
**Report on Detailed Site (Contamination)
Investigation**

Proposed Mixed Use Development

138 Maroubra Road, Maroubra NSW

**Prepared for Lindsay Bennelong
Developments Pty Ltd**

Project 20854.03

11 June 2025

Document History

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

Signature

Date

Author	p.p. 	11 June 2025
Reviewer		11 June 2025

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Report on Detailed Site (Contamination) Investigation Proposed Mixed Use Development 138 Maroubra Road, Maroubra NSW

1. Introduction

Douglas Partners Pty Ltd (Douglas) has been engaged by Lindsay Bennelong Developments Pty Ltd to prepare this detailed site (contamination) investigation (DSI) for a proposed mixed use development at 138 Maroubra Road, Maroubra NSW (the site). The site is shown on Drawing 1, Appendix A.

The investigation was undertaken in accordance with Douglas' proposal 20854.03.P.002.Rev0 dated 29 November 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. It is understood that the report will be used to support a development application for the proposed development.

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. SEARs Declaration: Mixed-use development with in-fill affordable housing at 138 Maroubra Road, Maroubra

Declaration		
Name	Phi Quoc Huy Tran	
Qualification	BSc Environmental earth science and ecology, licensed asbestos assessor	
	The undersigned declares that this Detailed site Investigation (DSI) report has been prepared in response to the following SEARs requirements issued for the Project on 10/06/2025 for SSD-81426710.	
SEARs item no.	SEARs Requirements	Relevant section of this Report
13.02	<p>Contamination and Remediation</p> <p>In accordance with Chapter 4 of the State Environmental Planning Policy (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.</p>	This report in its entirety
Signed		
Dated		

3. Proposed development

The current proposed development is an eight-storey building that contains:

- A single carpark basement, using the current basement level with the following modifications:
 - o Overall basement is proposed to have 150mm depth removed from the underside of the slab; and
 - o The northern section of the basement will have 750mm removed from the underside of the slab.
- Ground level retail / utilities rooms;
- Level 1 mixed-use parking and residential units;
- The remaining levels containing residential units; and
- Rooftop communal garden and plant room.

Updated plans were provided to Douglas at time of writing this report and are included in Appendix C.

4. Scope of work

The scope of work comprised:

- A review of previous reports;
- Drilling of eight hand augured boreholes (BH1-BH8);
- Extending two boreholes (BH1 and BH8) to 10 metres for groundwater monitoring well construction; and
- Collection of soil samples from each of the borehole locations.
- Selected soil samples were analysed at a NATA accredited laboratory for contaminants of potential concern (CoPC) comprise of:
 - o Eight priority heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn);
 - o Polycyclic Aromatic Hydrocarbons (PAH);
 - o Total Recoverable Hydrocarbons (TRH);
 - o Benzene, toluene, ethylbenzene and xylenes (BTEX);
 - o Total phenols;
 - o Polychlorinated biphenyls (PCB);
 - o Organochlorine pesticides (OCP);
 - o Organophosphorus pesticides (OPP);
 - o Per- and poly-fluoroalkyl substances (PFAS);
 - o Asbestos fines / fibrous asbestos (AF / FA); and
 - o Additional toxicity characteristic leaching procedure (TCLP) testing for metals and PAH if required for preliminary waste classification purposes.
- Development of groundwater wells;
- Installation of two soil vapour pins (SV1 and SV2);
- Collection of water samples from the groundwater wells; and
- Collection of sub-slab soil vapour samples from the soil vapour pins.
- Analysis of all soil vapour samples at a NATA accredited laboratory for the following CoPC:
 - o BTEX and naphthalene (BTEXN);
 - o Volatile TRH;
 - o Chlorinated hydrocarbons; and
 - o IPA.
- Analysis of all water samples at a NATA accredited laboratory for the following CoPC:
 - o Dissolved metals;
 - o TRH;
 - o BTEX;
 - o PAH;

- o Phenols (speciated);
- o OCP / OPP/ PCE (trace level);
- o VOC suite;
- o PFAS/PFOA; and
- Preparation of this report.

5. Site information

Site address	138 Maroubra Road, Maroubra NSW
Legal description	Lots 1 and 2, Deposited Plan 506844.
Area	1,500 m ²
Zoning	Zone E2 – Commercial Centre
Local Council Area	Randwick City Council
Current use	Commercial building with basement.
Surrounding uses	<p>North – Piccadilly Place followed by mixed use apartments</p> <p>East – Mixed use apartments</p> <p>South – Maroubra Road, followed by residential and commercial / retail</p> <p>West – Maroubra Police Station, followed by Bruce Bennetts Place and mixed-use apartments.</p>

The site boundary is shown on Figure 1.



Figure 1: Site location

6. Environmental setting

Regional topography	Regional topography appears to be variable, with a hill to the east and smaller crests to the north and west. Topography to the south and south-west falls gently towards Port Botany and Botany Bay.
Site topography	The site topography appears relatively flat and is approximately 26 m relative to Australian Height Datum (AHD).
Soil landscape	Reference to the Sydney 1:100 000 Soils Landscape Sheet indicates that the site is underlain by Tuggerah aeolian sand typically comprising deep podzols on dunes and podzol / humus podzol intergrades on swales. The site is also located on Botany Sands, which is an unconfined aquifer with large groundwater capacity and highly variable groundwater levels.
Geology	Reference to the Sydney 1:100 000 Geology Sheet indicates that the site is underlain by Quaternary sediments typically comprising medium to fine-grained marine sand with podsols.
Acid sulfate soils	Published acid sulfate soils (ASS) risk mapping indicates that the site is has an extremely low probability of occurrence.

Surface water	No surface water bodies are present on the site. Surface water flows are anticipated to be intercepted by local stormwater systems.
Groundwater	<p>A search of the publicly available registered groundwater bore database indicated that there are four registered groundwater bores within 250 m of the site which were for domestic use, with recorded standing water levels at 4.8 (GW025730) and 10.7 m (GW108931) bgl.</p> <p>Based on the regional topography, groundwater bore data, and the inferred flow direction of nearby water courses, the anticipated flow direction of groundwater beneath the site is to the south or south-west, towards Botany Bay, the likely receiving surface water body for the groundwater flow path.</p>

7. Summary of previous investigations

7.1 Previous reports

The following previous reports are relevant to the current investigation:

- Douglas *Report on Preliminary Site (Contamination) Investigation, Proposed Mixed Use Development 138 Maroubra Road, Maroubra*, dated November 2022 (Douglas, 2022);
- Douglas *Report on Geotechnical Desktop Assessment, Proposed Mixed Use Development 138 Maroubra Road, Maroubra*, dated November 2022 (Douglas, 2022a); and
- Douglas *Report on Sampling and Analysis Quality Plan, Proposed Mixed Use Development 138 Maroubra Road, Maroubra*, dated November 2024 (Douglas, 2024).

A desktop study report (reference 20854.02.R.001.Rev1) was prepared by Douglas in 2022 (Douglas, 2022). The report was undertaken to assess the contamination status of the site in relation to the proposed development. The following information pertaining to the contamination status of the site were noted:

- Council records indicate that the site was used as a service station in 1978 and was disused by 1992;
- The building had been demolished and replaced by the current building by 2000;
- No evidence of tank removal was available to indicate that decommissioning / removal of the underground storage tank (UST) from the former service station use had occurred;
- No significant changes to the building were made from 2000 to present day;
- Potential off-site sources of contamination includes, UST from the decommissioned adjacent police station, nearby dry-cleaning businesses located east and west of the site;
- Former development design included three basement levels that may possibly intercept the water table and acid sulphate soils (ASS); and
- All previous reports were based on the former development design.

A separate desktop geotechnical study was prepared by Douglas in 2022 (Douglas, 2022a). The report was undertaken to inform of preliminary design and planning of the former design.

A sampling and analysis quality plan (SAQP) was (reference 20854.03.R.001.Rev0) was prepared by Douglas in 2024 (Douglas 2024). The report was undertaken to outline the proposed scope of works for the DSI. The SAQP was designed for the former development design.

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 the previous reports, the following potential sources of contamination and associated contaminants of potential concern (CoPC) have been identified and summarised in Table 2.

Table 1: Summary of potential sources

Potential sources and associated CoPC
On-site sources
<p>S1: Fill: Associated with levelling, demolition of former buildings on the site and potential burying of waste CoPC include metals, PFAS, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos.</p> <p>S2: Former buildings CoPC include asbestos, synthetic mineral fibres (SMF), lead (in paint) and PCB.</p> <p>S3: Existing or removed USTs and associated pipework, bowsers and fire retardants CoPC include lead, TRH, BTEX, PAH, VOC, and PFAS.</p> <p>S4: Transformer in south-west corner of the site CoPC include PCB.</p>
Off-site sources
<p>S5: Possible USTs and associated pipework, bowsers and fire retardants in adjacent police station CoPC include lead, TRH and BTEXN.</p> <p>S6: Dry cleaning businesses located west and east of the site CoPC include tertachloroethene (PCE) and associated daughter products.</p>

The following potential human and environmental receptors, along with relevant potential pathways, have been identified and summarised in Table 2.

Table 2: Summary of potential receptors and pathways

Potential human receptors
HR1: Construction and maintenance workers HR2: End users [residential / retail / commercial] HR3: Adjacent site users [residential, commercial and police station]
Potential environmental receptors
ER1: Surface water [Bunnerong Creek and two unnamed creeks, Botany Bay] ER2: Groundwater
Potential pathways to human receptors
HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours
Potential pathways to environmental receptors
EPI: Surface water run-off EP2: Leaching of contaminants and vertical migration into groundwater

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 S7) and receptors are provided in below Table 3.

Table 3: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk management action
S1: Fill: metals, PFAS, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos S2: Former buildings: asbestos, SMF, lead and PCB S3: Possible USTs on site: lead, TRH, BTEX, PAH, VOC and PFAS S4: Transformer: PCB	HP1: Ingestion and dermal contact HP2: Inhalation of dust and/or vapours	HR1: Construction and maintenance workers HR2: End users [residential / retail / commercial]	An intrusive investigation is recommended to assess possible contamination including testing of the soils, soil vapour and groundwater.
	HP2: Inhalation of dust and/or vapours	HR4: Adjacent site users [residential, commercial and police station]	
	EPI: Surface water run-off	ER1: Surface water	
	EP2: Leaching of contaminants and vertical migration into groundwater	ER2: Groundwater	

Source and CoPC	Exposure pathway	Receptor	Risk management action
S5: Off-site USTs: lead, TRH, BTEXN S6: Off-site dry cleaners: PCE	HP2: Inhalation of vapours	HR1: Construction and maintenance workers HR2: End users [residential / retail / commercial]	
	HP1: Ingestion and dermal contact	HR3: Construction and maintenance workers	

9. Sampling and analysis 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 in Appendix D.

9.2 Soil sampling and analysis rationale

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

A systematic sampling strategy based on the NSW EPA *Contaminated Sites, Sampling Design Guidelines* (NSW EPA, 2022) to determine borehole locations which was adapted based on areas of access. Borehole locations are shown on Drawing 1, in Appendix A.

Table 2 of NSW EPA (2022) recommends a minimum of 8 sampling points for a site of 0.15 ha for site characterisation based on the detection of circular hot spots using a systemic grid sampling pattern. A total of 8 test locations were therefore positioned across accessible areas of the site, excluding the footprints of the two commercial buildings due to access constraints.

Soil samples were collected from each borehole / test pit 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 in Appendix E.

Samples were selected for analysis based upon field observations and PID screening results, and to provide lateral and vertical coverage of the site. The selected samples were analysed for the CoPC in the CSM.

9.3 Soil vapour sampling and analysis rationale

In order to assess the current sub-slab soil vapour concentrations at the site and evaluate whether historical and off-site land uses have potentially impacted the site, sampling was undertaken from two sub-slab vapour pins.

The locations were selected based on the following rationale:

- SV1 were positioned to give coverage of laundromat and decommissioned underground storage tank located west of the site; and
- SV2 were position to give coverage of the laundromat located upgradient, east of the site.

The general sampling methods are described in the field work methodology in Appendix E.

All samples were analysed for the CoPC in the CSM.

9.4 **Groundwater sampling and analysis rationale**

In order to assess the current groundwater contamination status at the site and evaluate whether historical / off site land uses have impacted on groundwater, sampling from two monitoring wells (BH1 to BH8) was undertaken.

The locations were selected based on the following rationale:

- BH1 is positioned hydraulically down-gradient in the northern section of the site. The results from BH1 will be used to evaluate whether the historical land uses of the site have impacted on groundwater quality. Additionally, the results at MW1 will provide data on the concentration of contaminants in groundwater exiting the site; and
- BH8 is positioned hydraulically down-gradient of the former building in the southern side of the site. The results from MW2 will be used to evaluate whether the historical land uses of the site have impacted on groundwater quality. Additionally, the results at MW1 will provide data on the concentration of contaminants in groundwater exiting the site.

The general sampling methods are described in the field work methodology in Appendix E.

All samples were analysed for the CoPC in the CSM.

10. **Site assessment criteria**

The site assessment criteria (SAC) applied in the current investigation are informed by the CSM (Section 8) which identified human 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 given the presence of a basement carpark. The derivation of the SAC is in Appendix F, and the adopted SAC are listed on the summary analytical results tables in Appendix F.

11. Results

11.1 Field work results

The borehole logs for this assessment are provided in Appendix G. The logs recorded the following general sub-surface profile:

- Concrete: In TP101, TP104 and MW105 to depths of between 0.1 m and 0.3 m below ground level (bgl);
- Fill / Sand: trace concrete cobbles, pale yellow, dark brown yellow-brown, fine to medium to depths of 0.6 and 0.8 m bgl;
- Sand: Generally comprising of pale yellow to pale brown, fine to medium grained sands to depths of between 11.2 m and 11.8 m bgl; and
- Sandstone: Sandstone in BH1 from 11.8 m bgl to borehole termination at 16.9 m bgl.

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.

The PID screening recorded values of less than 1 ppm suggesting the absence, or very low concentrations, of VOC in the samples tested.

A stormwater drain was identified to be present in the basement and service scanning indicated it was running through the centre of the site.

No free groundwater was observed during drilling of boreholes except for BH1 and BH8 where groundwater was observed whilst drilling BH1 at 4.8 m bgl and BH8 at 3.8m bgl. It should be noted that groundwater levels are affected by climatic conditions and soil permeability and will therefore vary with time.

Groundwater levels were gauged on 16 December 2024 using an electronic oil/water interface meter prior to developing the wells and again on 7 January 2025 prior to sampling. The measured water levels prior to sampling are shown in Table 4.

Table 4: Summary of groundwater level measurements on 16 December 2024

Well ID	Location of monitoring well	Surface RL m (AHD)	Date	SWL m (bgl)	SWL m (AHD)
BH1	down-gradient	22.6	16/12/24	3.91	18.69
			07/01/25	3.87	18.83
BH8	down-gradient	22.6	16/12/24	4.38	18.22
			07/01/25	4.09	18.51

Notes:

AHD – Australian Height Datum

SWL – standing water level

bgl – below ground level

Based on the groundwater level measurements and topography, groundwater is inferred to be flowing to the south towards Maroubra Road (Bunnerong Creek, two unnamed creeks and Botany Bay). Douglas notes, however, that three triangulated data points would be needed to properly estimate a flow direction.

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

Physical parameters were measured whilst sampling (where possible) and are summarised in Table 5.

Table 5: Summary of field parameters (groundwater and surface water)

Well / Sample ID	Temp. (°C)	DO (ppm)	TDS (ppm)	EC (µS/cm)	pH	Redox (mV)
BH1	20.7	2.97	848	228.3	5.41	122.5
BH8	20.3	-4.95	337.3	262.1	6.33	-218.1

The dissolved oxygen levels indicated generally anaerobic conditions. The pH was slightly acidic. The electrical conductivity values are typical fresh water. Redox potential (Eh) indicates slightly reducing conditions.

No light non-aqueous phase liquid (LNAPL) was observed whilst sampling.

11.2 Laboratory analytical results

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

- Table 1: Summary of laboratory results of soil analysis;
- Table 2: Preliminary waste classification;
- Table 3: Summary of results of soil vapour analysis; and
- Table 4: Summary of results of water analysis.

The laboratory certificate(s) of analysis together with the chain of custody and sample receipt information are provided in Appendix J.

11.3 Data quality assurance and quality control

The data quality assurance and quality control (QA / QC) results are provided in Appendix K. 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.

12. Discussion

12.1 Soils

The analytical results for all contaminants tested in all samples were below the SAC.

12.2 Preliminary *in-situ* waste classification

The following Table 6 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 virgin excavated natural material (VENM).

Table 6: Six-step classification procedure

Step	Comments	Rationale
1. Is the waste special waste?	No	No asbestos-containing materials (ACM), clinical or related waste, or waste tyres were observed in the test locations; and Asbestos was not detected by the analytical laboratory.
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). The natural soil, if classified as VENM, is pre-classified as general solid waste (non-putrescible).
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.
5. Determining a wastes classification using chemical assessment	Conducted	Refer to Table F2 (appended).
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).

As shown in Appendix H, Table 3, all contaminant concentrations for the analysed soil samples were below the contaminant thresholds (CTIs) for general soil waste, with the exception of lead in sample BH5 / 0.3-0.5 m at a concentration of 150 mg/kg exceeding the CTI criteria of 100 mg/kg.

TCLP tests were conducted for the analytes exceeding the CTI thresholds. The total and TCLP concentrations for nickel were below the specific contamination concentration (SCC1) and TCLP1 thresholds for general solid waste respectively.

Therefore, the fill within the site is preliminary classified as general solid waste (non-putrescible). It is noted that further *in situ* or *ex-situ* investigations including visual and analytical processes are required to confirm the preliminary waste classification of surplus soils, prior to off-site disposal.

12.3 Soil vapour

The analytical results indicated that concentrations of the primary target CoPC (i.e. TRH, BTEX and solvents (e.g. TCE or MEK)) in sub-slab vapour were all below the NEPC (2013) HSL for TRH and BTEX and Tier 1 interim HIL for TCE, PCE and cis-1,2-DCE for commercial / industrial land use.

The fact that detectable concentrations of chlorinated hydrocarbons and BTEX and certain VOC were recorded does suggest that some soil and or groundwater impacts from these contaminants may be present, possibly relating to current and historical site activities, however, the degree of impact is considered likely to be negligible.

The presence of tetrachloroethene (PCE) at concentrations of 2600 ug/m³ at SV1 suggests some impacts, possibly from release of dry-cleaning solvents from nearby drycleaners. The concentration was, however, well below the SAC.

12.4 Groundwater

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

- PFOS at BH1 and BH8 were 0.013 µg/L and 0.015 µg/L respectively which exceeded the HEPA (2018) freshwater and marine water guidelines of 0.00023 µg/L.

The PFOS in groundwater is not, however, considered to be of concern given that there is no known source of PFOS on site and the soil results for PFOS were below the PQL and SAC. The PFOS present in groundwater is likely to be attributed to background levels of PFOS on the general area.

13. Conclusions and recommendations

Based on the results of the DSI, it is considered that the site, from a contamination standpoint, is suitable for the proposed mixed residential / commercial development.

14. References

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). *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.

15. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report (or services) for this project at 138 Maroubra Road, Maroubra NSW in line with Douglas' proposal dated 29 November 2024 and acceptance received from Leigh Manser of Lindsay Bennelong Developments Pty Ltd dated 2 December 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Lindsay Bennelong Developments 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.

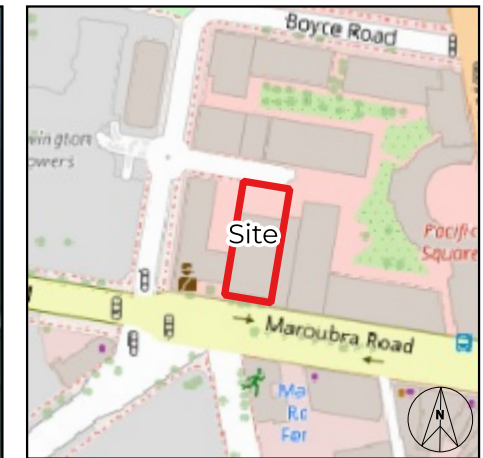
The assessment of atypical safety hazards arising from this advice is restricted to the environmental and groundwater contamination components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, 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 appended 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

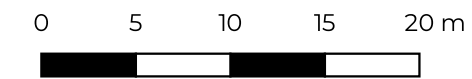


SITE LOCATION

LEGEND

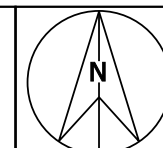
- Site Boundary
- Proposed Test Locations
- ◆ Hand Auger
- ▲ Monitoring Well
- ▼ Soil Vapour

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from metromap dated August 2024



CLIENT: Maroubra Property Developments Pty Ltd	
OFFICE: Sydney	DRAWN BY: HT
SCALE: 1:400 @A3	DATE: 03.February.2025

TITLE: **Proposed Test Locations**
Proposed Mixed Development
138 Maroubra Road, Maroubra NSW



PROJECT:	20854.03
DRAWING No:	1
REVISION:	0

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.

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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

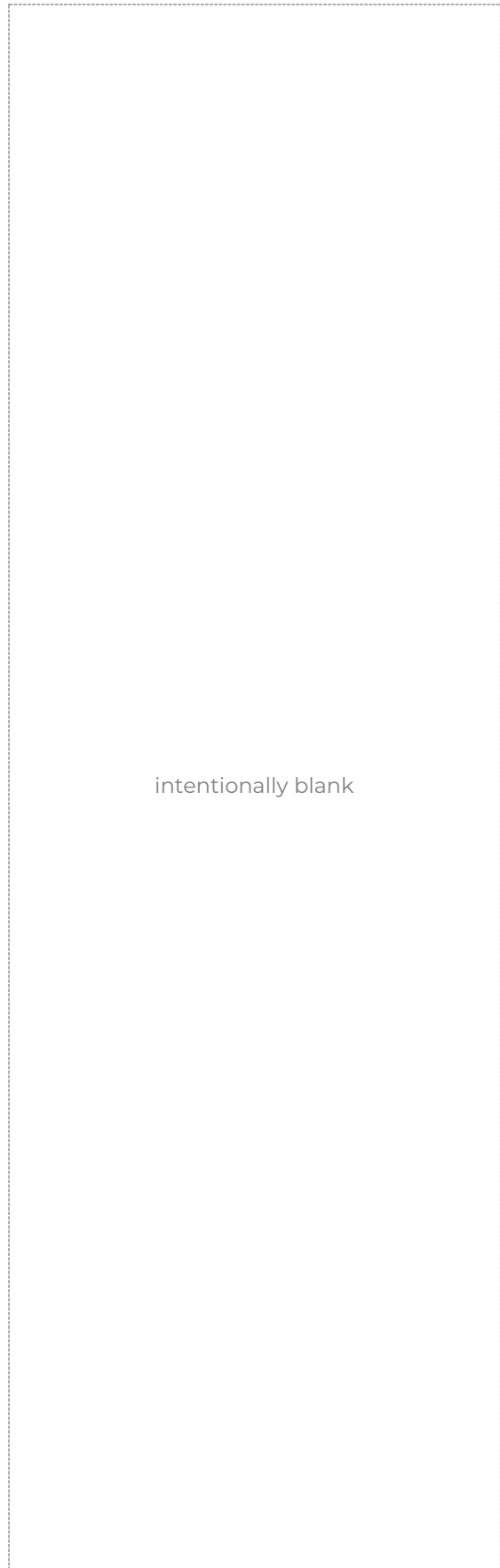
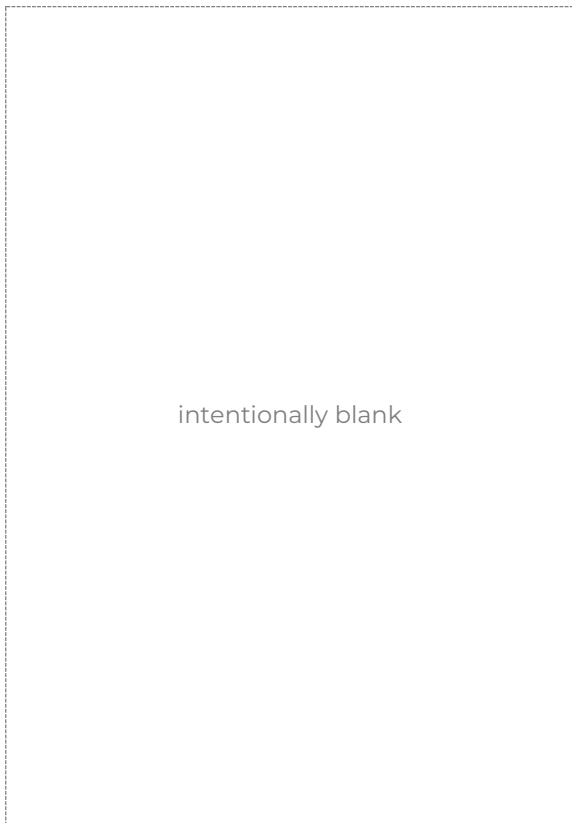
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later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

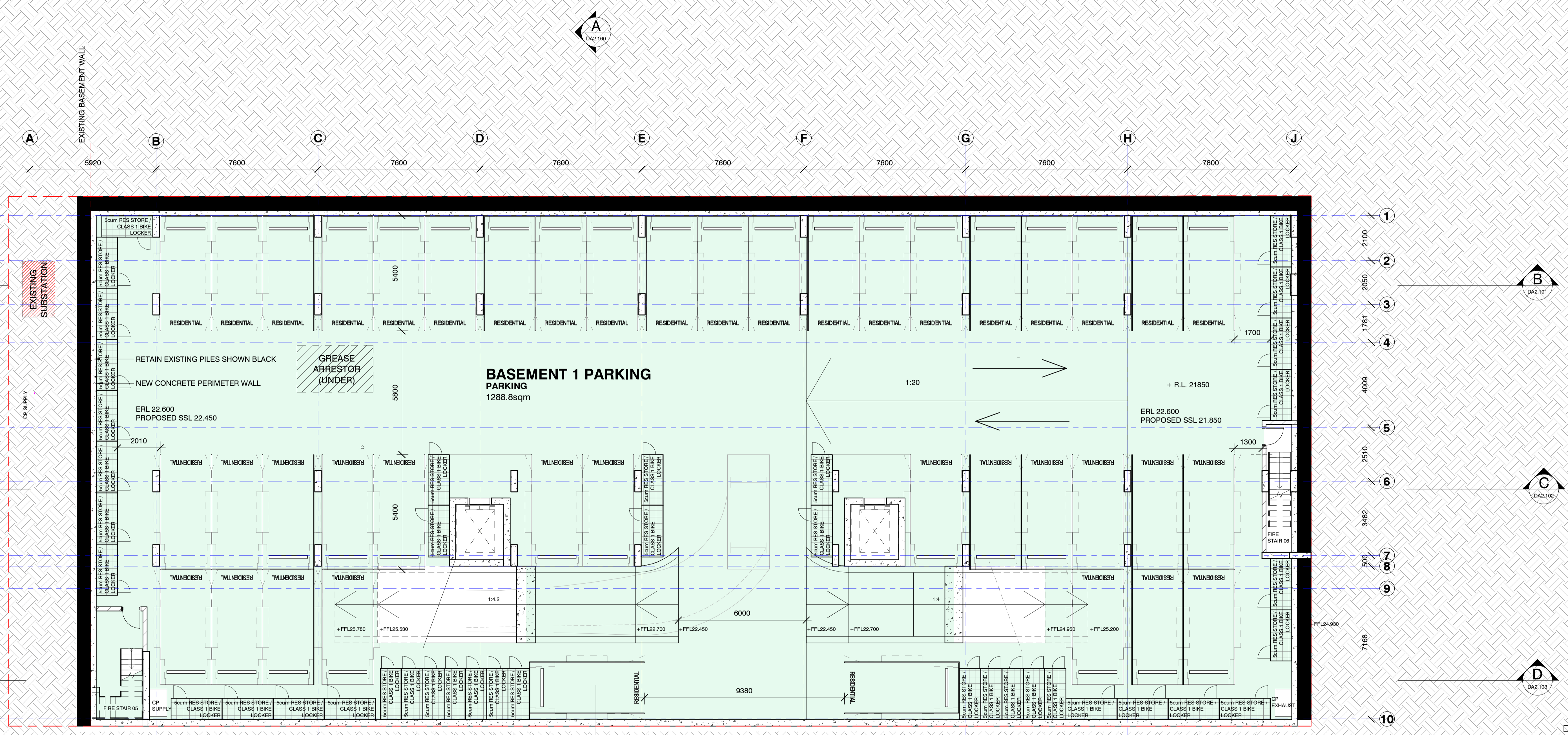
The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



Appendix C

Proposed Development Plan

Basement 1 CARS		
Level	Type	Count
Basement 1	5400 x 2400 RESIDENTIAL	42
Grand total: 42		



ISSUE	DATE	SUBJECT	AUTHORISED
J	03/02/23	ISSUED FOR REVIEW	TP
K	15/02/23	ISSUED FOR DA	TP
L	15/11/23	LEVEL 8 DELETED AND APARTMENTS REPLANNED / WINTERGARDENS ON WEST FACADE	JH
M	29/11/23	AMENDED DA	JH
N	22/02/24	AMENDED DA	ARH
O	21/08/24	ISSUED FOR APPROVAL	ARH
P	19/11/24	ADJUSTED SCHEME INITIAL ISSUE	JH
Q	21/11/24	PARKING LAYOUT ADJUSTED	ARH
R	28/11/24	SCHEME UPDATED	JH
S	11/12/24	SCHEME UPDATED	JH

SERVICES	PLANNER
ENGINEERING PARTNERS www.engineeringpartners.com.au	planning & co. www.planningandco.com

STRUCTURE & CIVIL	LANDSCAPE ARCHITECT
SCP CONSULTING www.scp.com.au	PLACE DESIGN GROUP www.placedesigngroup.com

