from asbestos bag
9	BH102	1.5	1.6	6/06/24	S	G/P											Hold
10	BH103	0.2	0.3	6/06/24	S	G/P	x			x	x						
11	BH103	0.5	0.6	6/06/24	S	G/P		x									
12	BH103 / PACM1	0.3	0.35	6/06/24	S	G/P								x			
13	BH103	1	1.1	6/06/24	S	G/P			x								
14	BH103/PACM2	0.6	0.65	6/06/24	S	G/P								x			

Metals to analyse:

Number of samples in container:

Send results to: Douglas Partners Pty Ltd

Address: 96 Hermitage Road, West Ryde NSW 211

Relinquished by:

Transported to laboratory by:

Phone: (02) 9809 0666

Date:

Signed:

LAB RECEIPT Security: Intact/Broken/None 1100

Lab Ref. No: 353485

Received by: Nancy Zhang

Date & Time: 07106/2024 14:35

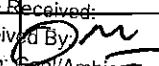
Signed:

Project No: 221233.03					Suburb: Waterloo					To: Envirolab Services									
Project Manager: Joel James-Hall										Dispatch date:									
Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes												Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8AN	Combo 3AN	VOC	PFAS (Short)	TCLP PFAS	pH, CEC	Combo 3	ASS Screening	Asbestos ID in				
15	BH103	1.5	1.6	6/06/24	S	G/P													
16	BH104	0.2	0.3	6/06/24	S	G/P	x												
17	BH104	0.6	0.7	6/06/24	S	G/P				x	x								
18	BH105	0.2	0.28	6/06/24	S	G/P	x			x	x								
19	BH106	0.2	0.3	6/06/24	S	G/P	x			x									
20	BH107	0.2	0.3	5/06/24	S	G/P		x		x									
21	BH108	0.2	0.3	5/06/24	S	G/P	x												
22	BH108	0.5	0.6	5/06/24	S	G/P		x											
23	BH108	1	1.1	5/06/24	S	G/P				x									
24	BH108	1.3	1.4	5/06/24	S	G/P							x						
25	BH109	0.2	0.3	5/06/24	S	G/P	x			x									
26	BH109	0.5	0.6	5/06/24	S	G/P			x										
27	BH109	1.2	1.3	5/06/24	S	G/P							x				Please test ASS from Jars		
28	BH110	0.2	0.3	5/06/24	S	G/P	x												
29	BH110	0.5	0.6	5/06/24	S	G/P			x	x									
30	BH110	1	1.1	5/06/24	S	G/P		x											
31	BH110	1.3	1.4	5/06/24	S	G/P							x				Please test ASS from Jars		
32	BH111	0.2	0.3	5/06/24	S	G/P	x			x									


Envirolab Services
 12 Ashley St
 Chatewood NSW 2067
 Ph: (02) 9910 6200
 Job No: 353485
 Date Received: 07/06/2024
 Time Received: 14:35
 Received By: [Signature]
 Temp: Cool/Ambient
 Cooling: Ice/icepack
 Security: Intact/Broken/None

Project No: 221233.03					Suburb: Waterloo					To: Envirolab Services									
Project Manager: Joel James-Hall										Dispatch date:									
Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes												Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water	G - glass P - plastic	Combo 8AN	Combo 3AN	VOC	PFAS (Short)	TCLP PFAS	pH, CEC	Combo 3	ASS Screening	VTRH, BTEX				
33	BH111	0.5	0.6	5/06/24	S	G/P		x											
34	BH111	1	1.1	5/06/24	S	G/P						x							
35	BH111	1.5	1.6	5/06/24	S	G/P							x				Please test ASS from Jars		
36	BH112	0.2	0.3	5/06/24	S	G/P	x												
37	BH112	0.5	0.6	5/06/24	S	G/P					x								
38	BH113	0.2	0.3	5/06/24	S	G/P	x				x								
39	BH113	0.5	0.6	5/06/24	S	G/P			x										
40	BH113	1	1.1	5/06/24	S	G/P		x											
41	BH113	1.4	1.5	5/06/24	S	G/P						x					Test from asbestos bag		
42	BD1/20240605	-	-	-	S	G						x					Please change dates in the sample if entered incorrectly		
43	BD2/20240605	-	-	-	S	G													
44	BD3/20240606	-	-	-	S	G						x					Please change dates in the sample if entered incorrectly		
45	BD4/20240606	-	-	-	S	G													
	BD5/20240607	-	-	-	S	G						x					Send this to Eurofins		
46	TS				S	Vial								x					
47	TB				S	Vial								x					


Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 353485

Date Received: 07/06/2024
 Time Received: 14:35
 Received By: 
 Temp: Cool/Ambient
 Cooling: Ice/Repack
 Security: Intact/Broken/None
 Rev 6/August 2022

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall

Sample Login Details

Your reference	221233.03 Waterloo
Envirolab Reference	353485
Date Sample Received	07/06/2024
Date Instructions Received	07/06/2024
Date Results Expected to be Reported	17/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	45 Soil, 2 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

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

Jacinta Hurst

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

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VOCs in soil	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	PFAS in Soils Short	PFAS in TCLP Short	sPOCAS field test	Asbestos ID - materials	On Hold
BH101-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH101-0.5-0.6		✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH101-0.8-0.9											✓	✓			
BH101-1-1.1													✓		
BH101-1.6-1.7		✓	✓	✓				✓							
BH102-0.2-0.3	✓														
BH102-0.5-0.6		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
BH102-1-1.1													✓		
BH102-1.5-1.6															✓
BH103-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
BH103-0.5-0.6		✓	✓	✓				✓		✓					
BH103 / PACM1-0.3-0.35														✓	
BH103-1-1.1	✓														
BH103/PACM2-0.6-0.65														✓	
BH103-1.5-1.6															✓
BH104-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH104-0.6-0.7											✓	✓			
BH105-0.2-0.28		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
BH106-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH107-0.2-0.3		✓	✓	✓				✓		✓	✓				



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

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Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	PFAS in Soils Short	PFAS in TCLP Short	sPOCAS field test	Asbestos ID - materials	On Hold
BH108-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH108-0.5-0.6		✓	✓	✓				✓		✓					
BH108-1-1.1											✓				
BH108-1.3-1.4													✓		
BH109-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH109-0.5-0.6	✓														
BH109-1.2-1.3													✓		
BH110-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH110-0.5-0.6	✓										✓				
BH110-1-1.1		✓	✓	✓				✓		✓					
BH110-1.3-1.4													✓		
BH111-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH111-0.5-0.6		✓	✓	✓				✓		✓					
BH111-1-1.1		✓	✓	✓				✓							
BH111-1.5-1.6													✓		
BH112-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓					
BH112-0.5-0.6											✓				
BH113-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH113-0.5-0.6	✓														
BH113-1-1.1		✓	✓	✓				✓		✓					



Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	PFAS in Soils Short	PFAS in TCLP Short	sPOCAS field test	Asbestos ID - materials	On Hold
BH113-1.4-1.5		✓	✓	✓				✓							
BD1/20240605		✓	✓	✓				✓							
BD2/20240605															✓
BD3/20240606		✓	✓	✓				✓							
BD4/20240606															✓
TS		✓													
TB		✓													

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.

