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MOSMAN LAND NO.1 PTY LTD C/- TIME & PLACE PTY LTD



Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

40-48 Redan Street, Mosman NSW

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1. INTRODUCTION

1.1 Background and Purpose

EI Australia (EI) was engaged by MOSMAN LAND NO.1 PTY LTD C/- TIME & PLACE PTY LTD ('the client') to prepare a Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis (the 'report') for 40-48 Redan Street, Mosman NSW ('the site').

The site is located approximately 5.5 km southwest of the Sydney CBD within the local government area of Mosman Municipal Council, as shown in **Figure 1**, **Appendix A**. At the time of writing of this report the site comprised five residential dwellings covering an approximate combined area of 3,250 m^2 (**Figure 2, Appendix A**), across nine land allotments as detailed in **Section 2.1**.

Site redevelopment is proposed to involve the construction of a two-level drained basement, which will likely intercept the local groundwater system; therefore, site dewatering will be required to enable basement construction. Groundwater drawn into the dewatering system is proposed to be appropriately treated to comply with relevant water quality criteria for subsequent discharge into the local municipal stormwater system, subject to Council approval.

Hydrogeological conditions, including baseline groundwater quality and pre-dewatering groundwater levels, are described in **Section 3**, with tabulated field-based and laboratory data presented in **Appendix B**.

Due to characteristically low hydraulic conductivity of the water bearing lithology, a drained basement design is proposed for long-term dewatering during the operational phase of the development, as detailed in **Section 4**.

Cumulative drawdown and water quality effects from long-term dewatering are assessed against the NSW Aquifer Interference Policy (AIP) in **Section 7.** Findings are reviewed for relevant factors including groundwater utility, ground settlement potential and water treatability, to demonstrate that the proposed drained basement would meet the minimal impact considerations, as described in the AIP.

The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI) for assessment.

The SSDA seeks consent for a multi-storey residential development that utilises the Low and Mid-Rise Housing (LMR) and In-fill Affordable Housing (IAH) policies recently introduced under the State Environmental Planning Policy (Housing) 2021 (Housing SEPP). The design is outlined in the Architectural Plan set prepared by FJC Studio and provided within the SSDA.

This report has been prepared in response to the requirements contained within the Secretary's

Environmental Assessment Requirements (SEARs) dated 5 September 2025 (SSD- 93020230). Specifically, this report has been prepared to respond to the following SEARs:

Secretary's Environmental Assessment Requirements (example)	Refer Report Section
12. Ground and Groundwater Conditions	Section 2 and 7
• Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion.	

Secretary's Environmental Assessment Requirements (example)	Refer Report Section
• Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies.	

The main purpose of this report is to describe groundwater conditions and management in order to achieve compliance with the requirements of Council and WaterNSW in relation to the proposed construction phase and operational phase dewatering.

1.2 Proposed Development

The application seeks development consent for the redevelopment of the site for a multi-storey in-fill affordable housing residential development for 53 dwellings.

Specifically, this application seeks approval for the following:

- Demolition of the existing structures on site, including 5 dwellings and vehicle crossovers.
- Site preparation works including:
  - Tree removal.
  - Excavation across the site.
- Construction of a multi-storey residential flat building comprising:
  - Two levels of basement for 106 car parking spaces, services and storage.
  - 53 residential dwellings in 2-, 3- and 4-bedroom configurations.
  - Communal open space at ground level, level 1 and level 5.
- Ancillary vehicular entry and public domain works from Redan Street.
- Provision of 15% affordable housing to be managed by a community housing provider for a period of 15 years from date of the Occupation Certificate.
- Extension and augmentation of physical infrastructure and utilities as required.

Refer to Architectural Plans prepared by FJC Studio appended to the Environmental Impact Statement. .

1.3 Report Objectives

The objectives of this report are to:

- Describe the conceptual hydrogeological model for the site and summarise baseline groundwater conditions, including pre-dewatering groundwater depth and groundwater quality;
- Summarise relevant hydrogeological and groundwater modelling information, with reference to the GSA report, which is attached as **Appendix D**;
- Describe the dewatering methodology, groundwater treatment requirements, monitoring and reporting procedures to be employed during construction and operational dewatering;

- Provide effective management and contingency procedures, to ensure that dewatering discharge does not pose unacceptable risks to the receiving environment, in compliance with the *Protection of the Environment Operations Act 1997*;
- Detail post-construction monitoring, reporting and dewatering management procedures; and
- Provide relevant information on anticipated groundwater impacts, with reference to the NSW Aquifer Interference Policy to properly inform the regulatory approval process.

This report will form the basis for a Council permit application for connection and discharge to the municipal stormwater system and a water supply works (dewatering licence) application to WaterNSW and the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

1.4 Scope of Work

With reference to the above report objectives, the following works were undertaken:

- A desktop study including:
  - Review of the development proposal and proposed shoring/dewatering designs;
  - Review of hydrogeological, landscape and acid sulfate soil risk maps for the area;
  - Review of previous investigation reports and plans, which included:
    - A search of registered bores located within a 500 m radius of the site to review local groundwater usage;
    - Onsite drilling data, including sub-surface stratigraphic data and depth to water bearing zones; and
    - Details in relation to potential onsite and offsite sources of contamination that may impact on dewatering discharge water quality and the beneficial use category of the groundwater source, particularly in relation to any local water supply bores.
- Groundwater monitoring event (GME), including sampling of existing monitoring wells and laboratory analysis for relevant analytical parameters to characterise baseline groundwater quality.
- Interpretation of groundwater quality results in relation to the relevant water quality criteria for the expected receiving waters.

This report also relies on information provided in the GSA report, which includes the findings from field-based hydraulic testing and computer-based groundwater modelling used to determine predicted groundwater take volumes and provides estimates for associated water level drawdown effects. GSA details and findings are incorporated into various parts of this report.

1.5 Regulatory Framework

The following regulatory framework and guidelines were considered during the preparation of this report:

Table 1-1 Regulatory Framework

NSW Legislation and Regulatory Instruments	Requirements / Objectives
Contaminated Land Management Act 1997 (CLM Act)	Promotes the effective management of contaminated land in NSW by setting out the roles and responsibilities of the NSW EPA and its rules.

NSW Legislation and Regulatory Instruments	Requirements / Objectives
Environmental Planning and Assessment Act 1979 (EP&A Act)	The EP&A Act stipulates the regulations and gives rise to state environmental planning policy (SEPP) to assist regulators with the protection of human and environmental health.
Protection of the Environment Operations Act 1997 (POEO Act)	The objective of the *POEO Act* is to achieve the protection, restoration and enhancement of the quality of the environment.
NSW Water Management (General) Regulation 2018.	Details relating to Water Access License requirements, if relevant.
Water Management Act 2000 and *Water Act 1912* (WM Act)	Protects the health of rivers, streams and groundwater systems and gives rise to Water Sharing Plans and quality objectives for catchments within the state of NSW. Manages aquifer interference activities which involve: ▪ The penetration of an aquifer; ▪ The interference of water in an aquifer; ▪ The obstruction of water flow or taking of water from an aquifer when carrying out prescribed activities; and ▪ The disposal of water taken from an aquifer.
NSW Aquifer Interference Policy (2012)	Details the scope of aquifer interference activities, minimal impact assessment and provides specific guidance on the licensing and approval requirements for activities that interfere with aquifers.
Mosman Municipal Council Plans and Policies	Provides controls and guidelines for development in the area. ▪ *Mosman Local Environmental Plan 2012*. Note: For projects involving site dewatering, Council typically requires details for the proposed water disposal connection to the stormwater system, preferably in the form of engineering drawings and plans.
Relevant Guidelines (but not limited to)	▪ ANZG (2018) *Guidelines for Fresh and Marine Water Quality;* ▪ ANZECC & ARMCANZ (2000) *Guidelines for Fresh and Marine Water Quality, Vol. 1, Chapter 3, Aquatic Ecosystems*; ▪ DPIE (2022) *Minimum requirements for building site groundwater investigations and reporting*; ▪ NHMRC (2008) *Guidelines for Managing Risks in Recreational Water;* and ▪ NSW DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination.*

2. SITE DESCRIPTION

2.1 Property Identification, Location and Physical Setting

Site identification details and associated information are summarised in **Table 2-1**. Figures illustrating the site location and assessment area are provided in **Appendix A**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	40-48 Redan Street, Mosman NSW
Location Description	Approximately 5.5 km (by road) north-east of Sydney CBD, bound by Redan Street and residential properties (east), Redan Lane and residential properties (west) and residential properties (north and south)
Lots and DPs	▪ Lots 1 on DP 929591; ▪ Lot 13 on DP 920285; ▪ Lot 1 on DP 921113; ▪ Lot 1 on DP 455982; ▪ Lots 9, 10 and 11 on DP 1350; and ▪ Lots 1 and 2 on DP 33257
Site Area	Approximately 3,250 m^2 (Source: https://maps.six.nsw.gov.au/)
Site Coordinates	Northern-eastern corner of site (GDA2020-MGA56): ▪ Easting: 337728.61 ▪ Northing: 6255602.954 (Source: https://maps.six.nsw.gov.au/)
LGA	Mosman Municipal Council
Current Zoning	R3 – Medium Density Residential *(Mosman Local Environmental Plan 2012*)

2.2 Surrounding Land Use

The site is situated within a predominantly residential area with local small business located approximately 5 km north east of the Sydney CBD. The local receptors within close proximity (<250m) to the site are identified in **Table 2-2**.

Table 2-2 Local Land Use

Direction relative to site	Land Use Description
North	Residential properties followed by Almora Street, a two lane asphalt road.
South	Residential properties followed by Reglan Street, a two lane asphalt road.
East	Redan Street, a two lane asphalt road followed by residential properties.
West	Redan Lane, a tight access, two lane asphalt road followed by residential properties.

2.3 Regional Setting

A description of the regional setting, including ground surface topography, hydrogeology, acid sulphate soil conditions and soil landscape, are summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Topography	The site slopes easterly, with surface elevations ranging from approx. RL 63 mAHD (western boundary) at Redan Lane to 58 mAHD (eastern boundary) at Redan Street, as shown by spot elevations on the Survey Plan presented in **Appendix C**.
Site Drainage	Consistent with the general slope of the site, stormwater is assumed to flow east towards Balmoral Beach via surface drainage systems discharging to various stormwater easements and the municipal stormwater network.
Regional Geology	With reference to the 1:100,000 scale Geological Series Sheet 9130 (Sydney) the site is likely to be underlain by the Hawkesbury Sandstone formation, which is described as *medium to coarse-grained quartz sandstone, very minor shale and laminite lenses*. The formation also *includes silty to peaty quartz sand with ferruginous and humic cementation in places, where shell fragments and layers are commonly present*.
Soil Landscape	The Soil Conservation Service of NSW Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies the Gymea (gy) Erosional Landscape, which typically includes Hawkesbury Sandstone.
Acid Sulfate Soils (ASS) Risk	With reference to the Prospect Acid Sulfate Soil Risk Map (1;25,000 scale; Murphy 1997), the subject land lies within the map class description of *No Known Occurrence*. In such cases, acid sulfate soils (ASS) are not known or expected to occur and "land management activities are not likely to be affected by ASS materials". The Mosman Local Environmental Plan 2012 Acid Sulfate Soil Risk Map indicates that the site lies within a Class 5 Area. Development consent is therefore required to carry out: ▪ Works within 500m of adjacent Class 1, 2, 3 or 4 land that is below 5 metres relative to Australian Height Datum (m AHD); and ▪ Works by which the water table is likely to be lowered below 1 m AHD on adjacent Class 1, 2, 3 or 4 land.
Nearest Water Feature	Balmoral Beach located approximately 500 m east of the site, described as a tidally influenced coastal embayment that is directly connected to the Tasman Sea.
Groundwater Flow Direction	Groundwater flow direction in the vicinity of the site is anticipated to be easterly to north-easterly, towards Balmoral Beach.

2.4 Local Groundwater Use

An online search for groundwater bores registered with WaterNSW was undertaken by EI on 21 January 2026 (Ref. https://realtimedata.waternsw.com.au/water.stm), as presented in **Appendix E**. The search identified two registered bores used for domestic purposes located within a 500 m radius of the site, as summarised in **Table 2-4**.

Table 2-4 Summary of Closest Groundwater Bores

Bore	Drilled Date	Bore Depth (m BGL)	SWL (m BGL)	Bore Purpose	Distance from Site
GW108738	26/04/2007	84.00	24.00	Domestic	280m south to south-east
GW106880	11/02/2005	107.90	37.80	Domestic	350m south to south-east

Registered bore data therefore indicates that groundwater is sparsely utilised in the surrounding area; however, due to the distance and depth of the two active bores, which are located cross hydraulic gradient relative to the proposed dewatering activities, any potential drawdown effects are not anticipated to result in groundwater access losses.

Potential dewatering impacts on existing water supply bores are addressed in **Section 4.6**, and with reference to the NSW Aquifer Interference Policy, in **Section 7**.

2.5 Potential Sources of Contamination

2.5.1 Potential onsite sources

The site has undergone a preliminary site investigation (PSI) which included a desktop study and site inspection with the following issues identified that could lead to potential, localised, onsite contamination:

- Importation of fill of unknown origin and quality placed at the site;
- Hazardous building products contained within existing site structures;
- Weathering of exposed building fabrics, painted surfaces, and metallic objects from site structures;
- Application of pesticides near surface soil beneath existing buildings;
- Leakage from vehicles through cracks on concrete slab; and
- On-site migration from nearby current and historical potentially contaminating activities via groundwater and/or stormwater run-off.

Given the site was historically used for residential purposes, the potential for localised impacts to site soils is considered to be low. Notwithstanding, potential soil contamination attributed to any of the above issues, would be removed during bulk excavation for basement construction, and any residual groundwater impacts would be addressed by water treatment, as described in **Sections 3.4.9** and **5.5**.

2.5.2 Potential offsite sources

A review of neighbouring land uses and potential offsite contamination sources was commissioned for the preparation of the PSI report (EI, 2026). The resulting report by Lotsearch Pty Ltd (*Lotsearch*^{TM}) identified a number of historical, potentially contaminating land uses and business activities within 500 m radius of the site. These comprised potential contamination on two properties that had been notified to the NSW EPA, as outlined in **Table 2-4**; and potentially contaminating activities at four separate properties operated as service stations, mechanical garages or dry cleaning businesses within 250m of the site, as summarised in Error! Reference source not found. This is shown in **Appendix F**.

Table 2-4 List of Notified Sites

Business Activity	Premise	Management Class	Distance	Direction
Landfill	Allan Border Oval, Myahgah Road, Mosman	Regulation not Required	300 m	West
Unclassified	173 Avenue Road, Mosman	Regulation not Required	344 m	North West

Table 2-5 Summary of Historical Potentially Contaminating Activities

Business Activity	Premise	Year	Distance	Direction
Motor Garages & Engineers	Caltex Mosman Service Station, Military Rd, Mosman	1981-1993	181 m	West
Motor Garages &	Mosman Bus Service, 756 Military	1962-1964	194 m	North West

Business Activity	Premise	Year	Distance	Direction
Engineers	Rd, Mosman			
Dry Cleaners, Pressers & Dyers	Hanks & Co. 860 Military Rd, Mosman	1948-1950	197 m	West
Motor Garages & Engineers	B.P. Kinema Service Station, formerly Dobson and Young Pty. Ltd., 713 Military Rd, Mosman	1948-1972	204 m	West

Impacts on water quality due to onsite migration

The two *notified* sites identified in **Table 2-4** are located generally hydraulically upgradient of the proposed dewatering activity; however, as the EPA records indicate that regulation under the CLM Act is not required, and in view of the distances (300 to 344m) from the dewatering activity, the risk of potential contaminant migration via groundwater is considered to be low.

In regards to the former motor garages, engineering workshops and dry cleaning business (listed in **Table 2-5**), these were operating (between 1948 and 1993) and located on Military Road. It was noted that only the service stations Caltex Mosman and BP Kinema were located 181 m and 204 m hydraulically up-gradient of the proposed dewatering activity, respectively. The other listed business operations were located cross gradient of the site. Notwithstanding, the age of the former use and distance from the dewatering activity would also indicate a low risk of groundwater migration, and any residual water quality impacts that may reach the site would be addressed by the water treatment system, as described in **Section 5.5**.