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PRELIMINARY

PROJECT
Mixed Use Development
138 Maroubra Road, Maroubra

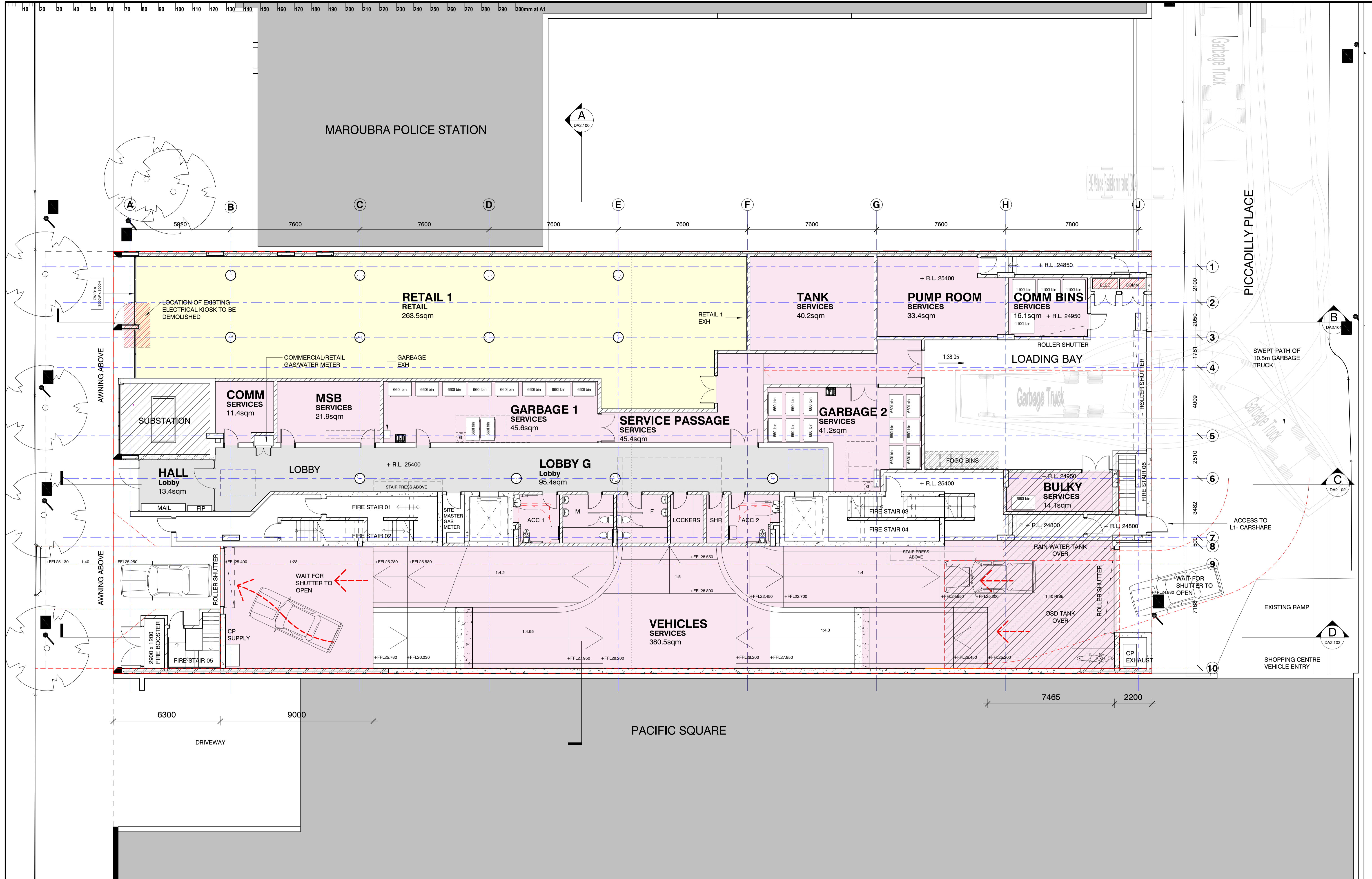
CLIENT
Lindsay Bennelong
21 Solent Circuit,
Baulkham Hills New
South Wales 2153

AUTHORISED FOR ISSUE

DIRECTOR DATE

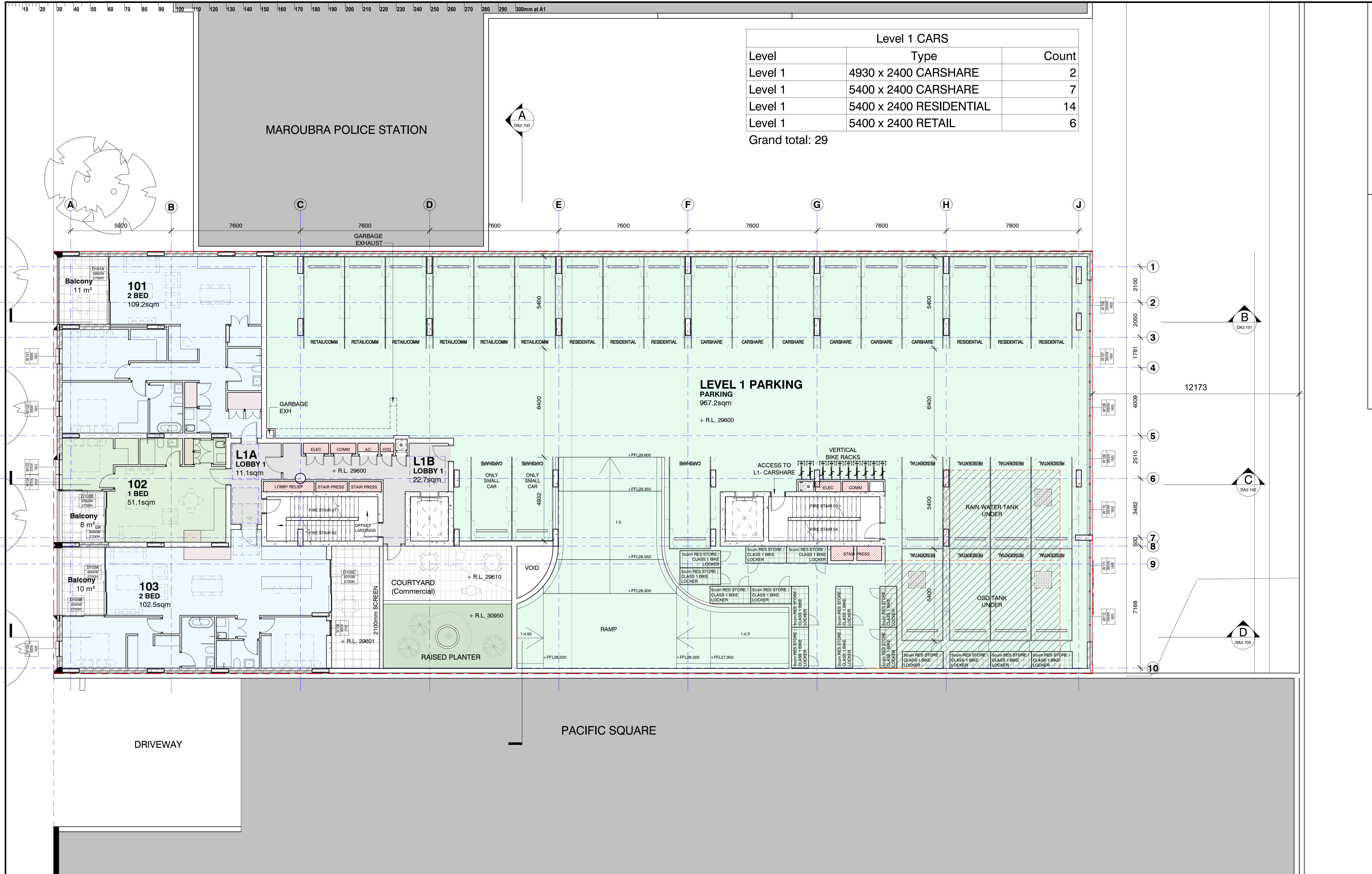
ARCHITECT
djrd architects
T +612 9319 2955
ABN: 49 942 921 969
Nominated Architects:
Andrew Hipwell 6562
Daniel Beekwilder 6192
63 Myrtle Street
Chippendale NSW 2008
Sydney Australia
djrd.com.au

DRAWN BY	SCALE	SHEET SIZE	PRINT DATE
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PROJECT No	DRAWING No	REVISION	
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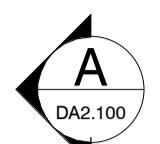
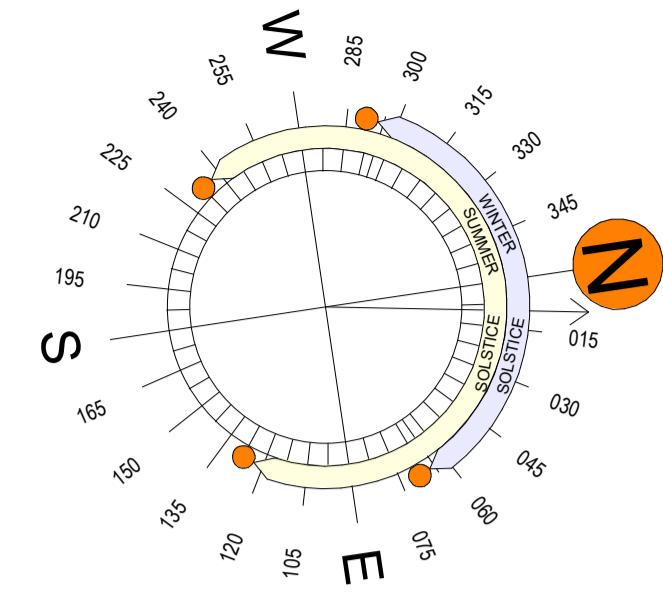
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PRELIMINARY



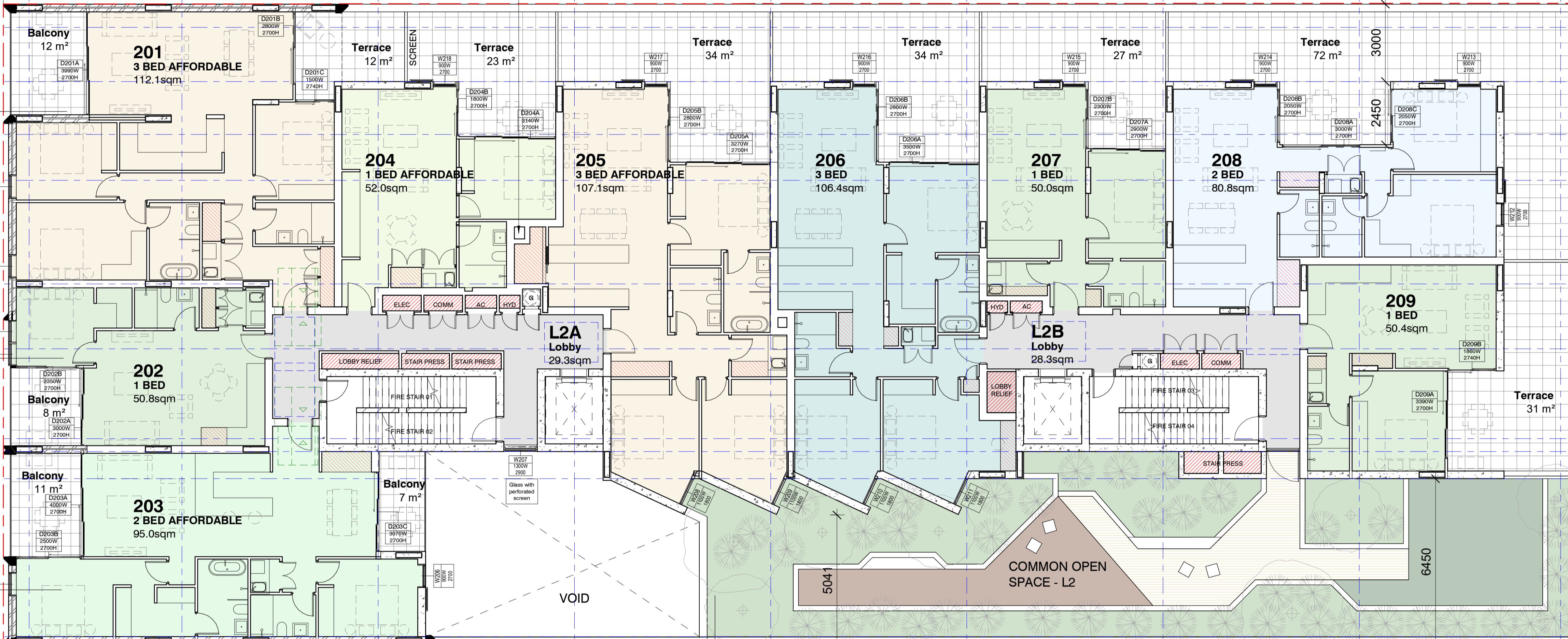
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Level	Type	Count
Level 1	4930 x 2400 CARSHARE	2
Level 1	5400 x 2400 CARSHARE	7
Level 1	5400 x 2400 RESIDENTIAL	14
Level 1	5400 x 2400 RETAIL	6
Grand total:		29

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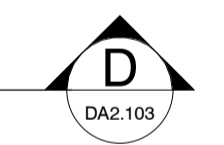
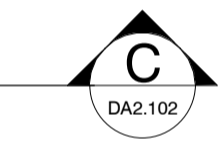
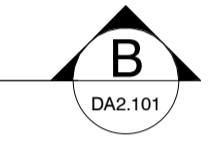


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GARBAGE EXHAUST



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16200

PACIFIC SQUARE

8549

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STRUCTURE & CIVIL	LANDSCAPE ARCHITECT
SCP CONSULTING www.scp.com.au	PLACE DESIGN GROUP www.placedesigngroup.com

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PROJECT
Mixed Use Development
 138 Maroubra Road, Maroubra

CLIENT
Lindsay Bennelong
 21 Solent Circuit, Balukham Hills New South Wales 2153

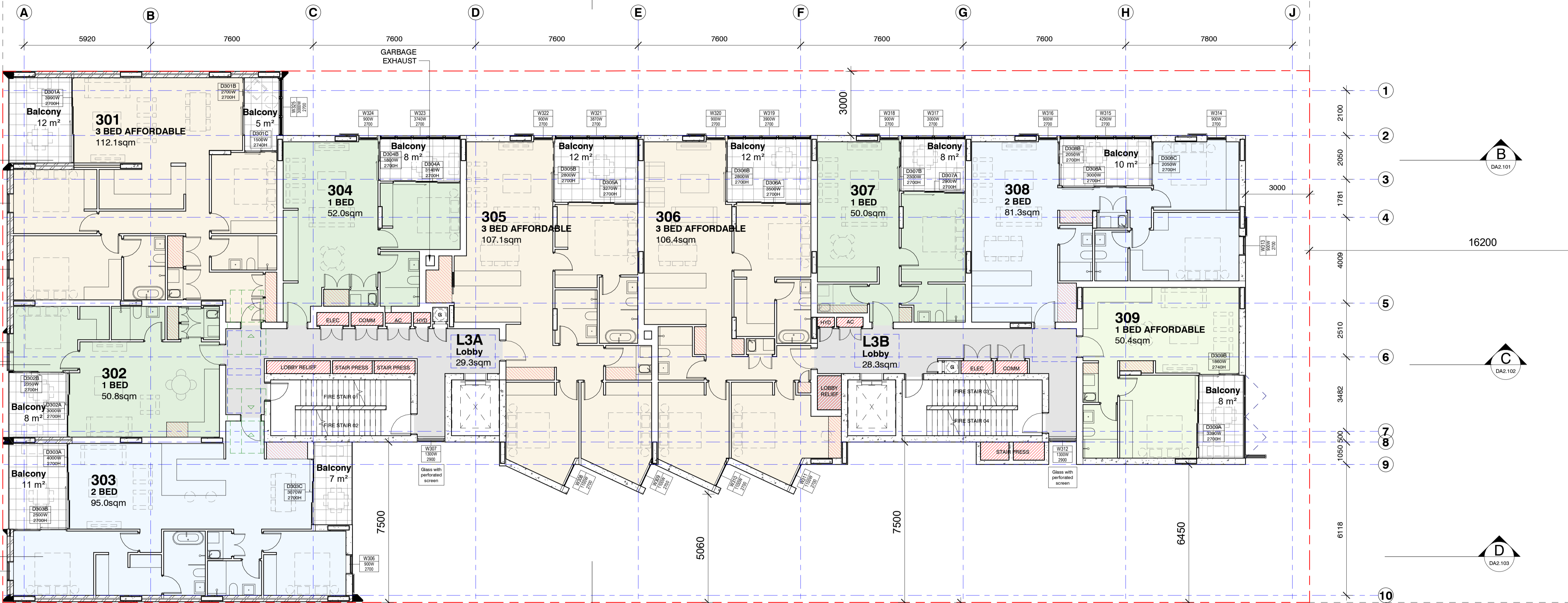
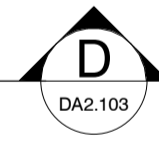
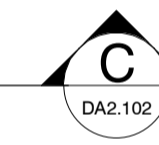
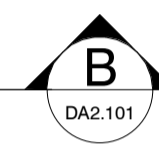
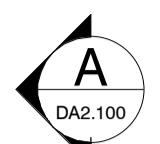
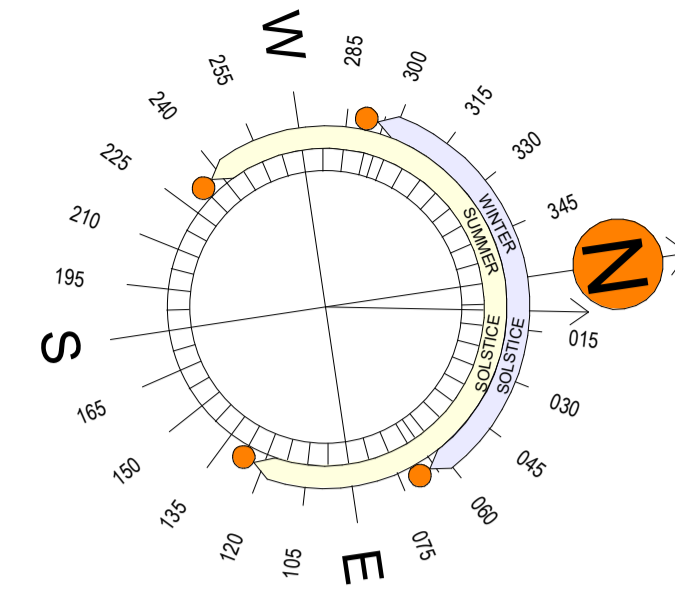
AUTHORISED FOR ISSUE

DIRECTOR DATE

ARCHITECT
djrd architects
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 ABN: 48 942 921 969
 Nominated Architects:
 Andrew Hipwell 6562
 Daniel Beekwilder 6192
 63 Myrtle Street
 Chippendale NSW 2008
 Sydney Australia
 djrd.com.au

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PROJECT No	DRAWING No	REVISION	
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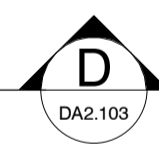
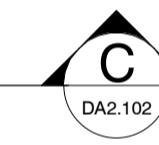
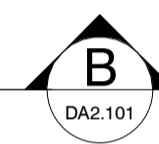
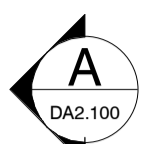
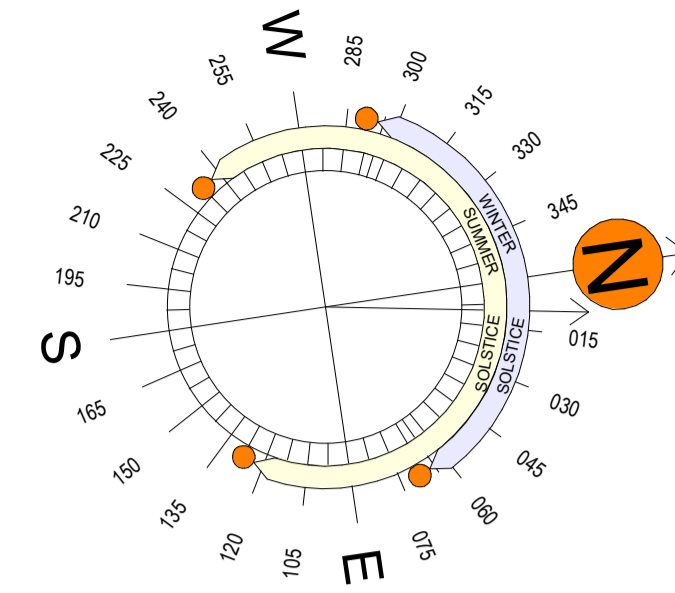
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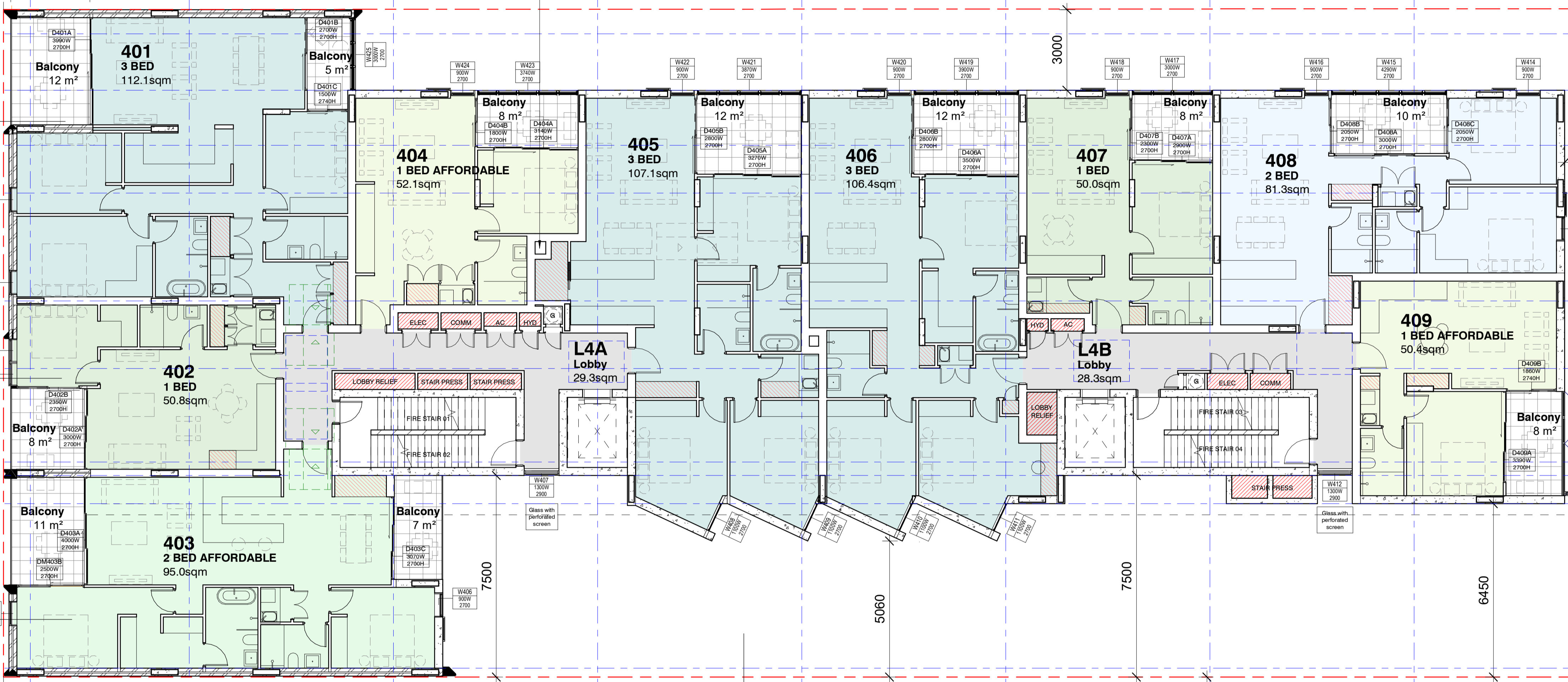
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PROJECT No	DRAWING No	REVISION	
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GARBAGE EXHAUST

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 Balukham Hills New
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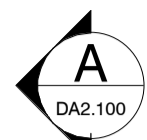
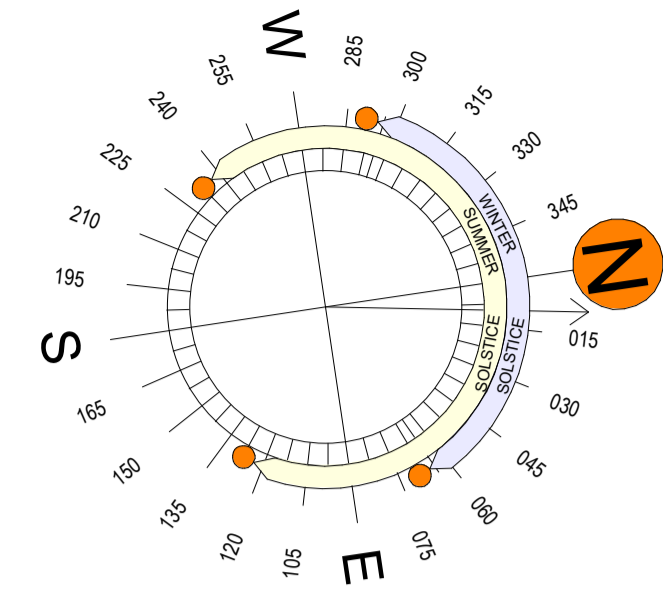
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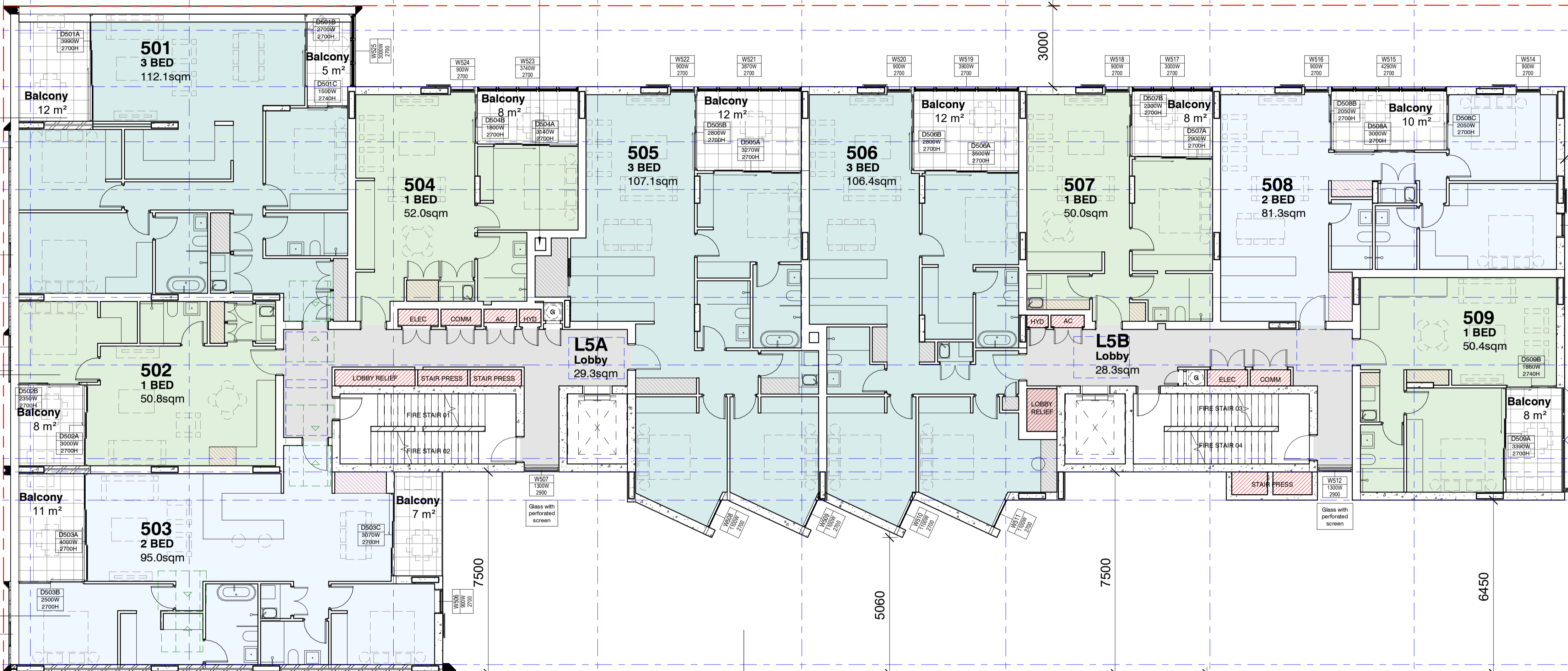
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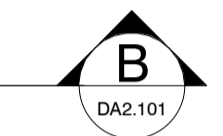
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138 Maroubra Road, Maroubra