CERTIFICATE OF ANALYSIS 354563

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall, Srikanth Raghuraman
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03, Waterloo</u>
Number of Samples	6 Water
Date samples received	21/06/2024
Date completed instructions received	21/06/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	28/06/2024
Date of Issue	28/06/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Amanda Chui, LC/Air Toxics Supervisor
 Diego Bigolin, Inorganics Supervisor
 Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Jenny He, Senior Chemist
 Tabitha Roberts, Chemist
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

VOCs in water				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date Extracted	-	25/06/2024	25/06/2024	25/06/2024
Date Analysed	-	26/06/2024	26/06/2024	26/06/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	8	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	10
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1

VOCs in water				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Ethylbenzene	µg/L	<1	<1	<1
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	114	117	113
Surrogate Toluene-d8	%	98	97	97
Surrogate 4-Bromofluorobenzene	%	96	95	96

vTRH(C6-C10)/BTEXN in Water

Our Reference		354563-1	354563-2	354563-3	354563-4	354563-5
Your Reference	UNITS	BH3	BH1	BH2	BD1	TS
Depth		8-8.5	12-12.5	5.5-6	-	-
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
TRH C ₆ - C ₉	µg/L	12	<10	13	10	[NA]
TRH C ₆ - C ₁₀	µg/L	14	<10	13	11	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	14	<10	13	11	[NA]
Benzene	µg/L	<1	<1	<1	<1	86%
Toluene	µg/L	<1	<1	<1	<1	82%
Ethylbenzene	µg/L	<1	<1	<1	<1	83%
m+p-xylene	µg/L	<2	<2	<2	<2	81%
o-xylene	µg/L	<1	<1	<1	<1	78%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	114	117	113	115	110
Surrogate Toluene-d8	%	98	97	97	100	100
Surrogate 4-Bromofluorobenzene	%	96	95	96	96	91

vTRH(C6-C10)/BTEXN in Water

Our Reference		354563-6
Your Reference	UNITS	TB
Depth		-
Date Sampled		20/06/2024
Type of sample		Water
Date extracted	-	25/06/2024
Date analysed	-	26/06/2024
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	115
Surrogate Toluene-d8	%	104
Surrogate 4-Bromofluorobenzene	%	94

svTRH (C10-C40) in Water					
Our Reference		354563-1	354563-2	354563-3	354563-4
Your Reference	UNITS	BH3	BH1	BH2	BD1
Depth		8-8.5	12-12.5	5.5-6	-
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	24/06/2024	24/06/2024	24/06/2024	24/06/2024
TRH C ₁₀ - C ₁₄	µg/L	<50	54	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	180	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	240	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	150	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	150	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	150	<50	<50
Surrogate o-Terphenyl	%	72	90	92	92

PAHs in Water					
Our Reference		354563-1	354563-2	354563-3	354563-4
Your Reference	UNITS	BH3	BH1	BH2	BD1
Depth		8-8.5	12-12.5	5.5-6	-
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	74	81	91	76

OCPs in Water - Trace Level				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024
alpha-BHC	µg/L	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	77	87	88

OP in water LL ANZECCF/ADWG				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024
Dichlorvos	µg/L	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	µg/L	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05
Chlorpyrifos	µg/L	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	77	87	88

PCBs in Water - Trace Level				
Our Reference	UNITS	354563-1	354563-2	354563-3
Your Reference		BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	71	82	87

Total Phenolics in Water				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date extracted	-	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	24/06/2024	24/06/2024	24/06/2024
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05

HM in water - dissolved					
Our Reference		354563-1	354563-2	354563-3	354563-4
Your Reference	UNITS	BH3	BH1	BH2	BD1
Depth		8-8.5	12-12.5	5.5-6	-
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Arsenic-Dissolved	µg/L	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	0.2	<0.1	0.6	0.2
Chromium-Dissolved	µg/L	<1	4	<1	<1
Copper-Dissolved	µg/L	<1	2	84	<1
Lead-Dissolved	µg/L	<1	<1	1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	1	2	14	<1
Zinc-Dissolved	µg/L	21	3	280	20
Iron-Dissolved	µg/L	4,200	28,000	130	4,400

HM in water - total				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date prepared	-	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024
Arsenic-Total	µg/L	<1	2	3
Cadmium-Total	µg/L	1.4	<0.1	0.7
Chromium-Total	µg/L	3	15	7
Copper-Total	µg/L	2	25	110
Lead-Total	µg/L	3	9	11
Mercury-Total	µg/L	<0.05	<0.05	<0.05
Nickel-Total	µg/L	2	4	18
Zinc-Total	µg/L	30	10	320

Miscellaneous Inorganics				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date prepared	-	27/06/2024	27/06/2024	27/06/2024
Date analysed	-	27/06/2024	27/06/2024	27/06/2024
Total Suspended Solids	mg/L	99	420	190
Total Dissolved Solids (by calc)	mg/L	2,000	350	310

Cations in water Dissolved				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date digested	-	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	27/06/2024	27/06/2024	27/06/2024
Calcium - Dissolved	mg/L	130	5.8	34
Magnesium - Dissolved	mg/L	19	7.2	7.0
Hardness (calc) equivalent CaCO ₃	mg/L	390	44	110

PFAS in Water TRACE Short				
Our Reference		354563-1	354563-2	354563-3
Your Reference	UNITS	BH3	BH1	BH2
Depth		8-8.5	12-12.5	5.5-6
Date Sampled		20/06/2024	20/06/2024	20/06/2024
Type of sample		Water	Water	Water
Date prepared	-	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.068	0.034	0.0067
Perfluorooctanesulfonic acid PFOS	µg/L	0.29	0.0032	0.11
Perfluorooctanoic acid PFOA	µg/L	0.026	0.002	0.015
6:2 FTS	µg/L	0.0008	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004
Surrogate ¹³ C ₈ PFOS	%	109	107	97
Surrogate ¹³ C ₂ PFOA	%	96	91	94
Extracted ISTD ¹⁸ O ₂ PFHxS	%	76	82	84
Extracted ISTD ¹³ C ₄ PFOS	%	64	68	75
Extracted ISTD ¹³ C ₄ PFOA	%	93	108	102
Extracted ISTD ¹³ C ₂ 6:2FTS	%	96	#	158
Extracted ISTD ¹³ C ₂ 8:2FTS	%	106	194	164
Total Positive PFHxS & PFOS	µg/L	0.35	0.037	0.12
Total Positive PFOS & PFOA	µg/L	0.31	0.0048	0.13
Total Positive PFAS	µg/L	0.38	0.039	0.13

Method ID	Methodology Summary
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetrically by filtration of the sample. The samples are dried at 104+/-5°C.
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.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
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-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.
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. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date Extracted	-			25/06/2024	2	25/06/2024	26/06/2024		25/06/2024	[NT]
Date Analysed	-			26/06/2024	2	26/06/2024	27/06/2024		26/06/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	2	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	2	<1	<1	0	100	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	104	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	102	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	97	[NT]
Dibromomethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	2	<1	<1	0	87	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	2	<1	<1	0	99	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	2	<1	<1	0	93	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	93	[NT]
Bromoform	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	97	[NT]
Styrene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	94	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	115	2	117	112	4	98	[NT]
Surrogate Toluene-d8	%		Org-023	101	2	97	99	2	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	97	2	95	90	5	93	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/06/2024	2	25/06/2024	26/06/2024		25/06/2024	[NT]
Date analysed	-			26/06/2024	2	26/06/2024	27/06/2024		26/06/2024	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	2	<10	<10	0	96	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	2	<10	<10	0	96	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	97	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	93	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	97	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	94	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	115	2	117	112	4	98	[NT]
Surrogate Toluene-d8	%		Org-023	101	2	97	99	2	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	97	2	95	90	5	93	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	75	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	67	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	68	[NT]	[NT]	[NT]	[NT]	64	[NT]

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	77	[NT]
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	74	[NT]
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	80	[NT]
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	75	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	76	[NT]
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	73	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	82	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	84	[NT]
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	80	[NT]
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	69	[NT]

QUALITY CONTROL: OP in water LL ANZECCF/ADWG					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	67	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	84	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	89	[NT]
Chlorpyrifos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	64	[NT]
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	85	[NT]
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	69	[NT]

QUALITY CONTROL: PCBs in Water - Trace Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	60	[NT]
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	81	[NT]	[NT]	[NT]	[NT]	69	[NT]

QUALITY CONTROL: Total Phenolics in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/06/2024	1	24/06/2024	24/06/2024		24/06/2024	[NT]
Date analysed	-			24/06/2024	1	24/06/2024	24/06/2024		24/06/2024	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	102	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	117	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: HM in water - total					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	354563-2
Date prepared	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Arsenic-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	97	86
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	1.4	1.6	13	101	110
Chromium-Total	µg/L	1	Metals-022	<1	1	3	2	40	100	111
Copper-Total	µg/L	1	Metals-022	<1	1	2	2	0	99	107
Lead-Total	µg/L	1	Metals-022	<1	1	3	3	0	104	102
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		115	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	99	111
Zinc-Total	µg/L	1	Metals-022	<1	1	30	25	18	104	113