Impacts on water quality at groundwater supply bores

Although two active groundwater supply bores for domestic use were identified (**Section 2.4**) 280 m and 350 m south to south-east of the subject site, these bores are located cross-gradient in relation to the anticipated groundwater flow direction. Accordingly, contaminant migration from the off-site sources toward these receptors is considered unlikely. On this basis, the potential risk to groundwater users and any associated impacts to beneficial use is considered to be low.

2.6 Potential Environmental Receptors

It is assumed that water extracted from the site during the construction dewatering phase will be pumped through an onsite water treatment system, if required (as described in **Sections 3.4.9** and **5.5**). Treated water may subsequently be discharged into the local municipal stormwater system. Stormwater is expected to drain into the tidally influenced Balmoral Beach, approximately 500m east of the site.

Due to tidal influences and its location within the greater Sydney area, Balmoral Beach is considered a slightly to moderately disturbed marine ecosystem for discharge water quality considerations, as described **Section 5.2**.

2.7 Groundwater Dependent Ecosystems

A search of the NSW Water Sharing Plan for the Greater Metropolitan Region groundwater Sources 2023 – Schedule 4 was conducted on 21 January 2026. The search found no high priority groundwater dependent ecosystems listed within 500m of the site. This information is used in the minimal harm assessment considerations under the NSW Aquifer Interference Policy, as described in **Section 7**.

3. GROUNDWATER CONDITIONS

3.1 Previous Investigations

Previous site investigations have been documented in the following reports:

- EI Australia (2026a) *Geotechnical Investigation (GI) – 40-48 Redan Street, Mosman NSW*, prepared by EI Australia, Reference: E26955.G03, 28 January 2026; and
- EI Australia (2026b) *Groundwater Monitoring Report – 40-48 Redan Street, Mosman NSW*, prepared by EI Australia, Reference: E26955.G11.GW01, 27 January 2026.
- EI Australia (2026c) *Groundwater Seepage Analysis – 40-48 Redan Street, Mosman NSW*, prepared by EI Australia, Reference: E26955.G12, 6 February 2026.
- EI (2026d) *Preliminary Site Investigation; 40-48 Redan Street, Mosman NSW,* EI Australia Ref. E26955.E01, 28 January 2026;

The three groundwater monitoring wells (BH1M, BH2M and BH3M), were installed during EI's Additional Geotechnical Investigation, which were reported in EI (2026a). Well locations are shown in **Appendix A, Figure 2**, construction logs are presented in **Appendix G** and well construction details are provided in **Table 3-1**, with measured water levels from a groundwater monitoring event (GME) undertaken on 14 January 2026, as summarised in

Table 3-2.

Table 3-1 Monitoring Well Construction Details

Well ID	Ground Elevation (mAHD)	Top of casing (mBGL)	Bore Depth (mBGL)	Screen Interval (mBGL)	Lithology Screened
BH1M	59.10	-0.09	11.89	3.00 – 9.00	SANDSTONE
BH2M	60.40	-0.02	10.80	4.80 – 10.80	SANDSTONE
BH3M	61.60	-0.15	15.22	3.15 – 15.22	SANDSTONE

Table 3-2 Groundwater Depth Gauging Data – January 2026

Well ID	RL at TOC [1] (mAHD)	Depth to Water (mBTOC) [2]	Depth to Base (mBTOC) [2]	RL at SWL [3] (mAHD)
BH1M	59.01	3.76	9.00	55.25
BH2M	60.38	1.90	10.85	58.48
BH3M	61.45	3.21	16.00	58.24

Note 1 RL at TOC – Surveyed elevation at top of well casing.
Note 2 mBTOC: metres below top of well casing.
Note 3 RL at SWL: Reduced level at the measured groundwater depth.

3.2 Conceptual Hydrogeological Model

Based on the findings of previous investigations, the conceptual hydrogeological model for the site is summarised as follows:

- Subsurface soil profile comprises:
  - Fill (silty Sand with ironstone gravel), to a maximum depth of 0.8 mBGL;
  - Residual soil (silty Sand), to a maximum depth of 1.0 mBGL; and
  - Bedrock (Sandstone), encountered as shallow as 0.5 mBGL, extending to beyond the maximum investigation depth of 15.22 mBGL.
- Groundwater occurs within fractured bedrock and is under pressure, with standing water levels (SWLs) ranging between 55.25 and 58.48 m AHD (i.e. 1.90 and 3.76 m BGL), as measured in monitoring wells located across the site, and summarised in
- **Table** 3-2.
- Based on two rising head tests completed at each well, hydraulic conductivities for the bedrock aquifer were calculated as follows:
  - BH1M – between 2.2 x 10^{-7} and 3 x 10^{-7} m/s;
  - BH2M – between 1.9 x 10^{-7} and 5.4 x 10^{-8} m/s; and
  - BH3M – between 4.4 x 10^{-8} and 3 x 10^{-8} m/s.
- Groundwater is flowing predominantly through the sandstone bedrock along bedding planes, joints and fractures. Flow direction and hydraulic gradient during high and low groundwater levels are assessed in **Section 3.3**.

3.3 Pre-Dewatering Groundwater Depth and Hydraulic Gradient

Continuous groundwater level monitoring was completed at all monitoring wells, BH1M and BH2M for the period 28 November 2025 to 13 January 2026, and at BH3M for the period 8 December 2025 to January 13 2026 (EI, 2026c). Monitoring results to date were reported as hydrographs with rainfall data overlays, as shown in an appendix to the GSA report (see **Appendix D**). At the time of writing, monitoring was ongoing and an additional, pre-dewatering groundwater level monitoring report will be prepared after February 2026.

Maximum and minimum groundwater levels recorded at each well during the continuous water level monitoring period are summarised in **Table 3-3**. The absolute maximum and minimum recorded groundwater levels are shown as bold values.

Table 3-3 Summary of Groundwater Monitoring Results

Well ID	Average g/water RL (m AHD) [1]	Highest g/water RL (m AHD) / Date / Time	Lowest g/water RL (m AHD) / Date / Time	Contoured Groundwater Levels	
				At time of Highest g/water level (m AHD) [2]	At time of Lowest g/water level (m AHD) [3]
BH1M	54.39	57.09 02.12.2025 / 12:00am	**49.27** 10.01.26 / 12:00am	56.96	**49.27**
BH2M	57.44	**60.07** 26.12.25 / 12:00am	52.36 10.01.26 / 11:45am	**60.07**	52.39
BH3M	57.3	59.91 26.12.25 / 12:30am	52.18 09.12.2025 / 12:00am	59.91	52.18

Note 1 – The average groundwater RL, as calculated for the recorded groundwater levels at each well, for the continuous groundwater level monitoring period.

Note 2 - The groundwater RL, at each well, for the exact time that the highest groundwater level was recorded during the continuous monitoring period.

Note 3 – The groundwater RL, at each well, for the exact time that the lowest groundwater level was recorded during the continuous monitoring period.

Groundwater level data for all three monitoring wells as at the timing of the maximum and minimum groundwater levels recorded during the continuous monitoring period, were used to produce the groundwater contour maps presented in **Appendix A**, **Figure 3**. The analysis showed that:

- The highest recorded groundwater level occurred at BH2M at 12:00 am on 26 December 2025. Based on the contour analysis for water levels at this time, groundwater was inferred to be flowing in a north-easterly direction, under a hydraulic gradient of 0.082.
- The lowest recorded groundwater level occurred at BH1M at 12:00 am on 10 January 2026. Based on the contour analysis for water levels at this time, groundwater was also inferred to be flowing in a north-easterly direction, under a hydraulic gradient of 0.080.

It was therefore concluded that groundwater flow direction and hydraulic gradient did not vary significantly throughout the continuous monitoring period.

As discussed in the GSA report in relation to the analysis of Section A-A, a design groundwater level (DGL) of RL 61 m AHD was adopted for the east - west site boundary. This DGL value considered a seasonal variation of up to 1.0 m above the highest water levels measured in BH2M.

For the analysis of Section B-B, design groundwater levels of 60 m AHD and 19.35 m AHD were adopted for the south and north boundaries, respectively. This value was assumed based on the average values of the design water levels on section A-A.

No other construction dewatering activities were observed to be taking place in the vicinity of the site during baseline groundwater level monitoring. As draining basements may already exist at nearby properties however, the determined design groundwater levels were considered to be indicative of ambient groundwater levels inclusive of any cumulative groundwater level declines that may have occurred as at the time of the assessment.

3.4 Baseline Groundwater Quality Assessment

3.4.1 Monitoring Well Locations

The 13 January 2026 GME involved groundwater level gauging and sampling at three monitoring wells BH101M, BH102M and BH103M.

3.4.2 Sampling, Analysis and Quality Plan

The sampling, analytical and quality plan (SAQP) ensured that the data collected were representative of ambient groundwater at each respective sampling point and provided a robust basis for assessment decisions. The SAQP for the baseline GME included consideration of the following:

- Data quality objectives (DQO), including a summary of the objectives of the GME;
- Data quality indicators (DQI), applied to the field and laboratory quality control samples;
- Sampling methodology, including the wells to be sampled (sampling points), screening procedures, handling, preservation and storage, and details of the analytes be monitored;
- Laboratory analysis methods;
- Appropriate water quality assessment criteria; and
- Analytical quality assurance / quality control (QA/QC).

3.4.3 Data Quality Assessment

Laboratory documentation, internal laboratory QA/QC data and analytical reports are attached in **Appendix H**. A data quality assessment in relation to field water quality tests and laboratory QA/QC is provided in **Appendix I**. EI's data validation process found that the overall quality of field-based and laboratory analytical data produced for baseline groundwater samples were of an acceptable standard for interpretive use.

3.4.4 Groundwater Sampling Methodology

The groundwater sampling methodology followed during the most recent GME is described in **Table 3-4**.

Table 3-4 Summary of Groundwater Sampling Methodology

Activity/Item	Details
Fieldwork	The most recent GME was conducted on 13 January 2026 at the existing monitoring wells (BH1M, BH2M and BH3M). Field work involved water level gauging followed by well purging, on-site measurement of physiochemical water quality parameters and groundwater sampling, as described below.
Well depth	▪ BH1M: total well depth 9 mBGL, screen interval 3.00 to 9.00 mBGL; ▪ BH2M: total well depth 10.85 mBGL, screen interval 4.8 to 10.8 mBGL; and ▪ BH3M: total well depth 16 mBGL, screen interval 3.15 to 15.22 mBGL. Borehole logs and monitoring well construction logs are presented in **Appendix G**.
Well Gauging	Monitoring wells were gauged to determine standing water level (SWL) prior to groundwater purging and sampling. Gauging was conducted with a water/oil interface probe to assess for the presence of light non-aqueous phase liquid (LNAPL).
Well Purging, Water Quality Measurements and Sampling	After water level gauging, wells were purged of stagnant groundwater and representative groundwater was then sampled by low-flow / minimal draw-down method, using a peristaltic pump with dedicated tubing. During the well purging process, continuous field measurements were obtained for water temperature (Temp), electrical conductivity (EC), reduction-oxidation potential (Redox), dissolved oxygen (DO) and water pH, using a *Hanna Multi Parameter 9829* probe positioned within an open flow-through cell. Once water quality parameters stabilised (i.e. within ± 10% for DO, ± 3% for EC, ± 0.05 for pH, ± 0.2° for temperature and ± 20mV for Redox), the measured values were recorded. Groundwater sampling was then undertaken by diverting the outlet of the pump (immediately before the flow cell) to the laboratory-supplied sampling vials and bottles for sample collection.
Decontamination Procedure	Sampling equipment (interface probe and water quality kit probes) were decontaminated between sampling locations by washing in a solution of potable water and *Liquinox*^{TM}, followed by rinsing with potable water. Decontamination was not required for the sampling pump, as dedicated disposable tubing was used for sampling at each individual well. Dedicated gloves were used for the handling of equipment and collection of each sample.
Sample Preservation	Laboratory prepared sample containers were supplied for each sample, as follows: ▪ one, 1 litre amber glass, acid-washed and solvent-rinsed bottle; ▪ two, 40ml glass vials, pre-preserved with dilute hydrochloric acid and Teflon-sealed; ▪ one, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1mL); ▪ Additional bottles and preservatives were used for the more detailed suite of tested parameters, as listed and described in **Section 3.4.5**. Samples for metals analysis were field-filtered using 0.45 µm pore-size membrane filters. All containers were filled with zero headspace then capped and stored in insulated chests (containing chilled and sealed 'ice' bricks), until completion of the fieldwork and during sample transit to the laboratory.

Activity/Item	Details
Sample Transport	After sampling, the chilled chests were transported to SGS Pty Ltd (SGS; the primary laboratory) using strict chain-of-custody (COC) procedures. Sample Receipt Advice (SRA) was provided by the laboratory to document sample condition upon receipt. Copies of the SRA and COC certificates are presented in **Appendix I**.
Quality Control (QC), Laboratory Analysis and Sample Transport	Groundwater samples were analysed by SGS for the requested analytes as detailed on the COC form. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports (included in **Appendix I**). In addition to an inter-laboratory duplicate sample (analysed by Envirolab Services Pty Ltd, the secondary laboratory), QC analyses also included a blind (intra-laboratory) field duplicate sample that was analysed by SGS.

3.4.5 Tested Parameters

As summarised in **Table 3-5**, groundwater samples from wells BH2M and BH3M were analysed for a condensed, *Standard suite* of analytes; however, the sample from well BH1M was analysed for an *Extended baseline suite* of analytes, which included all mandatory groundwater quality test parameters listed under Appendix A of DPIE (2022), plus a number of additional parameters selected by the EI investigation team for groundwater characterisation purposes.

In summary, the *Baseline test suite*, included:

- **Physical parameters:** Alkalinity (bicarbonate, carbonate, hydroxide and total), electrical conductivity (EC), pH, redox potential (Eh), total dissolved solids (TDS), total hardness, temperature, dissolved oxygen (DO);
- **Other physical parameters:** Turbidity (NTU), total suspended solids (TSS), total organic carbon (TOC), sodium absorption ratio (SAR);
- **Major anions:** Sulfate (SO_4), chloride (Cl), carbonates (CO_3), bromide (Br), fluoride (F);
- **Major cations:** Calcium (Ca), magnesium (Mg), sodium (Na), potassium (K);
- **Ionic balance:** Cation / anion balance (as a percentage);
- **Dissolved inorganics & metals:** Aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), selenium (Se), silica (dissolved SiO_2), silver (Ag), strontium (Sr), uranium (U), vanadium (V), zinc (Zn);
- **Nutrients:** Ammonia (NH_3), nitrate (NO_3), total nitrogen (N), oxidised nitrogen (N), total phosphorus (P), reactive phosphorus (P);
- **Microbiological organisms:** Faecal coliforms, faecal streptococci, Escherichia coli;
- **Organics:** Benzene toluene ethylbenzene xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRHs);
- **Other:** the following additional parameters were also analysed as part of the site characterisation process:
  - Volatile Organic Compounds (VOCs), including Chlorinated VOCs (CVOCs);
  - Total cyanide and total phenols; and
  - Perfluoroalkyl and polyfluoroalkyl substances (PFAS).

The *Standard test suite*, included:

- **Physical parameters:** pH, EC, TDS and Hardness;

- **Dissolved metals:** aluminium, arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- **Organics:** TRHs, BTEX, PAHs, VOCs, semi-volatile organic compounds (SVOCs), chlorinated aliphatic compounds (which include CVOCs and low volatility chlorinated compounds, e.g. chlorinated paraffins and chlorinated pesticides);

Table 3-5 Summary of Groundwater Quality Test Parameters

Sampling Date	Monitoring Well	Testing
13/01/2026	BH1M	Extended baseline suite
	BH2M	Standard suite
	BH3M	Standard suite

3.4.6 Assessment Criteria

Water quality results were assessed against discharge water criteria (the 'DWC') based on the default guideline values (DGVs) for marine ecosystems, as published under the Australian and New Zealand Guidelines (2018 and subsequent updates) for fresh and marine water quality (Ref. ANZG, 2018+). These were the 95% Marine Default Guideline Values (DGVs) and 99% Marine DGVs for bio-accumulative toxicants (cadmium, mercury and benzo(a)pyrene). For parameters that are not currently addressed by the ANZG marine water DGVs, relevant alternative criteria were adopted, as detailed in **Section 5.2**.