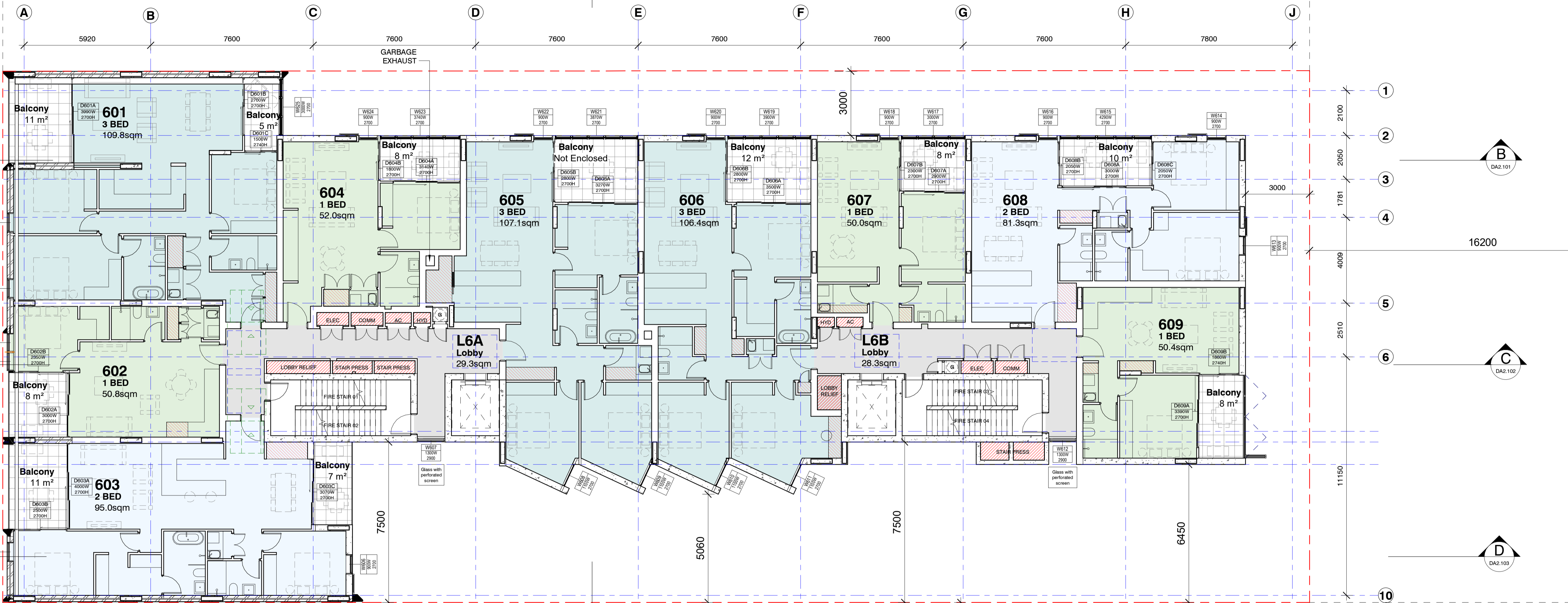
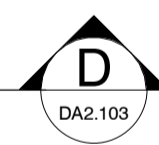
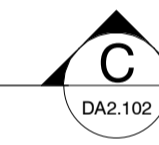
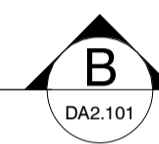
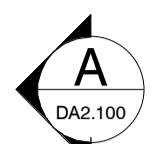
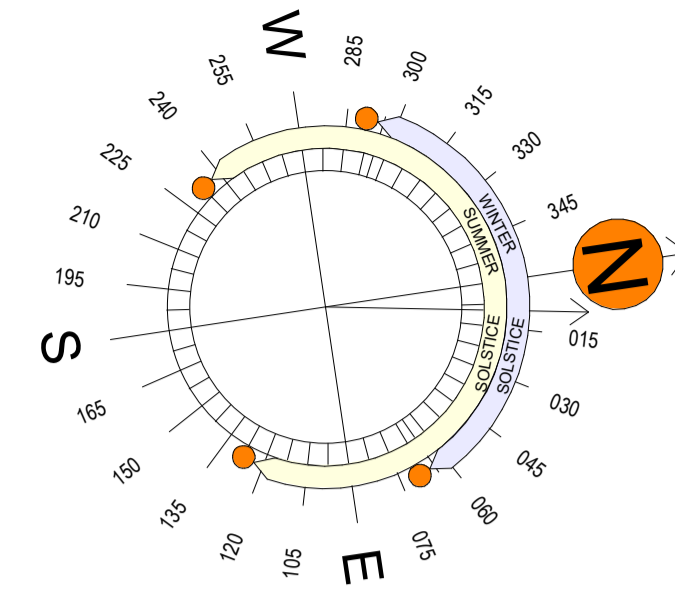
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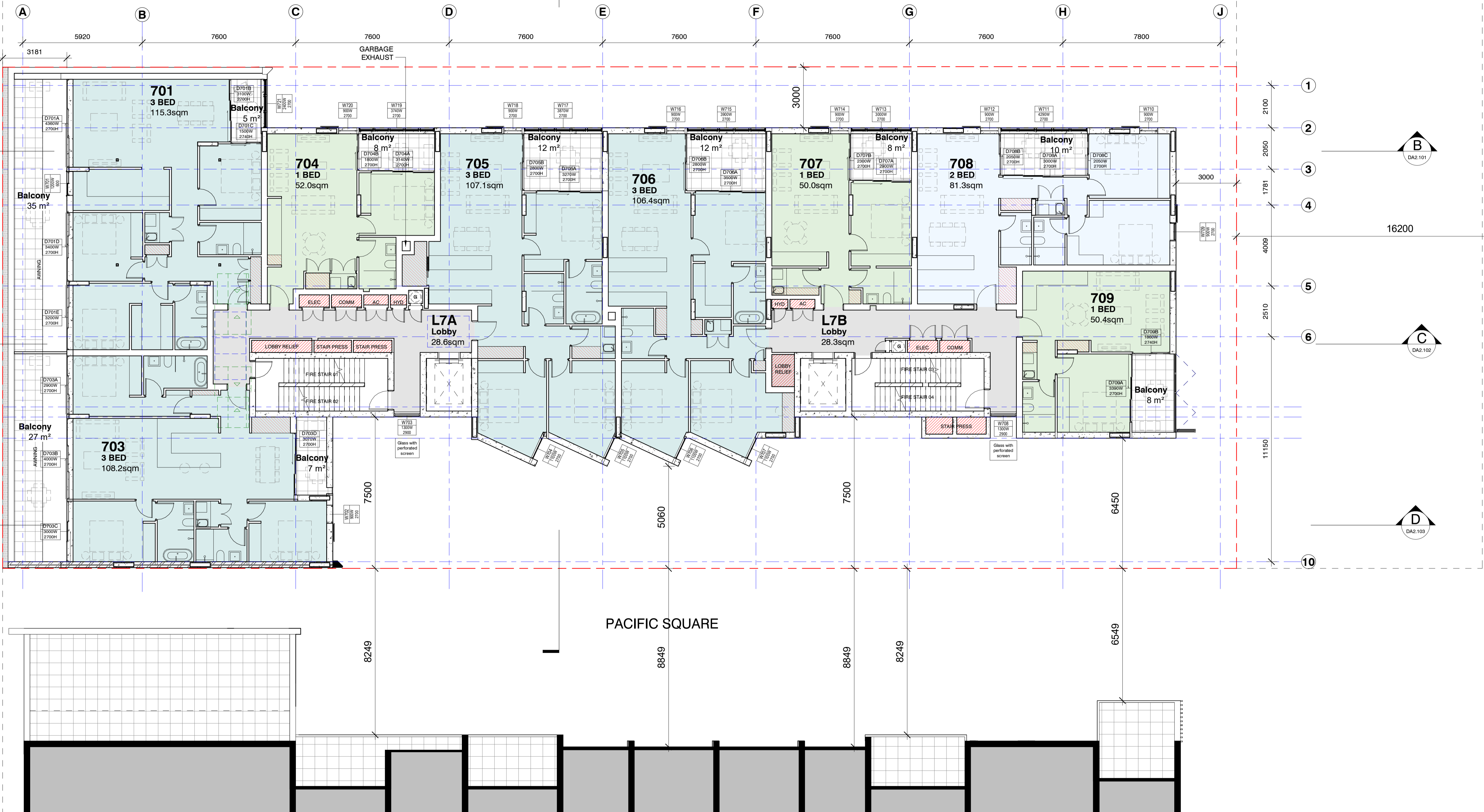
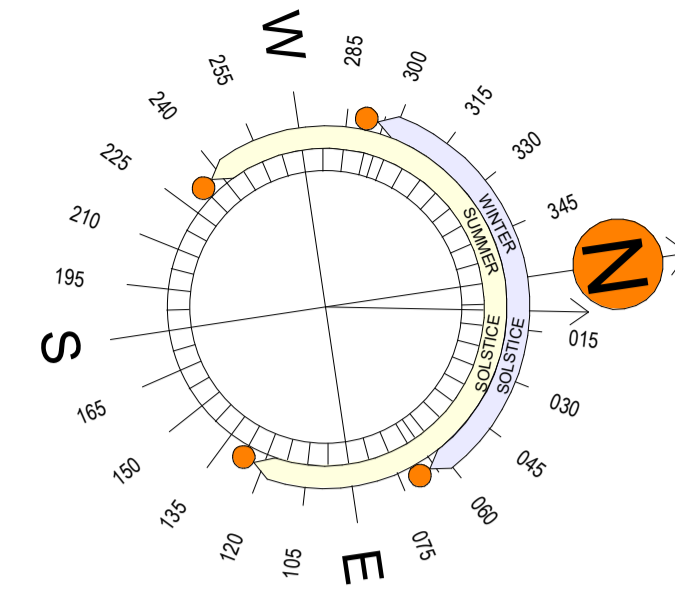
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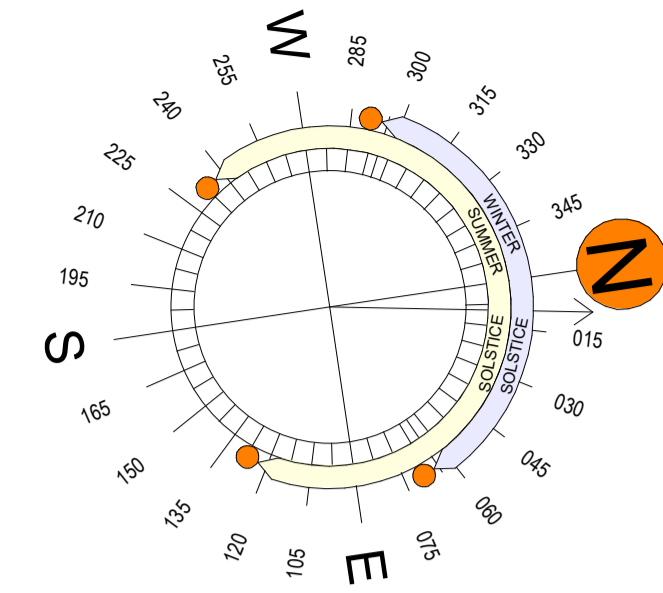
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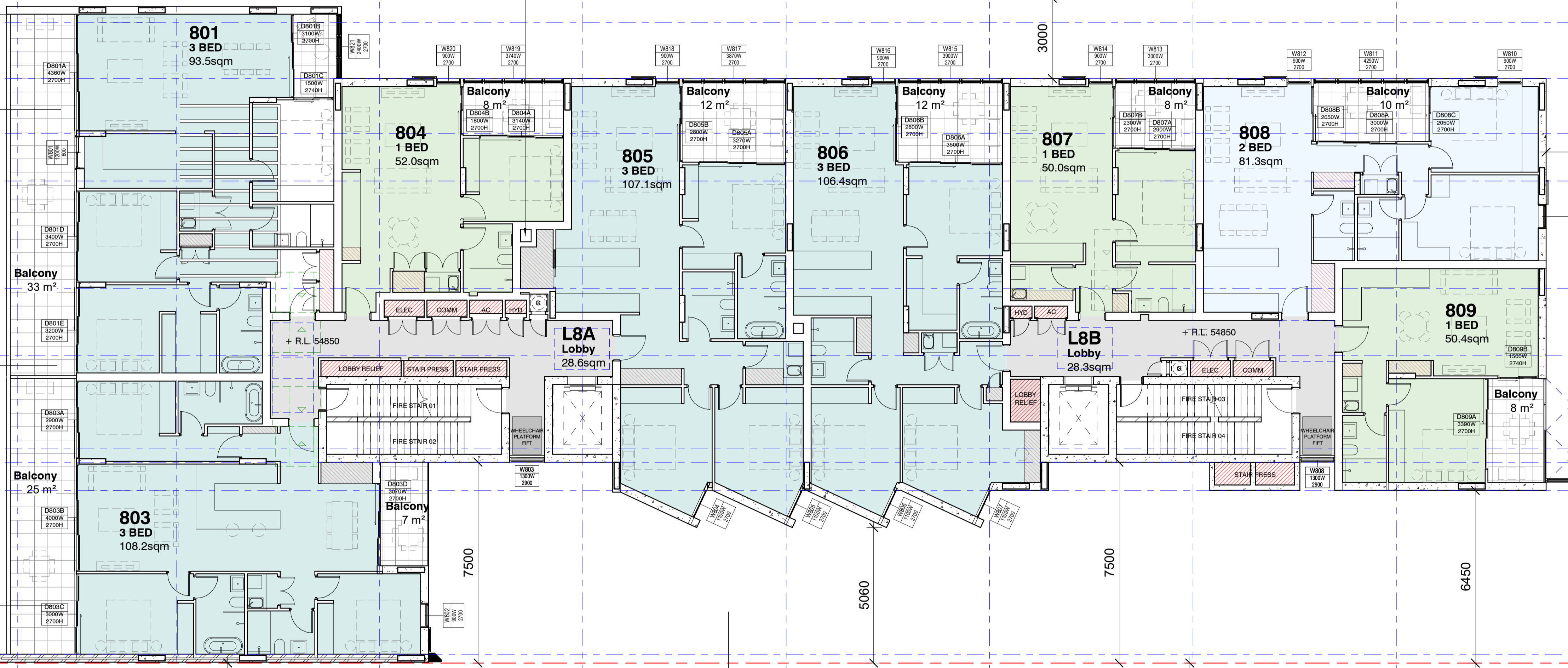
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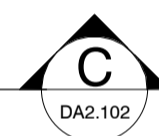


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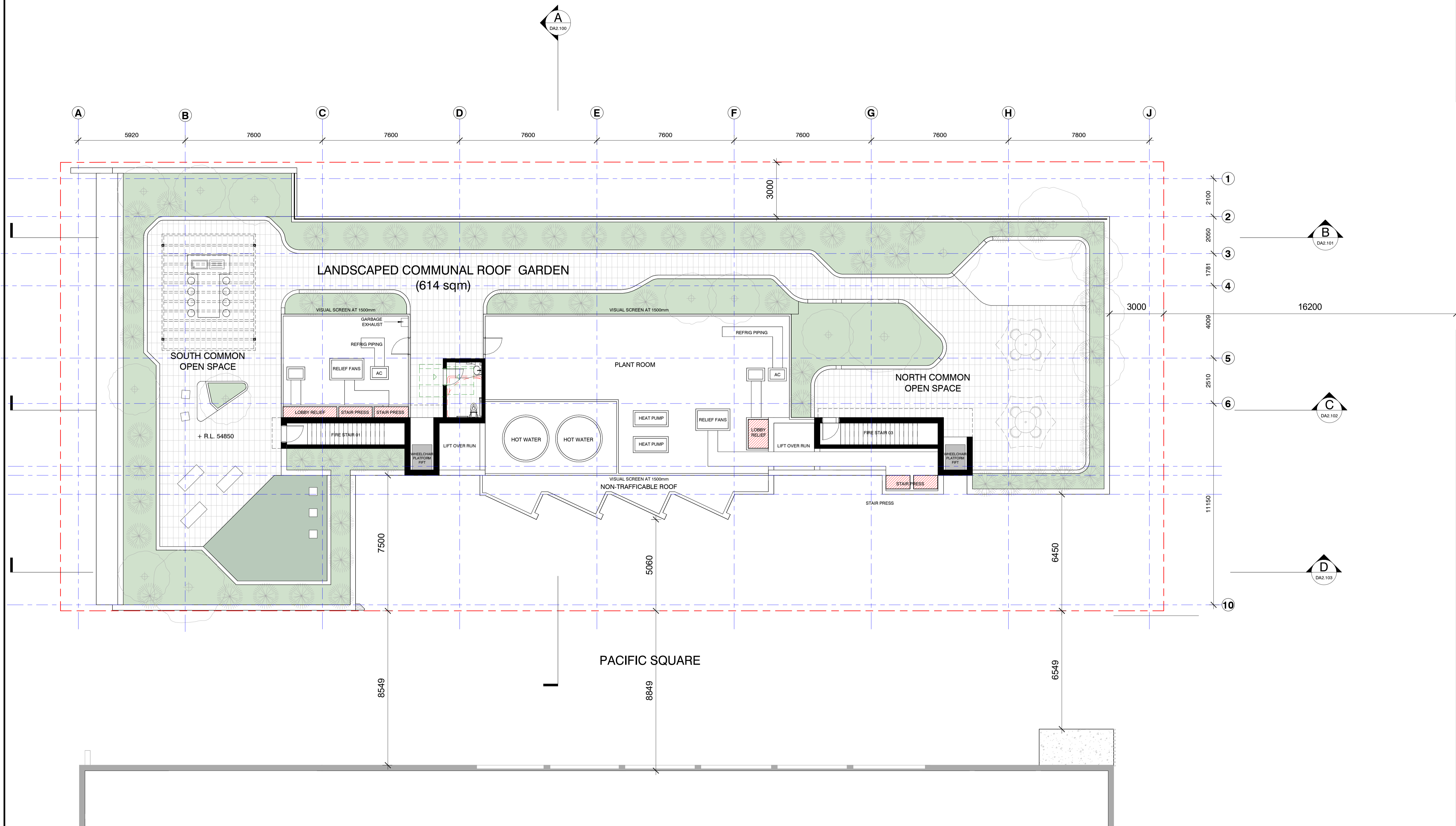
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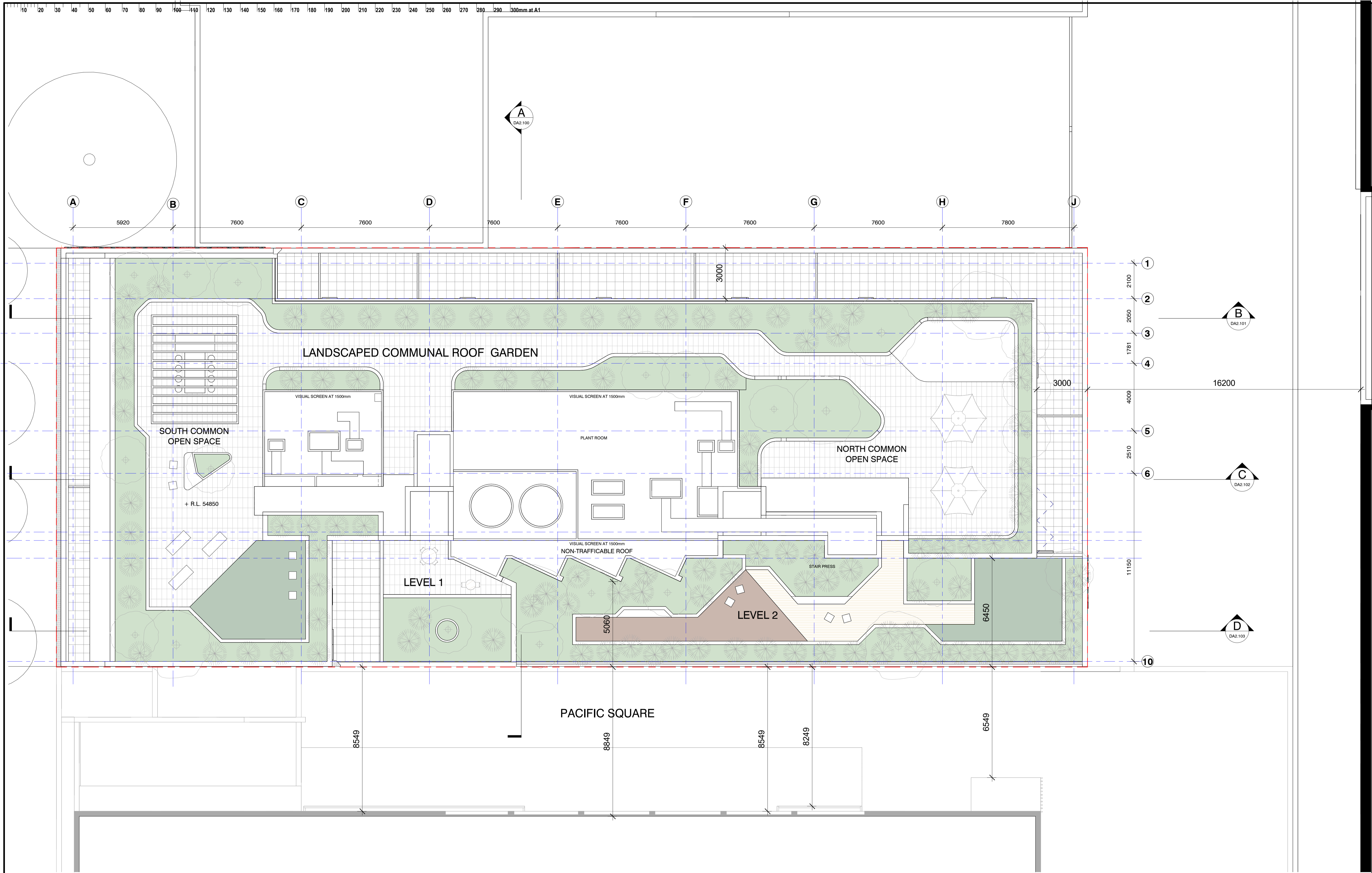
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Appendix D

Data Quality Objectives

1. Data quality objectives

The DSI has been devised broadly in accordance with the seven-step data quality objectives (DQO) process which is provided in Appendix B, Schedule B2 of NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013).

Table 1: Data quality objectives

Step	Summary
1: State the problem	<p>The objective of the investigation is to assess the contamination status of the site with respect to the proposed land use. The report is being undertaken as the site is to be redeveloped and is required to address outstanding contentions from the previous application as noted on the Amended Statement of Facts and Contentions dated 31 July 2024.</p> <p>A preliminary conceptual site model (CSM) has been prepared (Section 7).</p> <p>The project team consisted of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager and field staff.</p>
2: Identify the decisions / goal of the study	<p>The site history has identified possible contaminating previous uses which are identified in the CSM (Section 7). The CSM identifies the associated contaminants of potential concern (CoPC) and the likely impacted media. The site assessment criteria (SAC) for each of the CoPC are detailed in Appendix F.</p> <p>The decision is to establish whether or not the results fall below the SAC or whether or not the 95% upper confidence limit of the sample population falls below the SAC. On this basis, an assessment of the site's suitability from a contamination perspective will be derived and a decision made on whether (or not) further assessment and/or remediation will be required.</p>
3: Identify the information inputs	<p>Inputs will be the analytical results for the CoPC (identified in the CSM, Section 7) from NATA accredited laboratories and methods, where possible. The SAC for each of the CoPC are detailed in Appendix F.</p> <p>A photoionisation detector (PID) will be used on-site to screen soils for VOC. PID readings will be used to inform sample selection for laboratory analysis.</p>
4: Define the study boundaries	<p>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.</p>
5: Develop the analytical approach (or decision rule)	<p>The decision rule is to compare all analytical results with the SAC (Appendix F, based on NEPC (2013)). Where guideline values are absent, other sources of guideline values accepted by NEPC (2013) shall be adopted where possible.</p> <p>Where a sample result exceeds the adopted criterion, a further site-specific assessment will be made as to the risk posed by the presence of that contaminant(s).</p> <p>Initial comparisons will be with individual results then, where required, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site</p>

Step	Summary
	contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. The field and laboratory quality assurance assessment is included in Appendix J.
6: Specify the performance or acceptance criteria	<p>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).</p> <p>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).</p> <p>Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true.</p> <p>Uncertainty that may exist due to the above potential decision errors shall be mitigated as follows:</p> <ul style="list-style-type: none"> • As well as a primary screening exercise, the use of the 95% UCL as per NEPC (2013) may be applied, i.e. 95% is the defined confidence level associated with the UCL on the geometric mean for contaminant data. The resultant 95% UCL shall subsequently be screened against the corresponding SAC; and • The statistical assessment will only be able to be applied to certain data-sets, such as those obtained via systematic sampling. Identification of areas for targeted sampling will be via professional judgement and errors will not be able to have a probability assigned to them.
7: Optimise the design for obtaining data	<p>As the purpose of the investigation is to assess the contamination status of the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas.</p> <p>Further details regarding the proposed sampling plan are presented in Section 8.</p>

2. References

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

Appendix E

Field Work 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); and
- ASTM *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapour Intrusion Evaluations* (ASTM D7663-12, 2018).

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 solid flight auger;
- Collect near surface samples using hand tools;
- 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 ~40 g to 50 g samples in zip-lock bags for asbestos (presence / absence) analysis;
- 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 one soil samples for acid sulfate soils analysis 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 well installation

Vapour pin

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 gas parameters from the soil vapour well, including methane, oxygen and carbon dioxide, on-site using a calibrated landfill gas analyser;
- 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;
- 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 with lockable steel monument set in a concrete plinth.

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 five well volumes, or until dry.

4.3 Groundwater sampling

Peristaltic pump

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.

Sample handling, all methods

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.

Appendix F

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); and
- ANZG *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018).

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: commercial / industrial:
 - 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

Contaminant	HIL-D
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

Table 2: Health screening levels (mg/kg)

Contaminant	HSL-D	
	0 m to <1 m	1 m to <2 m
SAND		
Benzene	3	3
Toluene	NL	NL
Ethylbenzene	NL	NL
Xylenes	230	NL
Naphthalene	NL	NL

Contaminant	HSL-D	HSL-D
TRH F1	260	370
TRH F2	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-D	DC HSL-IMW
Benzene	430	1100
Toluene	99 000	120 000
Ethylbenzene	27 000	85 000
Xylenes	81 000	130 000
Naphthalene	11 000	29 000
TRH F1	26 000	82 000
TRH F2	20 000	62 000
TRH F3	27 000	85 000
TRH F4	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.

Notes: NC no criterion

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
TRH F1	Fine	800
TRH F2	Fine	1000
TRH F3	Fine	5000
TRH F4	Fine	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	IHIL-D
TCE	80
1,1,1-TCA	230 000
PCE	8000
cis-DCE	300
VC	100

Notes: TCE trichloroethene
1,1,1-TCA 1,1,1-trichloroethane
PCE tetrachloroethene
cis-DCE cis-1,2-dichloroethene
VC chloromethane / vinyl chloride

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
SAND	0-1 m
Benzene	4000
Toluene	4 800 000
Ethylbenzene	1 300 000
Xylene Total	840 000
Naphthalene	3000
TRH F1	680 000
TRH F2	500 000

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 (Bunnerong Creek and two unnamed creeks, Botany Bay)	Down-gradient from site.	Receiving surface water body at the groundwater discharge point.	Exposure to contaminants.
Future building occupants	On site and down-gradient from site.	Enclosed buildings (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)	Freshwater 99% LOP for bioaccumulative contaminants 95% LOP for non-bioaccumulative contaminants
Aquatic ecosystem	DGV	HEPA (2020)	Freshwater 99% LOP as recommended for potential bioaccumulation
End users (vapour intrusion)	HSL	NEPC (2013)	4 m to <8 m

Notes: DGV default guideline value
% LOP percentage level of protection of species
HSL health screening level
GV guideline value
LTV long term value (up to 100 years)
STV short term value (up to 20 years)

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	Freshwater DGV 95% LOP	Notes
Metals / metalloids		
Arsenic	24 / 13	Levels provided for As III / As IV respectively. Moderate reliability.
Cadmium	0.2	Very high reliability.
Chromium (VI)	1	Chromium VI levels adopted as initial screen for total chromium. Very high reliability.
Copper	1.4	Very high reliability.
Lead	3.4	Moderate reliability.
Mercury (inorganic)	0.06	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Nickel	11	Low reliability.
Zinc	8	Very high reliability.
BTEX		
Benzene	950	Moderate reliability.
Ethylbenzene	80	Unknown reliability.
m-Xylene	75	Unknown reliability.

Contaminant	Freshwater DGV 95% LOP	Notes
o-xylene	350	Low reliability.
p-Xylene	200	Low 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	16	Low reliability.
Phenanthrene	0.6	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
OCP		
Aldrin	0.001	Unknown reliability and LOP.
Chlordane	0.03	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
DDT	0.006	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Dieldrin	0.01	Unknown reliability and LOP.
Endosulfan	0.03	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Endrin	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Heptachlor	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Methoxychlor	0.005	Unknown reliability and LOP.
OPP		
Chlorpyrifos	0.01	Moderate reliability.
Diazinon	0.01	Moderate reliability.
Dimethoate	0.15	Low reliability.
Fenitrothion	0.2	Moderate reliability.
Malathion	0.05	Moderate reliability.
Parathion	0.004	Moderate reliability.

Contaminant	Freshwater DGV 95% LOP	Notes
PCB		
Aroclor 1242	0.3	99% LOP adopted as recommended due to potential for bioaccumulation. Low reliability.
Aroclor 1254	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate 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
PFOS 99% LOP	0.00023
PFOA 99% LOP	19

4.3 Health screening levels for vapour intrusion

The HSL to evaluate potential vapour intrusion risks derived from NEPC (2013) are in Table 13.

Table 13: Groundwater health screening levels for vapour intrusion (µg/L)

Contaminant	HSL-D	Solubility limit
SAND	4 m to <8 m	-
Benzene	5000	59 000
Toluene	NL	61 000
Ethylbenzene	NL	3900
Xylenes	NL	21 000

Contaminant	HSL-D	Solubility limit
Naphthalene	NL	170
TRH F1	6000	9000
TRH F2	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

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

CRC CARE. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater*. Parts 1 to 3, Technical Report No. 10: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

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.

NHMRC. (2019). *Guidance on Per and Polyfluoroalkyl (PFAS) in Recreational Water*. National Health and Medical Research Council.

Appendix G

Logs and Field Sheets

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 3

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
0.18		FILL / CONCRETE; 10mm aggregate, 2mm voids.		FILL	NA	NA				0.20				
	0.60	FILL / SAND, trace cobbles: yellow-brown; fine to medium; (up to 75mm), concrete cobbles; uniform.		FILL	D				ES	0.30				
	1	SAND: yellow-brown; fine - medium; uniform.												
		0.80m: yellow			VD				ES	0.80				
		1.50m: brown				M			D	1.00				
	2								ES	1.20				
									D	1.50				
									ES	1.60				
									D	1.80				
	2								D	2.00				
	3													
	4													
	5				AEO									
	6					ND								
	7													
	8													
	9													

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: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS:

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

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 2 of 3

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
	11	[CONT] SAND: yellow-brown; fine - medium; uniform.		AEO	ND	ND				11				
	11.80	Continued as rock								12				
	12									13				
	13									14				
	14									15				
	15									16				
	16									17				
	17									18				
	18									19				
	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.