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			27/06/2024	1	27/06/2024	27/06/2024		27/06/2024	[NT]
Date analysed	-			27/06/2024	1	27/06/2024	27/06/2024		27/06/2024	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	99	96	3	103	[NT]
Total Dissolved Solids (by calc)	mg/L	5	Inorg-002	<5	1	2000	[NT]		101	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Date analysed	-			27/06/2024	[NT]	[NT]	[NT]	[NT]	27/06/2024	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	111	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: PFAS in Water TRACE Short					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	100	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	103	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	77	[NT]	[NT]	[NT]	[NT]	77	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	70	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	130	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	125	[NT]	[NT]	[NT]	[NT]	141	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

Project No: 221233.03	Suburb: Waterloo	To: Envirolab Services
Project Manager: Joel James-Hall	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: joel.james-hall@douglaspartners.com.au; srikanth.raghuraman@douglaspartners.com.au		Attn: Sample Receipt
Turnaround time ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		(02) 9910 6200 samplereceipt@envirolab.com

Prior Storage ☒ Fridge ☐ Freezer ☐ Esky ☐ Shelf **Do samples contain 'potential' HBM?** ☐ No ☒ Yes (ES, handle, transport, store in accordance with FPM HAZID)

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes											Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water M - Material	G - glass P - plastic	Combo 8L	Combo 3	VTRH / BTEX	Total Metals, Hardness	VOC	PFAS (trace, short suite)	TSS, TDS					
1	BH1	8	8.5	20/06/24	W	G/P	x			x	x	x	x				Combo 8L - Low level PAH & trace level OCP, OPP & PCB	
2	BH2	12	12.5	20/06/24	W	G/P	x			x	x	x	x					
3	BH3	5.5	6	20/06/24	W	G/P	x			x	x	x	x					
4	BD1	-	-	20/06/24	W	G/P		x										
5	TS	-	-	-	W	Vials			x								EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200	
6	TB	-	-	-	W	Vials			x									
																	Job No: 354563	
																	Date Received: 21/06/2024	
																	Time Received: 12:00	
																	Received By: [Signature]	
																	Temp: Cool/Ambient	
																	Cooling: Ice/icepack	
																	Security: Intact/Broken/None	
																	11°C.	

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

Job No: 354563

Date Received: 21/06/2024

Time Received: 12:00

Received By: [Signature]

Temp: Cool/Ambient

Cooling: Ice/icepack

Security: Intact/Broken/None

11°C

Metals to analyse: HM8		LAB RECEIPT	
Number of samples in container:	Transported to laboratory by: courier	Lab Ref. No: 354563	
Send results to: Douglas Partners Pty Ltd		Received by: [Signature]	21/06/2024
Address: 96 Hermitage Road, West Ryde NSW 2114	Phone: (02) 9809 0666	Date & Time:	
Relinquished by: SR	Date: 21/06/2024	Signed: [Signature]	21/06/2024

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall, Srikanth Raghuraman

Sample Login Details

Your reference	221233.03, Waterloo
Envirolab Reference	354563
Date Sample Received	21/06/2024
Date Instructions Received	21/06/2024
Date Results Expected to be Reported	28/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11
Cooling Method	Ice
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	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	Total Phenolics in Water	HM in water - dissolved	HM in water - total	Total Suspended Solids	Total Dissolved Solids(by calc)	Cations in water Dissolved	PFAS in Water TRACE Short
BH1-8-8.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH2-12-12.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH3-5.5-6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BD1		✓	✓	✓					✓					
TS		✓												
TB		✓												

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.

CERTIFICATE OF ANALYSIS 354577

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03 Meadowbank</u>
Number of Samples	11 Air
Date samples received	21/06/2024
Date completed instructions received	21/06/2024

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	28/06/2024
Date of Issue	28/06/2024
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Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Amanda Chui, LC/Air Toxics Supervisor
Dragana Tomas, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

TO15 Chlorinated in Cans ppbv						
Our Reference		354577-1	354577-2	354577-3	354577-4	354577-5
Your Reference	UNITS	SV202	SV203	SV204	SV205	BD1
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2555	3509	2280	2472	3524
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-4	-5	-6	-5	-6
Date prepared	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
Date analysed	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
Vinyl chloride	ppbv	<0.3	<0.3	<0.3	<0.3	<0.3
Trichloroethene	ppbv	1	2	<0.3	<0.3	<0.3
Isopropyl Alcohol	ppbv	140	170	76	120	80
1,1-Dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	0.6	83	110	0.8	110
Benzene	ppbv	1	0.9	0.6	1	0.7
Toluene	ppbv	16	14	10	15	11
Ethylbenzene	ppbv	1	1	0.9	1	0.9
m-& p-Xylene	ppbv	4	3	3	3	3
o-Xylene	ppbv	1	1	0.9	1	0.9
Naphthalene	ppbv	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	115	112	112	111	110
Surrogate -1,4-Difluorobenzene	% rec	128	126	125	124	122
Surrogate-Chlorobenzene-D5	% rec	124	122	121	120	118

TO15 chlorinated VOCs in Cans µg/m3						
Our Reference		354577-1	354577-2	354577-3	354577-4	354577-5
Your Reference	UNITS	SV202	SV203	SV204	SV205	BD1
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2555	3509	2280	2472	3524
Vacuum before Shipment	Hg"	-30	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-4	-5	-6	-5	-6
Date prepared	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
Date analysed	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
Vinyl chloride	µg/m ³	<0.8	<0.8	<0.8	<0.8	<0.8
Trichloroethene	µg/m ³	6	9	<1.6	<1.6	<1.6
Isopropyl Alcohol	µg/m ³	330	410	190	290	200
1,1-Dichloroethene	µg/m ³	<2	<2	<2	<2	<2
1,1- Dichloroethane	µg/m ³	<2	<2	<2	<2	<2
trans-1,2-dichloroethene	µg/m ³	<2	<2	<2	<2	<2
cis-1,2-Dichloroethene	µg/m ³	<2	<2	<2	<2	<2
Tetrachloroethene	µg/m ³	4	570	710	5	730
Benzene	µg/m ³	4	3	2	3	2
Toluene	µg/m ³	62	53	38	58	40
Ethylbenzene	µg/m ³	5	5	4	5	4
m-& p-Xylene	µg/m ³	20	10	10	10	10
o-Xylene	µg/m ³	5	4	4	4	4
Naphthalene	µg/m ³	<2.6	<2.6	<2.6	<2.6	<2.6
Surrogate-Bromochloromethane	% rec	115	112	112	111	110
Surrogate -1,4-Difluorobenzene	% rec	128	126	125	124	122
Surrogate-Chlorobenzene-D5	% rec	124	122	121	120	118

TPH Air/ Air Phase Hydrocarbon						
Our Reference		354577-1	354577-2	354577-3	354577-4	354577-5
Your Reference	UNITS	SV202	SV203	SV204	SV205	BD1
Date Sampled		20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024
Type of sample		Air	Air	Air	Air	Air
Air Kit Security No.		2555	3509	2280	2472	3524
Date prepared	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
Date analysed	-	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024
TPH C ₅ - C ₈ Aliphatic	µg/m ³	700	1,000	900	500	900
TPH C ₉ - C ₁₂ Aliphatic	µg/m ³	69	63	<50	59	<50
TPH C ₉ - C ₁₀ Aromatic	µg/m ³	<100	<100	<100	<100	<100
TPH C ₆ - C ₁₀ - BTEX (F1)	µg/m ³	<200	470	320	<200	370
TPH >C ₁₀ - C ₁₂ - Naphthalene (F2)	µg/m ³	80	60	<40	50	<40