The DWC values are presented alongside the groundwater analytical results in the corresponding summary tables (**Table B1** and **Table B2** in **Appendix B**).

3.4.7 Field-based Water Quality Testing and Observations

The field water quality parameters DO, pH, EC, Temperature and Redox potential, were measured onsite using a flow cell and recorded as presented in **Table 3-6**. The groundwater samples were also evaluated on the basis of odour and visual signs of contamination, with the following observations noted:

- Groundwater samples were observed to be light brown to grey in colour, with low to moderate turbidity;
- No hydrocarbon odours or visual evidence of contamination were detected during well purging and groundwater sampling of all three wells; and
- A portable photo-ionisation detector (PID) was used to screen the top of each well for VOCs and PID readings were low (<1ppm, i.e. less than background levels).

The field water quality data indicated that groundwater beneath the site is strongly acidic to acidic (pH: 3.84 – 5.72), fresh in terms of water salinity (EC 299 – 436 µS/cm), oxygen depleted as shown by low dissolved oxygen concentrations (DO 0.67 – 2.81 mg/L), and under oxidising conditions, as indicated by the positive Eh values (352.6 – 536.6 mV).

Table 3-6 Groundwater Field Data (GME date: 13/01/2026)

Well ID	DO (mg/L)	pH	EC (µS/cm)	Temperature (°C)	Eh [1] (mV)
BH1M	0.67	5.72	436	21.97	352.6
BH2M	1.71	3.84	299	21.68	473.8
BH3M	2.81	4.49	340	20.9	536.6

Notes: DO – Dissolved Oxygen; EC – Electrical Conductivity;
[1] Eh (mV) - Adjusted redox potential relative to Standard Hydrogen Electrode (SHE) calculated as field Redox probe reading plus field probe potential (205mV).

3.4.8 Laboratory Analytical Results

Laboratory documentation is attached in **Appendix H**. With reference to the results summary tables presented as **Table B1** and **Table B2** (**Appendix B**), the results of the most recent GME showed groundwater concentrations are generally compliant with the DWC in most samples, with the following exceptions:

- Dissolved cadmium at BH3M (0.9 µg/L) was above the DWC value 0.7 µg/L.
- Dissolved aluminium at BH1M (87 µg/L), BH2M (980 µg/L) and BH3M (110 µg/L) was above the DWC value 37 µg/L.
- Dissolved cobalt at BH1M (1 µg/L) was above the DWC value 1 µg/L.
- Dissolved manganese at BH1M (130 µg/L) was above the DWC value 80 µg/L.
- Escherichia coli (E. coli) at BH1M exceeded the DWC guideline of no detection in 100 mL.
- Ammonia Nitrogen (NH_3 as N) BH1M (1100 µg/L) was above the DWC value 910 µg/L.
- Nitrate Nitrogen (NO_3-N) at BH1M (40 µg/L) was above the DWC value 38 µg/L.
- Total Oxidised Nitrogen at BH1M (44 µg/L) was above the DWC value 5 µg/L.
- Total Nitrogen at BH1M (2200 µg/L) was above the DWC value 120 µg/L.
- Total phosphorus at BH1M (40 µg/L) was above the DWC value 25 µg/L.
- Turbidity was above the DWC value 10 NTU at all three monitoring wells: BH1M (40 NTU), BH2M (140 NTU) and BH3M (110 NTU).
- Field pH was outside the adopted DWC range 6.5 – 8.4 at all three monitoring wells: BH1M (5.72), BH2M (3.84), and BH3M (4.49); and
- Laboratory pH was also outside the adopted DWC range 6.5 – 8.4 at all three monitoring wells: BH1M (5.7), BH2M (4.3) and BH3M (4.8).

3.4.9 Water Treatment Requirements

Water treatment during construction dewatering

The baseline groundwater quality data indicates water treatment is required prior to discharge in relation to:

- The physical parameters: pH and turbidity;
- Dissolved metals: cadmium, aluminium, cobalt and manganese;
- Escherichia coli (E. coli); and
- Nutrient parameters: Nitrogen and Phosphorus.

In many cases neutralising water pH and lowering water turbidity through appropriate water treatment can significantly reduce the levels of other elevated water quality parameters. Potential water treatment options include pumping the water through a sediment settlement tank, where the following could also be implemented:

- Flocculation/coagulation to promote precipitation and settlement of suspended particles to reduce turbidity and assist in the control of metals;
- pH correction via the addition of sodium hydroxide (or equivalent) solution, implemented concurrently to increase water pH to the required range;
- Adjustment of the flow rate to allow sufficient residence time for flocculation/coagulation and sediment settlement to take place; and

- Technologies involving chemical (precipitation, ion exchange or electrochemical treatment), biological (bioreactors) or physical (adsorption or membrane filtration) treatment to lower nitrogen and phosphorus levels.

While the above provides basic guidance in relation to available treatment options, a water treatment specialist should be engaged to advise on appropriate technologies for site specific conditions. It would be appropriate to engage the water treatment specialist early to allow sufficient time for the design and mobilisation of the water treatment system, prior to the start of dewatering.

Testing of treated water quality is required prior to discharge to confirm that water treatment procedures are effectively achieving compliant discharge water quality. Further details on water quality monitoring and management are provided in **Section 5.4**. Additional information in regards to water treatment system design and maintenance are provided in **Section 5.5**.

Water treatment during operational dewatering

The water quality data set at the conclusion of the construction dewatering phase will be used to inform water treatment requirements, to ensure compliant discharge waters for the operational phase, as described in **Section 7.3**.

4. DEWATERING METHODOLOGY

4.1 Excavation and Shoring

As stated in **Section 1.2**, the proposed development will include a two-level basement, with an estimated BEL of about 6 metres below (existing) ground level, and locally deeper excavations for footings, service trenches, crane pads and lift overrun pits.

At the time of this DMP, no detailed structural designs were provided. With reference to the GSA report (**Appendix D**), it has been assumed that a fully drained shoring wall system will be adopted. This shoring system is assumed to be permeable and freely draining.

The seepage analysis did not assess the overall stability of the shoring system and advised that should the shoring design be updated the GSA should be revised accordingly.

4.2 Estimated Groundwater Take Volume and Dewatering Duration

As described in the GSA report, groundwater seepage analysis was undertaken using the software package PLAXIS 2D (Version 2024.1.0.1060). PLAXIS 2D is a finite element software package, which is appropriate for non-complex sites with laterally uniform subsurface conditions. The model provides predictive estimates of seepage inflow volumes during basement construction, as well as the annual water take applicable for the occupational phase of the development.

Based on a specific set of assumptions and field test data, which included determination of the design groundwater level (**Section 3.3**), as well as the onsite, layer-specific hydraulic conductivities (detailed in the GSA report), groundwater seepage flow draining through and beneath the shored walls into the excavation is predicted to be **2.7 ML** over a projected 365 days of construction dewatering (i.e. 7.4 m^3 / day).

For the long-term management of groundwater, the annual water take for the occupational phase is therefore estimated to be **2.7 ML/year**. As the basement will be designed as a draining structure groundwater mounding was not a consideration for modelling purposes.

It is noted that in accordance with the NSW *Water Management (General) Regulation 2018*, a Water Access Licence is required where the estimated groundwater take is more than 3 ML/year in the absence of any relevant exemption. Based on the modelled seepage volume, a Water Access License will not be required.

4.3 Cone of Depression Extent, Ground Settlement and Drawdown Monitoring

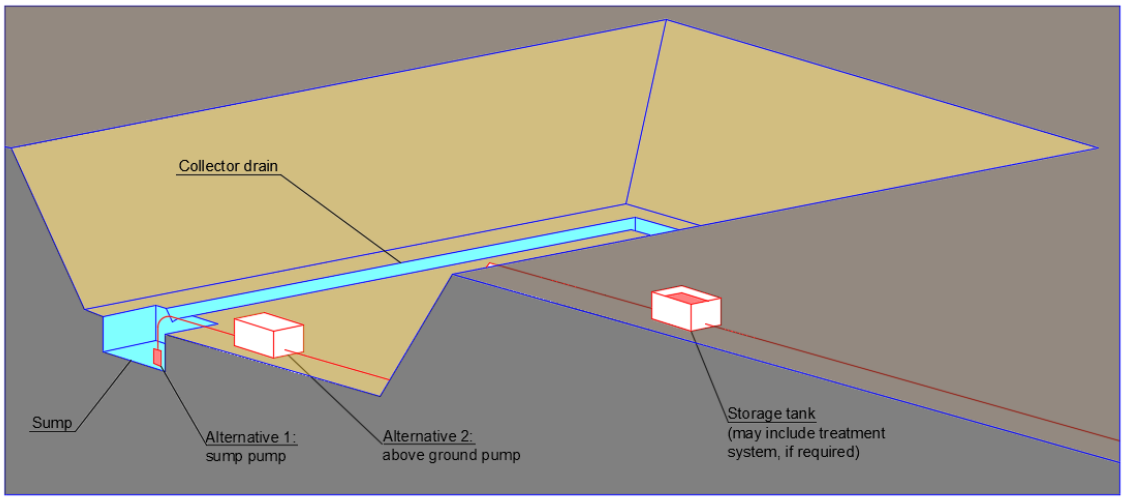
Groundwater modelling indicated the predicted drawdown behind the shoring wall, surrounding the basement boundaries, are 7.7 m in Section A-A, with an estimated radius of influence (cone of depression extent) of 40 m from the shoring wall. Based on the modelling results, ground settlement immediately outside the basement wall due to dewatering is estimated to be approximately <2 mm, which indicates a 'negligible' risk in terms of the category of damage risk due to dewatering, as described in GSA Report Section 3.3.

Groundwater elevations will be monitored periodically during the construction dewatering period by measuring groundwater depth in selected monitoring wells. Groundwater depth monitoring may be adequately gauged manually by electric water contact meter during each dewatering monitoring event, as described in **Section 5.4**.

4.4 Dewatering Method

Due to the characteristically low hydraulic conductivity characteristics of the fractured bedrock a sump and pump system will be used for the control of water seepage into the excavation during basement construction. A typical sump-and-pump setup is illustrated in **Figure 4-1**.

Figure 4-1 Hypothetical layout of a *Sump and Pump* seepage collection system



4.4.1 Construction Phase Dewatering

During construction, seepage water is to be collected and appropriately treated prior to discharge to the stormwater system. A collection sump is typically located at the lowest part of the excavation, from which collected seepage waters are pumped into a storage tank for sediment settling. The preferred tank type will require capacity to accommodate the rate of groundwater seepage inflow during basement construction, which was modelled at 7.4 m^3/day (**Section 4.2**).

Groundwater treatment will be undertaken either in the settling tank, or via a water treatment system installed close to the tank prior to discharge. The treated water will then be discharged into the municipal storm water pit provided that prior approval for discharge has been obtained from the relevant consent authority.

The pumping system may operate on a full time or intermittent basis (as required), for the approved construction dewatering period.

The Site Manager, Dewatering Contractor and Water Treatment Specialist must agree on a dewatering strategy and appropriate locations for the dewatering treatment system and water retention tanks to be set up, prior to the commencement of the excavation works.

4.4.2 Operational Phase Dewatering

Due to the drained basement design, the ongoing collection of groundwater seepage via onsite detention storage (OSD tank, or equivalent) and any required water treatment prior to discharge to the municipal stormwater network, may be required for the operational life of the project.

It is understood that WaterNSW and DCCEEW may consider an application for long-term, operational phase dewatering, where minimal impact considerations under the NSW Aquifer Interference Policy (AIP) are satisfied. An assessment against the AIP was undertaken, as described in **Section 7**.

4.5 Discharge Flow and Volume Monitoring

The volume of water discharged must be monitored by a calibrated flow meter (or equivalent alternative means) that is integrated as part of the dewatering system for the complete duration of the temporary construction dewatering period. The flow meter will therefore display cumulative volume discharged at any stage during dewatering, which will be documented as part of the dewatering monitoring records.

Flow monitoring data will be documented by a suitably trained site employee under the supervision of the Site Manager. Tabulated records should be maintained on site and made available to the Environmental Consultant for inclusion in the routine monitoring event reports.

These records will be used to calculate the actual groundwater volume taken from the site and will be included in the Construction Dewatering Completion Report (**Section 5.6**), to be issued to Council and WaterNSW after the completion of construction dewatering activities.

For the construction phase, water level and volume monitoring will be conducted during the same monitoring events described in **Section 5.4**. For the operation phase, these monitoring events will be conducted annually until consistent water quality is confirmed, as described in **Section 7.3**.

4.6 Potential Drawdown-Induced Impacts

A review of potential adverse effects of dewatering on active water supply bores and groundwater dependent ecosystems was undertaken, as summarised in **Table 4-1**.

Table 4-1 Assessment of Potential Dewatering Effects

Attribute	Description
Water supply losses by neighbouring groundwater users	As described in **Section 2.4**, a review of registered bores within a 500 m radius of the site identified two deep (84.0 – 107.9 m depth) groundwater bores registered for domestic water supply purposes. As shallow groundwater is not being utilised and the identified deep bores are located cross-gradient in relation to the dewatering activity, groundwater users are unlikely to experience water supply losses as a direct result of groundwater level drawdown associated with site dewatering.
Potential impacts on groundwater quality resulting from contaminant migration	Potential off-site contamination sources were identified within a 500 m radius of the site, as described in **Section 2.5**. Given the location (cross-gradient), distances (>280m) and depth of the groundwater supply bores, the low hydraulic conductivity of the underlying bedrock aquifer, and the historical nature of the potential contamination sources, the dewatering activity is unlikely to result in degradation of the beneficial use category of the groundwater source at the existing deep bores. Potential on-site contamination sources will be removed during basement excavation, and water treatment will be implemented to address any residual water quality impacts.
Proximity of Groundwater Dependent Ecosystems	No high priority groundwater dependent ecosystems were documented within a 500m radius of the site that would be at risk from dewatering induced groundwater drawdown, as described in **Section 2.6**.
Potential subsidence of neighbouring structures	Drawdown-induced ground settlement is predicted to be less than 2 mm immediately outside of the shored basement perimeter; therefore posing a 'negligible' risk in terms of the category of damage risk due to dewatering, as described in **Section 4.3**. This finding is consistent with the fact that the dewatered lithology comprises competent bedrock.

Attribute	Description
Potential groundwater mounding upgradient of the basement	As the basement will be designed as a draining structure for this project, groundwater mounding is unlikely, therefore not warranting consideration for seepage modelling purposes.

5. WATER QUALITY MANAGEMENT

5.1 Responsibility

The Principal Contractor or Site Manager, appointed for the construction works, will be responsible for implementing the water quality management procedures described in this report. Post-construction (i.e. occupational phase) water quality management, including water treatment and water quality monitoring will be overseen by strata management (see also **Section 7.3**).

5.2 Discharge Water Quality Guidelines

In accordance with statutory requirements for site dewatering operations, discharged waters must comply with the ANZG (2018+) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, or relevant default criteria where the ANZG guidelines do not provide values. This requirement is in compliance with the *Protection of the Environment Operations Act 1997*.

The nearest receiving water body is Balmoral Beach, which is a slightly to moderately disturbed marine ecosystem (**Section 2.6**). The ANZG *95% Marine Default Guideline Values* (*DGVs)* were therefore adopted as the Discharge Water Criteria (DWC), with the 99% *DGVs* to be adopted for bio-accumulative toxicants. These will be the water quality trigger levels for contingent actions (see **Section 6.5**) to ensure that water of an appropriate quality is discharged to the environment.

For water quality parameters that are not currently addressed by the ANZG marine DGVs, relevant alternative criteria have been adopted as the default DWC, as detailed in **Table 5-1**.

The listed parameters and their respective criteria will apply for treated waters being discharged to storm water during dewatering. It is noted however, that the testing of specific parameters is not mandatory after the baseline groundwater quality assessment (as stated in Appendix A of DPIE (2022).