PLANT: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS:

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 3 of 3

CONDITIONS ENCOUNTERED										SAMPLE			TESTING					
GROUNDWATER	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
RL (m)				RS XW HW SW FR		VL L M H VH EH												
	11					NA	-	-						11				
	12	Continued from soil SANDSTONE: orange-brown, fine to medium grained, indistinct, bedded		HW	11.80		100	48						12				
				ND	12.24													
	13	13.00m: grey		MW	12.40	L to VL	90	70						13				
				SW	13.50	L												
	14				13.70									14				
				FR	14.00													
	15				15.50	M	100	91						15				
					15.60	L												
	16					M	100	95						16				
	17	Borehole discontinued at 16.95m depth.																
	18																	
	19																	

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

PLANT: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS:

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 20854.04
DATE: 09/12/24
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
09/12/24	0.30		Concrete slab	[Graphic: Concrete slab]										
	0.40	0.30 - 0.40	FILL / SAND, with gravel: yellow-beige mottled yellow beige, dark brown and orange; fine to medium; sandstone gravel.	[Graphic: Mottled fill]	FILL						ES	0.30 - 0.50	PID	<1ppm
	1	0.40 - 1.00	FILL / SAND, with gravel: yellow-beige; fine to medium; sandstone gravel; Possibly reworked sand.	[Graphic: Cross-hatched fill]	FILL	ND		D			ES	1.00 - 1.20	PID	<1ppm
	1.50	1.20 - 1.50	FILL / SAND, trace gravel: dark brown; fine to medium; sandstone gravel.	[Graphic: Dotted fill]	FILL						ES	1.60 - 1.80	PID	<1ppm
	1.60	1.50 - 1.60	SAND (SP); yellow-orange brown.	[Graphic: Stippled sand]	AEO									
	2	2.00	Borehole discontinued at 2.00m depth. Target depth reached.											
	3													
	4													
	5													
	6													
	7													
	8													
	9													

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: _____







Generated with CORE-GS by Ceroc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 20854.04
DATE: 09/12/24
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
08/01/25	0.30	Concrete												
	0.40	FILL / SAND: beige-brown; fine to medium.		FILL						ES	0.30 - 0.40	0.30	PID	<1ppm
	1	FILL / SAND, trace brick: yellow-beige; fine to medium; Possibly reworked sand.		FILL		ND		D		ES	0.40 - 1.00	0.50	PID	<1ppm
	1.20	SAND (SP): beige-brown and yellow-beige; fine to medium.		AEO						ES	1.00 - 1.20	1.30	PID	<1ppm
	2	Borehole discontinued at 2.00m depth. Target depth reached.												
	3													
	4													
	5													
	6													
	7													
	8													
	9													

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: _____



Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geoc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 20854.04
DATE: 09/12/24
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
02/01/25	0.30	Concrete												
	0.80	FILL / SAND, trace boulders: brown; fine to medium; sandstone boulders.		FILL		ND		D		ES	0.30 0.50	PID	<1ppm	
	1	SAND (SP): yellow-beige; fine to medium.		AEO						ES	0.80 1.10	PID	<1ppm	
		Borehole discontinued at 1.30m depth. Target depth reached.												
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													

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:
METHOD: Hand auger
REMARKS:

OPERATOR:




LOGGED: JH
CASING: Uncased

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH5
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	Concrete												
	0.50	FILL / SAND, trace glass: beige-brown mottled beige; fine to medium; Possibly reworked sand.		FILL	ND	D				ES	0.30 - 0.50		PID	<1ppm
	1.00									ES	0.50 - 1.00		PID	<1ppm
	1.20									ES	1.00 - 1.20		PID	<1ppm
	1.50									ES	1.20 - 1.50		PID	<1ppm
	1.70													
	1.90	FILL / SAND: dark brown; fine to medium.		FILL										
	2.00	Borehole discontinued at 2.00m depth. Target depth reached.												
	3													
	4													
	5													
	6													
	7													
	8													
	9													

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:
METHOD: Hand auger
REMARKS:

OPERATOR:



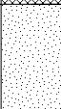
LOGGED: JH
CASING: Uncased

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH6
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	Concrete										
	0.30 - 0.50	FILL / SAND, trace glass: dark brown; fine to medium.		FILL	ND	D		* ES	0.30 - 0.50	PID	<1ppm	
	0.50 - 1.00							ES	0.80 - 1.00	PID	<1ppm	
	1.00 - 1.10	SAND (SP); yellow-beige; fine to medium.		AEO				ES	1.40 - 1.60	PID	<1ppm	
	1.80	Borehole discontinued at 1.80m depth. Target depth reached.										
	2.00											
	3.00											
	4.00											
	5.00											
	6.00											
	7.00											
	8.00											
	9.00											

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:
METHOD: Hand auger
REMARKS: *Replicate sample BH1/20241209 taken from 0.3-0.5

OPERATOR:
CASING: Uncased

LOGGED: JH

Generated with CORE-GS by Geoc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH7
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	Concrete										0.30	PID	<1ppm
	1	FILL / SAND: beige-yellow mottled dark brown; fine to medium.		FILL		ND		D		ES	0.30 0.50	PID	<1ppm	
										ES	0.80 1.00	PID	<1ppm	
										ES	1.50 1.70	PID	<1ppm	
	2	Borehole discontinued at 1.80m depth. Target depth reached.												
	3													
	4													
	5													
	6													
	7													
	8													
	9													

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:
METHOD: Hand auger
REMARKS:

OPERATOR:

LOGGED: JH
CASING: Uncased

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED										SAMPLE		TESTING							
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL		ROCK						SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
				ORIGIN (#)	CONSIS. (°) DENSITY (°)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD								
0.13		CONCRETE; 10 - 15 mm aggregate. SAND: yellow-brown; fine to medium; uniform.		NA	NA														
	0.30			D									ES	0.30 - 0.50					
	0.50												ES	0.50 - 0.80					
	0.80			VD	M								D/ES	0.80 - 1.20					
	1.20																		
	1.80												D/ES	1.80 - 2.00					
	2.00																		
	3.00			AEO															
	4.00																		
	5.00																		
	6.00				NDF														
	7.00																		
	8.00																		
	9.00																		

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: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.2m

CASING: HQ to 10.7m

REMARKS:

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8a
PROJECT No: 20854.04
DATE: 11/12/24
SHEET: 1 of 1

GROUNDWATER	CONDITIONS ENCOUNTERED											SAMPLE			TESTING					
	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL			ROCK					SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
					ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)								
	0.12	0.70	CONCRETE; 10 - 15 mm aggregate. FILL / SAND, trace gravel: yellow-brown; fine to medium; medium, sub-angular, Concrete gravel; uniform.		NA	MD	NA													
	1	2.00	SAND: yellow-brown to grey-brown; fine to medium; uniform.			D	M							D	0.80 - 1.00					
	2.30	3	SAND, trace rootlets: dark brown; fine - medium; uniform. SAND: yellow-brown; fine to medium; uniform.											D	1.90 - 2.00					
	4	5					ND							D	2.80 - 3.00					
	6	7					ND													
	8	9					ND													
			Borehole discontinued at 5.20m depth.																	

NOTES: ¹Soil origin is "probable" unless otherwise stated. ²Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commacchio 205
METHOD: HA to 3m, then WB to 5.2m
REMARKS: Refusal on possible service

OPERATOR: GT (JJ)

LOGGED: JDS
CASING: HQ to 5m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 3

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
	0.18	FILL / CONCRETE; 10mm aggregate, 2mm voids.		FILL	NA	NA				0.20		<div style="border: 1px solid red; padding: 2px; display: inline-block;">Set the increment (eg: 0.10 0.15m) in the DCP_Setup t...</div>	Bentonite	
	0.60	FILL / SAND, trace cobbles: yellow-brown; fine to medium; (up to 75mm), concrete cobbles; uniform.		FILL	D			ES	0.20-0.30	0.30				
	1	SAND (SP): yellow-brown; fine to medium; uniform.								0.80				
		0.80m: becoming yellow						ES	0.80-1.00	1.00				
		1.50m: becoming brown			VD			D	1.00-1.20	1.20				
	2							ES	1.20-1.50	1.50				
								D	1.50-1.60	1.60				
								ES	1.60-1.80	1.80				
								D	1.80-2.00	2.00				
	3									3				
	4									4				
	5			AEO						5				
	6				ND	ND				6				
	7									7				
	8									8				
	9									9				

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: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS:

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

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 2 of 3

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS					
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%) DENSITY. (g)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	11	[CONT] SAND (SP): yellow-brown; fine to medium; uniform.	█	AEO	ND	ND				11			█	
	11.80	Continued as rock								12				
	12									13				
	13									14				
	14									15				
	15									16				
	16									17				
	17									18				
	18									19				
	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.

PLANT: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: JDS

METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS:

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 3 of 3

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	DW														
	11							NA	-	-											
	12	Continued from soil SANDSTONE: orange-brown, fine to medium grained, indistinct, bedded. [Unit Hawkesbury Sandstone]																			
	13	13.00m: becoming grey						L to VL													
	14							L													
	15							M	100	91											
	16							M	100	95											
	17	Borehole discontinued at 16.95m depth.																			

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

PLANT: Commacchio 205
METHOD: HA to 2m, then WB to 11.9m, then NMLC to 16.95m
REMARKS:

OPERATOR: GT (JJ)

LOGGED: JDS
CASING: HQ to 11.9m

Refer to explanatory notes for symbol and abbreviation definitions






BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

GROUNDWATER		CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS				
		RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%)	DENSITY (g/cm³)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE
09/12/24	0.30	Concrete slab												
	0.50	FILL / SAND, with gravel: pale yellow, dark brown and orange; fine to medium; sandstone gravel.		FILL	ND	D				ES	0.30 - 0.50		PID	<1ppm
	1.20									ES	1.00 - 1.20		PID	<1ppm
	1.60	SAND (SP): yellow-orange brown.		AEO						ES	1.60 - 1.80		PID	<1ppm
	2.00	Borehole discontinued at 2.00m depth. Target depth reached.												
	3.00													
	4.00													
	5.00													
	6.00													
	7.00													
	8.00													
	9.00													

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:
METHOD: Hand auger
REMARKS:

OPERATOR:

LOGGED: JH
CASING: Uncased

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 20854.04
DATE: 09/12/24
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
08/01/25		0.30	Concrete slab	CONCRETE										
		0.40	FILL / SAND: yellow brown; fine to medium.	FILL	FILL					ES	0.30 - 0.40	0.30	PID	<1ppm
		1.00	FILL / SAND, trace brick: pale yellow; fine to medium; Possibly reworked sand.	FILL	FILL					ES	0.40 - 1.00	0.50	PID	<1ppm
		1.20	SAND (SP): pale yellow and pale brown; fine to medium.	SAND	AEO		ND	D		ES	1.00 - 1.20	1.00	PID	<1ppm
	2.00	Borehole discontinued at 2.00m depth. Target depth reached.												
	3.00													
	4.00													
	5.00													
	6.00													
	7.00													
	8.00													
	9.00													

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: _____



Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geoc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 20854.04
DATE: 09/12/24
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
02/01/25	0.30	Concrete slab		[Concrete Pattern]										
	0.80	FILL / SAND, trace boulders: brown; fine to medium; sandstone boulders.		[Fill Pattern]	FILL	ND	D			ES	0.30 - 0.50	PID	<1ppm	
	1.00	SAND (SP); pale yellow; fine to medium.		[Sand Pattern]	AEO					ES	0.50 - 0.80	PID	<1ppm	
	1.10									ES	0.80 - 1.10	PID	<1ppm	
	1.30	Borehole discontinued at 1.30m depth. Target depth reached.												
	2.00													
	3.00													
	4.00													
	5.00													
	6.00													
	7.00													
	8.00													
	9.00													

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: _____



Refer to explanatory notes for symbol and abbreviation definitions






Generated with CORE-GS by Geoc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH5
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	Concrete slab												
	0.30 - 0.50	FILL / SAND, trace glass: pale yellow and pale brown; fine to medium; Possibly reworked sand.								ES	0.30 - 0.50		PID	<1ppm
	1.00 - 1.20			FILL		ND		D		ES	1.00 - 1.20		PID	<1ppm
	1.50 - 1.70			FILL						ES	1.50 - 1.70		PID	<1ppm
	1.90	FILL / SAND: dark brown; fine to medium.		FILL										
	2.00	Borehole discontinued at 2.00m depth. Target depth reached.												
	3.00													
	4.00													
	5.00													
	6.00													
	7.00													
	8.00													
	9.00													

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: _____



Generated with CORE-GS by Geroc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH6
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	Concrete slab	Concrete slab									
	0.30 - 0.50	FILL / SAND, trace glass: dark brown; fine to medium.	FILL	FILL	ND	D		* ES	0.30 - 0.50	PID	<1ppm	
	0.50 - 1.00							ES	0.80 - 1.00	PID	<1ppm	
	1.00 - 1.10	SAND (SP); pale yellow; fine to medium.	AEO	AEO				ES	1.40 - 1.60	PID	<1ppm	
	1.80	Borehole discontinued at 1.80m depth. Target depth reached.										
	2.00											
	3.00											
	4.00											
	5.00											
	6.00											
	7.00											
	8.00											
	9.00											

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: _____ **OPERATOR:** _____ **LOGGED:** JH
METHOD: Hand auger **CASING:** Uncased
REMARKS: *Replicate sample BH1/20241209 taken from 0.3-0.5



Generated with CORE-GS by Geoc - Soil Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH7
PROJECT No: 20854.04
DATE: 09/12/24
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
10/01/25	0.30	0.30 1 2 3 4 5 6 7 8 9	Concrete slab	CONCRETE										
	0.50		FILL / SAND: pale yellow mottled dark brown; fine to medium.	FILL	FILL	ND	D			ES	0.30 - 0.50	PID	<1ppm	
	1.00									ES	0.50 - 1.00	PID	<1ppm	
	1.70									ES	1.00 - 1.70	PID	<1ppm	
	2	Borehole discontinued at 1.80m 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:

OPERATOR:

LOGGED: JH

METHOD: Hand auger

CASING: Uncased

REMARKS:

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED										SAMPLE		TESTING							
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL		ROCK						SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
				ORIGIN (#)	CONSIS. (°) DENSITY (°)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD								
0.13		CONCRETE; 10 - 15 mm aggregate. SAND: yellow-brown; fine to medium.		NA	NA														
	1			D									ES	0.30 - 0.50		5			
	1			VD	M								ES	0.50 - 0.80		10			
	1			VD	M								D/ES	0.80 - 1.20		22			
	2												D/ES	1.20 - 1.80					
	2													1.80 - 2.00					
	3																		
	4																		
	5			AEO															
	6				NDF														
	7																		
	8																		
	9																		

NOTES: ¹Soil origin is "probable" unless otherwise stated. ²Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commacchio 205 **OPERATOR:** GT (JJ) **LOGGED:** JDS
METHOD: HA to 2m, then WB to 11.2m **CASING:** HQ to 10.7m
REMARKS:

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL:
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8a
PROJECT No: 20854.04
DATE: 11/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING						
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL		WEATH.	ROCK					SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
				ORIGIN (#)	CONSIS. (V) DENSITY (V)		MOISTURE	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD								
	0.12	CONCRETE; 10 - 15 mm aggregate.		NA	NA														
	0.70	FILL / SAND, trace gravel: yellow-brown; fine to medium; medium, sub-angular, Concrete gravel.		FILL	MD														
	1	SAND: yellow-brown to grey-brown; fine to medium.			D	M													
	2.00	SAND, trace rootlets: dark brown; fine to medium.		TS															
	2.30	SAND: yellow-brown; fine to medium.																	
	3																		
	4			ND															
	5																		
	6	Borehole discontinued at 5.20m depth.																	
	7																		
	8																		
	9																		

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

PLANT: Commacchio 205 **OPERATOR:** GT (JJ) **LOGGED:** JDS
METHOD: HA to 3m, then WB to 5.2m **CASING:** HQ to 5m
REMARKS: Refusal on possible service



Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 3

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
RL (m)	0.18	CONCRETE SLAB.			NA		NA								
	0.60	FILL / SAND, trace concrete fragments to 75mm: yellow-brown; fine to medium.		FILL	VC				ES	0.20 - 0.30					
	1.00	SAND (SP): yellow-brown; fine to medium.					M		ES	0.80 - 1.00					
	2.00	0.80m: becoming yellow 1.50m: becoming brown					MD to D		D	1.00 - 1.20					
	3.00								ES	1.50 - 1.60					
	4.00								D	1.80 - 2.00					
	5.00														
	6.00			AEO											
	7.00														
	8.00				ND		NDF								
	9.00														

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: Commacchio 205 Rig

OPERATOR: GT (JJ)

LOGGED: J. Sullivan

METHOD: DT to 0.18m, HA to 2m, WB to 11.9m, NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 2 of 3

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
	11.80	[CONT] SAND (SP): yellow-brown; fine to medium.	[Symbol]	AEO	ND	NDF				11			[Symbol]	[Symbol]
	12	Continued as rock								12			[Symbol]	[Symbol]
	13									13			[Symbol]	[Symbol]
	14									14			[Symbol]	[Symbol]
	15									15			[Symbol]	[Symbol]
	16									16			[Symbol]	[Symbol]
	17									17			[Symbol]	[Symbol]
	18									18			[Symbol]	[Symbol]
	19									19			[Symbol]	[Symbol]

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: Commacchio 205 Rig **OPERATOR:** GT (JJ) **LOGGED:** J. Sullivan
METHOD: DT to 0.18m, HA to 2m, WB to 11.9m, NMLC to 16.95m **CASING:** HQ to 11.9m
REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



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

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 3 of 3

CONDITIONS ENCOUNTERED										SAMPLE			TESTING							
GROUNDWATER	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		
RL (m)	12	Continued from soil SANDSTONE: orange-brown, fine to medium grained, indistinctly bedded. Hawkesbury Sandstone 13.00m: becoming grey Borehole discontinued at 16.95m depth. Target depth reached.		HW MW SW FR	11.80	L to VL	100	48		12.05-12.14m: IS, Clay 90 mm 12.15-12.16m: IS, Clay 10 mm				11						
	12							12.24	L to VL								PLT	PL(A)=0.26MPa		
	13							12.40									PLT	PL(A)=0.03MPa		
	13							13.50	L to VL	90	70		13.30-13.35m: IS, Clay 50 mm 13.54m: B, 5°, UN, VNR Clay, RF 13.61-13.64m IS, Clay 30 mm				PLT	PL(A)=0.11MPa		
	14							13.70	L								PLT	PL(A)=0.09MPa		
	14							14.00									PLT	PL(A)=0.19MPa		
	15							15.50	M	100	91		15.35m: B, 0°, PR, VNR Clay, RF 15.45m: B, 0°, PR, VNR Clay, RF				PLT	PL(A)=0.64MPa		
	15							15.60	L				15.72-15.81m IS, Clay 60 mm				PLT	PL(A)=0.54MPa		
	16								M								PLT	PL(A)=0.58MPa		
	16									100	95						PLT	PL(A)=0.22MPa		
	17													PLT	PL(A)=0.70MPa					
	17													PLT	PL(A)=0.91MPa					

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

PLANT: Commacchio 205 Rig

OPERATOR: GT (JJ)

LOGGED: J. Sullivan

METHOD: DT to 0.18m, HA to 2m, WB to 11.9m, NMLC to 16.95m

CASING: HQ to 11.9m

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH1
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 1



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH2
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾ DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		CONCRETE SLAB	[Concrete Pattern]		NA	NA						
	0.30	FILL / SAND, with gravel: pale yellow, dark brown and orange; fine to medium; sandstone gravel.	[Fill Pattern]	FILL				ES	0.30 - 0.50	0.30	PID	<1ppm
	1				ND	M		ES	1.00 - 1.20	1.00	PID	<1ppm
	1.60	SAND (SP); yellow-orange brown.	[Sand Pattern]	AEO				ES	1.60 - 1.80	1.60	PID	<1ppm
	2	Borehole discontinued at 2.00m depth. Target depth reached.										

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 2m

CASING: Uncased

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH3
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%) DENSITY, (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
08/01/25 No free groundwater observed whilst augering	0.30	CONCRETE SLAB			NA	NA						
	0.40	FILL / SAND: yellow brown; fine to medium.		FILL				ES		0.30 - 0.40	PID	<1ppm
	1.20	FILL / SAND, trace brick: pale yellow; fine to medium; Possibly reworked sand.		FILL				ES		0.40 - 1.20	PID	<1ppm
	1.50	SAND (SP): pale yellow and pale brown; fine to medium.		AEO		ND	D	ES		1.20 - 1.50	PID	<1ppm
	2.00	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

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 2m

CASING: Uncased

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH4
PROJECT No: 20854.04
DATE: 09/12/24
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
02/01/25 No free groundwater observed whilst augering		CONCRETE SLAB			NA	NA						
	0.30	FILL / SAND, trace cobbles: brown; fine to medium; sandstone cobbles.		FILL				ES		0.30	PID	<1ppm
	0.60							ES		0.60	PID	<1ppm
	0.80	SAND (SP): pale yellow; fine to medium.		AEO	ND	M		ES		0.80	PID	<1ppm
		Borehole discontinued at 1.30m 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

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 1.3m

CASING: Uncased

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH5
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%) DENSITY (g)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		CONCRETE SLAB			NA	NA						
	0.30	FILL / SAND, trace glass; pale yellow and pale brown; fine to medium; Possibly reworked natural sand.						ES		0.30 - 0.50	PID	<1ppm
	1			FILL	ND	M		ES		1.00 - 1.20	PID	<1ppm
	1.90	FILL / SAND: dark brown; fine to medium.		FILL				ES		1.50 - 1.70	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.

PLANT: Hand Tools

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 2m

CASING: Uncased

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH6
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (%) DENSITY, (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
10/01/25 No free groundwater observed whilst augering	0.30	CONCRETE SLAB			NA	NA				0.30		
	0.50	FILL / SAND, trace glass: dark brown; fine to medium.		FILL				* ES		0.30 - 0.50	PID	<1ppm
	1.00	SAND (SP): pale yellow; fine to medium.		AEO	ND	M		ES		0.80 - 1.00	PID	<1ppm
	1.80	Borehole discontinued at 1.80m 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

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 1.8m

CASING: Uncased

REMARKS: *Replicate sample BH1/20241209 taken from 0.3-0.5m
 No coordinates were recorded during the investigation as the test locations were within the basement.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH7
PROJECT No: 20854.04
DATE: 09/12/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSISTENCY (°) DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	0.30	CONCRETE SLAB			NA	NA						
	0.30 - 1.80	FILL / SAND: pale yellow mottled dark brown; fine to medium.		FILL	ND	M		ES		0.30 - 0.50	PID	<1ppm
								ES		0.80 - 1.00	PID	<1ppm
								ES		1.50 - 1.70	PID	<1ppm
	1.80	Borehole discontinued at 1.80m 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

OPERATOR: (JH)

LOGGED: J. Henley

METHOD: DT to 0.3m, HA to 1.8m

CASING: Uncased

REMARKS: No coordinates were recorded during the investigation as the test locations were within the basement.

BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 1 of 2

GROUNDWATER		DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	CONDITIONS ENCOUNTERED											SAMPLE		TESTING				
RL (m)	SOIL				ROCK							SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE			
	ORIGIN (#)				CONSIS. (V)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD									FRACTURE SPACING (m)	DEFECTS & REMARKS	
07/01/25 ▼ 13 14 15 16 17 18 19 20 21 22	0.13	CONCRETE SLAB.																				
	0.50	FILL / SAND, trace gravel: yellow-brown; fine to medium.	FILL	VC												ES	0.30 - 0.50					
	1	SAND (SP): yellow-brown; fine to medium.		D	M											ES	0.50 - 0.80					
	2			VD												D/ES	0.80 - 1.20					
	4				AEO																	
	6				ND	NDF																
	9																					

NOTES: ¹Soil origin is "probable" unless otherwise stated. ²Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Commacchio 205
METHOD: DT to 0.13m, HA to 2m, WB to 11.2m
REMARKS: Refusal on unknown obstruction.
 No coordinates were recorded during the investigation as the test locations were within the basement.
 Refer to explanatory notes for symbol and abbreviation definitions

OPERATOR: GT (JJ)

LOGGED: J. Sullivan
CASING: HQ to 10.7m



BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8
PROJECT No: 20854.04
DATE: 09/12/24 - 10/12/24
SHEET: 2 of 2

GROUNDWATER		CONDITIONS ENCOUNTERED													SAMPLE				TESTING			
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL				ROCK					SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE		
				ORIGIN (#)	CONSIS. (%) DENSITY (%)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)									DEFECTS & REMARKS	
	11.2	[CONT] SAND (SP); yellow-brown; fine to medium.		AEO	ND	NDF																
		Borehole discontinued at 11.20m depth.																				
	12																					
	13																					
	14																					
	15																					
	16																					
	17																					
	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.

PLANT: Commacchio 205

OPERATOR: GT (JJ)

LOGGED: J. Sullivan

METHOD: DT to 0.13m, HA to 2m, WB to 11.2m

CASING: HQ to 10.7m

REMARKS: Refusal on unknown obstruction.
No coordinates were recorded during the investigation as the test locations were within the basement.
Refer to explanatory notes for symbol and abbreviation definitions



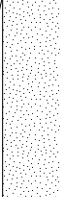


BOREHOLE LOG

CLIENT: Lindsay Bennelong Developments Pty Ltd
PROJECT: Proposed Mixed Use Development
LOCATION: 138 Maroubra Rd, Maroubra, NSW 2035

SURFACE LEVEL: 22.6 AHD
COORDINATE:
DATUM/GRID:
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH8a
PROJECT No: 20854.04
DATE: 11/12/24
SHEET: 1 of 1

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	CONDITIONS ENCOUNTERED										SAMPLE				TESTING			
					SOIL				ROCK						REMARKS		INTERVAL		RESULTS AND REMARKS		BACKFILL	
					ORIGIN (#)	CONSIS. (°) DENSITY (°)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
	0.12		CONCRETE SLAB.		NA	NA																
	0.70		FILL / SAND, trace gravel: yellow-brown; fine to medium; medium, sub-angular, Concrete gravel.		FILL	WC																
	1.00		SAND: yellow-brown to grey-brown; fine to medium.			MD																
	2.00		2.00m-2.30m: trace rootlets, dark brown			M																
	2.30					D																
	3.00				AEO																	
	4.00				ND																	
	5.20				NDF																	
			Borehole discontinued at 5.20m depth.																			

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: Commacchio 205 **OPERATOR:** GT (JJ) **LOGGED:** J. Sullivan
METHOD: DT to 0.12m, HA to 3m, WB to 5.2m **CASING:** HQ to 5m

REMARKS: Refusal on unknown obstruction.
 No coordinates were recorded during the investigation as the test locations were within the basement.
 Refer to explanatory notes for symbol and abbreviation definitions



Generated with CORE-GS by Geric - Combined Log



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)).

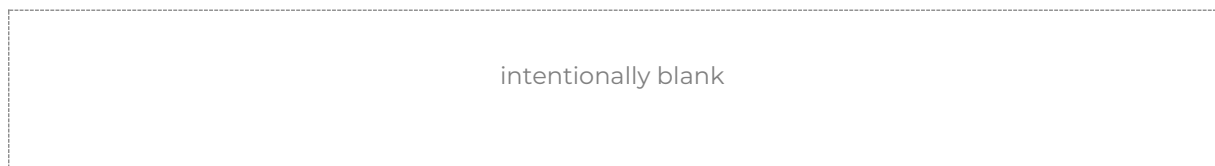
Data Integrity Codes

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.