IPA in Carbon Tubes & Badges		
Our Reference		354577-6
Your Reference	UNITS	S-1
Date Sampled		20/06/2024
Type of sample		Air
Air Kit Security No.		909143440
Date Extracted	-	24/06/2024
Date Analysed	-	28/06/2024
Tube Sampling rate	mL/min	100
Sampling Time	mins	1
Volume sampled	m ³	0.00010
Isopropyl Alcohol*	µg	130
Isopropyl Alcohol*	µg/m ³	1,300,000
Surrogate Toluene-d8	%	78
Surrogate 4-Bromofluorobenzene	%	100

Method ID	Methodology Summary
AT-005	Measurement of Air-Phase Petroleum Hydrocarbons and Ozone Precursors by GC-MS.
ORG-022	Determination of volatile organic compounds in charcoal tubes/badges/sorbents using CS₂ extraction, determined by GC/GC-MS. Desorption efficiencies are not applied to results. Note where µg/m³ or mg/m³ results are supplied for SKC badges, the factors used are for 575-002, if 575-002 data is unavailable for an analyte then use 575-001 then 575-003 (exposure time must be supplied). Otherwise a sampling rate may be used for a similar analyte on request. Analytes such as (where applicable) Iodomethane, Chloroprene, Nitrobenzene, Naphthalene and 1, 2, 3 / 1, 2, 4 Trichlorobenzenes are considered to be semi-quant analyses using CS₂ desorption from charcoal tubes. The latter three compounds are better served by XAD-2 collection and analysis. Note - air volume measurements are not covered by Envirolab's NATA accreditation.
TO15	USEPA TO15 - Analysis of VOC's in air using USEPA TO15 and in house method AT-002. Note, longer term stability of some oxygenated compounds is questionable where significant humidity is present.

QUALITY CONTROL: TO15 Chlorinated in Cans ppbv						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-4	-4	0	[NT]	[NT]
Date prepared	-			21/06/2024	1	21/06/2024	21/06/2024		21/06/2024	[NT]
Date analysed	-			21/06/2024	1	21/06/2024	21/06/2024		21/06/2024	[NT]
Vinyl chloride	ppbv	0.3	TO15	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
Trichloroethene	ppbv	0.3	TO15	<0.3	1	1	1	0	[NT]	[NT]
Isopropyl Alcohol	ppbv	5	TO15	<5	1	140	130	7	[NT]	[NT]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1- Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	1	0.6	0.6	0	[NT]	[NT]
Benzene	ppbv	0.5	TO15	<0.5	1	1	1	0	100	[NT]
Toluene	ppbv	0.5	TO15	<0.5	1	16	16	0	104	[NT]
Ethylbenzene	ppbv	0.5	TO15	<0.5	1	1	1	0	104	[NT]
m-& p-Xylene	ppbv	1	TO15	<1	1	4	3	29	106	[NT]
o-Xylene	ppbv	0.5	TO15	<0.5	1	1	1	0	105	[NT]
Naphthalene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	105	1	115	112	3	102	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	104	1	128	126	2	100	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	102	1	124	122	2	100	[NT]

QUALITY CONTROL: TO15 chlorinated VOCs in Cans µg/m3						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Vacuum before Shipment	Hg"			[NT]	1	-30	-30	0	[NT]	[NT]
Vacuum before Analysis	Hg"			[NT]	1	-4	-4	0	[NT]	[NT]
Date prepared	-			21/06/2024	1	21/06/2024	21/06/2024		[NT]	[NT]
Date analysed	-			21/06/2024	1	21/06/2024	21/06/2024		[NT]	[NT]
Vinyl chloride	µg/m³	0.8	TO15	<0.8	1	<0.8	<0.8	0	[NT]	[NT]
Trichloroethene	µg/m³	1.6	TO15	<1.6	1	6	6	0	[NT]	[NT]
Isopropyl Alcohol	µg/m³	12	TO15	<12	1	330	320	3	[NT]	[NT]
1,1-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
1,1- Dichloroethane	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
trans-1,2-dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
cis-1,2-Dichloroethene	µg/m³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Tetrachloroethene	µg/m³	3.4	TO15	<3.4	1	4	4	0	[NT]	[NT]
Benzene	µg/m³	1.6	TO15	<1.6	1	4	4	0	[NT]	[NT]
Toluene	µg/m³	1.9	TO15	<1.9	1	62	61	2	[NT]	[NT]
Ethylbenzene	µg/m³	2.2	TO15	<2.2	1	5	5	0	[NT]	[NT]
m-& p-Xylene	µg/m³	4.3	TO15	<4.3	1	20	20	0	[NT]	[NT]
o-Xylene	µg/m³	2.2	TO15	<2.2	1	5	5	0	[NT]	[NT]
Naphthalene	µg/m³	2.6	TO15	<2.6	1	<2.6	<2.6	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	105	1	115	112	3	[NT]	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	104	1	128	126	2	[NT]	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	102	1	124	122	2	[NT]	[NT]

QUALITY CONTROL: TPH Air/ Air Phase Hydrocarbon					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			21/06/2024	1	21/06/2024	21/06/2024		21/06/2024	[NT]
Date analysed	-			21/06/2024	1	21/06/2024	21/06/2024		21/06/2024	[NT]
TPH C ₅ - C ₈ Aliphatic	µg/m ³	200	AT-005	<200	1	700	600	15	107	[NT]
TPH C ₉ - C ₁₂ Aliphatic	µg/m ³	50	AT-005	<50	1	69	72	4	[NT]	[NT]
TPH C ₉ - C ₁₀ Aromatic	µg/m ³	100	AT-005	<100	1	<100	<100	0	110	[NT]
TPH C ₆ - C ₁₀ - BTEX (F1)	µg/m ³	200	TO15	<200	1	<200	<200	0	107	[NT]
TPH >C ₁₀ - C ₁₂ - Naphthalene (F2)	µg/m ³	40	TO15	<40	1	80	70	13	100	[NT]

QUALITY CONTROL: IPA in Carbon Tubes & Badges					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date Extracted	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date Analysed	-			28/06/2024	[NT]	[NT]	[NT]	[NT]	28/06/2024	[NT]
Isopropyl Alcohol*	µg	5	ORG-022	[NT]	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate Toluene-d8	%		ORG-022	78	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate 4-Bromofluorobenzene	%		ORG-022	100	[NT]	[NT]	[NT]	[NT]	119	[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.


Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
Job No: 584577
 Date Received: 21/06/24
 Time Received: 16:00
 Received By: JW
 Temp: Cool/Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel Hall

Sample Login Details

Your reference	221233.03 Meadowbank
Envirolab Reference	354577
Date Sample Received	21/06/2024
Date Instructions Received	21/06/2024
Date Results Expected to be Reported	28/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	11 Air
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	n/a
Cooling Method	Not applicable
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

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

Jacinta Hurst

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

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	TO15 Chlorinated in Cans ppbv	TO15 chlorinated VOCs in Cans µg/m3	TPH Air/ Air Phase Hydrocarbon	IPA in Carbon Tubes & Badges	On Hold
SV202	✓	✓	✓		
SV203	✓	✓	✓		
SV204	✓	✓	✓		
SV205	✓	✓	✓		
BD1	✓	✓	✓		
S-1				✓	
Shroud					✓
SV202					✓
SV203					✓
SV204					✓
SV205					✓

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.