Table 5-1 Discharge Water Criteria (DWC)

Analyte	DWC (µg/L) [1]
Dissolved Metals	
Aluminium (Al)	37
Antimony (Sb)	9 [2]
Arsenic III (As III)	94 [2]
Arsenic V (As V)	42 [2]
Barium (Ba)	20,000 [9]
Beryllium (Be)	600 [9]
Boron (B)	1500 [2]
Cadmium (Cd)	0.7
Chromium III (Cr III)	27
Chromium VI (Cr VI)	4.4
Cobalt (Co)	1
Copper (Cu)	13 [3]

Iron (Fe)	3,000 [9]
Lead (Pb)	4.4
Lithium (Li)	No Relevant Criteria
Manganese (Mn)	80
Mercury (total) (Hg)	0.1
Molybdenum (Mo)	34 [2]
Nickel (Ni)	70
Selenium (Se)	18 [2]
Silica (dissolved SiO_2)	No Relevant Criteria
Silver (Ag)	1.4
Strontium (Sr)	No Relevant Criteria
Uranium (U)	0.5 [2]
Vanadium (V)	100
Zinc (Zn)	80 [3]
Petroleum Hydrocarbons / Total Recoverable Hydrocarbons (TRH)	
Oil and grease	*No visible sheens, surface films or oil and grease* [4]
Volatile TPH ($C_6 – C_9$)	No Relevant Criteria
Semi-volatile to heavy TPH ($C_{10} – C_{40}$)	No Relevant Criteria
Monocyclic Aromatic Hydrocarbons (BTEX)	
Benzene	700
Toluene	180
Ethylbenzene	80
o - xylene	470 [2]
p - xylene	250 [2]
m - xylene	75
Polycyclic Aromatic Hydrocarbons (PAH)	
Benzo(a)pyrene	0.1
Naphthalene	70
Microbiological Organisms	
Faecal coliforms	No Relevant Criteria
Faecal streptococci	No Relevant Criteria
Escherichia coli (E. coli)	Not detectable in 100 mL [9]
Major Ions	
Anions: sulfate, chloride, carbonates, bromide, fluoride	No Relevant Criteria
Cations: calcium, magnesium, sodium, potassium	No Relevant Criteria
Ionic balance: cation / anion balance (as a percentage)	No Relevant Criteria
Nutrients	
Ammonia	910

Nitrate (NO_3)	38,000 [5]
Nitrite (NO_2)	30,000 [9]
Oxidised Nitrogen (NO_x)	5 [8]
Total Nitrogen (TN)	120 [8]
Total Phosphorus (TP)	25 [8]
Reactive Phosphorus (FRP)	10 [8]
Other	
Total Cyanide	4
Total Phenols	400
Physiochemical Parameters	
pH (pH units)	6.5 to 8.4 [6]
Turbidity (NTU)	10 [7]

Note 1 Discharge water criteria are the ANZG (2018+) *95% Default Guideline Values (DGVs)* for the protection of slightly to moderately disturbed marine ecosystems, with the *99% DGVs* applied for the bio-accumulative parameters *benzo(a)pyrene*, *cadmium* and *mercury*, unless otherwise indicated. The ANZG (2018+) only provides marine criteria at an 'unknown' level (%) of species protection for *manganese*; therefore, these DGVs are applied.

Note 2 The ANZG (2018+) *90% Freshwater DGVs* for highly disturbed freshwater ecosystems are applied for the indicated parameters (*arsenic, boron, selenium, o – xylene and p - xylene*), in the absence of *marine* water criteria. The ANZG (2018+) only provides freshwater criteria at an 'unknown' level (%) of species protection for *antimony, molybdenum* and *uranium*; therefore, these DGVs are applied.

Note 3 For the metals *copper* and *zinc*, which are commonly present as regional background components in groundwater at concentrations above the ANZG (2018+) 95% Marine DGVs, discharge water criteria are set at one order of magnitude (10 x) higher than the ANZG DGV.

Note 4 NHMRC (2008) No Detectable Oil & Grease - OG test must find No visible film or sheen at the water surface and No detectable hydrocarbon odours, based on aesthetic aspects, as described in NHMRC (2008) *Guidelines for managing risks in recreational water*, Section 10.2.2.

Note 5 In the absence of ANZG (2018+) marine criteria for *nitrate* the ANZG 2025 freshwater 90% DGV is adopted, assuming hard water (>150 mg/L $CaCO_3$) for marine environments.

Note 6 In the absence of ANZG (2018+) criteria for *pH*, the ANZECC / ARMCANZ (2000) Table 3.3.2 Default trigger values for physical and chemical stressors for south-east Australia for slightly disturbed ecosystems are applied. The adopted pH range is between the lower and upper limit values for *Marine* water settings.

Note 7 In the absence of ANZG (2018+) criteria for *turbidity*, the ANZECC & ARMCANZ (2000) Table 3.3.3 upper default trigger value for *estuarine and marine* ecosystems is applied.

Note 8 In the absence of ANZG (2018+) criteria, alternative criteria from ANZECC / ARMCANZ (2000), Table 3.3.2, *Default trigger values for physical and chemical stressors for south-east Australia for slightly disturbed ecosystems.* The marine criteria for *total oxidised nitrogen (NO_x), total phosphorus (TP), reactive phosphorus (FRP)* and *total nitrogen (TN)* were adopted.

Note 9 For chemical parameters not addressed by either ANZG (2018+) or ANZECC / ARMCANZ (2000), i.e. *nitrite*, the NHMRC (2011) *Australian Drinking Water Guidelines, Vers. 3.8, Rev 2022*, Table 10.6 *Guideline values for physical and chemical characteristics*, address potential discharge to recreational beach settings. The discharge water criteria are set at one order of magnitude (10 x) higher than the Drinking water health-based value, or 10 x the aesthetic-based value, in the absence of a *drinking* value. Note: The Table 10.5 *Performance measure threshold* is applied for the microbiological parameter *Escherichia coli* (E. coli).

5.3 Additional Pre-dewatering Monitoring Event

As the baseline groundwater quality assessment included all mandatory parameters listed in Appendix A of DPIE 2022 (as detailed in **Section 3.4.5**), an additional pre-dewatering GME is unwarranted.

5.4 Discharge Water Quality Monitoring

5.4.1 Visual and Odour Monitoring

Visual inspections of the dewatering measures and equipment should occur regularly (daily where possible) by the Site Manager and/or Dewatering Contractor, to ensure:

- The effective operation of all dewatering treatment equipment, including inspection that short-circuiting of water around baffles and filter media is not occurring within sediment retention tanks;
- No petrochemical sheens are visible on the water surface and no hydrocarbon odours are being generated by the treated groundwater or sediment; and
- No green, blue or extremely clear effluent, potentially indicating high levels of dissolved aluminium (if used in the treatment process).

The Site Manager must keep a record of all visual observations and operational measurements such as flow rates and water flow meter readings (if used), as detailed in **Section 5.6**.

5.4.2 Sample Collection and Analysis

On-going sample analysis must continue for the duration of construction dewatering activities, to establish that the treatment system (if required) is functioning as intended, and to confirm the quality of discharge water is acceptable for release into stormwater system.

Sample collection should be completed by a suitably qualified environmental scientist or equivalent, with the subsequent analyses performed by a reputable environmental laboratory using NATA-registered analytical methods. The analytical program is to include the parameters listed in **Table 5-1** (**Section 5.2**) and/or the parameters in accordance with *Appendix A – Routine water quality monitoring lists* (DPIE, 2022). Certain parameters may be removed from the testing suite, subject to laboratory analytical results, as advised by the appointed water quality specialist / environmental consultant.

The following activities are to be implemented for the on-going monitoring program:

Trial-Run Period

- Prior to the discharge of any extracted groundwater, a trial run will be completed as follows:
  - Groundwater seepage will be pumped from the sump into the sediment settlement tank and passed through the water treatment system, then diverted into the excavation, until a reduction in suspended sediments is observed;
  - Once less turbid water is achieved, water from the sump may be pumped into the sediment settlement tank and passed through the water treatment system;
  - Samples of the treated water will be collected and laboratory analysed for the DPIE 2022 mandatory water quality parameters; and
  - After confirmation that treated water quality complies with the DWC, the treated water may be discharged to the municipal storm water system, using the Council-approved connection point.

- As a minimum, two samples of treated water will be collected per week for the first two weeks during the designated trial-run period. The analytical results will be compared to the DWC to assess the performance of the water treatment system and to make adjustments where necessary.
- Sampling for trial run purposes will cease once the target parameters stabilise (i.e. consecutive treated water tests are within ±10% of the previous test results) and contaminant concentrations are within the DWC for three consecutive sampling events. The trial-run period may be extended if stabilisation is not observed, or if the treated water does not satisfy the DWC (**Table 5-1**).
- The Dewatering Contractor / Water Treatment Specialist should seek advice from the Environmental Consultant regarding termination of the trial-run period.
- During the trial-run period, all collected groundwater seepage (including treated water) should be retained on-site and stored in appropriate bulk containers. No collected water should be discharged until it is proven to meet the adopted DWC.

Construction Phase - Monitoring Frequency (Weekly, Fortnightly and Monthly)

- After the Trial-Run Period, and subject to statutory authority approval, treated water may be discharged to the storm water system. A weekly sampling frequency will be adopted for four weeks. The sampling program will involve the collection of one system discharge (i.e. treated) sample (as a minimum), to be analysed for the target parameters of concern, to confirm the system is functioning as intended.
- After four weeks, the weekly sampling frequency may be extended to fortnightly monitoring for one month and then monthly for the remaining duration of construction phase dewatering, provided the analytical monitoring results indicate the treated water quality consistently meets the DWC. If this is not achieved, contingency measures must be implemented, with monitoring frequency going back to weekly until consistency in the discharged water results is re-established.

Operational Phase - Monitoring Frequency (Annual)

- Provided that the Discharge Monitoring Period shows consistent and compliant results, the monitoring frequency can be extended to annually during the operational period, until the end of year 3, as described in **Section 7.3**.
- As per the construction phase monitoring, contingency measures detailed in **Section 6.5** should be implemented if water quality results exceed the DWC for any one monitoring event.
- Any changes to the sampling frequency are to be determined by the appointed environmental consultant, and justification must be documented in the monitoring records.

5.4.3 Reporting of Water Quality Results

Dewatering management procedures and monitoring results will be reviewed by the appointed Environmental Consultant to ensure that the treatment procedures are effective, and that the discharge waters are in compliance with the adopted DWC (**Table 5-1**). Discharge water quality reporting will be required as follows:

- **Interim Monitoring Reports** will be prepared and issued to the Site Manager (during the construction phase), upon receipt of laboratory data for each round of water quality monitoring for the discharged waters. The interim reports will detail the sampling methods and procedures, provide a comparison between historical and current results, assess the results against the DWC and provide recommendations on corrective actions, when required.

- **Interim Dewatering Completion Report** - Following completion of construction dewatering activities, an *Interim Dewatering Completion Report* ('interim DCR') will be prepared by the appointed Environmental Consultant, as described in **Section 5.6.1.** The interim report will report on construction phase dewatering and must include copies of all analytical results and laboratory water quality test reports issued during the construction phase dewatering period. The interim DCR will be prepared using the pro-forma available for download through the WaterNSW website, as described in **Section 5.6**, and will be submitted to Council and Water NSW.
- **Annual Dewatering Monitoring Reports** will be prepared as described in **Section 5.6.2**, upon receipt of laboratory data for each annual round of water quality monitoring during the operational phase of the development, as described in **Section 7.3**.

5.4.4 Reporting of Other Information

The Site Manager must keep records of cumulative discharge volume and treatment methods and treatment chemicals applied to the water discharge, if any. In addition, any periods of dewatering stoppage should also be recorded. This information must also be compiled using the DCR pro-forma (see **Section 5.6**).

5.4.5 Groundwater Level Monitoring

Groundwater levels will be measured at each monitoring well during the dewatering period to monitor groundwater level drawdown. The data will be recorded and included in the DCR.

5.5 Water Treatment

5.5.1 Treatment System Design Considerations

Baseline groundwater quality data to date (**Section 3.4**) indicate that cadmium, aluminium, cobalt, manganese, E. coli, nitrogen, phosphorus, turbidity and pH have been detected at levels that are outside of the DWC.

It is recommended that the selection and design of the preferred water treatment system is made by the Dewatering Contractor / Water Treatment Specialist, in collaboration with the appointed Environmental Consultant. Alternative and/or additional water treatment options may be implemented, if necessary, depending on which parameters are found to exceed the DWC during the Trial-Run period described in **Section 5.4.2**.

The design and installation of the preferred system should consider:

- A treatment tank with minimum capacity capable of containing the expected inflow for the basement (as described in **Section 4.4.1**);
- Water filtration to reduce fine particulates;
- If applicable, automated in-line chemical dosing systems for the addition of buffering solutions and/or coagulants for the adjustment of pH, turbidity and other parameters, which may be required as described in **Section 6.5** *Dewatering Contingencies*;
- Other water treatment to reduce concentrations of contaminants exceeding the DWC to below the values presented in **Section 5.2**;
- Spare retention tank(s) (if required) to provide additional residence time and sedimentation, in the case that non-compliant water quality is identified during routine monitoring, triggering temporary redirection and storage while adjustments to the water treatment system are being implemented; and
- A means of monitoring flow rate to enable accurate determination of total discharge volume.

The water treatment system should be installed, tested and operational prior to the commencement of dewatering, to ensure that only treated water that meets the discharge water quality criteria is allowed to drain to the storm water network.

5.5.2 Treatment System Maintenance

The groundwater treatment system(s) must be regularly maintained by the Dewatering Contractor / Water Treatment Specialist. Maintenance must include (if applicable):

- Regular cleaning and or replacement of the geo-fabric / particle filters within the retention tanks;
- Media changeover (e.g. granular activated carbon) whenever breakthrough conditions are met; and
- Regular removal of sediment from the retention tanks by an appropriately-licensed waste contractor.

5.6 Reporting of Dewatering Information

5.6.1 Interim Report - Construction Dewatering

In accordance with WaterNSW requirements (Ref. WaterNSW Fact Sheet 260923, Link: https://www.waternsw.com.au/__data/assets/pdf_file/0005/155417/Fact-sheet-Completion-report-Construction-dewatering.pdf), a *completion report* will be prepared and submitted to WaterNSW, at the completion of site dewatering. The completion report must accompany an application to WaterNSW to surrender the *water supply work approval* at the time that site dewatering is ended.

As the proposed dewatering will involve operational dewatering, the first report to be submitted to WaterNSW for this site will be titled "*Interim Report – Construction Dewatering"* and will document all records collected from the beginning to the end of the construction dewatering period. A blank *Interim Report* form may be downloaded from the WaterNSW website using the internet link: https://www.waternsw.com.au/__data/assets/pdf_file/0004/167278/Completion-report-for-dewatering-work.pdf, and is to be used to record all of the required information, as listed on the form itself (see **Appendix J**).

The routine logging of flow meter readings at the start and finish of each dewatering event is to be completed by a responsible representative of the construction team (e.g. the Site Manager). Each flow meter entry will record a volume of water take associated with it, to enable the calculation of cumulative water take volume at any time during the site dewatering period.

Other records including water quality results, laboratory analytical reports and groundwater level monitoring records may be supplied by the appointed specialist contractors/consultants to the responsible person, who will compile and attach the relevant information to the Interim Report form. The Site Manager may authorise a qualified contractor/consultant to maintain the Interim Report on the Site Manager's behalf.

At the completion of the construction phase, the Interim Report will be submitted to WaterNSW for review.

5.6.2 Annual Reporting for Operational Dewatering

As site dewatering will continue during the occupational phase of the development, monitoring will continue under the responsibility of Strata Management through the occupational phase. This will require the same information as required for the *Interim Report* (described in **Section 5.6.1**), to be logged and submitted to WaterNSW on an annual basis under the report title "*Annual Report – Occupational Dewatering"*.

Monitoring frequencies for the occupational phase are detailed in **Section 7.3**.

All laboratory analytical results, flow meter logs and groundwater level monitoring records must be maintained by strata management, and should be made available upon request by Council and/or WaterNSW.

5.6.3 Dewatering Completion Report

A final *"Dewatering Completion Report"* will be submitted to WaterNSW at the termination of site dewatering, together with an application to surrender the water supply works approval (a copy of this form is also provided in **Appendix J**).

6. SITE MANAGEMENT AND CONTROLS

6.1 Deviations from this Plan

The Site Manager should seek advice from the Environmental Consultant if deviation from the agreed monitoring program is considered. To ensure the monitoring data set and the early warning objectives of the DMP are not compromised, variations will only be considered where technical justification exists, and any deviations that may be accepted will be documented within the corresponding reports, and must include all justifications for the variation accepted.