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)	
	Gravel	Coarse
	Medium	6.7 - 19
	Fine	2.36 - 6.7
Sand	Coarse	0.6 - 2.36
	Medium	0.21 - 0.6
	Fine	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	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
Driven Tube sample	DT
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
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(-)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150
Dynamic probe super heavy, followed by blow count penetration increment in mm	DPSH/100

Groundwater Observations

	water seepage/inflow
	water seepage/outflow
	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
Vibrocore	VC ¹
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB ¹

¹ – numeric suffixes indicate tool diameter/width in mm



Groundwater (GW) Field Sheet

Project and Bore Installation Details			
Project Name / Site Location		138 Mawolcha Rd, Mawolcha	
Well Construction Details	Well ID	BH1	Drilling Method
	Well Depth (m bgl)		Screened (m bgl)
Survey Information	Easting		Northing
GW Level During Drilling		m bgl	
Contaminants/Comments			

Well Development Details			
Date / Time / Weather Conditions	16 December 2024		Purged By
Purge Method / Equipment	Twisted Pump (PFAS Free)		
Product observed / Thickness	-	mm	Confirmed with Bailor? (Y/N)
GW Level (pre-purge)	3.84	m bgl	Observed Well Depth
Height of Water Column (H)	6.38	m bgl	Estimated Bore Volume*
GW Level (post-purge)	3.91	m bgl	Total Volume Purged**
Appearance/Comments			

Sampling Details			
Date / Time / Weather Conditions	7/11/25 Overcast		Sampled By
Sampling Method / Equipment	Peri Pump		
WQM Model	Pro DSS 451	WQM Calibration Date	
Product observed / Thickness	-	mm	Confirmed with Bailor? (Y/N)
GW Level (pre-micropurge)	3.87	m bgl	Observed Well Depth
Height of Water Column		m bgl	Estimated Bore Volume*
GW Level (post sample)	3.89	m bgl	Total Volume of Micro-Purged

Water Quality Parameters							
Time	Cumulative Volume (L)	Temp (°C)	DO (mg/L) [#]	EC (µS or mS/cm)	pH	Redox (mV)	Turbidity [^]
Stabilisation Target (3 readings)		0.2	+/- 10%	+/- 5%	+/- 0.1	+/- 10 mV	+/- 10%
11:00		21.0	20.4	273	5.23	116.8	240
11:02		20.7	6.0	231	5.34	120.7	824
11:04		20.7	2.8	228.5	5.38	122.4	632
11:06		20.7	2.4	228.6	5.41	122.3	895
11:08		20.7	3.7	227.8	5.43	122.8	1017

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)	2m	m bgl	middle of column
Sample Observations (e.g. colour, sediment, sheen, odour)	Clear, no colour, no solids		
Sample ID	BH1		
QAQC Samples	Replicate	1001/20250107	Triplicate
Sample Containers Quantity / Preservation / Filtration	Amber glass		Plastic
	Metals (F/UF) (HNO3)		Phenols/COD/NH3 (H2SO4)
	Ferrous/Ferric Iron (HCl)		Cyanides/Chromium (NaOH)
Comments			

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

Soil Vapour Sampling Sheet						
Project and Bore Installation Details						
Project Name:	Proposed mixed use development					
Project Number:	20154-03					
Client:						
Sample ID / Bore No.:	SV-1					
Site Location:						
GPS Co-ord:						
Elevation (RL, m AHD):						
Installation Date:						
Well / Pin Construction Details:						
Weather:	Humidity	93%	Temperature	19.8	Barometric	1019.2
Canister Flow Controller:	200	µL/min				
Carbon / TD Tube Flow Controller:	84.5	mL/min	Type:	Rotameter, flow flow adaptor and vacuum gauge		
Pump ID:	8N115-28213					
Date/Time:	7/11/25					
Sampled By:	PJ					
Purge Details / Field Readings						
Pre Purge PID Reading:	0		ppm			
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
		0	0.4	20.8		
Purge Method:	PID + GASCOO					
Post Purge PID Reading:	0		ppm			
Approximate Volume Purged:	500 mL		L			
Pre-Start QA Tests						
Shut In Test						
	Canister			Carbon Tube / TD Setup		
Vacuum Applied:	-28	in Hg	1.8	kPa		
Duration:	6.5	min	0.5	min		
Pass / Fail:	PASS			PASS		
Leak Test	PID in Sample Train			PID in Shroud		
	0	ppm	430	ppm		
Pass / Fail:	PASS					
Sampling Details - Primary						
	Canister			Carbon Tube / TD Tube		
ID Number:	3527			1770409260		
Regulator Number:	G17			N/A		
Start Time:	1.10	min	1.01	min		
Start Vacuum:	-28	in Hg	0.2	kPa		
Stop Time:	1.17	min	1.06	min		
Stop Vacuum:	-9	in Hg	0.1	kPa		
Approximate Sample Volume:	9L	mL	815	mL / min		
			Note: recommended < 2.5 kPa induced vacuum (ASTM)			
Sampling Details - Replicate						
	Canister			Carbon Tube / TD Tube		
ID Number:				N/A		
Regulator Number:						
Start Time:				min		
Start Vacuum:				kPa		
Stop Time:				min		
Stop Vacuum:				kPa		
Approximate Sample Volume:				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

Project and Bore Installation Details						
Project Name:	Proposed mixed use development					
Project Number:	20854-03					
Client:						
Sample ID / Bore No.:	3U-2					
Site Location:						
GPS Co-ord:						
Elevation (RL, m AHD):						
Installation Date:						
Well / Pin Construction Details:						
Weather:	Humidity	90%	Temperature	20°C	Barometric	1018.9
Canister Flow Controller:	400	mL/min				
Carbon / TD Tube Flow Controller:	84.5	mL/min	Type:	Rotameter, flow flow adaptor and vacuum gauge		
Pump ID:	SU11528213					
Date/Time:	7/1/25					
Sampled By:	PJ					
Purge Details / Field Readings						
Pre Purge PID Reading:	3.2	ppm				
Bulk Gas readings	Time	Concentration (% v/v)			H ₂ S (ppm)	CO (ppm)
		CH ₄	CO ₂	O ₂		
		0	0.1	21.3	0	0
Purge Method:	PID + GASTROO					
Post Purge PID Reading:	0	ppm				
Approximate Volume Purged:	300 mL	✓				
Pre-Start QA Tests						
Shut In Test						
	Canister			Carbon Tube / TD Setup		
Vacuum Applied:	-29	in Hg		2.0	kPa	
Duration:	0.5	min		0.5	min	
Pass / Fail:	PASS			PASS		
Leak Test						
	PID in Sample Train			PID in Shroud		
Pass / Fail:	0	ppm		254	ppm	
	PASS					
Sampling Details - Primary						
	Canister			Carbon Tube / TD Tube		
ID Number:	2474			1770409257		
Regulator Number:	403			N/A		
Start Time:	12:37	min		12:30	min	
Start Vacuum:	-28	in Hg		0.1	kPa	
Stop Time:	12:45	min		12:25	min	
Stop Vacuum:	-9	in Hg		0.1	kPa	
Approximate Sample Volume:	2L	mL		84.5	mL/min	
	Note: recommended end vacuum of -7 in Hg (~75% full)			Note: recommended < 2.5 kPa induced vacuum (ASTM)		
Sampling Details - Replicate						
	Canister			Carbon Tube / TD Tube		
ID Number:	1694			1770409256		
Regulator Number:	818			N/A		
Start Time:	12:37	min		12:26	min	
Start Vacuum:	-29	in Hg		0.4	kPa	
Stop Time:	12:44	min		12:31	min	
Stop Vacuum:	-9	in Hg		0.2	kPa	
Approximate Sample Volume:	2L	mL		84.5	mL/min	
Sampling Details - Shroud						
Carbon / TD Tube ID:	1770409261					
Start Time:	12:16	min				
Stop Time:	12:17	min				
Sample Time:	0:01	min				
Approximate Sample Volume:	84.5 mL/min	mL				
Comments / Observations:						

Appendix H

Summary Tables

Table 1: Summary of Laboratory Results of Soil Analysis

Sample ID	Depth	Sample Date	Priority metals								Priority PAH		
			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)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.2 - 0.3 m	10/12/24	<4	<0.4	2	8	7	<0.1	2	22	<1	<0.05	<0.5
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	3,000 - <4	900 - <0.4	3,600 - 4	240,000 - 46	1,500 - 8	730 - <0.1	6,000 - 3	400,000 - 20	NL - -	- -	40 - -
BH1	0.8 - 1 m	10/12/24	<4	<0.4	<1	<1	1	<0.1	<1	2	<1	<0.05	<0.5
BH2	1 - 1.2 m	09/12/24	<4	<0.4	1	<1	2	<0.1	<1	3	<1	<0.05	<0.5
BH2	1.6 - 1.8 m	09/12/24	<4	<0.4	4	<1	<1	<0.1	<1	1	<1	<0.05	<0.5
BH3	0.8 - 1 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
BH3	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
BH4	0.9 - 1.1 m	09/12/24	<4	<0.4	1	<1	1	<0.1	<1	2	<1	<0.05	<0.5
BH5	0.3 - 0.5 m	09/12/24	<4	<0.4	2	7	150	<0.1	1	68	<1	0.1	<0.5
BH5	1 - 1.2 m	09/12/24	<4	<0.4	1	2	26	<0.1	<1	14	<1	<0.05	<0.5
BH6	0.2 - 0.4 m	09/12/24	<4	<0.4	1	3	15	<0.1	<1	33	<1	0.2	<0.5
BD1/20241209	0 m	09/12/24	<4	<0.4	3	22	82	0.2	3	200	<1	0.68	1
BH6	1.1 - 1.3 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	7	<1	<0.05	<0.5
BH7	0.3 - 0.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
BH8	0.3 - 0.5 m	09/12/24	<4	<0.4	3	8	4	<0.1	2	5	<1	<0.05	<0.5
BH8	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
BH8	1.6 - 1.8 m	09/12/24	<4	<0.4	1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5

Lab result

HIL/HSL value EIL/ESL/EGV value

■ 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 Exc

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

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HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, Indirect exposure, Intensively developed sites

Table 1: Summary of Laboratory Results of Soil Analysis

Sample ID	Depth	Sample Date	Total PAH	Priority TRH						BTEX			
				TRH C6 - C10	TRH >C10-C16	F1 (C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (<C16-C34)	F4 (<C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes
		PQL	0.05	25	50	25	50	100	100	0.2	0.5	1	1
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.2 - 0.3 m	10/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH1 - (TRIPLICATE)	0.2 - 0.3 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH2	1 - 1.2 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL
BH2	1.6 - 1.8 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL
BH3	0.8 - 1 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH3	1.3 - 1.5 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL
BH4	0.9 - 1.1 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH5	0.3 - 0.5 m	09/12/24	0.94	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH5	1 - 1.2 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL
BH6	0.2 - 0.4 m	09/12/24	1.5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH6	1.1 - 1.3 m	09/12/24	4.9	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH7	0.3 - 0.5 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH8	0.3 - 0.5 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	260	NL	-	-	3	NL	NL	230
BH8	1.3 - 1.5 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL
BH8	1.6 - 1.8 m	09/12/24	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			4,000	-	-	370	NL	-	-	3	NL	NL	NL

Lab result

HIL/HSL value EIL/ESL/EGV value

■ HIL/HSL exceedance
 ■ EIL/ESL exceedance
 ■ HIL/HSL and EIL/ESL exceedance
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HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, Indirect exposure, Intensively developed sites (

Table 2: Summary of Laboratory Results – Priority OCP, Priority OPP, PCB, Priority PFAS, Asbestos (FA/AF), Asbestos, Other

Sample ID	Depth	Sample Date	Priority OCP									Priority OPP	PCB	Priority PFAS			
			DDT+DDE+DDD ^c	Aldrin + Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Mirex	Chlorpyrifos	Total PCB	Total Positive PFAS	PFDA	PFOS + PFHxS	PFOS
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0001	0.0001	0.0001	0.0001
			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
BH1	0.2 - 0.3 m	10/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	50	20	20
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-
BH3	1.3 - 1.5 m	09/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-
BH5	1 - 1.2 m	09/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	50	20	20
BH6	0.2 - 0.4 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001
BH6	1.1 - 1.3 m	09/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	50	20	20
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	50	20	20
BH8	1.3 - 1.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-
BH8	1.6 - 1.8 m	09/12/24	3,600	45	530	2,000	100	50	80	2,500	100	2,000	7	-	-	-	-

Lab result

HIL/HSL value EIL/ESL/EGV value

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 ■ EIL/ESL exceedance
 ■ HIL/HSL and EIL/ESL exceedance
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Table 2: Summary of Laboratory Results – Priority OCP, Priority OPP, PCB, Priority PFAS, Asbestos (FA/AF), Asbestos, Other

Sample ID	Depth	Sample Date	PFHxS mg/kg	Asbestos (FA/AF)				Asbestos, Other					Asbestos Summary	
				Asb_Sample_mg/kg	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos ID in soil >0.1g/kg	Trace Analysis (AS)	Asbestos ID in soil >0.1g/kg	Asbestos ID in soil <0.1g/kg	Trace Analysis (NEPC)		Total Asbestos#1
		PQL	0.0001				0.001						0.1	0.1
BH1	0.2 - 0.3 m	10/12/24	<0.0001	899.78	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH1 - [TRIPPLICATE]	0.2 - 0.3 m	10/12/24	20	-	-	-	0.001	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	-	955.9	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH3	1.3 - 1.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	-	813.72	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH5	1 - 1.2 m	09/12/24	<0.0001	1,031.7	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH6	0.2 - 0.4 m	09/12/24	<0.0001	919.56	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	-	840.55	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH8	0.3 - 0.5 m	09/12/24	<0.0001	962.19	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-
BH8	1.3 - 1.5 m	09/12/24	-	-	-	-	-	NAD	NAD	-	-	-	-	-
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-

Lab result

HIL/HSL value EIL/ESL/EGV value

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HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, Indirect exposure, Intensively developed sites (HEPA, 2020)

Table 3: Summary of Laboratory Results – Priority metals, Priority PAH, PAH, Priority TRH, TRH, BTEX, Priority phenols, Priority OCP, OCP, Priority OPP, OPP, PCB, Priority PFAS, PFAS, Asbestos (FA/AF), Asbestos, Other, Additional PhysChem

Sample ID	Depth	Sample Date	Priority metals								Priority PAH		
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ (BaP-TEQ)
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.2 - 0.3 m	10/12/24	<4	<0.4	2	8	7	<0.1	2	22	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH1 - (TRIPLICATE)	0.2 - 0.3 m	10/12/24	<4	<0.4	4	46	8	<0.1	3	20	-	-	-
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	-	-	-
BH1	0.8 - 1 m	10/12/24	<4	<0.4	<1	<1	1	<0.1	<1	2	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH2	1 - 1.2 m	09/12/24	<4	<0.4	1	<1	2	<0.1	<1	3	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH2	1.6 - 1.8 m	09/12/24	<4	<0.4	4	<1	<1	<0.1	<1	1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH3	0.8 - 1 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH3	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH4	0.9 - 1.1 m	09/12/24	<4	<0.4	1	<1	1	<0.1	<1	2	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH5	0.3 - 0.5 m	09/12/24	<4	<0.4	2	7	150	<0.1	1	68	<1	0.1	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH5	1 - 1.2 m	09/12/24	<4	<0.4	1	2	26	<0.1	<1	14	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH6	0.2 - 0.4 m	09/12/24	<4	<0.4	1	3	15	<0.1	<1	33	<1	0.2	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BDI/20241209	0 m	09/12/24	<4	<0.4	3	22	82	0.2	3	200	<1	0.68	1
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH6	1.1 - 1.3 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	7	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH7	0.3 - 0.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH8	0.3 - 0.5 m	09/12/24	<4	<0.4	3	8	4	<0.1	2	5	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH8	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40
BH8	1.6 - 1.8 m	09/12/24	<4	<0.4	1	<1	<1	<0.1	<1	<1	<1	<0.05	<0.5
			3,000	900	3,600	240,000	1,500	730	6,000	400,000	NL	-	40

Lab result

HIL/HSL value EIL/ESL/EGV value

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 ■ EIL/ESL exceedance
 ■ HIL/HSL and EIL/ESL exceedance
 ■ ML exceedance
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Sample ID	Depth	Sample Date	Total PAH	PAH										
				Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene
		PQL	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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
BH1	0.2 - 0.3 m	10/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH1 - (TRIPLICATE)	0.2 - 0.3 m	10/12/24	4,000	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH2	1 - 1.2 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH2	1.6 - 1.8 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH3	0.8 - 1 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH3	1.3 - 1.5 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH4	0.9 - 1.1 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH5	0.3 - 0.5 m	09/12/24	0.94	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	0.2	<0.1	<0.1	<0.1
BH5	1 - 1.2 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH6	0.2 - 0.4 m	09/12/24	1.5	<0.1	<0.1	<0.1	0.1	0.2	0.2	<0.1	0.2	<0.1	0.1	<0.1
BDI/20241209	0 m	09/12/24	4.9	<0.1	<0.1	<0.1	0.4	0.5	0.5	0.1	0.6	<0.1	0.4	0.1
BH6	1.1 - 1.3 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH7	0.3 - 0.5 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	0.3 - 0.5 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	1.3 - 1.5 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	1.6 - 1.8 m	09/12/24	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Lab result

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Sample ID	Depth	Sample Date	Priority TRH							TRH		BTEX		
			Pyrene	TRH C6 - C10	TRH >C10-C16	F1 (C6-C10)-BTEX	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene
		PQL	0.1	25	50	25	50	100	100	25	50	0.2	0.5	1
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.2 - 0.3 m	10/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	-	-	-	260	NL	-	-	-	-	3	NL	NL
BH1	0.8 - 1 m	10/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH2	1 - 1.2 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH2	1.6 - 1.8 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH3	0.8 - 1 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH3	1.3 - 1.5 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH4	0.9 - 1.1 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH5	0.3 - 0.5 m	09/12/24	0.2	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH5	1 - 1.2 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH6	0.2 - 0.4 m	09/12/24	0.2	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BDI/20241209	0 m	09/12/24	0.6	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH6	1.1 - 1.3 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH7	0.3 - 0.5 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH8	0.3 - 0.5 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH8	1.3 - 1.5 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1
BH8	1.6 - 1.8 m	09/12/24	<0.1	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1

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Sample ID	Depth	Sample Date	Priority phenol		Priority OCP										
			Total Xylenes	Total Phenolics	DDT+DDE+DDD ^c	Aldrin + Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Mirex	Heptachlor Epoxide	Endrin Aldehyde
		PQL	1	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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
BH1	0.2 - 0.3 m	10/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH1 - (TRIPLICATE)	0.2 - 0.3 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			230	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			NL	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			NL	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH3	1.3 - 1.5 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			NL	-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			230	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH5	1 - 1.2 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			NL	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH6	0.2 - 0.4 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BD1/20241209	0 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			230	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			NL	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH8	0.3 - 0.5 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			230	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH8	1.3 - 1.5 m	09/12/24	<1	<5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			NL	660	3,600	45	530	2,000	100	50	80	2,500	100	-	-
BH8	1.6 - 1.8 m	09/12/24	<1	-	-	-	-	-	-	-	-	-	-	-	-
			NL	-	-	-	-	-	-	-	-	-	-	-	-

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Sample ID	Depth	Sample Date	OCP				Priority OPP								
			alpha-BHC	beta-BHC	delta-BHC	Lindane	Chlorpyrifos	Azinphos methyl (Guthion)	Bromophos-ethyl	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
			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
BH1	0.2 - 0.3 m	10/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	-	-	-	-	2,000	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH3	1.3 - 1.5 m	09/12/24	-	-	-	-	2,000	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH5	1 - 1.2 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH6	0.2 - 0.4 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	1.3 - 1.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	2,000	-	-	-	-	-	-	-	-

Lab result

HIL/HSL value EIL/ESL/EGV value

■ 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
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 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

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- Notes:**
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HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, Indirect exposure, Intensively developed sites (

Table 3: Summary of Laboratory Results – Priority metals, Priority PAH, PAH, Priority TRH, TRH, BTEX, Priority phenols, Priority OCP, OCP, Priority OPP, OPP, PCB, Priority PFAS, PFAS, Asbestos (FA/AF), Asbestos, Other, Additional PhysChem

Sample ID	Depth	Sample Date	OPP								PCB	Priority PFAS				
			Ronnel (fenchlorphos)	Fenitrothion	Fenthion	Malathion	Parathion	Parathion-methyl	Methidathion	Fenamiphos	Total PCB	Total Positive PFAS	PFCA	PFOS + PFHxS	PFOS	PFHxS
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0001	0.0001	0.0001	0.0001	0.0001
			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
BH1	0.2 - 0.3 m	10/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	-	-	-	-	-	-	-	-	7	-	50	20	20	20
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-
BH3	1.3 - 1.5 m	09/12/24	-	-	-	-	-	-	-	-	7	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-
BH5	1 - 1.2 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
BH6	0.2 - 0.4 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	7	-	50	20	20	20
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
BH8	1.3 - 1.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	50	20	20	20
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	7	-	-	-	-	-

Lab result

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 ■ EIL/ESL exceedance
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Sample ID	Depth	Sample Date	PQL	Perfluorobutanes sulfonic acid	Perfluoropentanesulfonic acid	Perfluorheptanesulfonic acid	Perfluorodecane sulfonic acid	Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluorheptanoic acid	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid
				0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0005	0.0005	0.0005
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
BH1	0.2 - 0.3 m	10/12/24		<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH3	1.3 - 1.5 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH5	1 - 1.2 m	09/12/24		<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
BH6	0.2 - 0.4 m	09/12/24		<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
BD1/20241209	0 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24		<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
BH8	1.3 - 1.5 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-
BH8	1.6 - 1.8 m	09/12/24		-	-	-	-	-	-	-	-	-	-	-	-

Lab result

HIL/HSL value EIL/ESL/EGV value

■ HIL/HSL exceedance
 ■ EIL/ESL exceedance
 ■ HIL/HSL and EIL/ESL exceedance
 ■ ML exceedance
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SAC based on generic land use thresholds for Commercial/Industrial D

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	ML	Commercial and Industrial (NEPC, 2013)
HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, indirect exposure, Intensively developed sites (

Table 3: Summary of Laboratory Results – Priority metals, Priority PAH, PAH, Priority TRH, TRH, BTEX, Priority phenols, Priority OCP, OCP, Priority OPP, OPP, PCB, Priority PFAS, PFAS, Asbestos (FA/AF), Asbestos, Other, Additional PhysChem

			PFAS												
			Perfluorodeca noic acid	Perfluorotetra canoic acid	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	N-Ethyl perfluorooctane sulfonamide	N-Me perfluorooctane sulfonamid eoethanol	N-Et perfluorooctane sulfonamid eoethanol	MePerfluoroocta nesulfamid oacetic acid	EtPerfluorooctan esulfamid oacetic acid
PQL			0.0005	0.005	0.0001	0.0001	0.0002	0.0002	0.001	0.001	0.001	0.001	0.005	0.0002	0.0002
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
BH1	0.2 - 0.3 m	10/12/24	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.0002	<0.0002
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	1.3 - 1.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	1 - 1.2 m	09/12/24	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.0002	<0.0002
BH6	0.2 - 0.4 m	09/12/24	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.0002	<0.0002
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.0002	<0.0002
BH8	1.3 - 1.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-

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

- Notes:**
- a QA/QC replicate of sample listed dir
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Sample ID	Depth	Sample Date	Asbestos (FA/AF)				Asbestos, Other						Additional PhysChem	
			Lab_Sample_masa	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Asbestos ID in soil >0.1g/kg	Trace Analysis (AS)	Asbestos ID in soil >0.1g/kg	Asbestos ID in soil <0.1g/kg	Trace Analysis (NEPC)	Total Asbestos#1		Asbestos Summary
		PQL				0.001						0.1	0.1	1000
			g	g	g	%(w/w)	-	-	-	-	-	g/kg		mg/kg
BH1	0.2 - 0.3 m	10/12/24	899.78	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	120,000
BH1 - [TRIPLICATE]	0.2 - 0.3 m	10/12/24	-	-	-	0.001	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	23,000
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	20,000
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	72,000
BH3	0.8 - 1 m	09/12/24	955.9	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	12,000
BH3	1.3 - 1.5 m	09/12/24	-	-	-	0.001	-	-	-	-	-	-	-	24,000
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	21,000
BH5	0.3 - 0.5 m	09/12/24	813.72	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	26,000
BH5	1 - 1.2 m	09/12/24	1,031.7	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	14,000
BH6	0.2 - 0.4 m	09/12/24	919.56	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	22,000
BD1/20241209	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	100,000
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	50,000
BH7	0.3 - 0.5 m	09/12/24	840.55	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	29,000
BH8	0.3 - 0.5 m	09/12/24	962.19	-	-	<0.001	-	-	NAD	NAD	NAD	<0.1	-	47,000
BH8	1.3 - 1.5 m	09/12/24	-	-	-	-	NAD	NAD	-	-	-	-	-	14,000
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	30,000

Lab result

HIL/HSL value EIL/ESL/EGV value

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HSL (vapour intrusion)	HSL-D (NEPC, 2013)	EGV-Indir	EGV, all land uses, Indirect exposure, Intensively developed sites (



Table A1: Derivation Table

Sample ID	Sample Depth	Soil Type	Soil Texture	Clay Content	CEC	pH
BH1	0.2 - 0.3 m	Sand	Coarse	1.00	2.00	4.00
BH1 - [TRIPLICATE]	0.2 - 0.3 m	Sand	Coarse	1.00	2.00	4.00
BH1	0.8 - 1 m	Sand	Coarse	1.00	2.00	4.00
BH2	1 - 1.2 m	Sand	Coarse	1.00	2.00	4.00
BH2	1.6 - 1.8 m	Sand	Coarse	1.00	2.00	4.00
BH3	0.8 - 1 m	Sand	Coarse	1.00	2.00	4.00
BH3	1.3 - 1.5 m	Sand	Coarse	1.00	2.00	4.00
BH4	0.9 - 1.1 m	Sand	Coarse	1.00	2.00	4.00
BH5	0.3 - 0.5 m	Sand	Coarse	1.00	2.00	4.00
BH5	1 - 1.2 m	Sand	Coarse	1.00	2.00	4.00
BH6	0.2 - 0.4 m	Sand	Coarse	1.00	2.00	4.00
BD1/20241209	0 m	Sand	Coarse	1.00	2.00	4.00
BH6	1.1 - 1.3 m	Sand	Coarse	1.00	2.00	4.00
BH7	0.3 - 0.5 m	Sand	Coarse	1.00	2.00	4.00
BH8	0.3 - 0.5 m	Sand	Coarse	1.00	2.00	4.00
BH8	1.3 - 1.5 m	Sand	Coarse	1.00	2.00	4.00
BH8	1.6 - 1.8 m	Sand	Coarse	1.00	2.00	4.00
TS	0 m	Sand	Coarse	1.00	2.00	4.00
TB	0 m	Sand	Coarse	1.00	2.00	4.00

Table 2 : Preliminary Waste Classification Table

			Metals							TRH		BTEX				PAH		Phenols
			Total Arsenic	Cadmium	Total Chromium	Lead	TCLP Lead	Mercury (inorganic)	Nickel	TRH C6 - C9	TRH C10-C16	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene (BaP)	Total PAH	Total Phenolics
PQL			4	0.4	1	1	0.03	0.1	1	25	50	0.2	0.5	1	1	0.05	0.05	5
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.2 - 0.3 m	10/12/24	<4	<0.4	2	7	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH1 - (TRIPLICATE)	0.2 - 0.3 m	10/12/24	<4	<0.4	4	8	-	<0.1	3	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	<4	<0.4	<1	1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH1	1.5 - 1.6 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	0.3 - 0.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	<4	<0.4	1	2	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH2	1.6 - 1.8 m	09/12/24	<4	<0.4	4	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH3	0.8 - 1 m	09/12/24	<4	<0.4	<1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH3	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH4	0.9 - 1.1 m	09/12/24	<4	<0.4	1	1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH5	0.3 - 0.5 m	09/12/24	<4	<0.4	2	150	1.2	<0.1	1	<25	<50	<0.2	<0.5	<1	<1	0.1	0.94	<5
BH5	1 - 1.2 m	09/12/24	<4	<0.4	1	26	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH5	1.5 - 1.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	0.2 - 0.4 m	09/12/24	<4	<0.4	1	15	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	0.2	1.5	<5
BD1/20241209	0 m	09/12/24	<4	<0.4	3	82	-	0.2	3	<25	<50	<0.2	<0.5	<1	<1	0.68	4.9	-
BH6	0.5 - 0.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	<4	<0.4	<1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
BH7	0.3 - 0.5 m	09/12/24	<4	<0.4	<1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH7	0.8 - 1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	1.5 - 1.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24	<4	<0.4	3	4	-	<0.1	2	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH8	0.5 - 0.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	1.3 - 1.5 m	09/12/24	<4	<0.4	<1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	<5
BH8	1.6 - 1.8 m	09/12/24	<4	<0.4	1	<1	-	<0.1	<1	<25	<50	<0.2	<0.5	<1	<1	<0.05	<0.05	-
Waste Classification																		
CT1			100	20	100	100	-	4	40	650	10,000	10	288	600	1000	0.8	200	288
SCC1			500	100	1,900	1,500	-	50	1,050	650	10,000	18	518	1,080	1,800	10	200	518
TCLP1			-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
CT2			400	80	400	400	-	16	160	2,600	40,000	40	1,152	2,400	4,000	3.2	800	1,152
SCC2			2,000	400	7,600	6,000	-	200	4,200	2,600	40,000	72	2,073	4,320	7,200	23	800	2,073
TCLP2			-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-

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 2 : Preliminary Wast

Sample ID	Depth	Sample Date	OCP				OPP	PCB	PFAS		Asbestos										
			Scheduled Chemical Waste (standard)	Total Endosulfan	Total Analysed OCP	Mirex	Total Analysed OPP	Total PCB	PFOA	PFOS + PFHxS	Asbestos ID in soil >0.1g/kg	Trace Analysis (AS)	Asbestos ID in soil >0.1g/kg	Asbestos ID in soil <0.1g/kg	Trace Analysis (NEPC)	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Total Asbestos#	Asbestos Comment	Asbestos Summary
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.0001	0.0001	-	-	-	-	-	-	0.001	0.1	-	0.001	
BH1	0.2 - 0.3 m	10/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH1 - (TRIPPLICATE)	0.2 - 0.3 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1	0.8 - 1 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1	1.5 - 1.6 m	10/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	0.3 - 0.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1 - 1.2 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.8 - 1 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH3	1.3 - 1.5 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.9 - 1.1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH5	1 - 1.2 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH5	1.5 - 1.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	0.2 - 0.4 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BD1/2024120 g	0 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	0.5 - 0.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6	1.1 - 1.3 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH7	0.8 - 1 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	1.5 - 1.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	0.3 - 0.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0001	<0.0001	-	-	NAD	NAD	NAD	-	-	<0.001	<0.1	Nil	-
BH8	0.5 - 0.7 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	1.3 - 1.5 m	09/12/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	NAD	NAD	-	-	-	-	-	-	-	Nil	-
BH8	1.6 - 1.8 m	09/12/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ation Criteria																					
CT1			<50	60	-	-	4	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
SCC1			<50	108	-	-	7.5	<50	18	1.8	-	-	-	-	-	-	-	-	-	-	-
TCLP1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CT2			<50	240	-	-	16	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
SCC2			<50	432	-	-	30	<50	72	7.2	-	-	-	-	-	-	-	-	-	-	-
TCLP2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Notes:**
- a QA/QC replicate of sample lis
 - b Total chromium used as initie
 - c Total recoverable hydrocarbo
 - d Criteria for scheduled chemic
 - e Criteria for Chlorpyrifos used
 - f NSW EPA, 2014, Waste Classif
 - PQL Practical quantitation limit
 - CT1 Maximum values of specific c
 - SCC1 Maximum values for leachabl
 - TCLP1 Maximum values for leachabl
 - CT2 Maximum values of specific c
 - SCC2 Maximum values for leachabl
 - TCLP2 Maximum values for leachabl