CERTIFICATE OF ANALYSIS 354744

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03 - Waterloo</u>
Number of Samples	10 Soil
Date samples received	24/06/2024
Date completed instructions received	24/06/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	27/06/2024
Date of Issue	27/06/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Authorised By

Nancy Zhang, Laboratory Manager

Results Approved By

Diego Bigolin, Inorganics Supervisor
 Giovanni Agosti, Group Technical Manager
 Jack Wallis, Chemist (FAS)
 Jenny He, Senior Chemist
 Lucy Zhu, Asbestos Supervisor
 Phalak Inthakesone, Organics Development Manager, Sydney
 Timothy Toll, Senior Chemist

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		354744-1	354744-2	354744-3	354744-4	354744-6
Your Reference	UNITS	BH3	BH3	BH1	BH2	BH2
Depth		0.1-0.2	0.5-0.6	0.1-0.2	0.2-0.3	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	2	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	96	98	89	103

svTRH (C10-C40) in Soil						
Our Reference		354744-1	354744-2	354744-3	354744-4	354744-6
Your Reference	UNITS	BH3	BH3	BH1	BH2	BH2
Depth		0.1-0.2	0.5-0.6	0.1-0.2	0.2-0.3	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	<500	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	5,300	<100	110	110	<100
TRH C ₂₉ - C ₃₆	mg/kg	5,400	110	610	190	<100
Total +ve TRH (C10-C36)	mg/kg	11,000	110	720	300	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<500	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<500	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	9,000	160	520	240	<100
TRH >C ₃₄ -C ₄₀	mg/kg	4,100	110	670	190	<100
Total +ve TRH (>C10-C40)	mg/kg	13,000	280	1,200	420	<50
Surrogate o-Terphenyl	%	#	77	76	80	73

PAHs in Soil						
Our Reference		354744-1	354744-2	354744-3	354744-4	354744-6
Your Reference	UNITS	BH3	BH3	BH1	BH2	BH2
Depth		0.1-0.2	0.5-0.6	0.1-0.2	0.2-0.3	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
Naphthalene	mg/kg	3.8	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	18	0.4	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	4.5	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	6.5	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	95	1.4	<0.1	0.1	0.3
Anthracene	mg/kg	28	0.7	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	190	2.9	<0.1	0.4	0.6
Pyrene	mg/kg	200	2.9	<0.1	0.4	0.5
Benzo(a)anthracene	mg/kg	120	2.0	<0.1	0.3	0.3
Chrysene	mg/kg	84	1.1	<0.1	0.3	0.3
Benzo(b,j+k)fluoranthene	mg/kg	230	3.2	<0.2	0.8	0.6
Benzo(a)pyrene	mg/kg	150	2.1	0.09	0.4	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	44	1.4	<0.1	0.3	0.2
Dibenzo(a,h)anthracene	mg/kg	13	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	55	1	<0.1	0.2	0.2
Total +ve PAH's	mg/kg	1,200	19	0.09	3.3	3.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	200	3.0	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	200	3.0	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	200	3.0	<0.5	0.7	0.5
Surrogate p-Terphenyl-d14	%	81	108	110	109	90

Organochlorine Pesticides in soil			
Our Reference		354744-1	354744-6
Your Reference	UNITS	BH3	BH2
Depth		0.1-0.2	0.9-1
Type of sample		Soil	Soil
Date extracted	-	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	99

Organophosphorus Pesticides in Soil			
Our Reference		354744-1	354744-6
Your Reference	UNITS	BH3	BH2
Depth		0.1-0.2	0.9-1
Type of sample		Soil	Soil
Date extracted	-	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024
Dichlorvos	mg/kg	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	99

PCBs in Soil			
Our Reference		354744-1	354744-6
Your Reference	UNITS	BH3	BH2
Depth		0.1-0.2	0.9-1
Type of sample		Soil	Soil
Date extracted	-	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	7.9
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	7.9
Surrogate 2-Fluorobiphenyl	%	96	96

Acid Extractable metals in soil						
Our Reference		354744-1	354744-2	354744-3	354744-4	354744-6
Your Reference	UNITS	BH3	BH3	BH1	BH2	BH2
Depth		0.1-0.2	0.5-0.6	0.1-0.2	0.2-0.3	0.9-1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
Arsenic	mg/kg	<4	4	<4	59	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	7.5	<0.4
Chromium	mg/kg	22	4	37	42	3
Copper	mg/kg	83	39	68	780	31
Lead	mg/kg	49	460	62	21,000	200
Mercury	mg/kg	<0.1	10	<0.1	1.9	2.7
Nickel	mg/kg	24	3	34	50	2
Zinc	mg/kg	63	180	140	2,100	60

Acid Extractable metals in soil		
Our Reference		354744-11
Your Reference	UNITS	BH2 - [TRIPLICATE]
Depth		0.2-0.3
Type of sample		Soil
Date prepared	-	26/06/2024
Date analysed	-	26/06/2024
Arsenic	mg/kg	16
Cadmium	mg/kg	4.0
Chromium	mg/kg	22
Copper	mg/kg	450
Lead	mg/kg	8,800
Mercury	mg/kg	2.4
Nickel	mg/kg	43
Zinc	mg/kg	1,400

Misc Soil - Inorg			
Our Reference		354744-1	354744-6
Your Reference	UNITS	BH3	BH2
Depth		0.1-0.2	0.9-1
Type of sample		Soil	Soil
Date prepared	-	25/06/2024	25/06/2024
Date analysed	-	25/06/2024	25/06/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture						
Our Reference		354744-1	354744-2	354744-3	354744-4	354744-5
Your Reference	UNITS	BH3	BH3	BH1	BH2	BH2
Depth		0.1-0.2	0.5-0.6	0.1-0.2	0.2-0.3	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024	25/06/2024
Date analysed	-	26/06/2024	26/06/2024	26/06/2024	26/06/2024	26/06/2024
Moisture	%	4.9	9.1	0.5	22	18

Moisture		
Our Reference		354744-6
Your Reference	UNITS	BH2
Depth		0.9-1
Type of sample		Soil
Date prepared	-	25/06/2024
Date analysed	-	26/06/2024
Moisture	%	10

PFAS in Soils Short		
Our Reference		354744-5
Your Reference	UNITS	BH2
Depth		0.5-0.6
Type of sample		Soil
Date prepared	-	25/06/2024
Date analysed	-	26/06/2024
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	0.3
Perfluorooctanoic acid PFOA	µg/kg	<0.1
6:2 FTS	µg/kg	<0.1
8:2 FTS	µg/kg	<0.2
Surrogate ¹³ C ₈ PFOS	%	98
Surrogate ¹³ C ₂ PFOA	%	103
Extracted ISTD ¹⁸ O ₂ PFHxS	%	99
Extracted ISTD ¹³ C ₄ PFOS	%	98
Extracted ISTD ¹³ C ₄ PFOA	%	99
Extracted ISTD ¹³ C ₂ 6:2FTS	%	103
Extracted ISTD ¹³ C ₂ 8:2FTS	%	177
Total Positive PFHxS & PFOS	µg/kg	0.3
Total Positive PFOS & PFOA	µg/kg	0.3
Total Positive PFAS	µg/kg	0.3

Asbestos ID - soils			
Our Reference		354744-3	354744-4
Your Reference	UNITS	BH1	BH2
Depth		0.1-0.2	0.2-0.3
Type of sample		Soil	Soil
Date analysed	-	26/06/2024	27/06/2024
Sample mass tested	g	Approx. 70g	Approx. 35g
Sample Description	-	Black coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected

Asbestos ID - soils NEPM				
Our Reference		354744-1	354744-2	354744-6
Your Reference	UNITS	BH3	BH3	BH2
Depth		0.1-0.2	0.5-0.6	0.9-1
Type of sample		Soil	Soil	Soil
Date analysed	-	26/06/2024	26/06/2024	26/06/2024
Sample mass tested	g	565.28	433.03	475.38
Sample Description	-	Black coarse-grained soil & rocks	Grey sandy soil	Grey sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—
FA and AF Estimation*	g	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil

sPOCAS field test					
Our Reference		354744-7	354744-8	354744-9	354744-10
Your Reference	UNITS	BH2	BH2	BH2	BH2
Depth		4-4.45	5.5-5.95	7-7.45	8.5-8.95
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	24/06/2024	24/06/2024	24/06/2024	24/06/2024
Date analysed	-	25/06/2024	25/06/2024	25/06/2024	25/06/2024
pH _F (field pH test)	pH Units	6.6	6.2	6.4	6.3
pH _{FOX} (field peroxide test)	pH Units	5.3	4.9	4.2	3.3
Reaction Rate*	-	Medium reaction	Medium reaction	Medium reaction	Medium reaction

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "---" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS 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.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX 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.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	81	84
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	81	84
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	72	75
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	88	88
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	83	86
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	82	85
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	80	83
Naphthalene	mg/kg	1	Org-023	<1	1	2	2	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	102	1	93	102	9	88	88