Should deviations from the DWC be considered technically justifiable, approval from Council and/or WaterNSW must be obtained before alternative discharge criteria are applied.

6.2 Contact Details for Key Personnel

Once the relevant personnel have been appointed, their names and contact information must be clearly displayed on-site, within the site office. An example format is as follows:

Site Manager	Name: To be confirmed Company: To be confirmed	Mobile phone: To be confirmed Email: To be confirmed
Dewatering Contractor	Name: To be confirmed Company: To be confirmed	Mobile phone: To be confirmed Email: To be confirmed
Water Treatment Specialist	Name: To be confirmed Company: To be confirmed	Mobile phone: To be confirmed Email: To be confirmed
Environmental Consultant (Water Quality Expert)	Name: To be confirmed Company: To be confirmed	Mobile phone: To be confirmed Email: To be confirmed

6.3 Summary of Specific Activities

The appointed contractors and/or Site Manager will be responsible for ensuring that the following activities (requirements) are undertaken during the dewatering program:

- Maintain erosion and sediment control measures in a functioning condition, until all earthwork activities are completed.
- Perform daily inspection of the recharge well(s), stormwater diversions and sediment / erosion control devices, ensuring it is operating effectively and at full capacity.
- Implement appropriate remedial measures where any controls or devices are not functioning effectively or are inappropriate.
- Collate records and comments on the condition of existing erosion and run-off controls (drains, silt fences, catch drains etc.), dewatering procedures and test results, and any site instructions issued to sub-contractors to undertake remedial works.
- Maintain rainfall data (to be filed on site).
- Confirm water quality parameters meet the relevant discharge limits, by disclosing supporting documentation upon request.
- Reporting any incidents of poor drainage or uncontrolled discharge.
- Recording all daily inspection reports, environmental incidents and controlled discharge volumes, which may be reviewed during any environmental audit performed on the site.

6.4 Vibration, Noise, and Odour Management

The following vibration, noise and odour risks must not occur during dewatering:

- Excessive vibration and noise levels associated with site plant / dewatering equipment; and
- Odours released from collected groundwater, which may pose a risk to human health and/or the aesthetic condition of the environment.

It is the responsibility of the Site Manager to ensure appropriate management of vibration, noise and odour during dewatering operations. Appropriate management methodologies include:

- Undertaking dilapidation surveys of neighbouring buildings, in accordance with potential for impacts in final design type.
- All sub-contractors to work only within defined hours set by the DA conditions.
- All reasonable steps shall be taken to muffle and acoustically baffle all plant and equipment. Noise and vibration levels generated by site works must be within the limits set by the DA conditions, the site specific environmental management plan and the *Protection of Environmental Operation Act 1997*.
- Give consideration to the noise emission of plant/equipment prior to its selection/mobilisation to site.
- Schedule the use of noisy equipment at the least-sensitive time of day.
- Situate noisy equipment at the greatest distance from the noise-sensitive area, or orient the equipment so that noise emissions are directed away from sensitive areas, to achieve the maximum attenuation of noise.
- Where there are several noisy pieces of equipment, schedule operations to minimise cumulative impacts.
- Keep equipment well maintained.
- Ensure engine shrouds (acoustic linings) are installed (where feasible).

6.5 Dewatering Contingencies

Contingent actions for scenarios that may arise during dewatering are detailed in **Table 6-1**.

Table 6-1 Mitigation Measures for Potential Dewatering Issues

Anticipated Problems	Preventive / Corrective Actions
Water Quality Criteria Non-compliance	
Water Quality Criteria Exceedance Laboratory analytical report for any monitoring event reveals that treated water quality does not satisfy the Water Quality Trigger Values.	Water quality trigger values, also referred to as the discharge water criteria (DWC), are detailed in **Section 5.2, Table 5-1**. Immediate action must be taken to halt the release of water into receiving water bodies, where water quality is found not to meet the DWC. Discharge of water must be suspended to enable the following procedure to be implemented: 1) Water will be redirected to storage retention basin/tanks; 2) A water sample will then be collected and sent to the laboratory for confirmation analysis for the non-compliant parameter(s) on an express (24hr) results turn-around basis; 3) Should the analytical result for the confirmation sample show that the previously non-compliant parameter(s) is/are now meet the DWC, the treated water outlet may be redirected to receiving water bodies; however 4) Should the analytical result for the confirmation sample show

Anticipated Problems	Preventive / Corrective Actions
	that the discharge water quality does not comply with the DWC, the environmental consultant / water treatment specialist will be required to modify the water treatment system, in order to achieve compliant discharge water quality. Collection of further treated water samples will be required to confirm the effectiveness of the modifications; 5) After laboratory confirmation that the revised treated water quality complies with criteria, extracted groundwater may be redirected to receiving water bodies; and 6) Weekly monitoring of treated discharge water quality monitoring will be required, until such time that contaminant concentrations are within the DWC values for three consecutive sampling events. Once this is achieved, fortnightly monitoring may be reinstated. **Note: Wastewater Removal** - It may be necessary to have collected waters removed by a licensed wastewater contractor, should quantities exceed the on-site capacity for temporary storage. In this case, records must be maintained to document quantities of wastewater disposed in this way, with provision of wastewater disposal dockets issued by the contractor to be retained for audit and reporting purposes.
Visible and Olfactory Impacts Visual and/or olfactory anomalies (e.g. change in water colour, turbidity, odour, presence of oil / grease) are observed in extracted groundwater.	Similar to the above procedure (Steps 1 to 6) treated water will be redirected to an alternative retention vessel, while the treatment system is adjusted. It may be necessary to have collected waters removed by a licensed wastewater contractor, should retained quantities exceed the on-site capacity for temporary storage. The contractor is to seek advice from a suitably experienced environmental consultant in regard to the additional assessment and treatment that may be required for any observed changes to water appearance or detectable odours.
Repeated Criteria Exceedances After three non-compliances for discharge water quality.	Retain extracted water onsite in appropriate bulk containers for subsequent removal by a licensed wastewater contractor. Determine an alternative discharge method, if necessary, updating this report accordingly.
Groundwater Take Non-compliance	
Excessive Extraction The predicted daily inflow rate (specified in **Section 4.2**) is exceeded.	Groundwater take trigger levels are provided to ensure that appropriate measures are implemented to minimise the risk of exceeding the groundwater take limit, which would form a breach of the conditions of the WaterNSW Statement of Approval. The following trigger levels are based on the regular flow meter readings that are recorded during the dewatering monitoring program, as described in **Section 5.6**: *Trigger 1:* when the flow meter data indicates that 70% of the total approved groundwater take limit has been extracted, the monitoring manager is to notify the Site Manager and the Dewatering Contractor, to activate a review of construction progress against dewatering rate and to make adjustments if necessary, so as not to exceed the approved groundwater take limit. *Trigger 2:* at 80% of the total approved groundwater take limit, if basement construction is not close to completion, the monitoring consultant is to engage site management and the dewatering contractor to review the reasons for the increased dewatering rate and to explore options and take action to achieve sufficient lowering of the dewatering rate for compliance with the groundwater take limit. *Trigger 3:* at 90% of the total approved groundwater take limit, if effective reductions in dewatering rate cannot be implemented,

Anticipated Problems	Preventive / Corrective Actions
	WaterNSW should be contacted to review options, which may include a combination of: ▪ Applying for an increase to the groundwater take limit, which may require a Water Access License to be acquired. ▪ Temporary retention of tail water onsite in appropriate bulk containers for subsequent removal by a licensed waste contractor; ▪ Aquifer re-injection after obtaining regulatory approval; and/or ▪ Fast-tracking of construction works to complete dewatering sooner than the scheduled timeframe.
Drawdown-Induced Ground Settlement Risk	
Excessive Water Level Drawdown	Groundwater drawdown trigger levels will also apply to minimise the risk of unforeseen impacts in relation to ground settlement on neighbouring land. As documented in the GSA report (**Appendix D**), dewatering is expected to have negligible, adverse impact on the neighbouring properties, given that dewatering will occur in competent bedrock materials. Notwithstanding, should groundwater level monitoring during site dewatering reveal declining groundwater levels greater than the predicted, maximum drawdown outside of the basement boundary, the following contingency measures will apply at the indicated trigger levels: *Trigger 1*: when monitoring of groundwater levels indicates that the maximum predicted groundwater drawdown level has been reached in the vicinity of the shored excavation boundary wall, and groundwater levels are still falling, excavation works should cease (HOLD POINT) and the monitoring manager is to notify the Site Manager and the Geotechnical Engineer to review construction progress and confirm that works can effectively continue without significant, additional groundwater level decline. The review may find that further groundwater level decline may be greater than 25% of the predicted maximum drawdown outside of the shoring wall. *Trigger 2:* should the Trigger 1 review indicate that further groundwater level decline may be greater than 25% of the predicted maximum drawdown outside the shoring wall, the appointed Structural Engineer will be notified to assesses whether this water level decline potentially poses adverse risks to neighbouring structures that would warrant mitigation measures to be implemented, and if so, to recommend relevant mitigation options for consideration and action prior to continuation of deepening the excavation.
System Performance Issues	
Dewatering System Failures	Ensure that spare equipment (where practical) is on hand. Ensure that the failed equipment can be serviced by site personnel or an appointed contractor who can rapidly report to site when needed.
Power Outages	Ensure that a backup generator is readily available. In this event, an assessment across the site and surrounding sites should also be completed in order to identify whether any other lights and electrical equipment are working so to identify if the issue is site specific or if it is across a whole area. In addition to having the back-up generator running, the contractor should also seek advice from an electrician in regard to the additional assessment and repairs that may be required.

Anticipated Problems	Preventive / Corrective Actions
Unexpected contaminants found during monitoring	Contact the appointed environmental consultant / water quality expert and collect samples for analysis, to assess the identified concentrations against relevant criteria. If the contaminant is found to exceed the DWC, follow the corrective actions corresponding to *Water Quality Criteria Exceedance* above. Expand the DWC accordingly.
Chemical/fuel spill and leaks from machinery	Stop earthworks, notify site manager. Use accessible soil or appropriate absorbent material to absorb the spill (if practicable). Stockpile the impacted material in a secure location, on builder's plastic to avoid cross contamination. Inspect groundwater and note any visual and/or changes. The contractor should seek advice from environmental consultant in regard to assessment and treatment requirements.
Excessive rainfall	Ensure sediment and surface water controls are in place and functioning as intended, as per the designs provided in the site-specific Soil and Water Management Plan. Any non-conformance is to be documented and rectified. The capacity of the dewatering system to dispose larger volumes of water should be evaluated and if required, a temporary system should be utilised following correspondence with Council / WaterNSW and the environmental consultant.
Excessive noise	Identify the source and isolate if possible. Modify the actions of the source or erect temporary noise barriers if required.
Impacts on the stability of adjacent structures	Contractor to seek advice from qualified professional (such as a geotechnical engineer and/or structural consultant) in regards to the additional assessment and monitoring that may be required.
Excessive organic odours / vapours	In accordance with Council's Contaminated Land Policy, no nuisance odours are to be detected at any site boundary during the dewatering stage. Should odour emissions be detected at a site boundary, the following measures will be implemented: 1) Stop work, to allow odour to subside. 2) Monitor ambient air across the site and boundaries with a portable photo-ionisation detector (PID). 3) Implement control measures, including respirators for on-site workers, use of odour suppressants and wetting down of excavated material. 4) Notify the occupants of adjoining premises regarding odour issues. Notification should be in writing, providing the contact details of the responsible site personnel. 5) Record logs for odours and volatile emissions using photo-ionisation detectors (PID), if applicable.
Complaint management	Notify client, site manager and environmental consultant (if required) logging and following up complaint. Reporting should follow management procedures. Implement control measures to address reason of complaint (if possible) and notify complainant of outcome.

7. MINIMAL HARM ASSESSMENT

7.1 Consideration of NSW Aquifer Interference Policy

In accordance with the NSW Water Management Act 2000 the taking of water from an aquifer and/or the disposal of water taken from an aquifer is defined as an aquifer interference activity. The NSW 2012 Aquifer Interference Policy (the 'NSW AIP') provides guidance for the assessment of potential impacts of dewatering on water users and groundwater dependent ecosystems. The NSW AIP assessment process was performed with due regard for all hydrogeological information collected for the site and is presented below.

7.1.1 Hydrogeological Model Summary

With reference to the site-specific, conceptual hydrogeological model (**Section 3.2**), for a bedrock aquifer with groundwater under pressure, groundwater seepage would enter the excavation flowing through joints, faults and bedding plane fractures. Lower seepage flow volumes may be expected during depressed groundwater levels in dry periods, with higher seepage flow after high rainfall events, which would be expected to cause temporary, elevated groundwater levels.

7.1.2 Groundwater source category

Under the NSW 2012 Aquifer Interference Policy (the 'NSW AIP') *highly productive groundwater* is defined as a groundwater source that:

a) has total dissolved solids (TDS) of less than 1,500 mg/L; and

b) contains water supply works that can yield water at a rate greater than 5 L/sec.

Baseline groundwater salinity was shown to be low with EC values ranging up to 436 µS/cm and a maximum laboratory TDS of 330 mg/L (see **Table B2**). Modelled inflow to the basement is predicted to be 0.0.085 L/sec (i.e. 7.4 m^3 / day, **Section 4.2**), during the construction and occupational phases of the development.

The aquifer at the site therefore meets the description of a *"less productive groundwater source"*, as defined under Section 3.2.1 *Aquifer impact assessment* of the NSW AIP.

7.1.3 Minimal impact considerations

In accordance with the NSW AIP Table 1 *"If the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable."*

Table 1 *Minimal Impact Considerations for Aquifer Interference Activities* of the NSW AIP shows that for *Less Productive Groundwater Sources* in low yielding porous and fractured rock water sources, with groundwater under pressure, the following minimal impact considerations are applicable:

Drawdown

- *Level 1 – A cumulative pressure head decline of not more than 2m, at any water supply work.*
- *Level 2 – If the predicted pressure head decline is greater than the Level 1 requirement (above), then appropriate studies are required to demonstrate to the Minister's satisfaction that the decline will not prevent the long-term viability of the affected water supply works unless 'make good' provisions apply.*

Water Quality

- *Level 1 - Any change in groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity.*
- *Level 2 - If the Level 1 condition (above) is not met, then appropriate studies will need to demonstrate to the Minister's satisfaction that the change in groundwater quality will not prevent the long-term viability of the dependent ecosystem, significant site or affected water supply works.*

7.1.4 Impact Assessment Conclusions

The proposed dewatering for the construction and operational phases of the project are considered to be compliant with the NSW AIP minimal impact criteria for the following reasons:

- Registered bore data indicates that groundwater is sparsely utilised in the surrounding area by two, deep domestic bores (**Section 2.4**); however, due to the distance and depth of the bores relative to the proposed dewatering activities, any potential drawdown effects are not anticipated to result in groundwater access losses, and the associated risk is considered to be low. As such, the *Level 1 minimal impacts* with respect to drawdown will therefore be achieved.
- A maximum drawdown of 7.7 m has been modelled (**Section 4.3**) for the basement boundary during site dewatering activities, based on an estimated cone of depression extent of 20 m for the dewatering activity. As the drawdown close to the site will occur in competent bedrock, with less than 2 mm predicted ground settlement immediately outside of the shored wall, drawdown-induced ground settlement would therefore have negligible impact on neighbouring properties, beyond the site boundary.
- Potential off-site contamination sources were identified within 500 m of the site; however, given the age and location of the former potential sources, the low hydraulic conductivity of the bedrock aquifer and the absence of any shallow groundwater users, site dewatering would be unlikely to adversely impact the beneficial use category of the groundwater source. The *Level 1 minimal impact conditions* with respect to water quality would therefore be maintained.
- Any potential onsite contamination sources will be effectively removed during basement excavation, and any residual groundwater impacts will be treated to comply with the approved discharge water criteria, prior to stormwater discharge.
- There are no documented high priority groundwater dependent ecosystems within 500 m of the site; therefore, the radius of drawdown influence from the dewatering activity would not encroach within the protection zone of any (high or low priority) GDE.
- As the basement will be designed as a draining structure, potential groundwater mounding impacts as a result of the constructed structure are unlikely.