Table 3: Summary of results of soil vapour analysis

Sample	Sample Date	Chlorinated Hydrocarbons							BTEX				Priority PAH	Volatile TRH		Vacuum before Shipment	Vacuum Before Sampling	Vacuum After Sampling	Vacuum before Analysis
		Isopropyl Alcohol	Chloroethene (Vinyl chloride)	Trichloroethene	1,1-Dichloroethene	trans-1,2-dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Benzene [Sand] 0-1m	Toluene [Sand] 0-1m	Ethylbenzene [Sand] 0-1m	Xylene Total [Sand] 0-1m	Naphthalene [Sand] 0-1m	TRH F1 [Sand] 0-1m	TRH F2 [Sand] 0-1m				
Units		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	Hg"	Hg"	Hg"	Hg"
PQL		12	0.5	0.5	2.0	2.0	2.0	3.4	1.6	1.9	2.2		2.6	200	40	-	-	-	-
NEPC (2013) Interim HIL-D		-	100	80	-	-	300	8000								-	-	-	-
NEPC (2013) HSL									4000	4800000	1300000	840000	3000	680000	500000				
SV1	09/05/2024	1195.92	<0.5	<0.5	<2	<2	<2	2600	<1.6	5	<2.2		<2.6	<200	<40	-29.6	-28	-9	-8.64
SV2	09/05/2024	64.68	<0.5	<0.5	<2	<2	<2	30	<1.6	3	<2.2		<2.6	<200	<40	-29.6	-28	-9	-8.73
BD1	09/05/2024	178.51	<0.5	<0.5	<2	<2	<2	30	<1.6	3	<2.2		<2.6	<200	<40	-29.6	-29	-9	-9.16
SHROUD	09/05/2024	2450000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A2- RPD (SV2 and BD1)

Difference (ug/m3)	-113.83	-	-	-	-	-	-	-
RPD (%)	-94%	-	-	-	-	-	-	-

Table A3 - QA/QC Shroud

	SV1	SV2	BD1
Sample IPA % of shroud	0.049%	0.003%	0.007%



Table 4 : Summary of Laboratory Results – TRH, BTEX, PAH, OCP, OPP, PCB, VOC (excluding BTEX), PFAS

Sample ID				NEPC (2013) HSL 4-8m	ANZG (2018) 95% LOP	HEPA (2020) 99% LOP Fre sh	BH1	BD1/20250107	BH8
Sample Date	PQL	Units					07/01/25	07/01/25	07/01/25
Metals - Dissolved	Total Arsenic	1	µg/L		13		<1	<1	<1
	Cadmium	0.1	µg/L		0.2		<0.1	<0.1	<0.1
	Total Chromium	1	µg/L		1		<1	<1	<1
	Copper	1	µg/L		1.4		<1	<1	<1
	Lead	1	µg/L		3.4		<1	<1	<1
	Mercury (inorganic)	0.05	µg/L		0.06		<0.05	<0.05	<0.05
	Nickel	1	µg/L		11		<1	<1	<1
	Zinc	1	µg/L		8		2	3	3
TRH	F1 ((C6-C10)-BTEX)	10	µg/L	6,000			<10	<10	<10
	F2 (>C10-C16 less Naphthalene)	50	µg/L	NL			<50	<50	<50
	F3 (>C16-C34)	100	µg/L				<100	<100	<100
	F4 (>C34-C40)	100	µg/L				<100	<100	<100
BTEX	Benzene	1	µg/L	5,000	950		<1	<1	<1
	Toluene	1	µg/L	NL	180		<1	<1	<1
	Ethylbenzene	1	µg/L	NL	80		<1	<1	<1
	o-Xylene	1	µg/L		350		<1	<1	<1
	m+p-Xylene	2	µg/L		75		<2	<2	<2
	Total Xylenes	1	µg/L	NL			<1	<1	<1
PAH	Acenaphthene	0.1	µg/L				<0.1	<0.1	<0.1
	Acenaphthylene	0.1	µg/L				<0.1	<0.1	<0.1
	Anthracene	0.1	µg/L		0.01		<0.1	<0.1	<0.1
	Benzo(a)anthracene	0.1	µg/L				<0.1	<0.1	<0.1
	Naphthalene	1	µg/L	NL	16		<1	<1	<1
	Benzo(a)pyrene (B(a)P)	0.1	µg/L		0.1		<0.1	<0.1	<0.1
	Benzo(b,j,k)fluoranthene	0.2	µg/L				<0.2	<0.2	<0.2
	Benzo(g,h,i)perylene	0.1	µg/L				<0.1	<0.1	<0.1
	Chrysene	0.1	µg/L				<0.1	<0.1	<0.1
	Dibenzo(a,h)anthracene	0.1	µg/L				<0.1	<0.1	<0.1
	Fluoranthene	0.1	µg/L		1		<0.1	<0.1	<0.1
	Fluorene	0.1	µg/L				<0.1	<0.1	<0.1

Sample ID				NEPC (2013) HSL 4-8m	ANZG (2018) 95% LOP	HEPA (2020) 99% LOP Fre sh	BH1	BD1/20250107	BH8
Sample Date		PQL	Units				07/01/25	07/01/25	07/01/25
	Indeno(1,2,3-c,d)pyrene	0.1	µg/L				<0.1	<0.1	<0.1
	Phenanthrene	0.1	µg/L		0.6		<0.1	<0.1	<0.1
	Pyrene	0.1	µg/L				<0.1	<0.1	<0.1
	Sum of detected PAH	0.1	µg/L				<0.1	<0.1	<0.1
OCP	DDE	0.001	µg/L				<0.001	-	<0.001
	DDT	0.001	µg/L		0.006		<0.001	-	<0.001
	DDD	0.001	µg/L				<0.001	-	<0.001
	Aldrin	0.001	µg/L		0.001		<0.001	-	<0.001
	Dieldrin	0.001	µg/L		0.01		<0.001	-	<0.001
	Aldrin + Dieldrin (calculated)	0.001	µg/L				<0.001	-	<0.001
	alpha-chlordane	0.001	µg/L				<0.001	-	<0.001
	gamma-Chlordane	0.001	µg/L				<0.001	-	<0.001
	Endosulfan I	0.002	µg/L				<0.002	-	<0.002
	Endosulfan II	0.002	µg/L				<0.002	-	<0.002
	Endosulfan Sulphate	0.001	µg/L				<0.001	-	<0.001
	Endrin	0.001	µg/L		0.01		<0.001	-	<0.001
	Endrin Aldehyde	0.001	µg/L				<0.001	-	<0.001
	Heptachlor	0.001	µg/L		0.01		<0.001	-	<0.001
	Heptachlor Epoxide	0.001	µg/L				<0.001	-	<0.001
	Hexachlorobenzene	0.001	µg/L		0.1		<0.001	-	<0.001
	Methoxychlor	0.001	µg/L		0.005		<0.001	-	<0.001
	alpha-BHC	0.001	µg/L				<0.001	-	<0.001
	beta-BHC	0.001	µg/L				<0.001	-	<0.001
	delta-BHC	0.001	µg/L				<0.001	-	<0.001
Lindane	0.001	µg/L		0.2		<0.001	-	<0.001	
Sum of detected OCP	0.001	µg/L				<0.001	-	<0.001	
OPP	Azinphos methyl (Guthion)	0.02	µg/L		0.02		<0.02	-	<0.02
	Bromophos-ethyl	0.05	µg/L				<0.05	-	<0.05
	Chlorpyrifos	0.009	µg/L		0.00004		<0.009	-	<0.009
	Chlorpyrifos-methyl	0.05	µg/L				<0.05	-	<0.05
	Diazinon	0.01	µg/L		0.01		<0.01	-	<0.01
	Dichlorvos	0.05	µg/L				<0.05	-	<0.05
	Dimethoate	0.1	µg/L		0.15		<0.1	-	<0.1
	Ethion	0.05	µg/L				<0.05	-	<0.05
	Ronnel (fenchlorphos)	0.05	µg/L				<0.05	-	<0.05
	Fenitrothion	0.05	µg/L		0.2		<0.05	-	<0.05
Fenthion	0.05	µg/L				<0.05	-	<0.05	

Sample ID				NEPC (2013) HSL 4-8m	ANZG (2018) 95% LOP	HEPA (2020) 99% LOP Fre sh	BH1	BD1/20250107	BH8
Sample Date		PQL	Units				07/01/25	07/01/25	07/01/25
	Malathion	0.05	µg/L		0.05		<0.05	-	<0.05
	Parathion	0.004	µg/L		0.004		<0.004	-	<0.004
	Parathion-methyl	0.05	µg/L				<0.05	-	<0.05
	Methidathion	0.05	µg/L				<0.05	-	<0.05
	Fenamiphos	0.05	µg/L				<0.05	-	<0.05
	Sum of detected OPP	0.004	µg/L				<0.004	-	<0.004
PCB	Arochlor 1016	0.01	µg/L				<0.01	-	<0.01
	Arochlor 1221	0.01	µg/L				<0.01	-	<0.01
	Arochlor 1232	0.01	µg/L				<0.01	-	<0.01
	Arochlor 1242	0.01	µg/L		0.3		<0.01	-	<0.01
	Arochlor 1248	0.01	µg/L				<0.01	-	<0.01
	Arochlor 1254	0.01	µg/L		0.01		<0.01	-	<0.01
	Arochlor 1260	0.01	µg/L				<0.01	-	<0.01
	Sum of detected PCB	0.01	µg/L				<0.01	-	<0.01
	1,1,1,2-tetrachloroethane	1	µg/L				<1	-	<1
	1,1,1-trichloroethane	1	µg/L		270		<1	-	<1
	1,1,2,2-tetrachloroethane	1	µg/L		400		<1	-	<1
	tetrachloroethene	1	µg/L		70		<1	-	<1
	1,1,2-trichloroethane	1	µg/L		6,500		<1	-	<1
	1,1,2-trichloroethylene	1	µg/L		330		<1	-	<1
	1,1-dichloroethane	1	µg/L				<1	-	<1
	1,1-Dichloroethene	1	µg/L		700		<1	-	<1
	1,1-dichloropropene	1	µg/L				<1	-	<1
	1,2,3-trichlorobenzene	1	µg/L		3		<1	-	<1
	1,2,3-trichloropropane	1	µg/L				<1	-	<1
	1,2,4-trichlorobenzene	1	µg/L		85		<1	-	<1
	1,2,4-trimethyl benzene	1	µg/L				<1	-	<1
	1,2-dibromo-3-chloropropane	1	µg/L				<1	-	<1
	1,2-dichlorobenzene	1	µg/L		160		<1	-	<1

Sample ID				NEPC (2013) HSL 4-8m	ANZG (2018) 95% LOP	HEPA (2020) 99% LOP Fre sh	BH1	BD1/20250107	BH8	
Sample Date		PQL	Units				07/01/25	07/01/25	07/01/25	
VOC (excluding BTEX)	1,2-dichloroethane	1	µg/L		1900		<1	-	<1	
	1,2-dichloropropane	1	µg/L		900		<1	-	<1	
	1,3,5-trimethyl benzene	1	µg/L				<1	-	<1	
	1,3-dichlorobenzene	1	µg/L		260		<1	-	<1	
	1,3-dichloropropane	1	µg/L		1,100		<1	-	<1	
	1,4-dichlorobenzene	1	µg/L		60		<1	-	<1	
	2,2-dichloropropane	1	µg/L				<1	-	<1	
	2-chlorotoluene	1	µg/L				<1	-	<1	
	4-chlorotoluene	1	µg/L				<1	-	<1	
	4-isopropyl toluene	1	µg/L				<1	-	<1	
	Bromobenzene	1	µg/L				<1	-	<1	
	Bromochloromethane	1	µg/L				<1	-	<1	
	Bromodichloromethane	1	µg/L				<1	-	<1	
	Bromoform	1	µg/L				<1	-	<1	
	carbon tetrachloride	1	µg/L			240		<1	-	<1
	Chloroethane	10	µg/L					<10	-	<10
	Vinyl Chloride	10	µg/L			100		<10	-	<10
	Chloroform	1	µg/L			770		2	-	<1
	Chloromethane	10	µg/L					<10	-	<10
	cis-1,2-dichloroethene	1	µg/L					<1	-	<1
	cis-1,3-dichloropropene	1	µg/L					<1	-	<1
	Isopropylbenzene (cumene)	1	µg/L			30		<1	-	<1
	Cyclohexane	1	µg/L					<1	-	<1
	dibromochloromethane	1	µg/L					<1	-	<1
	Dibromomethane	1	µg/L					<1	-	<1
	Dichlorodifluoromethane	10	µg/L					<10	-	<10
	1,2-dibromoethane	1	µg/L					<1	-	<1
	hexachlorobutadiene	1	µg/L					<1	-	<1
	Bromomethane	10	µg/L					<10	-	<10
	Monochlorobenzene	1	µg/L			55		<1	-	<1
	n-butyl benzene	1	µg/L					<1	-	<1
	n-propyl benzene	1	µg/L					<1	-	<1
sec-butyl benzene	1	µg/L					<1	-	<1	
Styrene (vinylbenzene)	1	µg/L					<1	-	<1	
Tert-butyl benzene	1	µg/L					<1	-	<1	
trans-1,2-dichloroethene	1	µg/L					<1	-	<1	

Sample ID				NEPC (2013) HSL 4-8m	ANZG (2018) 95% LOP	HEPA (2020) 99% LOP Fresh	BH1	BD1/20250107	BH8
Sample Date		PQL	Units				07/01/25	07/01/25	07/01/25
	trans-1,3-dichloropropene	1	µg/L				<1	-	<1
	Trichlorofluoromethane	10	µg/L				<10	-	<10
	Sum of detected VOC	1	µg/L				2	-	<1
PFAS	PFOS	0.0002	µg/L			0.00023	0.013	-	0.015
	PFOA	0.0002	µg/L			19	0.018	-	0.015
	PFHxS	0.0002	µg/L				0.011	-	0.012
	Perfluorobutanesulfonic acid	0.0004	µg/L				0.008	-	0.0041
	Perfluoropentanesulfonic acid	0.001	µg/L				0.001	-	0.001
	Perfluoroheptanesulfonic acid	0.001	µg/L				<0.001	-	0.001
	Perfluorodecanesulfonic acid	0.002	µg/L				<0.002	-	<0.002
	Perfluorobutanoic acid	0.002	µg/L				0.007	-	0.007
	Perfluoropentanoic acid	0.002	µg/L				0.009	-	0.007
	Perfluorohexanoic acid	0.0004	µg/L				0.011	-	0.013
	Perfluoroheptanoic acid	0.0004	µg/L				0.0082	-	0.0079
	Perfluorononanoic acid	0.001	µg/L				0.002	-	<0.001
	Perfluorodecanoic acid	0.002	µg/L				<0.002	-	<0.002
	Perfluoroundecanoic acid	0.002	µg/L				<0.002	-	<0.002
	Perfluorododecanoic acid	0.005	µg/L				<0.005	-	<0.005
	Perfluorotridecanoic acid	0.01	µg/L				<0.01	-	<0.01
	Perfluorotetradecanoic acid	0.05	µg/L				<0.05	-	<0.05
	4:2 FTS	0.001	µg/L				<0.001	-	<0.001
	6:2 FTS	0.0004	µg/L				<0.0004	-	<0.0004
	8:2 FTS	0.0004	µg/L				<0.0004	-	<0.0004
	10:2 FTS	0.002	µg/L				<0.002	-	<0.002
	Perfluorooctane sulfonamide	0.01	µg/L				<0.01	-	<0.01
	N-Methyl perfluorooctane sulfonamide	0.05	µg/L				<0.05	-	<0.05
	N-Ethyl perfluorooctanesulfonamide	0.1	µg/L				<0.1	-	<0.1
	N-Me perfluorooctanesulfonamide oeth	0.05	µg/L				<0.05	-	<0.05
	N-Et perfluorooctanesulfonamide oetha	0.5	µg/L				<0.5	-	<0.5
	MePerfluorooctanesulfamid oacetic ac	0.002	µg/L				<0.002	-	<0.002
	EtPerfluorooctanesulfamid oacetic ac	0.002	µg/L				<0.002	-	<0.002
Sum of detected PFAS	0.0002	µg/L				0.088	-	0.083	

Notes:

- No criterion / not defined / not tested / not applicable
- * QA/QC replicate of sample listed directly below the primary sample
- NL Not limiting
- PQL Practical quantitation limit
- 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
- NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013), health screening level Sand 4-8m
- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 95% level of protection of species for Fresh aquatic ecosystems [NB: 99% level of protection adopted for bioaccumulative chemicals]
- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 95% level of protection of species for Marine aquatic ecosystems [NB: 99% level of protection adopted for bioaccumulative chemicals]
- HEPA (2018) PFAS National Environmental Management Plan, Version 2 99% level of protection for Fresh water aquatic ecosystems
- HEPA (2018) PFAS National Environmental Management Plan, 99% level of protection for Marine water aquatic ecosystems
- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, orange text is 'unknown' level of protection
- Underlining of ANZG (2018) criteria indicates a criteria with an 'unknown' level of protection.
- ANZG (2018) DGV adopted for most conservative species of following analytes: DGV for xylene (m) adopted for xylene (m+p); DGV for CrVI adopted for total chromium; DGV for AsV adopted for total arsenic
- ANZG (2018) DGV adopted for aluminium in freshwater is for receiving waters with pH >6.5. For receiving waters with pH <6.5 suitability of the more conservative, low reliability DGV of unknown LOP should be considered
- ANZG (2018) Ammonia DGV is pH and temperature dependent. DGV for a pH of 8 provided in table.

Appendix I

Laboratory Reports



Envirolab Services Pty Ltd

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CERTIFICATE OF ANALYSIS 368839

Client Details

Client	Douglas Partners Pty Ltd
Attention	Huy Tran
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>20854.03, Maroubra</u>
Number of Samples	28 Soil
Date samples received	12/12/2024
Date completed instructions received	12/12/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by 19/12/2024

Date of Issue 19/12/2024

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Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

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Sean McAlary, Senior Chemist

Steven Luong, Senior Chemist

Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		368839-1	368839-2	368839-5	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	0.8-1	1-1.2	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	15/12/2024	15/12/2024	15/12/2024	15/12/2024	15/12/2024
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	%	89	89	89	85	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		368839-9	368839-12	368839-13	368839-14	368839-16
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	15/12/2024	15/12/2024	15/12/2024	16/12/2024	16/12/2024
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	90	92	92	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		368839-18	368839-19	368839-22	368839-24	368839-25
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH8
Depth		1.1-1.3	0.3-0.5	0.3-0.5	1.3-1.5	1.6-1.8
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
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	%	91	75	88	96	95

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		368839-26	368839-27	368839-28
Your Reference	UNITS	BD1/20241209	TS	TB
Depth		-	-	-
Date Sampled		09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024
TRH C ₆ - C ₉	mg/kg	<25	[NA]	<25
TRH C ₆ - C ₁₀	mg/kg	<25	[NA]	<25
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	[NA]	<25
Benzene	mg/kg	<0.2	89%	<0.2
Toluene	mg/kg	<0.5	89%	<0.5
Ethylbenzene	mg/kg	<1	91%	<1
m+p-xylene	mg/kg	<2	91%	<2
o-Xylene	mg/kg	<1	90%	<1
Naphthalene	mg/kg	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	77	91	82

svTRH (C10-C40) in Soil						
Our Reference		368839-1	368839-2	368839-5	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	0.8-1	1-1.2	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	%	82	82	81	80	81

svTRH (C10-C40) in Soil						
Our Reference		368839-9	368839-12	368839-13	368839-14	368839-16
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	14/12/2024	14/12/2024	14/12/2024
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	%	81	80	79	80	78

svTRH (C10-C40) in Soil						
Our Reference		368839-18	368839-19	368839-22	368839-24	368839-25
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH8
Depth		1.1-1.3	0.3-0.5	0.3-0.5	1.3-1.5	1.6-1.8
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	14/12/2024	14/12/2024	14/12/2024	14/12/2024	14/12/2024
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	%	80	82	79	80	79

svTRH (C10-C40) in Soil		
Our Reference		368839-26
Your Reference	UNITS	BD1/20241209
Depth		-
Date Sampled		09/12/2024
Type of sample		Soil
Date extracted	-	13/12/2024
Date analysed	-	14/12/2024
TRH C ₁₀ - C ₁₄	mg/kg	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	78

PAHs in Soil						
Our Reference		368839-1	368839-2	368839-5	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	0.8-1	1-1.2	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	95	94	95	92	95

PAHs in Soil						
Our Reference		368839-9	368839-12	368839-13	368839-14	368839-16
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.2	<0.2	0.3
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.1	<0.05	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	<0.05	0.94	<0.05	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	%	93	95	96	94	96

PAHs in Soil						
Our Reference		368839-18	368839-19	368839-22	368839-24	368839-25
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH8
Depth		1.1-1.3	0.3-0.5	0.3-0.5	1.3-1.5	1.6-1.8
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	96	95	94	94

PAHs in Soil		
Our Reference		368839-26
Your Reference	UNITS	BD1/20241209
Depth		-
Date Sampled		09/12/2024
Type of sample		Soil
Date extracted	-	13/12/2024
Date analysed	-	13/12/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.6
Pyrene	mg/kg	0.6
Benzo(a)anthracene	mg/kg	0.4
Chrysene	mg/kg	0.5
Benzo(b,j+k)fluoranthene	mg/kg	1
Benzo(a)pyrene	mg/kg	0.68
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4
Dibenzo(a,h)anthracene	mg/kg	0.1
Benzo(g,h,i)perylene	mg/kg	0.5
Total +ve PAH's	mg/kg	4.9
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1
Benzo(a)pyrene TEQ calc(half)	mg/kg	1
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1
Surrogate <i>p</i> -Terphenyl-d14	%	94

Organochlorine Pesticides in soil						
Our Reference		368839-1	368839-8	368839-13	368839-14	368839-16
Your Reference	UNITS	BH1	BH3	BH5	BH5	BH6
Depth		0.2-0.3	0.8-1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	97	100	97	97	97

Organochlorine Pesticides in soil				
Our Reference		368839-19	368839-22	368839-24
Your Reference	UNITS	BH7	BH8	BH8
Depth		0.3-0.5	0.3-0.5	1.3-1.5
Date Sampled		09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	98	97	96

Organophosphorus Pesticides in Soil						
Our Reference		368839-1	368839-8	368839-13	368839-14	368839-16
Your Reference	UNITS	BH1	BH3	BH5	BH5	BH6
Depth		0.2-0.3	0.8-1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	%	97	100	97	97	97

Organophosphorus Pesticides in Soil				
Our Reference		368839-19	368839-22	368839-24
Your Reference	UNITS	BH7	BH8	BH8
Depth		0.3-0.5	0.3-0.5	1.3-1.5
Date Sampled		09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024
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
Chlorpyriphos	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	%	98	97	96

PCBs in Soil						
Our Reference		368839-1	368839-8	368839-13	368839-14	368839-16
Your Reference	UNITS	BH1	BH3	BH5	BH5	BH6
Depth		0.2-0.3	0.8-1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
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	95	94	93	93

PCBs in Soil				
Our Reference		368839-19	368839-22	368839-24
Your Reference	UNITS	BH7	BH8	BH8
Depth		0.3-0.5	0.3-0.5	1.3-1.5
Date Sampled		09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024
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	%	94	93	92

Misc Soil - Inorg						
Our Reference		368839-1	368839-8	368839-13	368839-14	368839-16
Your Reference	UNITS	BH1	BH3	BH5	BH5	BH6
Depth		0.2-0.3	0.8-1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg				
Our Reference		368839-19	368839-22	368839-24
Your Reference	UNITS	BH7	BH8	BH8
Depth		0.3-0.5	0.3-0.5	1.3-1.5
Date Sampled		09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5

Acid Extractable metals in soil						
Our Reference		368839-1	368839-2	368839-5	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	0.8-1	1-1.2	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	<1	1	4	<1
Copper	mg/kg	8	<1	<1	<1	<1
Lead	mg/kg	7	1	2	<1	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	<1	<1	<1	<1
Zinc	mg/kg	22	2	3	1	<1

Acid Extractable metals in soil						
Our Reference		368839-9	368839-12	368839-13	368839-14	368839-16
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	1	2	1	1
Copper	mg/kg	<1	<1	7	2	3
Lead	mg/kg	<1	1	150	26	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	1	<1	<1
Zinc	mg/kg	<1	2	68	14	33

Acid Extractable metals in soil						
Our Reference		368839-18	368839-19	368839-22	368839-24	368839-25
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH8
Depth		1.1-1.3	0.3-0.5	0.3-0.5	1.3-1.5	1.6-1.8
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	<1	3	<1	1
Copper	mg/kg	<1	<1	8	<1	<1
Lead	mg/kg	<1	<1	4	<1	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	2	<1	<1
Zinc	mg/kg	7	<1	5	<1	<1

Acid Extractable metals in soil			
Our Reference		368839-26	368839-29
Your Reference	UNITS	BD1/20241209	BH1 - [TRIPLICATE]
Depth		-	0.2-0.3
Date Sampled		09/12/2024	10/12/2024
Type of sample		Soil	Soil
Date prepared	-	13/12/2024	13/12/2024
Date analysed	-	17/12/2024	17/12/2024
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	3	4
Copper	mg/kg	22	46
Lead	mg/kg	82	8
Mercury	mg/kg	0.2	<0.1
Nickel	mg/kg	3	3
Zinc	mg/kg	200	20

Moisture						
Our Reference		368839-1	368839-2	368839-5	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	0.8-1	1-1.2	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Moisture	%	12	2.3	2.0	7.2	1.2

Moisture						
Our Reference		368839-9	368839-12	368839-13	368839-14	368839-16
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Moisture	%	2.4	2.1	2.6	1.4	2.2

Moisture						
Our Reference		368839-18	368839-19	368839-22	368839-24	368839-25
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH8
Depth		1.1-1.3	0.3-0.5	0.3-0.5	1.3-1.5	1.6-1.8
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Moisture	%	5.0	2.9	4.7	1.4	3.0

Moisture		
Our Reference		368839-26
Your Reference	UNITS	BD1/20241209
Depth		-
Date Sampled		09/12/2024
Type of sample		Soil
Date prepared	-	13/12/2024
Date analysed	-	16/12/2024
Moisture	%	10

Asbestos ID - soils		
Our Reference		368839-24
Your Reference	UNITS	BH8
Depth		1.3-1.5
Date Sampled		09/12/2024
Type of sample		Soil
Date analysed	-	19/12/2024
Sample mass tested	g	Approx. 45g
Sample Description	-	Beige sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	Nil
Trace Analysis	-	No asbestos detected

Asbestos ID - soils NEPM						
Our Reference		368839-1	368839-8	368839-13	368839-14	368839-16
Your Reference	UNITS	BH1	BH3	BH5	BH5	BH6
Depth		0.2-0.3	0.8-1	0.3-0.5	1-1.2	0.2-0.4
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Sample mass tested	g	899.78	955.9	813.72	1,031.7	919.56
Sample Description	-	Brown sandy soil	Beige sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	-	-	-	-	-
FA and AF Estimation*	g	-	-	-	-	-
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM			
Our Reference		368839-19	368839-22
Your Reference	UNITS	BH7	BH8
Depth		0.3-0.5	0.3-0.5
Date Sampled		09/12/2024	09/12/2024
Type of sample		Soil	Soil
Date analysed	-	18/12/2024	18/12/2024
Sample mass tested	g	840.55	962.19
Sample Description	-	Tan sandy soil	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	-	-
FA and AF Estimation*	g	-	-
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001
Asbestos comments	-	Nil	Nil

PFAS in Soils Extended					
Our Reference		368839-1	368839-14	368839-16	368839-22
Your Reference	UNITS	BH1	BH5	BH6	BH8
Depth		0.2-0.3	1-1.2	0.2-0.4	0.3-0.5
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Perfluorobutanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoropentanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorobutanoic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluoropentanoic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorohexanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorooctanoic acid PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorononanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluoroundecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorododecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorotridecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorotetradecanoic acid	µg/kg	<5	<5	<5	<5
4:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1
6:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1
8:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2
10:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorooctane sulfonamide	µg/kg	<1	<1	<1	<1
N-Methyl perfluorooctane sulfonamide	µg/kg	<1	<1	<1	<1
N-Ethyl perfluorooctanesulfonamide	µg/kg	<1	<1	<1	<1
N-Me perfluorooctanesulfonamid ethanol	µg/kg	<1	<1	<1	<1
N-Et perfluorooctanesulfonamid ethanol	µg/kg	<5	<5	<5	<5
MePerfluorooctanesulf- amid oacetic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
EtPerfluorooctanesulf amid oacetic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Surrogate ¹³ C ₈ PFOS	%	106	108	104	109
Surrogate ¹³ C ₂ PFOA	%	105	102	102	99
Extracted ISTD ¹³ C ₃ PFBS	%	96	100	105	97
Extracted ISTD ¹⁸ O ₂ PFHxS	%	107	100	101	102
Extracted ISTD ¹³ C ₄ PFOS	%	101	101	108	96