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<500	<500	0	99	83
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	5300	7300	32	93	94
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	5400	6600	20	114	87
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<500	<500	0	99	83
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	9000	12000	29	93	94
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	4100	4600	11	114	87
Surrogate o-Terphenyl	%		Org-020	76	1	#	#		76	73

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	3.8	5.2	31	94	76
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	18	27	40	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	4.5	8.3	59	92	78
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	6.5	10	42	90	82
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	95	160	51	106	98
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	28	61	74	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	190	310	48	96	#
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	200	300	40	98	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	120	190	45	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	84	120	35	78	77
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	230	320	33	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	150	210	33	94	94
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	44	150	109	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	13	56	125	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	55	100	58	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	85	1	81	72	12	96	106

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	64
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	74
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	60
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	98
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	90
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	90
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	114
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	88
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	108
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	68
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	105	1	93	110	17	99	90

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	64
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	62
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	80
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	72
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	90
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	62	94
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	120
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	105	1	93	110	17	99	90

Client Reference: 221233.03 - Waterloo

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date extracted	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	99	105
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	103	1	96	110	14	98	87

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	354744-6
Date prepared	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
Date analysed	-			26/06/2024	1	26/06/2024	26/06/2024		26/06/2024	26/06/2024
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	115	106
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	106	97
Chromium	mg/kg	1	Metals-020	<1	1	22	23	4	122	102
Copper	mg/kg	1	Metals-020	<1	1	83	90	8	111	104
Lead	mg/kg	1	Metals-020	<1	1	49	41	18	106	80
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	96	#
Nickel	mg/kg	1	Metals-020	<1	1	24	26	8	108	102
Zinc	mg/kg	1	Metals-020	<1	1	63	63	0	118	96

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	26/06/2024	26/06/2024		[NT]	[NT]
Date analysed	-			[NT]	4	26/06/2024	26/06/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	4	59	28	71	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	4	7.5	6.1	21	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	4	42	56	29	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	4	780	690	12	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	4	21000	15000	33	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	4	1.9	1.9	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	4	50	67	29	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	4	2100	2500	17	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	354744-6
Date prepared	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Date analysed	-			25/06/2024	1	25/06/2024	25/06/2024		25/06/2024	25/06/2024
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	102	103

QUALITY CONTROL: PFAS in Soils Short					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
Date analysed	-			26/06/2024	[NT]	[NT]	[NT]	[NT]	26/06/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
6:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
8:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	147	[NT]	[NT]	[NT]	[NT]	136	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: sPOCAS field test					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			24/06/2024	[NT]	[NT]	[NT]	[NT]	24/06/2024	[NT]
Date analysed	-			25/06/2024	[NT]	[NT]	[NT]	[NT]	25/06/2024	[NT]
pH _F (field pH test)	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
pH _{Fox} (field peroxide test)	pH Units		Inorg-063	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

TRH Soil C10-C40 NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in samples 354744-1,1d have caused interference.

TRH Soil C10-C40 NEPM - The PQL for 354744-1,1d has been raised due to the sample matrix thereby requiring a dilution.

PAHs in Soil - # Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample 354744-6 have caused interference.

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample 354744-1,1d.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.

Note: Sample 354744-3 was sub-sampled from a bag provided by the client.

Note: Sample 354744-4 was sub-sampled from a jar provided by the client.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 354744-4 for As. Therefore a triplicate result has been issued as laboratory sample number 354744-11.

Asbestos-ID in soil: NEPM

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

PFAS: For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

CERTIFICATE OF ANALYSIS 354744-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>221233.03 - Waterloo</u>
Number of Samples	Additional analysis
Date samples received	24/06/2024
Date completed instructions received	27/06/2024

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	01/07/2024
Date of Issue	01/07/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Giovanni Agosti, Group Technical Manager

Authorised By

Nancy Zhang, Laboratory Manager

Metals from Leaching Fluid pH 2.9 or 5				
Our Reference		354744-A-2	354744-A-4	354744-A-6
Your Reference	UNITS	BH3	BH2	BH2
Depth		0.5-0.6	0.2-0.3	0.9-1
Type of sample		Soil	Soil	Soil
Date extracted	-	01/07/2024	01/07/2024	01/07/2024
Date analysed	-	01/07/2024	01/07/2024	01/07/2024
pH of soil for fluid# determ.	pH units	8.3	8.4	8.6
pH of soil TCLP (after HCl)	pH units	1.7	1.7	1.6
Extraction fluid used		1	1	1
pH of final Leachate	pH units	4.9	5.3	5.0
Arsenic	mg/L	[NA]	<0.05	[NA]
Cadmium	mg/L	[NA]	0.05	[NA]
Chromium	mg/L	[NA]	<0.01	[NA]
Copper	mg/L	[NA]	1.0	[NA]
Lead	mg/L	0.1	44	18
Mercury	mg/L	[NA]	<0.0005	[NA]
Nickel	mg/L	[NA]	0.1	[NA]
Zinc	mg/L	[NA]	12	[NA]

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Metals-021	Determination of Mercury by Cold Vapour AAS following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			01/07/2024	[NT]	[NT]	[NT]	[NT]	01/07/2024	[NT]
Date analysed	-			01/07/2024	[NT]	[NT]	[NT]	[NT]	01/07/2024	[NT]
Arsenic	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	90	[NT]
Cadmium	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	84	[NT]
Chromium	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	87	[NT]
Copper	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	86	[NT]
Mercury	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	86	[NT]
Zinc	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	87	[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.

Anna Bui

From: Joel James-Hall <joel.james-hall@douglaspartners.com.au>
Sent: Thursday, 27 June 2024 11:44 AM
To: Customer Service
Subject: Additional analysis 353485 & 354744

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

Hi Team,

Can we schedule additional analysis for the following (2-day TAT):

Report 353485

Metals TCLP

- BH101 0.5-0.6.
- BH110 0.2-0.3

Silica GEL

- BH101 0.5-0.6

Lead TCLP

- BH101 0.2-0.3
- BH102 0.5-0.6
- BH103 0.2-0.3
- BH106 0.2-0.3
- BH109 0.2-0.3
- BH113 1-1.1

PAH

- BH101 0.5-0.6.
- BH103 0.2-0.3
- BH111 0.5-0.6

PFAS

- BH103 0.2-0.3
- BH105 0.2-0.28

Report 354744 (in progress), noting previous request on sample IDs – just using ELS current numbers here:

Metals TCLP

- 354744-4

Lead TCLP

- 354744-2
- 354744-6

Thanks heaps.

ELS REF: 354744-A

TAT: ~~STANDARD~~ 2 DAY

DUE: 1/7/24

AB -

Joel James-Hall | Associate / Environmental Engineer

☎ 02 9809 0666 📞 +61 447 371 916 📧 joel.james-hall@douglaspartners.com.au

Project No: 221233.03	Suburb: Waterloo	To: Envirolab Services
Project Manager: Joel James-Hall	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: joel.james-hall@douglaspartners.com.au		Attn: Sample Receipt
Turnaround time: ☐ Standard ☒ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		(02) 9910 6200 samplereceipt@envirolab.com

Prior Storage ☒ Fridge ☐ Freezer ☐ Esky ☐ Shelf **Do samples contain 'potential' HBM?** ☐ No ☒ YES, handle, transport, store in accordance with FPM HAZID)

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes										Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water M - Material	G - glass P - plastic	Combo8_A N	Combo 3_AN	Combo 3a	ASS screen	PFAS (short suite)						
1	BH1	0.1	0.2		S	G/P	x										
2	BH1	0.5	0.6		S	G/P		x									
3	BH2	0.1	0.2		S	G/P			x								
4	BH3	0.2	0.3		S	G/P		x									
5	BH3	0.5	0.6		S	P					x						
6	BH3	0.9	1		S	G/P	x										
7	BH3	4	4.45		S	P				x							EnviroLab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200 Job No: 354744 Date Received: 24/6/24 Time Received: 1540 Received By: CW Temp: Cool/Ambient Cooling: Ice/Igpack Security: Intact/Broken/None
8	BH3	5.5	5.95		S	P				x							
9	BH3	7	7.45		S	P				x							
10	BH3	8.5	8.95		S	P				x							