In addition to the above, the routine monitoring of treated water quality, groundwater drawdown and water take, as well as the dewatering contingencies tabulated in **Section 6.5**, are designed to ensure that potential impacts are minimised.

7.2 Assessment Inputs

The inputs for assessing the potential impacts of dewatering on the groundwater system are summarised in **Table 7-1**.

Table 7-1 Assessment inputs summary

Assessment Items	Comments
1. Estimated water take volume	As detailed in **Section 4.2**, the water take volume is estimated to

Assessment Items	Comments
	be **2.7 ML** per year during the construction and operational phases of the development.
2. Suitability of volume estimation	Use of PLAXIS 2D (a finite element computer model), implemented by experienced Geotechnical Engineer and reviewed by Senior Geotechnical Engineer (see also the GSA report in **Appendix D**).
3. Ground elevation across the site	The site slopes easterly, with surface elevations ranging from approx. RL 63 mAHD (western boundary) at Redan Lane to 58 mAHD (eastern boundary) at Redan Street. https://meconemosaic.au/
4. Geotechnical ground characterisation	Refer to GSA report in **Appendix D**.
5. Water level measurements	Groundwater levels were measured at depths from 43.73 m AHD (minimum) to 47.60 m AHD (maximum), as detailed in **Section 3.3**. Periodic groundwater level gauging will be conducted on an annual basis (i.e. 1 monitoring event per year) at monitoring wells during the operational phase, as described in **Section 5.4.5**.
6. Required water level draw down and potential impacts	As described in **Sections 4.6** and **7.1.4** drawdowns resulting from site dewatering are unlikely to adversely impact on ground settlement, cause groundwater supply loss or lower the beneficial use category of the groundwater source.
7. Works proposed for dewatering	A drained basement draining to a sump-and-pump system, with water treatment to achieve compliant discharge water quality, as described in **Section 4.4** and **Section 5.5**.
8. The base level of the aquifer	Sandstone bedrock extends below the proposed BEL, see **Section 3.2**.
9. Excavation footprint dimensions	Refer to basement plan included in **Appendix C**.
10. Hydraulic conductivity of lithological units	Detailed in Table 1 of the GSA report in **Appendix D**.
11. Anticipated duration of dewatering	Dewatering will be ongoing for the approved construction dewatering period, while operational dewatering will be ongoing for the life of the project.
12. Depth of piling embedment beneath bulk excavation	Refer to **Section 4.1** – embedment depth will be provided with final design and detailed shoring plans.

7.3 Operational (Occupational) Phase Dewatering Management

7.3.1 Operational Phase Water Treatment

The need for water treatment during the operational phase will be dependent on water quality, as characterised by routine monitoring during construction phase dewatering. To confirm for which parameters water treatment is still necessary, a pre-treatment water sample will be collected and laboratory analysed for the dewatering parameters listed in **Table 5-1**. Any exceedances of the DWC will indicate the need for water treatment for the non-compliant water quality parameter(s). An appropriate water treatment system will be established to ensure that discharge water quality (i.e. treated water) is appropriate for stormwater discharge.

It will be the responsibility of Strata Management to ensure that the water treatment is appropriately maintained to ensure that only compliant water quality is discharged from the site.

7.3.2 Monitoring Frequency and Reporting

Strata Management is also responsible for the engagement of a suitably qualified and appropriately experienced environmental consultant, to perform dewatering monitoring and annual reporting for the occupational phase of the project. The following procedure will be adhered to by strata management to ensure that the long-term dewatering system is managed appropriately:

- **Groundwater level monitoring**: Scheduled groundwater level monitoring is required for the first 36 months of the sump and pump operational phase in order to characterise seasonal groundwater level fluctuations for the operational (post-construction) phase of the development.

  A quarterly groundwater level monitoring frequency (i.e. once every 3 months) will be adopted for the first twelve months of occupation. This will be followed by semi-annual water level monitoring (i.e. once every 6 months) for the second year; then annual monitoring (i.e. a monitoring event at the end of the third year). Groundwater levels will be measured at each of the onsite monitoring wells and data will be recorded on a data form which also documents date of monitoring, well identification number, reference point from where all water level measurements are consistently taken (e.g. top of well casing, or ground level), the depth to water and the name of the person conducting the monitoring.

  Should it be discovered that the monitoring wells are no longer functional, Strata Management must be immediately notified to implement the Well Replacement Protocol described in **Section 7.3.3**.

- **Discharge volume monitoring**: The volume of water discharged to stormwater must be monitored by a calibrated flow meter (or equivalent alternative means) that is integrated as part of the long-term pumping system. The flow meter (or flow monitoring device) will display cumulative volume discharged, which will be recorded onto the same data form used to document groundwater level, at the time of each water level monitoring event. Discharge volume monitoring frequency will therefore be the same as for groundwater level monitoring, i.e. quarterly for the first year, every 6 months for year two, and a single monitoring event at the end of year three.

- **Water quality monitoring**: A single, post-treatment water sample will be collected on an annual basis during the final monitoring event in each year (i.e. at 12 months and 24 months of operation). Treated water samples will be laboratory analysed for the priority discharge water quality parameters (**Table 5-1**), to confirm that DWC compliance and show that discharge water quality is not deteriorating with time. Given that the groundwater is to be treated prior to offsite discharge, the risks presented to the human health and environment for the construction phase of the development are considered low and acceptable. Groundwater assessment of water quality parameters is required at the end of the construction phase to verify concentrations, and review or amend proposed operational phase water treatment if required.

- **Annual dewatering monitoring report**: A factual, 12-monthly *Interim Report – Operational Dewatering* will be prepared using the WaterNSW Completion Report form template (described in **Section 5.6.1**), after each 12 months of monitoring. Each report will document the groundwater level gauging results, groundwater quality results and the cumulative volume of water discharge from the seepage collection sump to the storm water system. Each annual monitoring report will also include a trend analysis of the monitoring data and provide a discussion to characterise discernible/statistical trends in groundwater quality, and/or groundwater levels as measured in the monitoring well(s) and water discharge volumes over time.

- **Cessation of monitoring**: Should the annual dewatering monitoring report after the 36th month of occupation confirm that groundwater quality, groundwater level fluctuations at the monitoring well(s) and annual groundwater discharge volumes are stable (i.e. not

statistically trending up or down), then it will be determined that equilibrium has been reached and termination of the monitoring program would be justified. If this is not the case then the dewatering program will be reviewed accordingly.

The appointed environmental consultant will provide notification to Council to document the termination or continuation of monitoring at this stage. Should monitoring be continued, a review of monitoring frequency will be undertaken and appropriate notification to Council will be issued by the appointed environmental consultant, through Strata management.

7.3.3 Monitoring Well Replacement Protocol

EI notes that only one of the existing groundwater monitoring wells (BH1M) is located outside the basement footprint while BH2M and BH3M appear to be within the basement footprint. At least one of these wells (and if practical, all) should be preserved to enable groundwater level monitoring close to the basement.

Should the existing wells be damaged during the construction works, installation of a new groundwater monitoring well must be installed as follows:

a) The replacement monitoring well must be appropriately located so as to avoid any damage or destruction during construction works;

b) Well design should be in accordance with the design for water monitoring bores for water level monitoring as specified under the *Minimum Construction Requirements for Water Bores in Australia* (Ref. NUDLC, 2020);

c) The well should be appropriately screened, with the water intake interval set across the lowermost basement level to monitor groundwater levels at the bulk excavation level, assuming uniform ground conditions; and

d) All reasonable steps must be taken to have the replacement bore installed within one week of the damage having occurred, subject to licensed driller availability.

8. DEWATERING MANAGEMENT SUMMARY

The requirements of this report are summarised in **Table 8-1**.

Table 8-1 Dewatering Management Summary

Item	Requirement / Procedure
Objective of the DMP	Ensure that the proposed dewatering operations do not impact on the quality of the receiving surface waters (i.e. at the point of groundwater discharge). Where necessary, groundwater will be treated to achieve an acceptable water quality prior to discharge: ▪ *See **Section 3** for groundwater conditions.* ▪ *See **Section 5.2** for groundwater quality discharge requirements.* ▪ *See **Section 5.5** for groundwater treatment options.* Provide comment on groundwater level changes that occur during dewatering: ▪ *See **Section 4** for summary of groundwater take assessment and dewatering drawdown impacts.* ▪ *Refer to **Appendix D** for groundwater seepage analysis model.* Provide relevant information demonstrating that post-construction, operational dewatering would pose minimal harm to the groundwater source: ▪ *See **Section 7.3** for operational phase dewatering management.*
Person Responsible for Implementation of this Report	During basement excavation and construction, the Site Manager / Water Treatment Specialist will be responsible for ensuring the implementation of appropriate treatment of extracted groundwater, as outlined in this document. Occupation phase responsibility will rest with the Site Manager (yet to be determined).
Operation Dewatering Policy	To ensure that all extracted groundwater from dewatering is effectively treated prior to discharge to the receiving water bodies, as will be confirmed by the Operational Dewatering Management Procedure detailed in **Section 7.3**.
Pre-Dewatering Groundwater Assessment	As set out in **Section 3.4**, representative samples were collected prior to dewatering and tested for the identified potential contaminants, to provide baseline groundwater quality data and review the proposed discharge water quality requirements.
Geotechnical Monitoring Report	The geotechnical monitoring report, detailing the current, continuous groundwater level monitoring results, is presented as an appendix in the GSA report in **Appendix D**.
Discharge Water Quality Criteria	All groundwater to be discharge into the local stormwater network is to meet (at the very least) the criteria outlined in **Table 5-1**, **Section 5.2**.
Implementation Strategy	All extracted groundwater will be monitored and treated (where necessary). On-going testing to be performed to confirm water quality meets the adopted Discharge Water Criteria (DWC) prior to release into the storm water network, which discharges to receiving water bodies. Additional treatment / wastewater disposal to be undertaken if the DWC values are not met.

Item	Requirement / Procedure
Monitoring Requirements for Construction Phase Dewatering	As specified in **Section 5.4**: ▪ 1. Initial Assessment = Prior to dewatering ▪ 2. Trial-Run Period = Twice per week* ▪ 3. Discharge Monitoring Period = Weekly for a month to fortnightly for a month then monthly* **provided the analytical results indicate treated water quality meets the DWC, or risks are considered to be significantly low. Should analytical results exceed the adopted discharge criteria, contingencies listed in **Section 6.5** must be followed.*
Monitoring Requirements for Operational Phase Dewatering	As specified in **Section 7.3**: Quarterly for the first year, every 6 months for year two, and a single monitoring event at the end of year three.
Auditing	The appointed environmental consultant (water quality expert) will undertake weekly audits during the Trial-Run Period (if required), and monthly audits during the Monitoring Period, to ensure that all discharges comply with the criteria specified in **Section 5.2**.
Reporting	The contractor responsible for dewatering will keep records of all monitoring and laboratory test results, as well as quantities of treatment agents applied during the dewatering process. All records should be made available for inspection onsite during the construction phase.
Corrective Actions	As specified in the contingency measures, outlined in **Section 6.5**.

9. STATEMENT OF LIMITATIONS

This plan has been prepared for the exclusive use of MOSMAN LAND NO.1 PTY LTD C/- TIME & PLACE PTY LTD, whom is the only intended beneficiary of EI's work. The scope of work completed for the purpose of this plan is limited to that agreed with MOSMAN LAND NO.1 PTY LTD C/- TIME & PLACE PTY LTD.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in drafting similar plans by reputable members of the environmental industry in Australia, as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section must be read in conjunction with the whole of this plan, including its appendices.

EI's professional opinions are reasonable and based on its judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation or observations. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

Should you have any queries regarding this plan, please do not hesitate to contact EI.

10. REFERENCES

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ABBREVIATIONS

AIP	Aquifer Interference Policy
ANZECC	Australian and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Governments
ASS	Acid Sulfate Soil
BEL	Bulk Excavation Level
BTEX	Benzene, Toluene, Ethyl benzene, Xylene
CVOC	Chlorinated Volatile Organic Compounds
DGV	Default Guideline Values
DO	Dissolved Oxygen
DP	Deposited Plan
DWC	Discharge Water Criteria
EC	Electrical Conductivity
EI	EI Australia
FFL	Finished Floor Level
GME	Groundwater Monitoring Event
GSA	Groundwater Seepage Analysis
LGA	Local Government Area
LOR	Limit of Reporting (limit of laboratory reporting for analytical method; see PQL)
m	metres
mAHD	metres Australian Height Datum
mBGL	metres Below Ground Level
ML	Megalitres
mg/L	Milligrams per Litre
µg/L	Micrograms per Litre
µS/cm	Microsiemens per Centimetre
N/A	No Available Criterion
NATA	National Association of Testing Authorities
NTU	Nepholemetric Turbidity Units
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
pH	Potential Hydrogen (a measure of the acidity or basicity of an aqueous solution)
PID	Photo-ionisation Detector
PQL	Practical Quantitation Limit (limit of reporting for analytical method; see LOR)
RL	Reduced Level
TDS	Total Dissolved Solids
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
VOCs	Volatile Organic Compounds

(Note: Some of the above abbreviations may not have been used in this report)

Appendix A – Figures



LEGEND **Note: All indicated locations are approximate**

- Site Area
- Site Boundary

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Drawn:	S.B.
Approved:	N.K.
Date:	03/02/2026

Time & Place Pty Ltd

Dewatering Management Plan

40 - 48 Redan Street, Mosman NSW 2088

Site Locality

Figure: A1

Project: E26955.E16



Map Source: NSW Spatial Collaboration Portal. Accessed 2/2/26

LEGEND Note: All indicated locations are approximate

- Site Boundary
- Proposed Basement Boundary
- Groundwater monitoring well location

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Dewatering Management Plan

40-48 Redan Street, Mosman NSW 2088

Monitoring Well Locations

Figure: A2

Project: E26955.E16_Rev0

Groundwater elevation contours for High groundwater level conditions as recorded by data logger (maximum GW level logged at BH2M) on 26.12.2025 at 12:00 am

BH1M 56.96 mAHD

BH2M 60.07 mAHD

BH3M 59.91 mAHD

57.2 57.4 57.6 57.8 58 58.2 58.4 58.6 58.8 59 59.2 59.4 59.6 59.8

Redan Lane

Redan Street

0 10 20 30 40 m

Groundwater elevation contours for Low groundwater level conditions as recorded by data logger (minimum GW level logged at BH1M) on 10.01.2026 at 12:00 am

BH1M 49.27 mAHD

BH2M 52.39 mAHD

BH3M 52.18 mAHD

49.6 49.8 50 50.2 50.4 50.6 50.8 51 51.2 51.4 51.6 51.8 52 52.2

Redan Lane

Redan Street

Map Source: NSW Spatial Collaboration Portal, accessed 2/2/2026

LEGEND Note: All indicated locations are approximate

- Site Boundary
- Groundwater monitoring well location
- Groundwater elevation contour (0.2m interval, in mAHD)
- Inferred groundwater flow direction

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Dewatering Management Plan

40-48 Redan Street, Mosman NSW 2008

Groundwater Contours

Figure: A3

Project: E26955.E16_Rev0

Appendix B – Tables

Table B1 – Summary of Baseline Groundwater Quality Results: Physical Parameters

Sample ID	Date sampled	Measurements & Analyses																					Visual Assessment
		Sodium Adsorption Ratio (SAR)	Bicarbonate Alkalinity as CaCO3 (mg/L)	Carbonate Alkalinity as CaCO3 (mg/L)	Hydroxide Alkalinity as CaCO3 (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Hydroxide Alkalinity as OH (mg/L)	Bicarbonate Alkalinity as HCO3 (mg/L)	Carbonate Alkalinity as CO3 (mg/L)	Electrical Conductivity Field EC (µS/cm)	Electrical Conductivity (µS/cm)	field pH	pH	Field Redox (mV)	Eh [1] (mV)	Total Dissolved Solids (mg/L)	Total Suspended Solids (TSS) (mg/L)	Turbidity (NTU)	Hardness (mg $CaCO_3$/L)	Field Water Temperature (°C)	Dissolved Oxygen Field DO (mg/L)	Dissolved Oxygen (mg/L)	Total Organic Carbon (TOC) as NPOC (mg/L)	Field Oil & Grease (Present/Absent)
Groundwater Investigation - Round 1 (EI, 2025)																								
BH1M	13/1/2026	0.4	230	<5	<5	230	<5	280	<5	436	480	5.72	5.7	147.6	444.0	330	83	40	230	21.97	0.67	4.3	13	NA
BH2M		NA	NA	NA	NA	NA	NA	NA	NA	299	340	3.84	4.3	269	NA	190	NA	140	NA	21.68	1.49	NA	NA	NA
BH3M		NA	NA	NA	NA	NA	NA	NA	NA	340	520	4.49	4.8	331.6	NA	300	NA	110	NA	20.9	2.81	NA	NA	NA
Discharge Water Criteria																								
DWC - Marine												6.5 - 8.4	6.5 - 8.4					10						No visible sheens, surface films or oil and grease

Notes:

All values are in units as shown.