PFAS in Soils Extended					
Our Reference		368839-1	368839-14	368839-16	368839-22
Your Reference	UNITS	BH1	BH5	BH6	BH8
Depth		0.2-0.3	1-1.2	0.2-0.4	0.3-0.5
Date Sampled		10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil
Extracted ISTD ¹³ C ₄ PFBA	%	95	98	101	96
Extracted ISTD ¹³ C ₃ PFPeA	%	100	105	104	102
Extracted ISTD ¹³ C ₂ PFHxA	%	102	104	109	102
Extracted ISTD ¹³ C ₄ PFHpA	%	101	103	104	101
Extracted ISTD ¹³ C ₄ PFOA	%	99	102	107	103
Extracted ISTD ¹³ C ₅ PFNA	%	102	106	103	99
Extracted ISTD ¹³ C ₂ PFDA	%	108	108	110	104
Extracted ISTD ¹³ C ₂ PFUnDA	%	114	116	116	114
Extracted ISTD ¹³ C ₂ PFDoDA	%	113	115	111	108
Extracted ISTD ¹³ C ₂ PFTeDA	%	125	126	126	120
Extracted ISTD ¹³ C ₂ 4:2FTS	%	79	85	86	84
Extracted ISTD ¹³ C ₂ 6:2FTS	%	80	87	92	84
Extracted ISTD ¹³ C ₂ 8:2FTS	%	92	95	104	94
Extracted ISTD ¹³ C ₈ FOSA	%	113	115	119	110
Extracted ISTD d ₃ N MeFOSA	%	112	112	111	103
Extracted ISTD d ₅ N EtFOSA	%	106	108	116	109
Extracted ISTD d ₇ N MeFOSE	%	102	106	105	101
Extracted ISTD d ₉ N EtFOSE	%	100	109	106	100
Extracted ISTD d ₃ N MeFOSAA	%	115	113	115	108
Extracted ISTD d ₅ N EtFOSAA	%	115	110	128	111
Total Positive PFHxS & PFOS	µg/kg	<0.1	<0.1	<0.1	<0.1
Total Positive PFOS & PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1
Total Positive PFAS	µg/kg	<0.1	<0.1	<0.1	<0.1

sPOCAS field test						
Our Reference		368839-1	368839-3	368839-4	368839-6	368839-8
Your Reference	UNITS	BH1	BH1	BH2	BH2	BH3
Depth		0.2-0.3	1.5-1.6	0.3-0.5	1.6-1.8	0.8-1
Date Sampled		10/12/2024	10/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
pH _F (field pH test)	pH Units	8.0	4.9	3.8	3.4	3.2
pH _{FOX} (field peroxide test)	pH Units	6.1	5.6	5.8	5.3	5.3
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test						
Our Reference		368839-9	368839-12	368839-13	368839-15	368839-17
Your Reference	UNITS	BH3	BH4	BH5	BH5	BH6
Depth		1.3-1.5	0.9-1.1	0.3-0.5	1.5-1.7	0.5-0.7
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
pH _F (field pH test)	pH Units	3.7	4.6	4.1	7.0	6.7
pH _{FOX} (field peroxide test)	pH Units	5.3	5.5	5.7	5.4	5.3
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test						
Our Reference		368839-18	368839-20	368839-21	368839-23	368839-24
Your Reference	UNITS	BH6	BH7	BH7	BH8	BH8
Depth		1.1-1.3	0.8-1	1.5-1.7	0.5-0.7	1.3-1.5
Date Sampled		09/12/2024	09/12/2024	09/12/2024	09/12/2024	09/12/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
Date analysed	-	13/12/2024	13/12/2024	13/12/2024	13/12/2024	13/12/2024
pH _F (field pH test)	pH Units	6.2	5.8	5.9	5.7	6.4
pH _{FOX} (field peroxide test)	pH Units	5.2	5.2	5.3	5.2	5.3
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test		
Our Reference		368839-25
Your Reference	UNITS	BH8
Depth		1.6-1.8
Date Sampled		09/12/2024
Type of sample		Soil
Date prepared	-	13/12/2024
Date analysed	-	13/12/2024
pH _F (field pH test)	pH Units	5.7
pH _{Fox} (field peroxide test)	pH Units	5.2
Reaction Rate*	-	Low 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	<p>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.</p> <p>Results reported denoted with * are outside our scope of NATA accreditation.</p> <p>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)</p> <p>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.</p> <p>Estimation = Estimated asbestos weight</p> <p>Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.</p>
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
<p>Org-023</p>	<p>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.</p> <p>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.</p>
<p>Org-029</p>	<p>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.</p> <p>Analysis is undertaken with LC-MS/MS.</p> <p>PFAS results include the sum of branched and linear isomers where applicable.</p> <p>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.</p> <p>Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.</p>

Client Reference: 20854.03, Maroubra

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			15/12/2024	1	15/12/2024	15/12/2024		15/12/2024	15/12/2024
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	90	100
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	90	100
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	88	102
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	92	102
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	92	110
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	88	92
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	88	93
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	94	1	89	86	3	83	87

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]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	16/12/2024	16/12/2024		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	19	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	19	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	19	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	19	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	19	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	19	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	19	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	19	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	19	75	96	25	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	108	103
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	93	93
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	86	106
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	108	103
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	93	93
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	86	106
Surrogate o-Terphenyl	%		Org-020	80	1	82	85	4	86	86

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	14/12/2024	14/12/2024		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	19	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	19	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	19	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	19	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	19	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	19	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	19	82	79	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	90
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	92
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	88
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	92
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	92
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	88	86
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	94	1	95	95	0	91	90

QUALITY CONTROL: PAHs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	19	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	19	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	19	96	95	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94
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	88	86
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	84	84
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	92	90
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	96
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	88	88
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	102
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	92
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	96	94
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	86	82
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	97	1	97	96	1	96	95

QUALITY CONTROL: Organochlorine Pesticides in soil				Duplicate			Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	19	98	97	1	[NT]	[NT]

Client Reference: 20854.03, Maroubra

QUALITY CONTROL: Organophosphorus Pesticides in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	102
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	90	88
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	106	96
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	96
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	92
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	96	88
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	104	96
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	97	1	97	96	1	96	95

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	19	98	97	1	[NT]	[NT]

Client Reference: 20854.03, Maroubra

QUALITY CONTROL: PCBs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date extracted	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
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	95	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	92	1	92	91	1	90	89

QUALITY CONTROL: PCBs in Soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	19	94	93	1	[NT]	[NT]

Client Reference: 20854.03, Maroubra

QUALITY CONTROL: Misc Soil - Inorg				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	368839-8
Date prepared	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	101	95

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	368839-8
Date prepared	-			13/12/2024	1	13/12/2024	13/12/2024		13/12/2024	13/12/2024
Date analysed	-			17/12/2024	1	17/12/2024	17/12/2024		17/12/2024	17/12/2024
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	115	103
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	101	95
Chromium	mg/kg	1	Metals-020	<1	1	2	6	100	106	98
Copper	mg/kg	1	Metals-020	<1	1	8	16	67	103	99
Lead	mg/kg	1	Metals-020	<1	1	7	7	0	103	97
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	99	100
Nickel	mg/kg	1	Metals-020	<1	1	2	2	0	104	98
Zinc	mg/kg	1	Metals-020	<1	1	22	17	26	107	99

QUALITY CONTROL: Acid Extractable metals in soil				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	19	13/12/2024	13/12/2024		[NT]	[NT]
Date analysed	-			[NT]	19	17/12/2024	17/12/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	19	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	19	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	19	<1	<1	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	19	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	19	<1	<1	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	19	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	19	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	19	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Soils Extended				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			13/12/2024	[NT]	[NT]	[NT]	[NT]	13/12/2024	[NT]
Date analysed	-			13/12/2024	[NT]	[NT]	[NT]	[NT]	13/12/2024	[NT]
Perfluorobutanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluoropentanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoroheptanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorodecanesulfonic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorobutanoic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluoropentanoic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluoroheptanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorononanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorodecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluoroundecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorododecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorotridecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorotetradecanoic acid	µg/kg	5	Org-029	<5	[NT]	[NT]	[NT]	[NT]	95	[NT]
4:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
6:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
8:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	105	[NT]
10:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	117	[NT]
Perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
N-Methyl perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
N-Ethyl perfluorooctanesulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
N-Me perfluorooctanesulfonamidethanol	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
N-Et perfluorooctanesulfonamidethanol	µg/kg	5	Org-029	<5	[NT]	[NT]	[NT]	[NT]	114	[NT]
MePerfluorooctanesulfonamidacetic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	98	[NT]
EtPerfluorooctanesulfonamidacetic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Soils Extended							Duplicate		Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	116	[NT]	[NT]	[NT]	[NT]	112	[NT]
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	117	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	82	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	120	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD d ₃ N MeFOSA	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD d ₅ N EtFOSA	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	104	[NT]
Extracted ISTD d ₇ N MeFOSE	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: PFAS in Soils Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
<i>Extracted ISTD d₉ N EtFOSE</i>	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
<i>Extracted ISTD d₃ N MeFOSAA</i>	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	106	[NT]
<i>Extracted ISTD d₅ N EtFOSAA</i>	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	105	[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

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 368839-1 for Cu. Therefore a triplicate result has been issued as laboratory sample number 368839-29.

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 368839-24 was sub-sampled from a jar provided by the client.

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.

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Manager: Huy Tran	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: huy.tran@douglaspartners.com.au		Attn: Sample Receipt
Turnaround time: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 72 hour <input type="checkbox"/> 48 hour <input type="checkbox"/> 24 hour <input type="checkbox"/> Same day		(02) 9910 6200 samplereceipt@envirolab.com

Prior Storage: Fridge Freezer Esky Shelf **Do samples contain 'potential' HBM?** No Yes (if YES, then handle, transport and 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 8AN	Combo 3	PFAS / PFOA	BTEXN	ASS Field Test								
1	BH1	0.2	0.3	10/12/24	S	G/P	x		x		x								
2	BH1	0.8	1	10/12/24	S	G/P		x											
3	BH1	1.5	1.6	10/12/24	S	G/P					x								
4	BH2	0.3	0.5	9/12/24	S	G/P					x								
5	BH2	1	1.2	9/12/24	S	G/P		x											
6	BH2	1.6	1.8	9/12/24	S	G/P		x			x								
7	BH3	0.3	0.5	9/12/24	S	G/P													on hold
8	BH3	0.8	1	9/12/24	S	G/P	x				x								
9	BH3	1.3	1.5	9/12/24	S	G/P		x			x								
10	BH4	0.3	0.5	9/12/24	S	G/P													on hold
11	BH4	0.6	0.8	9/12/24	S	G/P													on hold
12	BH4	0.9	1.1	9/12/24	S	G/P		x			x								
13	BH5	0.3	0.5	9/12/24	S	G/P	x				x								
14	BH5	1	1.2	9/12/24	S	G/P	x		x										

12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: **368839**
 Date Received:

Metals to analyse:		LAB RECEIPT	
Number of samples in container:	Transported to laboratory by:	Time Received: 12/12/24	Received By: 1350 EW
Send results to: Douglas Partners Pty Ltd	Address: 96 Hermitage Road, West Ryde NSW 211	Temp: (Circled) Ambient	Cooling: Ice/Ic (Circled) 6°C
Address: 96 Hermitage Road, West Ryde NSW 211	Phone: (02) 9809 0666	Date & Time:	Security: Intact/Broken/None
Relinquished by:	Date:	Signed:	Signed:

Project No: 20854.03 **Suburb:** Maroubra **To:** Envirolab Services
Project Manager: Huy Tran **Dispatch date:** 0/01/1900

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 3	PFAS / PFOA	BTEXN	ASS Field Test							
15	BH5	1.5	1.7	9/12/24	S	G/P							x					
16	BH6	0.2	0.4	9/12/24	S	G/P	x			x								
17	BH6	0.5	0.7	9/12/24	S	G/P							x					
18	BH6	1.1	1.3	9/12/24	S	G/P		x					x					
19	BH7	0.3	0.5	9/12/24	S	G/P	x											
20	BH7	0.8	1	9/12/24	S	G/P							x					
21	BH7	1.5	1.7	9/12/24	S	G/P							x					
22	BH8	0.3	0.5	9/12/24	S	G/P	x			x								
23	BH8	0.5	0.7	9/12/24	S	G/P							x					
24	BH8	1.3	1.5	9/12/24	S	G/P	x						x					
25	BH8	1.6	1.8	9/12/24	S	G/P		x					x					* 368839
26	BD1/20241209			9/12/24	S	G/P		x										12/12
	27	TS/TB	28	9/12/24	S	G/P							x					PW

Project No: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Manager: Huy Tran	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: huy.tran@douglaspartners.com.au		Attn: Sample Receipt
Turnaround time: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 72 hour <input type="checkbox"/> 48 hour <input type="checkbox"/> 24 hour <input type="checkbox"/> Same day		(02) 9910 6200 samplerreceipt@envirolab.com

Prior Storage: Fridge Freezer Esky Shelf **Do samples contain 'potential' HBM?** No Yes (if YES, then handle, transport and 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														
	BH1 ✓	0.2	0.3	10/12/24	S	G/P														
	BH1 ✓	0.8	1	10/12/24	S	G/P														
	BH1 ✓	1.5	1.6	10/12/24	S	G/P														
	BH2 ✓	0.3	0.5	9/12/24	S	G/P														
	BH2 ✓	1	1.2	9/12/24	S	G/P														
	BH2 ✓	1.6	1.8	9/12/24	S	G/P														
	BH3 ✓	0.3	0.5	9/12/24	S	G/P														
	BH3 ✓	0.8	1	9/12/24	S	G/P														
	BH3 ✓	1.3	1.5	9/12/24	S	G/P														# 368839
	BH4 ✓	0.3	0.5	9/12/24	S	G/P														12/12
	BH4 ✓	0.6	0.8	9/12/24	S	G/P														RW
	BH4 ✓	0.9	1.1	9/12/24	S	G/P														
	BH5 ✓	0.3	0.5	9/12/24	S	G/P														
	BH5 ✓	1	1.2	9/12/24	S	G/P														

Metals to analyse:										LAB RECEIPT									
Number of samples in container:					Transported to laboratory by:					Lab Ref. No:									
Send results to: Douglas Partners Pty Ltd										Received by:									
Address: 96 Hermitage Road, West Ryde NSW 211					Phone: (02) 9809 0666					Date & Time:									
Relinquished by: HT					Date: 12/12/24					Signed:									

Project No: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Manager: Huy Tran		Dispatch date: 0/01/1900

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													
	BH5 /	1.5	1.7	9/12/24	S	G/P													
	BH6	0.2	0.4	9/12/24	S	G/P													
	BH6	0.5	0.7	9/12/24	S	G/P													
	BH6	1.1	1.3	9/12/24	S	G/P													
	BH7	0.3	0.5	9/12/24	S	G/P													
	BH7	0.8	1	9/12/24	S	G/P													
	BH7	1.5	1.7	9/12/24	S	G/P													
	BH8	0.3	0.5	9/12/24	S	G/P													
	BH8	0.5	0.7	9/12/24	S	G/P													» 368829
	BH8	1.3	1.5	9/12/24	S	G/P													12/12
	BH8	1.6	1.8	9/12/24	S	G/P													PW
	B01/2024129			9/12/24	S	G													
	TS/TB				S	G													

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Huy Tran

Sample Login Details

Your reference	20854.03, Maroubra
Envirolab Reference	368839
Date Sample Received	12/12/2024
Date Instructions Received	12/12/2024
Date Results Expected to be Reported	19/12/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	28 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Sample #24-BH8/1.3-1.5: No 1 x 500mL soil bag received for Asb NEPM testing. Will test for Asb ID instead - confirmed with client via email.

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	Misc Soil - Inorg	Acid Extractable metals in soil	Asbestos ID - soils	Asbestos ID - soils NEPM	PFAS in Soils Extended	sPOCAS field test	On Hold
BH1-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	
BH1-0.8-1	✓	✓	✓					✓					
BH1-1.5-1.6												✓	
BH2-0.3-0.5												✓	
BH2-1-1.2	✓	✓	✓					✓					
BH2-1.6-1.8	✓	✓	✓					✓				✓	
BH3-0.3-0.5													✓
BH3-0.8-1	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	
BH3-1.3-1.5	✓	✓	✓					✓				✓	
BH4-0.3-0.5													✓
BH4-0.6-0.8													✓
BH4-0.9-1.1	✓	✓	✓					✓				✓	
BH5-0.3-0.5	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	
BH5-1-1.2	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
BH5-1.5-1.7												✓	
BH6-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
BH6-0.5-0.7												✓	
BH6-1.1-1.3	✓	✓	✓					✓				✓	
BH7-0.3-0.5	✓	✓	✓	✓	✓	✓	✓	✓		✓			
BH7-0.8-1												✓	
BH7-1.5-1.7												✓	
BH8-0.3-0.5	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
BH8-0.5-0.7												✓	
BH8-1.3-1.5	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	
BH8-1.6-1.8	✓	✓	✓					✓				✓	
BD1/20241209	✓	✓	✓					✓					
TS	✓												
TB	✓												

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



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

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 368839-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Huy Tran
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>20854.03, Maroubra</u>
Number of Samples	Additional analysis 1 sample
Date samples received	12/12/2024
Date completed instructions received	07/01/2025

Analysis Details

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

Report Details

Date results requested by	14/01/2025
Date of Issue	09/01/2025
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Results Approved By
 Tabitha Roberts, Senior Chemist

Authorised By
 Nancy Zhang, Laboratory Manager

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		368839-A-13
Your Reference	UNITS	BH5
Depth		0.3-0.5
Date Sampled		09/12/2024
Type of sample		Soil
Date extracted	-	09/01/2025
Date analysed	-	09/01/2025
pH of soil for fluid# determ.	pH units	6.7
pH of soil TCLP (after HCl)	pH units	1.9
Extraction fluid used		1
pH of final Leachate	pH units	5.1
Lead	mg/L	1.2

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.

Client Reference: 20854.03, Maroubra

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	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	113	[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.

CERTIFICATE OF ANALYSIS 370002

Client Details

Client	Douglas Partners Pty Ltd
Attention	Huy Tran
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>20854.03 Maroubra, Proposed mixed use development</u>
Number of Samples	7 Air
Date samples received	09/01/2025
Date completed instructions received	08/01/2025

Analysis Details

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

Report Details

Date results requested by	15/01/2025
Date of Issue	14/01/2025
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Results Approved By

Amanda Chui, LC/Air Toxics Supervisor
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

TO15 in Canisters/Bags				
Our Reference		370002-1	370002-3	370002-5
Your Reference	UNITS	SV1	SV2	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Air	Air	Air
Air Kit Security No.		3527	2474	1694
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-9	-9	-9
Date prepared	-	08/01/2025	08/01/2025	08/01/2025
Date analysed	-	08/01/2025	08/01/2025	08/01/2025
Propylene	ppbv	1	0.6	0.6
Dichlorodifluoromethane	ppbv	<0.5	<0.5	<0.5
Chloromethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<0.5	<0.5	<0.5
Bromomethane	ppbv	<0.5	<0.5	<0.5
Chloroethane	ppbv	<0.5	<0.5	<0.5
Ethanol	ppbv	30	10	9
Acrolein	ppbv	<5	<5	<5
Trichlorofluoromethane (Freon 11)	ppbv	<0.5	<0.5	<0.5
Acetone	ppbv	20	8	7
Isopropyl Alcohol	ppbv	490	30	73
1,1-Dichloroethene	ppbv	<0.5	<0.5	<0.5
1,1,2-Trichlorotrifluoroethane	ppbv	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ppbv	<5	<5	<5
Carbon Disulfide	ppbv	<5	<5	<5
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5
MTBE	ppbv	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	<0.5
Vinyl Acetate	ppbv	<0.5	<0.5	<0.5
MEK	ppbv	<5	<5	<5
Hexane	ppbv	5.3	5.1	5.4
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	<0.5
Ethyl Acetate	ppbv	<0.5	<0.5	<0.5
Chloroform	ppbv	<0.5	<0.5	<0.5
Tetrahydrofuran	ppbv	0.9	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<0.5	<0.5	<0.5
Benzene	ppbv	<0.5	<0.5	<0.5
Carbon tetrachloride	ppbv	<0.5	<0.5	<0.5

TO15 in Canisters/Bags				
Our Reference		370002-1	370002-3	370002-5
Your Reference	UNITS	SV1	SV2	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Air	Air	Air
Air Kit Security No.		3527	2474	1694
Cyclohexane	ppbv	<0.5	<0.5	<0.5
Heptane	ppbv	<0.5	<0.5	<0.5
Trichloroethene	ppbv	<0.5	<0.5	<0.5
1,2-Dichloropropane	ppbv	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	<0.5	<0.5	<0.5
Methyl Methacrylate	ppbv	<0.5	<0.5	<0.5
MIBK	ppbv	<5	<5	<5
cis-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5
Toluene	ppbv	1	0.9	0.8
1,1,2-Trichloroethane	ppbv	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	3	<0.5	<0.5
1,2-Dibromoethane	ppbv	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<0.5	<0.5	<0.5
Ethylbenzene	ppbv	<0.5	<0.5	<0.5
m- & p-Xylene	ppbv	<1	<1	<1
Styrene	ppbv	<0.5	<0.5	<0.5
o-Xylene	ppbv	<0.5	<0.5	<0.5
Bromoform	ppbv	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ppbv	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	ppbv	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
Benzyl chloride	ppbv	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<0.5	<0.5	<0.5
Naphthalene	ppbv	<0.5	<0.5	<0.5
Hexachloro- 1,3-butadiene	ppbv	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	100	97	95
Surrogate -1,4-Difluorobenzene	% rec	95	90	88
Surrogate-Chlorobenzene-D5	% rec	101	94	92

TO15 in Canisters µg/m ³				
Our Reference		370002-1	370002-3	370002-5
Your Reference	UNITS	SV1	SV2	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Air	Air	Air
Air Kit Security No.		3527	2474	1694
Vacuum before Shipment	Hg"	-30	-30	-30
Vacuum before Analysis	Hg"	-9	-9	-9
Date prepared	-	08/01/2025	08/01/2025	08/01/2025
Date analysed	-	08/01/2025	08/01/2025	08/01/2025
Propylene	µg/m ³	2	1	1
Dichlorodifluoromethane	µg/m ³	<2.5	<2.5	<2.5
Chloromethane	µg/m ³	<1	<1	<1
1,2-Dichlorotetrafluoroethane	µg/m ³	<2.5	<2.5	<2.5
Vinyl chloride	µg/m ³	<1.3	<1.3	<1.3
1,3-Butadiene	µg/m ³	<1.1	<1.1	<1.1
Bromomethane	µg/m ³	<1.9	<1.9	<1.9
Chloroethane	µg/m ³	<1.3	<1.3	<1.3
Ethanol	µg/m ³	50	20	20
Acrolein	µg/m ³	<11	<11	<11
Trichlorofluoromethane (Freon 11)	µg/m ³	<2.8	<2.8	<2.8
Acetone	µg/m ³	40	20	20
Isopropyl Alcohol	µg/m ³	1,200	60	180
1,1-Dichloroethene	µg/m ³	<2	<2	<2
1,1,2-Trichlorotrifluoroethane	µg/m ³	<3.8	<3.8	<3.8
Methylene chloride (Dichloromethane)	µg/m ³	<17	<17	<17
Carbon Disulfide	µg/m ³	<16	<16	<16
trans-1,2-dichloroethene	µg/m ³	<2	<2	<2
MTBE	µg/m ³	<1.8	<1.8	<1.8
1,1- Dichloroethane	µg/m ³	<2	<2	<2
Vinyl Acetate	µg/m ³	<1.8	<1.8	<1.8
MEK	µg/m ³	<15	<15	<15
Hexane	µg/m ³	19	20	19
cis-1,2-Dichloroethene	µg/m ³	<2	<2	<2
Ethyl Acetate	µg/m ³	<1.8	<1.8	<1.8
Chloroform	µg/m ³	<2.4	<2.4	<2.4
Tetrahydrofuran	µg/m ³	3	<1.5	<1.5
1,1,1-Trichloroethane	µg/m ³	<2.7	<2.7	<2.7
1,2-Dichloroethane	µg/m ³	<2	<2	<2
Benzene	µg/m ³	<1.6	<1.6	<1.6
Carbon tetrachloride	µg/m ³	<3.1	<3.1	<3.1

TO15 in Canisters µg/m ³				
Our Reference		370002-1	370002-3	370002-5
Your Reference	UNITS	SV1	SV2	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Air	Air	Air
Air Kit Security No.		3527	2474	1694
Cyclohexane	µg/m ³	<1.7	<1.7	<1.7
Heptane	µg/m ³	<2	<2	<2
Trichloroethene	µg/m ³	<2.7	<2.7	<2.7
1,2-Dichloropropane	µg/m ³	<2.3	<2.3	<2.3
1,4-Dioxane	µg/m ³	<1.8	<1.8	<1.8
Bromodichloromethane	µg/m ³	<3.4	<3.4	<3.4
Methyl Methacrylate	µg/m ³	<2	<2	<2
MIBK	µg/m ³	<20	<20	<20
cis-1,3-Dichloropropene	µg/m ³	<2.3	<2.3	<2.3
trans-1,3-Dichloropropene	µg/m ³	<2.3	<2.3	<2.3
Toluene	µg/m ³	5	3	3
1,1,2-Trichloroethane	µg/m ³	<2.7	<2.7	<2.7
Methyl Butyl Ketone	µg/m ³	<2	<2	<2
Dibromochloromethane	µg/m ³	<1.6	<1.6	<1.6
Tetrachloroethene	µg/m ³	20	<3.4	<3.4
1,2-Dibromoethane	µg/m ³	<3.8	<3.8	<3.8
Chlorobenzene	µg/m ³	<2.3	<2.3	<2.3
Ethylbenzene	µg/m ³	<2.2	<2.2	<2.2
m- & p-Xylene	µg/m ³	<4.3	<4.3	<4.3
Styrene	µg/m ³	<2.1	<2.1	<2.1
o-Xylene	µg/m ³	<2.2	<2.2	<2.2
Bromoform	µg/m ³	<5.2	<5.2	<5.2
1,1,2,2-Tetrachloroethane	µg/m ³	<3.4	<3.4	<3.4
4-ethyl toluene	µg/m ³	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m ³	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m ³	<2.5	<2.5	<2.5
1,3-Dichlorobenzene	µg/m ³	<3	<3	<3
Benzyl chloride	µg/m ³	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m ³	<3	<3	<3
1,2-Dichlorobenzene	µg/m ³	<3	<3	<3
1,2,4-Trichlorobenzene	µg/m ³	<3.7	<3.7	<3.7
Naphthalene	µg/m ³	<2.6	<2.6	<2.6
Hexachloro- 1,3-butadiene	µg/m ³	<5.3	<5.3	<5.3
Surrogate-Bromochloromethane	% rec	100	97	95
Surrogate -1,4-Difluorobenzene	% rec	95	90	88
Surrogate-Chlorobenzene-D5	% rec	101	94	92

TPH Air/ Air Phase Hydrocarbon				
Our Reference		370002-1	370002-3	370002-5
Your Reference	UNITS	SV1	SV2	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Air	Air	Air
Air Kit Security No.		3527	2474	1694
Date prepared	-	08/01/2025	08/01/2025	08/01/2025
Date analysed	-	08/01/2025	08/01/2025	08/01/2025
TPH C ₅ - C ₈ Aliphatic	µg/m ³	600	<200	<200
TPH C ₉ - C ₁₂ Aliphatic	µg/m ³	<50	<50	<50
TPH C ₉ - C ₁₀ Aromatic	µg/m ³	<100	<100	<100
TPH C ₆ - C ₁₀ - BTEX (F1)	µg/m ³	<200	<200	<200
TPH >C ₁₀ - C ₁₂ - Naphthalene (F2)	µg/m ³	<40	<40	<40

IPA in Carbon Tubes & Badges*		
Our Reference		370002-7
Your Reference	UNITS	Shroud 1/202507
Date Sampled		07/01/2025
Type of sample		Air
Air Kit Security No.		1770409261
Date Extracted	-	09/01/2025
Date Analysed	-	10/01/2025
Tube Sampling rate	mL/min	84
Sampling Time	mins	4
Volume sampled	m ³	0.00034
Isopropyl Alcohol*	µg	830
Isopropyl Alcohol*	µg/m ³	2,400,000
Surrogate Toluene-d8	%	101
Surrogate 4-Bromofluorobenzene	%	85

Client Reference: 20854.03 Maroubra, Porposed mixed use development

Method ID	Methodology Summary
AT-005	Measurement of Air-Phase Petroleum Hydrocarbons and Ozone Precursors by GC-MS.
ORG-022	<p>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.</p> <p>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.</p> <p>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.</p> <p>Note - air volume measurements are not covered by Envirolab's NATA accreditation.</p>
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.
USEPA 18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography using USEPA m18.