ENVIROLAB

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

Job No: 354744

Date Received: 24/6/24

Time Received: 1540

Received By: [Signature]

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

Metals to analyse:		LAB RECEIPT	
Number of samples in container:		Lab Ref. No:	
Send results to: Douglas Partners Pty Ltd		Received by:	
Address: 96 Hermitage Road, West Ryde NSW 211		Date & Time:	
Relinquished by: [Signature]		Signed: [Signature]	
Phone: (02) 9809 0666		Date: 24/6	

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall

Sample Login Details

Your reference	221233.03 - Waterloo
Envirolab Reference	354744
Date Sample Received	24/06/2024
Date Instructions Received	24/06/2024
Date Results Expected to be Reported	27/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	10 Soil
Turnaround Time Requested	3 days
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

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

Jacinta Hurst

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

Analysis Underway, details on the following page:



Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	PFAS in Soils Short	Asbestos ID - soils	Asbestos ID - soils NEPM	sPOCAS field test
BH1-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓			✓	
BH1-0.5-0.6	✓	✓	✓				✓				✓	
BH2-0.1-0.2	✓	✓	✓				✓			✓		
BH3-0.2-0.3	✓	✓	✓				✓					
BH3-0.5-0.6									✓			
BH3-0.9-1	✓	✓	✓	✓	✓	✓	✓	✓			✓	
BH3-4-4.45												✓
BH3-5.5-5.95												✓
BH3-7-7.45												✓
BH3-8.5-8.95												✓

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.

CERTIFICATE OF ANALYSIS 354945

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>22123303</u>
Number of Samples	2 Water
Date samples received	26/06/2024
Date completed instructions received	26/06/2024

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	28/06/2024
Date of Issue	28/06/2024
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Jack Wallis, Chemist (FAS)
Liam Timmins, Organics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

VOCs in water			
Our Reference		354945-1	354945-2
Your Reference	UNITS	MW2	MW4
Date Sampled		26/06/2024	26/06/2024
Type of sample		Water	Water
Depth		4.0-4.5	5.5-6.0
Date Extracted	-	26/06/2024	26/06/2024
Date Analysed	-	27/06/2024	27/06/2024
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
Chloroethane	µg/L	<10	<10
Trichlorofluoromethane	µg/L	<10	<10
1,1-Dichloroethene	µg/L	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1
1,1-dichloroethane	µg/L	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1
Bromochloromethane	µg/L	<1	<1
Chloroform	µg/L	1	<1
2,2-dichloropropane	µg/L	<1	<1
1,2-dichloroethane	µg/L	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1
1,1-dichloropropene	µg/L	<1	<1
Cyclohexane	µg/L	<1	<1
Carbon tetrachloride	µg/L	<1	<1
Benzene	µg/L	<1	<1
Dibromomethane	µg/L	<1	<1
1,2-dichloropropane	µg/L	<1	<1
Trichloroethene	µg/L	<1	<1
Bromodichloromethane	µg/L	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1
Toluene	µg/L	<1	<1
1,3-dichloropropane	µg/L	<1	<1
Dibromochloromethane	µg/L	<1	<1
1,2-dibromoethane	µg/L	<1	<1
Tetrachloroethene	µg/L	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1

VOCs in water			
Our Reference		354945-1	354945-2
Your Reference	UNITS	MW2	MW4
Date Sampled		26/06/2024	26/06/2024
Type of sample		Water	Water
Depth		4.0-4.5	5.5-6.0
Ethylbenzene	µg/L	<1	<1
Bromoform	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
Styrene	µg/L	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1
o-xylene	µg/L	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1
Isopropylbenzene	µg/L	<1	<1
Bromobenzene	µg/L	<1	<1
n-propyl benzene	µg/L	<1	<1
2-chlorotoluene	µg/L	<1	<1
4-chlorotoluene	µg/L	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1
Tert-butyl benzene	µg/L	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1
Sec-butyl benzene	µg/L	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	113	111
Surrogate Toluene-d8	%	100	100
Surrogate 4-Bromofluorobenzene	%	91	89

vTRH(C6-C10)/BTEXN in Water			
Our Reference		354945-1	354945-2
Your Reference	UNITS	MW2	MW4
Date Sampled		26/06/2024	26/06/2024
Type of sample		Water	Water
Depth		4.0-4.5	5.5-6.0
Date extracted	-	26/06/2024	26/06/2024
Date analysed	-	27/06/2024	27/06/2024
TRH C ₆ - C ₉	µg/L	<10	<10
TRH C ₆ - C ₁₀	µg/L	<10	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	113	111
Surrogate Toluene-d8	%	100	100
Surrogate 4-Bromofluorobenzene	%	91	89

svTRH (C10-C40) in Water			
Our Reference		354945-1	354945-2
Your Reference	UNITS	MW2	MW4
Date Sampled		26/06/2024	26/06/2024
Type of sample		Water	Water
Depth		4.0-4.5	5.5-6.0
Date extracted	-	27/06/2024	27/06/2024
Date analysed	-	27/06/2024	27/06/2024
TRH C ₁₀ - C ₁₄	µg/L	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50
Surrogate o-Terphenyl	%	107	92

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date Extracted	-			26/06/2024	1	26/06/2024	27/06/2024		26/06/2024	[NT]
Date Analysed	-			27/06/2024	1	27/06/2024	28/06/2024		27/06/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	99	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	1	1	0	101	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	99	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	95	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	95	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	1	113	114	1	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	100	101	1	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	91	1	91	89	2	106	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			26/06/2024	1	26/06/2024	27/06/2024		26/06/2024	[NT]
Date analysed	-			27/06/2024	1	27/06/2024	28/06/2024		27/06/2024	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	1	<10	<10	0	96	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	1	<10	<10	0	96	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	95	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	1	113	114	1	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	100	101	1	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	91	1	91	89	2	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/06/2024	[NT]	[NT]	[NT]	[NT]	27/06/2024	[NT]
Date analysed	-			27/06/2024	[NT]	[NT]	[NT]	[NT]	27/06/2024	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	97	[NT]	[NT]	[NT]	[NT]	111	[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.

**ENVIROLAB GROUP**

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[illegible]

Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis

Lab Use Only	
Job number: 354945	Cooling: Ice / Ice pack / None
Temperature: 20	Security seal: Intact / Broken / None
TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Joel James-Hall

Sample Login Details

Your reference	22123303
Envirolab Reference	354945
Date Sample Received	26/06/2024
Date Instructions Received	26/06/2024
Date Results Expected to be Reported	28/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Water
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	20
Cooling Method	None
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	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water
MW2	✓	✓	✓
MW4	✓	✓	✓

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.

Appendix I

Quality Assurance and Quality Control

1. Field and laboratory data quality assurance and quality control

The field and laboratory data quality assurance and quality control (QA / QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included the end of this appendix.

Table 1: Field and laboratory quality control

Item	Evaluation / acceptance criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	% 10% of primary samples Where results are greater than 5x PQL: <30% RPD (inorganics) <50% RPD (organics)	PC
Trip Spikes	1 per sampling event; 60-140% recovery	C
Trip Blanks	1 per sampling event; <PQL	C
Soil vapour integrity test	Acceptable vacuum held for minimum of 0.5 minutes at each test location prior to sampling	C
Soil vapour induced vacuum	<2.5 kPa during sampling (ASTM D7663-12, 2018)	C
Soil vapour shroud test	Primary samples <0.1% of an analysed shroud sample. Shroud sample considered applicable to other test locations based on field PID readings (ASTM D7663-12, 2018)	C
Soil vapour vacuum canister pressure	≤3 inches Hg to laboratory supplied vacuum prior to sampling, and prior to analysis based on field readings (ASTM D7663-12, 2018)	C
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Laboratory Duplicate	1 per lab batch; As laboratory certificate	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C

Item	Evaluation / acceptance criteria	Compliance
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:

C = compliance; PC = partial compliance; NC = non-compliance

The RPD results were all within the acceptable range, with the exception of those indicated in Table QA1-3 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low;
- The replicate pairs were collected from fill soils which by its nature are heterogeneous;
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- Most of the recorded concentrations were relatively close to the PQL;
- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA / QC parameters met the data quality indicators.