All parameters which state 'Field' were tested onsite using portable water quality test meters and probes, all other parameters were tested in the laboratory.

NA = Not Analysed

Water quality criteria are based on the ANZG, 2018 (Rev. Jan 2024) 95% marine water DGVs, or relevant default guidelines where ANZG marine water DGVs are not currently available, as explained in the footnotes to **Table 5-1**, in **Section 5** of the DMP.

Highlighted value does not meet the adopted criteria

No relevant criteria are currently available

1 Eh in units of millvolts (mV) were calculated by adjusting Field Redox measurements to Standard hHydrogen Electrode (SHE) by adding instrument manufacturer's quoted electrode potential (205 mV)

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Contamination | Remediation | Geotechnical

Table B2 - Summary of Baseline Groundwater Quality - Chemical Parameters

Sample ID	Sampling Date	Metals																								BTEX					VOCs	Chlorinated VOCs			
		Total As	Cd	[1] Total Cr	Cu	Pb	Hg	Ni	Zn	Al	Sb	Ba	Be	B	Co	Fe	Li (mg/L)	Mn	Mo	Se	SiO_2 (mg/L)	Ag	Sr	U	V	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	Total VOCs	Perchloroethylene, PCE	Trichloroethylene, TCE	cis-1,2-dichloroethene	Vinyl Chloride
Groundwater Investigation - Round 1 (EI, 2025)																																			
BH1M	13/1/2026	3	0.2	2	1	2	<0.1	5	8	87	<1	94	<1	68	1	780	<5	130	2	<1	12	<1	230	<1	3	<0.5	<0.5	<0.5	<0.5	<1	<10	<0.5	<0.5	<0.5	<0.3
BH2M		7	0.6	8	3	2	<0.1	4	17	980	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<1	<10	<0.5	<0.5	<0.5	<0.3
BH3M		<1	0.9	6	9	3	<0.1	12	39	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<1	<10	<0.5	1.4	<0.5	<0.3
Discharge Water Criteria																																			
DWC - Marine		94 (As III) 42 (As V)	0.7	27 (Cr III) 4.4 (Cr VI)	13	4.4	0.1	70	80	37	9	20000	600	1500	1	3000		80	34	18		1.4		0.5	100	700	180	80	470	325		70		330	

Sample ID	Sampling Date	Petroleum Hydrocarbons			PAHs			Microbiological Organisms			Total Phenols	Total Cyanide	PFAS			Major Cations				Major Anions				Ionic Balance (%)	Nutrients							
		Oil & Grease	TRH C6 - C9	TRH C10 - C40	Total PAHs	Benzo(a)pyrene	Naphthalene	Faecal coliforms (MPN/100mL)	Faecal streptococci	Escherichia coli (E. coli)			PFOS	PFOS + PFHxS	PFOA	Fluoride (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Bromide (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)		Ammonia Nitrogen as NH3 as N	Nitrate Nitrogen NO3-N (mg/L)	Nitrite Nitrogen NO2 as N	Total Oxidised Nitrogen NOx-N	Total Kjeldahl Nitrogen	Total Nitrogen (calc)	Total Phosphorus (Kjeldahl) as P	Filterable Reactive Phosphorus as P
Groundwater Investigation (EI, 2025)																																
BH1M	13/1/2026	NA	<40	<50	<0.5	<0.5	<0.5	180	NA	34	<50	NA	0.03	0.03	0.06	0.63	24	17	<0.05	NA	NA	15	7.4	-3.03	1100	40	<0.5	44	2200	2200	40	<5
BH2M		NA	<40	<50	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH3M		NA	<40	<50	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Discharge Water Criteria																																
DWC - Marine		No detectable oil or grease	If TPH is detected analysis for BTEX and PAH is required			0.1	70			None detectable in 100mL	400	4	0.13		220										910	38	30000	5		120	25	10

Notes:

All values are µg/L unless stated otherwise

NA = Not Analysed

Water quality criteria are based on the ANZG, 2018 (Rev. Jan 2024) 95% marine water DGVs, or relevant default guidelines where ANZG marine water DGVs are not currently available, as explained in the footnotes to **Table 5-1**, in **Section 5** of the DMP.

1 This result was for Total Chromium. Note: When total chromium is above CrVI criterion, confirmatory speciation testing for CrVI is recommended.

Highlighted value does not meet the adopted criteria

No relevant criteria are currently available

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Table B3 Summary of QA/QC Results for Groundwater Investigation Samples

Site: 40-48 Redan Street, Mosman NSW
Job No: E26955.E16

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	M/P Xylene	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Inter-laboratory Duplicate																		
13/01/2026	BH2M	Primary Groundwater Sample	<50	<50	<100	<100	<0.5	<0.5	<0.5	<1	7	0.6	8	3	2	<0.1	4	17
13/01/2026	SQD1	Intra-laboratory Duplicate	<50	<50	<100	<100	<0.5	<0.5	<0.5	<1	12	0.6	9	3	2	<0.1	4	16
RPD			*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	52.63	*0.00*	*11.76*	*0.00*	*0.00*	*0.00*	*0.00*	*6.06*
Inter-laboratory Duplicate																		
13/01/2026	BH2M	Primary Groundwater Sample	<50	<50	<100	<100	<0.5	<0.5	<0.5	<1	7	0.6	8	3	2	<0.1	4	17
13/01/2026	SQT1	Inter-laboratory Duplicate	<10	<50	<100	<100	<1	<1	<1	<2	13	0.7	9	3	2	<0.05	4	20
RPD			*NA*	*0.00*	*0.00*	*0.00*	*NA*	*NA*	*NA*	*NA*	60.00	*15.38*	*11.76*	*0.00*	*0.00*	*NA*	*0.00*	*16.22*
Trip Blanks																		
13/01/2026	Trip Blank	Trip Blank	-	-	-	-	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-
13/01/2026	Trip Spike	Trip Spike	-	-	-	-	[99%]	[99%]	[100%]	[100%]	-	-	-	-	-	-	-	-
Rinsate Blanks																		
13/01/2026	GWQR1	De-ionised Water	<50	<50	<100	<100	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5

Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
RPD exceeds 30-50% range referenced from AS4482.1 (2005)

NOTE: All water results are reported in µg/L.

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F4 = TRH >C34-C40

[1] Value shown is the lowest recovery value reported for xylenes

Appendix C – Proposed Development Plans

LEGEND

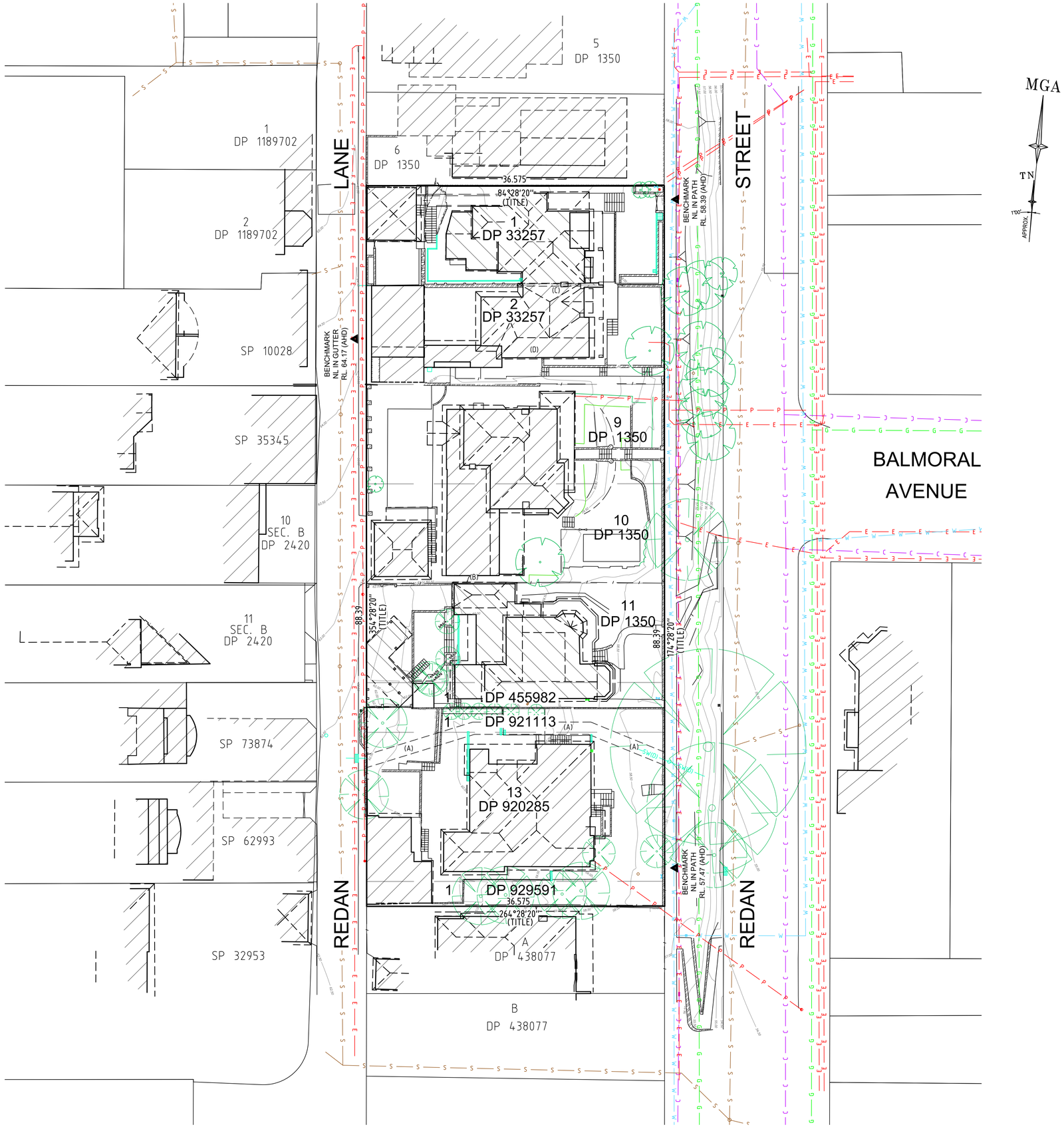
BENCH MARK	▲
TELSTRA PIT	TEL
ELECTRIC LIGHT POLE	ELP
POWER POLE	PP
GRATED INLET PIT	GIP
KERB INLET PIT	KIP
KERB OUTLET	KO
STORMWATER MANHOLE	SWMH
SEWER INSPECTION POINT	SIP
SEWER MANHOLE	SMH
SEWER VENT	SVENT
STOP VALVE	SV
HYDRANT	HYD
WATER METER	WM
WATER VALVE	WV
STREET SIGN	SS
GATE	
VEHICLE CROSSING	(VC)
PRAM CROSSING	(PC)
TOP OF WALL	TW
TOP OF FENCE	TF
WINDOW	W
DOOR	D
HEAD/SILL	H/S
COMMUNICATIONS (DBYD)	C
ELECTRICITY (U'GROUND DBYD)	E
ELECTRICITY (OVERHEAD)	P
SEWER (DBYD)	S
WATER (DBYD)	W
GAS (DBYD)	G

EASEMENTS

(A) EASEMENT FOR DRAINAGE 1.5 WIDE (VIDE DP617335)
(B) EASEMENT FOR OVERHANGING GUTTER (K746048)
(C) CROSS EASEMENTS FOR PARTY WALL (H131650)
(D) POSITIVE COVENANT (AQ571914)

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED ON GROUND
2. THE BOUNDARY SURVEY (DIMENSIONS AND AREA) HAVE BEEN SURVEYED IN ACCORDANCE WITH SURVEYING AND SPATIAL INFORMATION REGULATION 2024 SECTION 46 AND ARE SUBJECT TO FINAL SURVEY
3. ADJOINING BOUNDARIES WITHIN THIS FILE HAVE BEEN ADDED FROM DCDB DATA OBTAINED FROM NSW LAND REGISTRY SERVICES AND ARE APPROXIMATE ONLY
4. ORIGIN OF **MGA2020** COORDINATES IS TAKEN FROM **SSM 20983** - E:**337751.982**, N:**6255459.887** IN REDAN STREET **(13/08/2025)**
5. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **SSM 20983** R.L. **53.27** (A.H.D.) IN REDAN STREET
6. CONTOUR INTERVAL **0.5x m**
7. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
8. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
9. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
10. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
11. 8/.4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
12. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
13. NO ACCESS TO THE SUBJECT SITE AVAILABLE AT THE TIME OF SURVEY.
14. OWING TO THE AGE AND UNCERTAINTY IN BOUNDARY DIMENSIONS A PLAN OF REDEFINTION OR CONSOLIDATION IS RECOMENDED TO VERIFY THE TITLE DIMENSIONS SHOWN.
15. INITIAL SITE INVESTIGATION SUGGEST UNUSUAL PIPE DIAMETER FOR THE STORMWATER LINE RUNNING THROUGH THE SITE. FURTHER INVESTIGATION RECOMMENDED.



BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 # ## ## ## ##
SCALE 1: 250_2 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00

Revision	Date	Description	Reference
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	22/10/25	SITE DETAIL & LEVELS ADDED AND ADDITIONAL ELEVATIONS	001

LTS CONFIDENCE TOGETHER
www.ltsl.com.au | P 1300 587 000

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

Client MOSMAN LAND NO1 PTY LTD

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 1 DP929591, LOT 13 DP920285, LOT 1 DP921113, LOT 1 DP455982, LOTS 9-11 DP1350 AND LOTS 1 & 2 DP 33257 BEING No. 40-48 REDAN STREET, MOSMAN

datum	AHD
site Area	3233m²
LGA	MOSMAN
reference number	52627 001DT
scale	1: 250_2@A1
date of survey	20/08/2025
SHEET	1
OF	7