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: TO15 in Canisters/Bags				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	-9	-9	0	[NT]	[NT]
Date prepared	-			08/01/2025	1	08/01/2025	08/01/2025		08/01/2025	[NT]
Date analysed	-			08/01/2025	1	08/01/2025	08/01/2025		08/01/2025	[NT]
Propylene	ppbv	0.5	TO15	<0.5	1	1	1	0	120	[NT]
Dichlorodifluoromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Vinyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,3-Butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromomethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethanol	ppbv	5	TO15	<5	1	30	30	0	[NT]	[NT]
Acrolein	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Acetone	ppbv	5	TO15	<5	1	20	20	0	[NT]	[NT]
Isopropyl Alcohol	ppbv	5	TO15	<5	1	490	480	2	[NT]	[NT]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Carbon Disulfide	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MTBE	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]
Vinyl Acetate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MEK	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
Hexane	ppbv	0.5	TO15	<0.5	1	5.3	5.2	2	110	[NT]
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethyl Acetate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chloroform	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Tetrahydrofuran	ppbv	0.5	TO15	<0.5	1	0.9	0.9	0	[NT]	[NT]
1,1,1-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	123	[NT]
Carbon tetrachloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Cyclohexane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	83	[NT]
Heptane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	114	[NT]

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: TO15 in Canisters/Bags						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Trichloroethene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichloropropane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dioxane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Bromodichloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methyl Methacrylate	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
MIBK	ppbv	5	TO15	<5	1	<5	<5	0	[NT]	[NT]
cis-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
trans-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Toluene	ppbv	0.5	TO15	<0.5	1	1	1	0	123	[NT]
1,1,2-Trichloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Methyl Butyl Ketone	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Dibromochloromethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	1	3	3	0	[NT]	[NT]
1,2-Dibromoethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Chlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	108	[NT]
m- & p-Xylene	ppbv	1	TO15	<1	1	<1	<1	0	108	[NT]
Styrene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	91	[NT]
o-Xylene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	109	[NT]
Bromoform	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,1,1,2-Tetrachloroethane	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
4-ethyl toluene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	118	[NT]
1,3,5-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	112	[NT]
1,2,4-Trimethylbenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	130	[NT]
1,3-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Benzyl chloride	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,4-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2-Dichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,2,4-Trichlorobenzene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Naphthalene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	ppbv	0.5	TO15	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	97	1	100	99	1	107	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	93	1	95	92	3	110	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	90	1	101	98	3	106	[NT]

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: TO15 in Canisters 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	-9	-9	0	[NT]	[NT]
Date prepared	-			08/01/2025	1	08/01/2025	08/01/2025		[NT]	[NT]
Date analysed	-			08/01/2025	1	08/01/2025	08/01/2025		[NT]	[NT]
Propylene	µg/m ³	0.9	TO15	<0.9	1	2	2	0	[NT]	[NT]
Dichlorodifluoromethane	µg/m ³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Chloromethane	µg/m ³	1.0	TO15	<1.0	1	<1	<1	0	[NT]	[NT]
1,2-Dichlorotetrafluoroethane	µg/m ³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
Vinyl chloride	µg/m ³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
1,3-Butadiene	µg/m ³	1.1	TO15	<1.1	1	<1.1	<1.1	0	[NT]	[NT]
Bromomethane	µg/m ³	1.9	TO15	<1.9	1	<1.9	<1.9	0	[NT]	[NT]
Chloroethane	µg/m ³	1.3	TO15	<1.3	1	<1.3	<1.3	0	[NT]	[NT]
Ethanol	µg/m ³	9	TO15	<9	1	50	50	0	[NT]	[NT]
Acrolein	µg/m ³	11	TO15	<11	1	<11	<11	0	[NT]	[NT]
Trichlorofluoromethane (Freon 11)	µg/m ³	2.8	TO15	<2.8	1	<2.8	<2.8	0	[NT]	[NT]
Acetone	µg/m ³	11.9	TO15	<11.9	1	40	40	0	[NT]	[NT]
Isopropyl Alcohol	µg/m ³	12	TO15	<12	1	1200	1200	0	[NT]	[NT]
1,1-Dichloroethene	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
1,1,2-Trichlorotrifluoroethane	µg/m ³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Methylene chloride (Dichloromethane)	µg/m ³	17	USEPA 18	<17	1	<17	<17	0	[NT]	[NT]
Carbon Disulfide	µg/m ³	16	TO15	<16	1	<16	<16	0	[NT]	[NT]
trans-1,2-dichloroethene	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MTBE	µg/m ³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
1,1- Dichloroethane	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Vinyl Acetate	µg/m ³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
MEK	µg/m ³	15	TO15	<15	1	<15	<15	0	[NT]	[NT]
Hexane	µg/m ³	1.8	TO15	<1.8	1	19	18	5	[NT]	[NT]
cis-1,2-Dichloroethene	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Ethyl Acetate	µg/m ³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
Chloroform	µg/m ³	2.4	TO15	<2.4	1	<2.4	<2.4	0	[NT]	[NT]
Tetrahydrofuran	µg/m ³	1.5	TO15	<1.5	1	3	3	0	[NT]	[NT]
1,1,1-Trichloroethane	µg/m ³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloroethane	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Benzene	µg/m ³	1.6	TO15	<1.6	1	<1.6	<1.6	0	[NT]	[NT]
Carbon tetrachloride	µg/m ³	3.1	TO15	<3.1	1	<3.1	<3.1	0	[NT]	[NT]
Cyclohexane	µg/m ³	1.7	TO15	<1.7	1	<1.7	<1.7	0	[NT]	[NT]
Heptane	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: TO15 in Canisters µg/m3						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trichloroethene	µg/m ³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
1,2-Dichloropropane	µg/m ³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
1,4-Dioxane	µg/m ³	1.8	TO15	<1.8	1	<1.8	<1.8	0	[NT]	[NT]
Bromodichloromethane	µg/m ³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
Methyl Methacrylate	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
MIBK	µg/m ³	20	TO15	<20	1	<20	<20	0	[NT]	[NT]
cis-1,3-Dichloropropene	µg/m ³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
trans-1,3-Dichloropropene	µg/m ³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Toluene	µg/m ³	1.9	TO15	<1.9	1	5	5	0	[NT]	[NT]
1,1,2-Trichloroethane	µg/m ³	2.7	TO15	<2.7	1	<2.7	<2.7	0	[NT]	[NT]
Methyl Butyl Ketone	µg/m ³	2.0	TO15	<2.0	1	<2	<2	0	[NT]	[NT]
Dibromochloromethane	µg/m ³	1.6	TO15	<1.6	1	<1.6	<1.6	0	[NT]	[NT]
Tetrachloroethene	µg/m ³	3.4	TO15	<3.4	1	20	20	0	[NT]	[NT]
1,2-Dibromoethane	µg/m ³	3.8	TO15	<3.8	1	<3.8	<3.8	0	[NT]	[NT]
Chlorobenzene	µg/m ³	2.3	TO15	<2.3	1	<2.3	<2.3	0	[NT]	[NT]
Ethylbenzene	µg/m ³	2.2	TO15	<2.2	1	<2.2	<2.2	0	[NT]	[NT]
m- & p-Xylene	µg/m ³	4.3	TO15	<4.3	1	<4.3	<4.3	0	[NT]	[NT]
Styrene	µg/m ³	2.1	TO15	<2.1	1	<2.1	<2.1	0	[NT]	[NT]
o-Xylene	µg/m ³	2.2	TO15	<2.2	1	<2.2	<2.2	0	[NT]	[NT]
Bromoform	µg/m ³	5.2	TO15	<5.2	1	<5.2	<5.2	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	µg/m ³	3.4	TO15	<3.4	1	<3.4	<3.4	0	[NT]	[NT]
4-ethyl toluene	µg/m ³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
1,3,5-Trimethylbenzene	µg/m ³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
1,2,4-Trimethylbenzene	µg/m ³	2.5	TO15	<2.5	1	<2.5	<2.5	0	[NT]	[NT]
1,3-Dichlorobenzene	µg/m ³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
Benzyl chloride	µg/m ³	2.6	TO15	<2.6	1	<2.6	<2.6	0	[NT]	[NT]
1,4-Dichlorobenzene	µg/m ³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2-Dichlorobenzene	µg/m ³	3.0	TO15	<3.0	1	<3	<3	0	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/m ³	3.7	TO15	<3.7	1	<3.7	<3.7	0	[NT]	[NT]
Naphthalene	µg/m ³	2.6	TO15	<2.6	1	<2.6	<2.6	0	[NT]	[NT]
Hexachloro- 1,3-butadiene	µg/m ³	5.3	TO15	<5.3	1	<5.3	<5.3	0	[NT]	[NT]
Surrogate-Bromochloromethane	% rec		TO15	97	1	100	99	1	[NT]	[NT]
Surrogate -1,4-Difluorobenzene	% rec		TO15	93	1	95	92	3	[NT]	[NT]
Surrogate-Chlorobenzene-D5	% rec		TO15	90	1	101	98	3	[NT]	[NT]

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: TPH Air/ Air Phase Hydrocarbon							Duplicate		Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			08/01/2025	1	08/01/2025	08/01/2025		08/01/2025	[NT]
Date analysed	-			08/01/2025	1	08/01/2025	08/01/2025		08/01/2025	[NT]
TPH C ₅ - C ₈ Aliphatic	µg/m ³	200	AT-005	<200	1	600	600	0	110	[NT]
TPH C ₉ - C ₁₂ Aliphatic	µg/m ³	50	AT-005	<50	1	<50	<50	0	[NT]	[NT]
TPH C ₉ - C ₁₀ Aromatic	µg/m ³	100	AT-005	<100	1	<100	<100	0	108	[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	<40	<40	0	107	[NT]

Client Reference: 20854.03 Maroubra, Proposed mixed use development

QUALITY CONTROL: IPA in Carbon Tubes & Badges*					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date Extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date Analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Isopropyl Alcohol*	µg	5	ORG-022	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate Toluene-d8	%		ORG-022	67	[NT]	[NT]	[NT]	[NT]	85	[NT]
Surrogate 4-Bromofluorobenzene	%		ORG-022	79	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

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

Quality Control Definitions

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

Project No: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Name: Proposed Mixed Use Development	Order Number: -	12 Ashley Street Chatswood
Project Manager: Huy Tran	Sampler: PJ	Attn: Daniel Ford
Emails: Huy.Tran@douglaspartners.com.au; Patrick.Johansson@douglaspartners.com.au		
Date Required: Std		
Prior Storage: shelf		
Do samples contain 'potential' HBM? Yes <input type="checkbox"/> No <input type="checkbox"/> (If YES, then handle, transport and store in accordance with FPM HAZID)		
Signed: PJ, 07/01/2025	Received by:	Date & Time:



CERTIFICATE OF ANALYSIS 370004

Client Details

Client	Douglas Partners Pty Ltd
Attention	Huy Tran
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>20854.03 Maroubra</u>
Number of Samples	5 Water
Date samples received	07/01/2025
Date completed instructions received	08/01/2025

Analysis Details

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

Report Details

Date results requested by	15/01/2025
Date of Issue	15/01/2025
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Jack Wallis, Senior Chemist
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Sean McAlary, Senior Chemist
Steven Luong, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

VOCs in water			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Date Extracted	-	14/01/2025	14/01/2025
Date Analysed	-	15/01/2025	15/01/2025
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	2	<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
Ethylbenzene	µg/L	<1	<1

VOCs in water			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
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	%	108	111
Surrogate Toluene-d8	%	99	99
Surrogate 4-Bromofluorobenzene	%	95	95

vTRH(C6-C10)/BTEXN in Water						
Our Reference		370004-1	370004-2	370004-3	370004-4	370004-5
Your Reference	UNITS	BH1	BH8	BD1/20250107	TS/070125	TB/070125
Date Sampled		07/01/2025	07/01/2025	07/01/2025	07/01/2025	07/01/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/01/2025	14/01/2025	14/01/2025	14/01/2025	14/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
TRH C ₆ - C ₉	µg/L	<10	<10	<10	[NA]	<10
TRH C ₆ - C ₁₀	µg/L	<10	<10	<10	[NA]	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	[NA]	<10
Benzene	µg/L	<1	<1	<1	89%	<1
Toluene	µg/L	<1	<1	<1	92%	<1
Ethylbenzene	µg/L	<1	<1	<1	98%	<1
m+p-xylene	µg/L	<2	<2	<2	94%	<2
o-xylene	µg/L	<1	<1	<1	94%	<1
Naphthalene	µg/L	<1	<1	<1	[NA]	<1
Surrogate Dibromofluoromethane	%	108	111	110	93	90
Surrogate Toluene-d8	%	99	99	99	98	98
Surrogate 4-Bromofluorobenzene	%	95	95	95	98	95

svTRH (C10-C40) in Water				
Our Reference		370004-1	370004-2	370004-3
Your Reference	UNITS	BH1	BH8	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Water	Water	Water
Date extracted	-	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	10/01/2025	10/01/2025	10/01/2025
TRH C ₁₀ - C ₁₄	µg/L	<50	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50
Surrogate o-Terphenyl	%	94	82	82

PAHs in Water				
Our Reference		370004-1	370004-2	370004-3
Your Reference	UNITS	BH1	BH8	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Water	Water	Water
Date extracted	-	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	10/01/2025	10/01/2025	10/01/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	83	68	100

OCPs in Water - Trace Level			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Date extracted	-	08/01/2025	08/01/2025
Date analysed	-	10/01/2025	10/01/2025
alpha-BHC	µg/L	<0.001	<0.001
HCB	µg/L	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	96	87

OP in water LL ANZECCF/ADWG			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Date extracted	-	08/01/2025	08/01/2025
Date analysed	-	10/01/2025	10/01/2025
Dichlorvos	µg/L	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05
Chlorpyrifos-methyl	µg/L	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05
Chlorpyrifos	µg/L	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	96	87

PCBs in Water - Trace Level			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Date extracted	-	08/01/2025	08/01/2025
Date analysed	-	10/01/2025	10/01/2025
Aroclor 1016	µg/L	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	89	80

Total Phenolics in Water				
Our Reference		370004-1	370004-2	370004-3
Your Reference	UNITS	BH1	BH8	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Water	Water	Water
Date extracted	-	14/01/2025	14/01/2025	14/01/2025
Date analysed	-	14/01/2025	14/01/2025	14/01/2025
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05

HM in water - dissolved				
Our Reference		370004-1	370004-2	370004-3
Your Reference	UNITS	BH1	BH8	BD1/20250107
Date Sampled		07/01/2025	07/01/2025	07/01/2025
Type of sample		Water	Water	Water
Date prepared	-	09/01/2025	09/01/2025	09/01/2025
Date analysed	-	09/01/2025	09/01/2025	09/01/2025
Arsenic-Dissolved	µg/L	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	2	3	3

PFAS in Waters Trace Extended			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Date prepared	-	10/01/2025	10/01/2025
Date analysed	-	10/01/2025	10/01/2025
Perfluorobutanesulfonic acid	µg/L	0.0080	0.0041
Perfluoropentanesulfonic acid	µg/L	0.001	0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.011	0.012
Perfluoroheptanesulfonic acid	µg/L	<0.001	0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.013	0.015
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002
Perfluorobutanoic acid	µg/L	0.007	0.007
Perfluoropentanoic acid	µg/L	0.009	0.007
Perfluorohexanoic acid	µg/L	0.011	0.013
Perfluoroheptanoic acid	µg/L	0.0082	0.0079
Perfluorooctanoic acid PFOA	µg/L	0.018	0.015
Perfluorononanoic acid	µg/L	0.002	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001
6:2 FTS	µg/L	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
10:2 FTS	µg/L	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002
Surrogate ¹³ C ₈ PFOS	%	118	104
Surrogate ¹³ C ₂ PFOA	%	92	96
Extracted ISTD ¹³ C ₃ PFBS	%	75	71
Extracted ISTD ¹⁸ O ₂ PFHxS	%	96	92
Extracted ISTD ¹³ C ₄ PFOS	%	82	85
Extracted ISTD ¹³ C ₄ PFBA	%	46	44

PFAS in Waters Trace Extended			
Our Reference		370004-1	370004-2
Your Reference	UNITS	BH1	BH8
Date Sampled		07/01/2025	07/01/2025
Type of sample		Water	Water
Extracted ISTD ¹³ C ₃ PFPeA	%	63	61
Extracted ISTD ¹³ C ₂ PFHxA	%	75	71
Extracted ISTD ¹³ C ₄ PFHpA	%	91	88
Extracted ISTD ¹³ C ₄ PFOA	%	74	73
Extracted ISTD ¹³ C ₅ PFNA	%	83	82
Extracted ISTD ¹³ C ₂ PFDA	%	88	87
Extracted ISTD ¹³ C ₂ PFUnDA	%	82	81
Extracted ISTD ¹³ C ₂ PFDoDA	%	81	79
Extracted ISTD ¹³ C ₂ PFTeDA	%	75	77
Extracted ISTD ¹³ C ₂ 4:2FTS	%	84	82
Extracted ISTD ¹³ C ₂ 6:2FTS	%	77	76
Extracted ISTD ¹³ C ₂ 8:2FTS	%	90	87
Extracted ISTD ¹³ C ₈ FOSA	%	59	64
Extracted ISTD d ₃ N MeFOSA	%	93	93
Extracted ISTD d ₅ N EtFOSA	%	96	97
Extracted ISTD d ₇ N MeFOSE	%	94	97
Extracted ISTD d ₉ N EtFOSE	%	88	84
Extracted ISTD d ₃ N MeFOSAA	%	76	105
Extracted ISTD d ₅ N EtFOSAA	%	104	106
Total Positive PFHxS & PFOS	µg/L	0.024	0.027
Total Positive PFOS & PFOA	µg/L	0.031	0.030
Total Positive PFAS	µg/L	0.087	0.083

Method ID	Methodology Summary
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-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)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	<p>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.</p> <p>Analysis is undertaken with LC-MS/MS.</p> <p>PFAS results include the sum of branched and linear isomers where applicable.</p> <p>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.</p> <p>Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.</p>

Client Reference: 20854.03 Maroubra

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date Extracted	-			14/01/2025	[NT]	[NT]	[NT]	[NT]	14/01/2025	[NT]
Date Analysed	-			15/01/2025	[NT]	[NT]	[NT]	[NT]	15/01/2025	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	123	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
<i>Surrogate</i> Dibromofluoromethane	%		Org-023	87	[NT]	[NT]	[NT]	[NT]	88	[NT]
<i>Surrogate</i> Toluene-d8	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	99	[NT]
<i>Surrogate</i> 4-Bromofluorobenzene	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			14/01/2025	[NT]	[NT]	[NT]	[NT]	14/01/2025	[NT]
Date analysed	-			15/01/2025	[NT]	[NT]	[NT]	[NT]	15/01/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	87	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate Toluene-d8	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	98	[NT]

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QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	131	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	131	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
Surrogate o-Terphenyl	%		Org-020	101	[NT]	[NT]	[NT]	[NT]	131	[NT]

Client Reference: 20854.03 Maroubra

QUALITY CONTROL: PAHs in Water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[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]	107	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[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]	105	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[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]	97	[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]	98	[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	88	[NT]	[NT]	[NT]	[NT]	111	[NT]

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QUALITY CONTROL: OCPs in Water - Trace Level				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	80	[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]	76	[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]	91	[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]	79	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	88	[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]	75	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	79	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	73	[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]	86	[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]	77	[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	104	[NT]	[NT]	[NT]	[NT]	88	[NT]

Client Reference: 20854.03 Maroubra

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	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	90	[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]	81	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	123	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	131	[NT]
Chlorpyrifos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	89	[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]	127	[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]	119	[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	104	[NT]	[NT]	[NT]	[NT]	88	[NT]

Client Reference: 20854.03 Maroubra

QUALITY CONTROL: PCBs in Water - Trace Level				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			09/01/2025	[NT]	[NT]	[NT]	[NT]	09/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[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]	73	[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	92	[NT]	[NT]	[NT]	[NT]	92	[NT]

Client Reference: 20854.03 Maroubra

QUALITY CONTROL: Total Phenolics in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/01/2025	1	14/01/2025	14/01/2025		14/01/2025	[NT]
Date analysed	-			14/01/2025	1	14/01/2025	14/01/2025		14/01/2025	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	105	[NT]

Client Reference: 20854.03 Maroubra

QUALITY CONTROL: HM in water - dissolved				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	370004-2
Date prepared	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Date analysed	-			09/01/2025	1	09/01/2025	09/01/2025		09/01/2025	09/01/2025
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	112	109
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	109	112
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	102
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	95
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	107	105
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	95	107
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	101
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	105	107

QUALITY CONTROL: PFAS in Waters Trace Extended				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Date analysed	-			10/01/2025	[NT]	[NT]	[NT]	[NT]	10/01/2025	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanoic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluoroheptanoic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	111	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	[NT]	[NT]	[NT]	[NT]	91	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	111	[NT]
4:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	107	[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]	95	[NT]
10:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	113	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]
N-Ethyl perfluorooctanesulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
N-Me perfluorooctanesulfonamid ethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	114	[NT]
N-Et perfluorooctanesulfonamid ethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	114	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	109	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: PFAS in Waters Trace Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	67	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	82	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	65	[NT]	[NT]	[NT]	[NT]	75	[NT]
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	73	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	65	[NT]	[NT]	[NT]	[NT]	80	[NT]
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	85	[NT]
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	84	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	67	[NT]	[NT]	[NT]	[NT]	82	[NT]
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	74	[NT]
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	77	[NT]
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	64	[NT]	[NT]	[NT]	[NT]	71	[NT]
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	75	[NT]
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	55	[NT]	[NT]	[NT]	[NT]	62	[NT]
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	59	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	65	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	59	[NT]	[NT]	[NT]	[NT]	60	[NT]
Extracted ISTD d ₃ N MeFOSA	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD d ₅ N EtFOSA	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD d ₇ N MeFOSE	%		Org-029	114	[NT]	[NT]	[NT]	[NT]	118	[NT]

QUALITY CONTROL: PFAS in Waters Trace Extended							Duplicate		Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
<i>Extracted ISTD d₉ N EtFOSE</i>	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	93	[NT]
<i>Extracted ISTD d₃ N MeFOSAA</i>	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	68	[NT]
<i>Extracted ISTD d₅ N EtFOSAA</i>	%		Org-029	74	[NT]	[NT]	[NT]	[NT]	72	[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

VOC vials have headspace

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: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Manager: HT	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: Huy.Tran@douglaspartners.com.au; Patrick.Johansson@douglaspartners.com.au		Attn: Aileen Hie
Turnaround time: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 72 hour <input type="checkbox"/> 48 hour <input type="checkbox"/> 24 hour <input type="checkbox"/> Same day	Lab phone Lab email	

Prior Storage: Fridge Freezer Esky Shelf **Do samples contain 'potential' HBM?** No Yes (if YES, then handle, transport and 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	Hold													
1	BH1			7/01/25	w	G/P	x													
2	BH8			7/01/25	w	G/P	x													
3	BD1/20250107			7/01/25	w	G/P	x													
4	TS/070125			7/01/25	w	G	x													
5	TB/070125			7/01/25	w	G	x													
<i>Completed COC sent by email 8/1/25</i>																				

Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9940 6200
 Job No: **370064**
 Date Received: **7.01.24**
 Time Received: **1630**
 Received By: **TTC**
 Temp: Cool/Ambient
 Cooling: Icepack **5°C**
 Security: Intact/ Broken/ None

Metals to analyse: 8ha				LAB RECEIPT			
Number of samples in container: 3		Transported to laboratory by: PJ		Lab Ref. No:			
Send results to: Douglas Partners Pty Ltd				Received by: <i>TTC</i>			
Address: 96 Hermitage Rd, West Ryde NSW 2114		Phone: 9809 0666		Date & Time: 7.01.24 1630		Signed: <i>TTC</i>	
Relinquished by: <i>[Signature]</i> PJ		Date: 7/01/2025		Signed: PJ			

COC 08/01/2025 11:47



GROUND
ED
EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 20854.03	Suburb: Maroubra	To: Envirolab Services
Project Manager: HT	Order Number:	12 Ashley St, Chatswood NSW 2067
Email: Huy.Tran@douglaspartners.com.au; Patrick.Johansson@douglaspartners.com.au		Attn: Aileen Hie
Turnaround time: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 72 hour <input type="checkbox"/> 48 hour <input type="checkbox"/> 24 hour <input type="checkbox"/> Same day		Lab phone Lab email

Prior Storage: Fridge Freezer Esky Shelf **Do samples contain 'potential' HBM?** No Yes (if YES, then handle, transport and 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 4	OCP/OPP/PCB(Trace)	VOC suite	PFAS/PFOA (trace level)	BTEX								
1	BH1			7/01/25	w	G/P	x	x	x	x									
2	BH8			7/01/25	w	G/P	x	x	x	x									
3	BD1/20250107			7/01/25	w	G/P	x												
4	TS/070125			7/01/25	w	G													
5	TB/070125			7/01/25	w	G													

Metals to analyse: 8ha						LAB RECEIPT					
Number of samples in container: 3			Transported to laboratory by: PJ			Lab Ref. No: 370004					
Send results to: Douglas Partners Pty Ltd						Received by:					
Address: 96 Hermitage Rd, West Ryde NSW 2114			Phone: 9809 0666			Date & Time:					
Relinquished by: PJ			Date: 7/01/2025			Signed: PJ			Signed:		

Appendix J

Quality Assurance / 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 at 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; <30% RPD	PC
Trip Spikes	1 per sampling event; 60-140% recovery	C
Trip Blanks	1 per sampling event; <PQL	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
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, Table QB1 and Table QC1 (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.

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 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 sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.

Data quality indicator	Method(s) of achievement
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

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 QC1: Relative Percentage Difference Results – Water Sampling

Lab Report No		370004	370004		
Sample ID		BH1	BD1/20250107		
Sample Date		07/01/25	07/01/25	Difference	RPD
Sample Type		Water	Water		
Units		µg/L	µg/L	µg/L	%
Metals - Dissolved	Total Arsenic	<1	<1	0	0%
	Cadmium	<0.1	<0.1	0	0%
	Total Chromium	<1	<1	0	0%
	Copper	<1	<1	0	0%
	Lead	<1	<1	0	0%
	Mercury (inorganic)	<0.05	<0.05	0	0%
	Nickel	<1	<1	0	0%
	Zinc	2	3	1	40%
TRH	F1 ((C6-C10)-B)	<10	<10	0	0%
	F2 (>C10-C16)	<50	<50	0	0%
	F3 (>C16-C34)	<100	<100	0	0%
	F4 (>C34-C40)	<100	<100	0	0%
BTEX	Benzene	<1	<1	0	0%
	Toluene	<1	<1	0	0%
	Ethylbenzene	<1	<1	0	0%
	o-Xylene	<1	<1	0	0%
	m+p-Xylene	<2	<2	0	0%
	Total Xylenes	<1	<1	0	0%
PAH	Acenaphthen	<0.1	<0.1	0	0%
	Acenaphthylene	<0.1	<0.1	0	0%
	Anthracene	<0.1	<0.1	0	0%
	Benzo(a)anthracene	<0.1	<0.1	0	0%
	Naphthalene	<1	<1	0	0%
	Benzo(a)pyrene	<0.1	<0.1	0	0%
	Benzo(b,j+k)fluoranthene	<0.2	<0.2	0	0%
	Benzo(g,h,i)perylene	<0.1	<0.1	0	0%
	Chrysene	<0.1	<0.1	0	0%
	Dibenzo(a,h)anthracene	<0.1	<0.1	0	0%
	Fluoranthene	<0.1	<0.1	0	0%
	Fluorene	<0.1	<0.1	0	0%
	Indeno(1,2,3-cd)perylene	<0.1	<0.1	0	0%
	Phenanthrene	<0.1	<0.1	0	0%
	Pyrene	<0.1	<0.1	0	0%
	Sum of detected	<0.1	<0.1	0	0%



Table QC2: Trip Blank Results - Water Sampling

Sample ID		TB/070125
Sample Date		07/01/25
Media Being Sampled		Water
Sample Type		Water
Units		µg/L
TRH	F1 ((C6-C10)-B)	<10
BTEX	Benzene	<1
	Toluene	<1
	Ethylbenzene	<1
	o-Xylene	<1
	m+p-Xylene	<2
	Total Xylenes	<1
PAH	Naphthalene	<1
	Sum of detect	<1
Lab Report No		370004



Table QC3: Trip Spike Results – Water Sampling (% Recovery)

Sample ID	TS/070125
Sample Date	07/01/25
Media Being Sampled	Water
Sample Type	Water
Benzene	89
Toluene	92
Ethylbenzene	98
o-Xylene	94
m+p-Xylene	94
Lab Report Number	370004



Table QA1: Relative Percentage Difference Results – Soil Sampling

Lab Report No	Sample ID	Depth	Sample Date	Sample Type	Units	Priority metals								Priority PAH				PAH						
						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	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene
368839	BH1	0.2 - 0.3 m	10/12/24	Soil	mg/kg	<4	<0.4	2	8	7	<0.1	2	22	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
368839	BH1 - (TRIPPLICATE)	0.2 - 0.3 m	10/12/24	Soil	mg/kg	<4	<0.4	4	46	8	<0.1	3	20	-	-	-	-	-	-	-	-	-	-	-
			Difference		mg/kg	0	0	2	38	1	0	1	2	-	-	-	-	-	-	-	-	-	-	-
			RPD		%	0%	0%	67%	141%	13%	0%	40%	10%	-	-	-	-	-	-	-	-	-	-	-
368839	BH6	0.2 - 0.4 m	09/12/24	Soil	mg/kg	<4	<0.4	1	3	15	<0.1	<1	33	<1	0.2	<0.5	1.5	<0.1	<0.1	<0.1	0.1	0.2	0.2	<0.1
368839	BD1/20241209	0 m	09/12/24	Soil	mg/kg	<4	<0.4	3	22	82	0.2	3	200	<1	0.68	1	4.9	<0.1	<0.1	<0.1	0.4	0.5	0.5	0.1
			Difference		mg/kg	0	0	2	19	67	0.1	2	167	0	0.48	0.5	3.4	0	0	0	0.3	0.3	0.3	0
			RPD		%	0%	0%	100%	152%	138%	67%	100%	143%	0%	109%	67%	106%	0%	0%	0%	120%	86%	86%	0%

Table A1. Summary Soil Vapour Results

Sample	Sample Date	Isopropyl Alcohol	Chloroethene (Vinyl chloride)	Trichloroethene	1,1-Dichloroethene	trans-1,2-dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Benzene [Sand] 0-1m	Toluene [Sand] 0-1m	Ethylbenzene [Sand] 0-1m	Xylene Total [Sand] 0-1m	Naphthalene [Sand] 0-1m	TRH F1 [Sand] 0-1m	TRH F2 [Sand] 0-1m	Vacuum before Shipment	Vacuum Before Sampling	Vacuum After Sampling	Vacuum before Analysis
Units		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	Hg"	Hg"	Hg"	Hg"
PQL		12	0.5	0.5	2.0	2.0	2.0	3.4	1.6	1.9	2.2		2.6			-	-	-	-
NEPC (2013) Interim HIL-D		-	100	80	-	-	300	8000								-	-	-	-
NEPC (2013) HSL									4000	4800000	1300000	840000	3000	680000	500000				
SV1	09/05/2024	1195.92	<0.5	<0.5	<2	<2	<2	2600	<1.6	4.62	<2.2		<2.6	<200	<40	-29.6	-28	-9	-8.64
SV2	09/05/2024	64.68	<0.5	<0.5	<2	<2	<2	30	<1.6	3.32	<2.2		<2.6	<200	<40	-29.6	-28	-9	-8.73
BD1	09/05/2024	178.51	<0.5	<0.5	<2	<2	<2	30	<1.6	2.97	<2.2		<2.6	<200	<40	-29.6	-29	-9	-9.16
SHROUD	09/05/2024	2450000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table QB1- RPD (SV2 and BD1)

Difference (ug/m ³)	-113.83	-	-	-	-	-	-	-
RPD (%)	-94%	-	-	-	-	-	-	-

Table QB3 - QA/QC Shroud

	SV1	SV2	BD1
Sample IPA % of shroud	0.049%	0.003%	0.007%