Total duplicate frequency in soils was noted to be slightly below the specified rate at approximately ~7% (counting primary soil samples analysed for general contaminants). This is considered a minor non compliance given the relative frequency for both groundwater and soil vapour (exceeding 10% respectively).

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

2. Data quality indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQI) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data quality indicators

Data quality indicator	Method(s) of achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Preparation of field groundwater and soil vapour sampling sheets.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the conceptual site model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced samplers used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQO.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQI have been generally complied with.

3. Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQI it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

4. References

ASTM D7663-12. (2018). *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapour Intrusion Evaluations*. 2018 e1 (editorial change to 2012 revision); American Society for Testing and Materials.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.



Table QA1: RPD Soils

Lab	Sample ID	Depth	Sample Date	Sample Type	Units	Priority metals								Priority PAH								BTEx			
						Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ (BaP-TEQ)	Total PAH	F1 ((C6-Cl0)-BTEx)	F2 (<Cl0-Cl6 less Naphthalene)	F3 (>Cl6-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes
ELS	BH103	0.2 - 0.3 m	06/06/24	Soil	mg/kg	5	0.6	8	110	1,300	0.4	5	1,100	<1	1.1	1.6	14	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BD3/20240606	0.2 - 0.3 m	05/06/24	Soil	mg/kg	<4	0.6	6	81	390	0.4	5	1,700	<1	1.2	1.7	10	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			Difference		mg/kg	1	0	2	29	910	0	0	600	0	0.1	0.1	4	0	0	0	0	0	0	0	0
			RPD		%	22%	0%	29%	30%	108%	0%	0%	43%	0%	9%	6%	33%	0%	0%	0%	0%	0%	0%	0%	0%
ELS	BH110	0.2 - 0.3 m	05/06/24	Soil	mg/kg	<4	<0.4	5	20	170	8.5	3	260	<1	0.3	<0.5	3.9	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BD1/20240605	0.2 - 0.3 m	05/06/24	Soil	mg/kg	<4	<0.4	4	19	160	1	3	230	<1	0.3	<0.5	1.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			Difference		mg/kg	0	0	1	1	10	7.5	0	30	0	0	0	2.4	0	0	0	0	0	0	0	0
			RPD		%	0%	0%	22%	5%	6%	158%	0%	12%	0%	0%	0%	89%	0%	0%	0%	0%	0%	0%	0%	0%

Table QA2 - RPD Water

Lab	Sample ID	Depth	Date Sampled	Sample Type	Units	Metals									PAH				TRH				BTEx			
						Arsenic	Cadmium	Chromium (II+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Naphthalene	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Total PAH	F1 ((C6-Cl0)-BTEx)	F2 (>Cl0-Cl6 less Naphthalene)	F3 (>Cl6-34)	F4 (>C34-40)	Benzene	Toluene	Ethylbenzene	Total Xylenes
ELS	BH3	-	20/06/2024	Water	µg/L	<1	0.2	<1	<1	4200	<1	<0.05	1	21	<0.1	<0.1	<0.5	<0.1	14	<50	<100	<100	<1	<1	<1	<3
ELS	BD1	-	20/06/2024	Water	µg/L	<1	0.2	<1	<1	4300	<1	<0.05	<1	19	<0.1	<0.1	<0.5	<0.1	11	<50	<100	<100	<1	<1	<1	<3
			Difference		µg/L	0	0	0	0	100	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0
			RPD		%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table QA3 - RPD Vapour

Lab	Sample ID	Depth	Date Sampled	Sample Type	Units	VOC													TRH	
						Isopropyl Alcohol	Vinyl chloride	Trichloroethene	1,1-Dichloroethene	trans-1,2-dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Benzene	Toluene	Ethylbenzene	m-&p-Xylene	o-Xylene	Naphthalene	F1 ((C6-Cl10)-BTEx)	F2 (>Cl10-Cl6 less Naphthalene)
ELS	SV204	-	20/06/2024	Air	µg/m3	190	<0.8	<1.6	<2	<2	<2	710	2	38	4	10	4	<2.6	320	<40
ELS	BD1	-	20/06/2024	Air	µg/m3	200	<0.8	<1.6	<2	<2	<2	730	2	40	4	10	4	<2.6	370	<40
			Difference		µg/L	10	0	0	0	0	0	20	0	2	0	0	0	0	50	0
			RPD		%	5.1	0.0	0.0	0.0	0.0	0.0	2.8	0.0	5.1	0.0	0	0	0	14.5	0.0



Table QA4: Trip Blank Results - Soil Sampling

Sample ID	Sample Date	Media Being Sampled	Sample Type	Units	Priority PAH	Priority TRH		TRH	BTEX			
					Naphthalene ^b	TRH C6 - C10	Fl ((C6-C10)-BTEX)	TRH C6 - C9	Benzene	Toluene	Ethylbenzene	Total Xylenes
TB	05/06/24	Soil	Soil	mg/kg	<1	<25	<25	<25	<0.2	<0.5	<1	<1
TB	45463	Water	Water	µg/L	-	-		-	<0.2	<0.5	<1	<1

Table QA5: Trip Spike Results – Soil Sampling (% Recovery)

Sample ID	Sample Date	Media Being Sampled	Sample Type	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene
TS	05/06/24	Soil	Soil	105	105	106	106	106
TB	05/06/24	Water	Water	86	82	83	78	81

Table QA5: Sopil vapour shroud % of primary samples

Sample ID	Sample Date	Shroud IPA (µg/m3 at SV204)	Shroud PID (ppm)	IPA result (µg/m3)	% of shroud
SV202	20/06/2024	1340000	150	332	0.0002
SV203	20/06/2024	1340000	164	415	0.0003
SV204	20/06/2024	1340000	153	187	0.0001
BD1	20/06/2024	1340000	153	197	0.0001
SV205	20/06/2024	1340000	136	286	0.0002

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Quatro Water Quality Meter w/ 10m Quatro Cable
Serial Number	20D102896
Client Name	Srikanth Raghuraman (Douglas Partners Pty Ltd)
Project Number	SY?
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV $\pm$ 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within $\pm$ 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 $\pm$ 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	8.7	9.7	8.7	°C
pH	pH 4.00	417183	4.01	3.98	4.01	pH
pH	pH 7.00	419528	7.00	7.00	7.00	pH
Conductivity	2760 μ S/cm at 25°C	399819	2760	2731	2760	μ S/cm
ORP (Ref. check only)	Zobell A & B	420448/418958	264.6	287.1	264.6	mV
Zero Dissolved O ₂	NaSO ₃ in Distilled H ₂ O	426184	0.0	-0.2	0.0	%
100% Dissolved O ₂	100% Air Saturated H ₂ O	Fresh Air	100.0	96.0	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	16/06/2024
Calibration Due	16/12/2024

Certificate of Service and Calibration

Gas Detector

BW Max XT II

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	MultiRAE Lite (PGM6208)
Serial Number	M01C036756
Client Name	Johann Chalache/Cathy Li (Douglas Partners Pty Ltd)
Project Number	SY282953

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Sensors	Calibration	✓	Calibrated and conforms to manufacturer's specs
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v12.000

Instrument Readings						
Parameter	Serial No.	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
O2	SC03420465D4	Fresh Air	20.9%	950-103860	20.9%	
		Oxygen	18.0%			18.0%
CO	SC03060089BC	Carbon Monoxide	50ppm	950-103860	0 ppm	50 ppm
H2S	SC03AR0133CA	Hydrogen Sulfide	25ppm	950-103860	0 ppm	25.3 ppm
LEL	S014110275D9	Methane	2.5% (50% LEL)	950-103860	0%	50%
PID	SC03A30128WA	Isobutylene	100ppm	WO249314-15	0 ppm	101 ppm

Declaration	
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.	

Calibrated By	William Pak
Calibration Date	01/05/2024
Calibration Due	01/10/2024