GBA
2,741 m2

Storage / Services

Storage / Services

Storage / Services

L5

L3

L4

L1

L2

SLIGHT HEAD HEIGHT ISSUE

66 Car Spaces (61)
112 Worst Case (combined)

Basement 2
2000

Scale
1:250 @ A3

0 2.5 5 10m

GBA
2,750 m2

Storage / Services

Storage / Services

L5

L3

L4

L1

L2

56 Car Spaces (48)
11 Accessible + 2 Tandem
20% of the Total Number of Apartments (53)

Deep Soil
64 m²

Deep Soil
56 m²

Deep Soil
91 m²

Deep Soil
34 m²

Deep Soil
43 m²

Deep Soil
43 m²

Deep Soil
27 m²

6,000

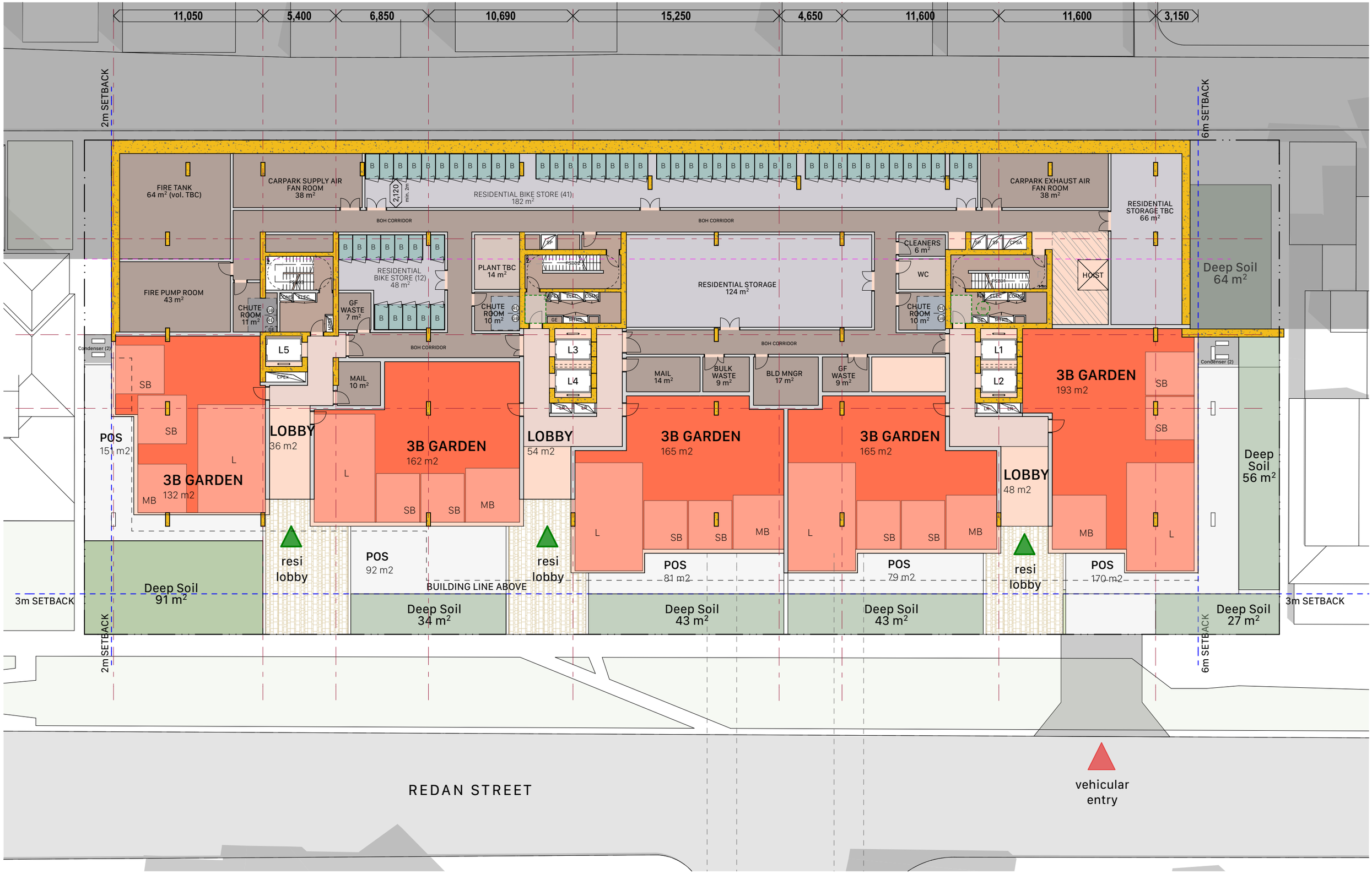
vehicular
entry

REDAN STREET

Basement 1
2001

Scale
1:250 @ A3

0 2.5 5 10m



Ground Floor Plan
2002

Scale
1:250 @ A3

0 2.5 5 10m

Appendix D – Groundwater Seepage Analysis & Monitoring Report

EI Australia
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PYRMONT, NSW 2009

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6 February 2026
E26955.G12

Justyn Ng
Mosman Land No.1 Pty Ltd
C/- Time & Place, Suite 3402, Level 34
264 George Street
SYDNEY NSW 2000

Groundwater Seepage Analysis
40-48 Redan Street, Mosman NSW

1 INTRODUCTION

1.1 Background

At the request of Justyn Ng on behalf of Mosman Land No.1 Pty Ltd (the Client), EI Australia (EI) has prepared this Groundwater Seepage Analysis (GSA) for 40-48 Redan Street, Mosman NSW (the site). The objective of this GSA is to provide an estimation of the groundwater take volumes that require pumping out during the construction and operational stages of the development, estimation of the groundwater drawdown as a result of the dewatering, and any associated ground settlements.

1.2 Proposed Development

The following documents supplied by the Client, were used to assist in the preparation of this analysis:

- Preliminary Architectural drawings prepared by fjcstudio – Reference document 001, , Drawing No. N/A, Revision No. C, dated 29 January 2026; and
- Topographical Survey Plan of No. 40-48 Redan Street, Mosman prepared by LTS Surveyors Pty Ltd – Reference No. 52627 001DT, Sheets 1 to 7, Revision A, dated 22 October 2025.

EI has also provided the following geotechnical reports:

- Geotechnical Investigation (GI) prepared by EI – Reference no. E26955.G03, dated 28 January 2026; and
- Groundwater Monitoring Report No. 1 Reference no.: E26955.G11.GW01, dated 27 January 2026.

The datum adopted in the above documents is in Australian Height Datum (AHD), hence all Reduced Levels (RL) mentioned in this GSA report are henceforth in AHD.

Based on the provided documents, EI understands that the proposed development will comprise the demolition of the existing houses at the site for the construction of two residential unit blocks, one nine-storey and one ten-storey, over a common two-level basement car park. The lowest basement level is proposed to have a Finished Floor Level (FFL) of RL 52.50 m AHD. A Bulk Excavation Level (BEL) of RL 52.20 m AHD is assumed, which includes allowance for the construction of the basement slab. On this basis we expect bulk excavations for basement construction will be between about 7.0 m to 13 m deep below existing ground levels (BEGL). Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

2 SITE MODEL

For the purpose of the groundwater take assessment, two cross sections at the middle of the basement footprint are considered. The locations of these modelled sections are shown in **Figure 1**.

- **Section A-A**: Running across West-East direction to consider the sloping topography.
- **Section B-B**: Running across South-North direction, perpendicular to Section A-A, with average topography and subsurface conditions in all boreholes.

2.1 Subsurface Conditions and Permeability

For the purpose of this GSA, the subsurface conditions observed in EI's GI boreholes have been adopted. A summary of the permeability values which were adopted for the assessment of groundwater take volumes are presented in **Table 1** below.

Table 1 Summary of Subsurface Conditions and Adopted Design Parameters

Units	Material [1]	RL of Top of Unit (m AHD)			Adopted Permeability (m/s)	$k_{vertical}/k_{Horizontal}$
		Section A-A		Section B-B		
		West [2]	East [3]	South-North [4]		
1 and 2	Fill/Residual Soil [5]	65.0	59.0	62.0	1.0×10^{-5}	1.0
3 and 4	Slightly Weathered to Fresh Sandstone [6]	60.4	57.8	59.1	1.4×10^{-7}	0.3

Notes:

1 For more detailed descriptions of subsurface conditions reference should be made to the EI's GI report.
2 Adopted levels are based on the average subsurface conditions observed in EI's BH2M and BH3M.
3 Adopted levels are based on the average subsurface conditions observed in EI's BH1M and BH4.
4 Adopted levels are based on the average subsurface conditions observed in EI's BH1M, BH2M, BH3M and BH4.
5 Permeability value has been correlated for the material encountered using Look (2014).
6 Permeability value was adopted based on the average permeability results observed in the Rising-Head Tests as outlined below.

2.2 Permeability and Groundwater Level Observations

As part of the GSA scope, EI carried out the Pump-Out or Rising-Head tests within all three monitoring wells (BH1M, BH2M, and BH3M). Rising-Head tests were undertaken to estimate the hydraulic conductivity or permeability. The test involves removing the water from the well and measuring the rise in water level within the well at regular time intervals. The data was then used to calculate the hydraulic conductivity of the aquifer close to each well using the Hvorslev's method. The monitoring wells and pump out test results are summarised in **Table 2** below. Results are presented graphically in **Attachment B**.

Table 2 Monitoring Well Details and Rising Head Test Results

Monitoring Well/ Test ID	Total Well Depth (m BEGL)	Screen Length (m)	Screened Section	Date of Test	Adopted Permeability (m/s) [3]
BH1M	9.0	6.0	Slightly Weathered to Fresh Sandstone	17/12/2025	2.5×10^{-7}
				13/1/2026	2.4×10^{-7}
BH2M	10.8	6.0		17/12/2025	1.8×10^{-7}
				13/1/2026	5.4×10^{-8}
BH3M	15.22	12.0		17/12/2025	4.4×10^{-8}
				13/1/2026	3.0×10^{-8}

Additionally, a long-term continuous groundwater monitoring using data logger installed within the monitoring well was completed in all monitoring wells, BH1M and BH2M from period 28 November 2025 to 13 January 2026, and BH3M from period 8 December 2025 to 13 January 2026. The full report and a summary of this continuous groundwater levels are provided in **Attachment C** and **Table 3**, respectively.

Table 3 Summary of Long-term Groundwater Monitoring

Monitoring Well / Borehole ID	Average Groundwater RL (m AHD)	Highest Groundwater RL (m AHD)	Lowest Groundwater RL (m AHD)
BH1M	54.39	57.09	49.27
BH2M	57.44	60.07	52.36
BH3M	57.30	59.91	52.18

Based on the measured groundwater levels above, the following design groundwater levels (GWL) for each section have been adopted for this analysis:

- **Section A-A**: A design GWL of RL 61.1 m AHD and RL 58.1 m AHD has been adopted for the West and East sides, respectively. These values have considered possible seasonal variation of 1.0 m above the highest water tables encountered in BH2M and BH1M, respectively.
- **Section B-B**: A design GWL of RL 60 m AHD has been adopted. This value was assumed based on the average values of the design water levels on section A-A.

2.3 THE MAXIMUM EXTENT OF THE CONE OF DEPRESSION

EI notes that there are no surface water bodies surrounding the proposed development within a 500 m radius of the excavation boundary. The closest water body is Balmoral Beach, located approximately 510 m from the site, and it is noted that this is at a lower elevation than the proposed BEL. Therefore, EI estimated the maximum extent of the cone of depression using Sichardt's formula, as follows:

$$R = 3000\,(H - h)\sqrt{k}$$

Where:

- R = Maximum extent of the cone of depression (m).
- H = Design groundwater level (m).
- h = Estimated groundwater level to the BEL due to full duration of dewatering (m).
- k = Hydraulic conductivity of the aquifer (m/s).

Based on the formula above, the maximum extent of the cone of depression is estimated to be approximately 11 m from the basement outline. For a conservative assessment of the water drawdown impact surrounding the perimeter of the proposed basement development, a constant head boundary condition extending 40 m from the basement outline has been applied in this analysis.

2.4 Shoring System

At the time of this assessment, no detailed structural designs were available. Hence, we have assumed a fully drained shoring wall system, and this has been adopted for the model.

This assessment does not assess the overall stability of the shoring system. Once final designs are made available, this assessment should be revised accordingly.

3 GROUNDWATER TAKE ASSESSMENT

3.1 Groundwater Seepage Volumes during Construction Phase

Groundwater seepage analysis during construction has been undertaken using PLAXIS 2D. PLAXIS 2D is a commercially available finite element package intended for two dimensional analysis in geotechnical engineering. It is equipped with features to deal with various aspects of geotechnical structures and construction processes using robust and theoretically sound computational procedures. PLAXIS 2D estimates the seepage rate of water entering the excavation. This model estimates the volume of water which will be required to be dewatered during the construction of the basement and until the dewatering is turned off.

For the purpose of this modelling, it has been assumed that:

- The subsurface conditions were assumed to be horizontal beyond the excavation boundary;
- The permeability values presented in **Table 1** were adopted for modelling each of the units;
- The shoring system is assumed as a permeable shoring wall as per Section 2.4 of this report;
- Dewatering was undertaken to the bulk excavation level (RL 52.2 m AHD);
- The design groundwater levels as provided at Section 2.2 of this report were assumed to be constant at 40 m away from the shoring wall as outline in the Section 2.3 of this report;
- The length of shoring walls along Section A-A and Section B-B is 79 m and 33 m, respectively.
- The bottom of the PLAXIS model was modelled at RL 40.0 m AHD; and

The PLAXIS 2D results are presented in **Attachment A**. **Table 4** below provides the estimated groundwater inflow rate into the basement.

Table 4 Summary of Analysis Results

Section	Inflow per m length of perimeter wall (m^3/day/m)	Inflow into excavation (m^3/day)	Total Inflow per year (ML/year)
A-A	0.062	4.9	1.8
B-B	0.071	2.4	0.9
	Total	7.3	2.7

3.2 Assessment of Groundwater Take During Operational Phase

A drained basement using sub-soil drainage and a sump-and-pump system was assumed. As a result, the estimated volume of groundwater removed during the operational phase of the development is expected to be identical to that during the construction, i.e. approximately 2.7 ML per year.

3.3 Groundwater Drawdown Induced Settlement

Based on the analysis results, groundwater drawdown surrounding the basement boundary due to the proposed dewatering is predicted up to 7.7 m, gradually decreasing to negligible further away. The dewatering drawdown contour plan beyond the basement footprint is presented in **Figure 2.** The maximum ground settlement resulting from the groundwater drawdown outside the shoring wall is estimated to be less than 2 mm. This level of settlement is considered to pose a 'negligible' risk in terms of the category of damage risk due to dewatering, as defined by Cashman and Preene (2021), as shown in the excerpt in **Plate 1**. It should be noted that these predicted settlement accounts **only for water drawdown** and does not consider other factors, such as shoring wall deflection, surcharge loading, and other construction-related influences. Figures illustrating the estimated groundwater drawdown and associated settlement are provided in **Attachment A**.

Risk category[a]	Maximum settlement (mm)[b]	Building tilt[c]	Anticipated effects
Negligible	<10	<1/500	Superficial damage unlikely
Slight	10–50	1/500–1/200	Possible superficial damage; unlikely to have structural significance
Moderate	50–75	1/200–1/50	Expected superficial damage and possible structural damage to buildings; possible damage to rigid pipelines
Severe	75	>1/50	Expected structural damage to buildings and expected damage to rigid pipelines or possible damage to other pipelines

Source: Preene, M., *Proceedings of the Institution of Civil Engineers—Geotechnical Engineering*, 143(4), 177–190, 2000. With permission.

[a] The risk category is to be based on the more severe of the settlement or tilt criteria.
[b] Maximum settlement is based on the nearest edge of the structure to the groundwater control system.
[c] Tilt is based on rigid body rotation, assuming that all of the maximum settlement occurs as differential settlement across the width of the structure or across an element of the structure.

Plate 1 Excerpt from Cashman and Preene (2021)

Although the PLAXIS modelling provides predicted drawdown-induced ground settlement values, it would be prudent for a thorough assessment of potential risks posed on neighbouring structures to be completed by a qualified and experienced structural engineer.

4 CONCLUSIONS AND COMMENTS

Based on the findings of this report and within the limitations of available data, EI concludes that:

- The construction phase groundwater take is estimated to be approximately 2.7 ML per year.
- The above estimate is based on the following assumptions:
  - The shoring wall system is a permeable system as per Section 2.4 of this report;
  - Continuous dewatering in order to maintain the groundwater to the BEL during construction; and
  - This assessment does not take into consideration any excavation that may be required for footings, service trenches, lift pits, or crane pads. This additional excavation, if required, is not expected to affect the retention or the dewatering system.
- The operational phase groundwater take with a drained basement system is estimated to be identical to the construction phase groundwater take, i.e. 2.7 ML per year.
- The groundwater drawdown surrounding the basement boundary is predicted to be up to 7.7 m.
- The maximum ground settlement due to the predicted groundwater drawdown behind the shoring wall, within the 40 m radius cone of depression, is estimated to be less than 2 mm. This level of settlement falls within the 'negligible' risk category for damage risk resulting from ground settlement due to dewatering, as per Cashman and Preene (2021). It would be prudent for potential risks to neighbouring structures to be assessed by a qualified and experienced structural engineer.

Should any design or construction conditions differ from that adopted in this report; this GSA should be reviewed and updated as required.

5 LIMITATIONS

This report has been prepared for the exclusive use of Mosman Land No.1 Pty Ltd who is the only intended beneficiary of EI's work. The scope of the inspections carried out for the purpose of this report is limited to those agreed with Mosman Land No.1 Pty Ltd.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar tasks by reputable members of the geotechnical industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited assessment of conditions, with specific locations chosen to be as representative as possible under the given circumstances.

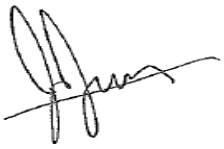
EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

6 CLOSURE

Please do not hesitate to contact the undersigned should you have any questions.

For and on behalf of
EI Australia

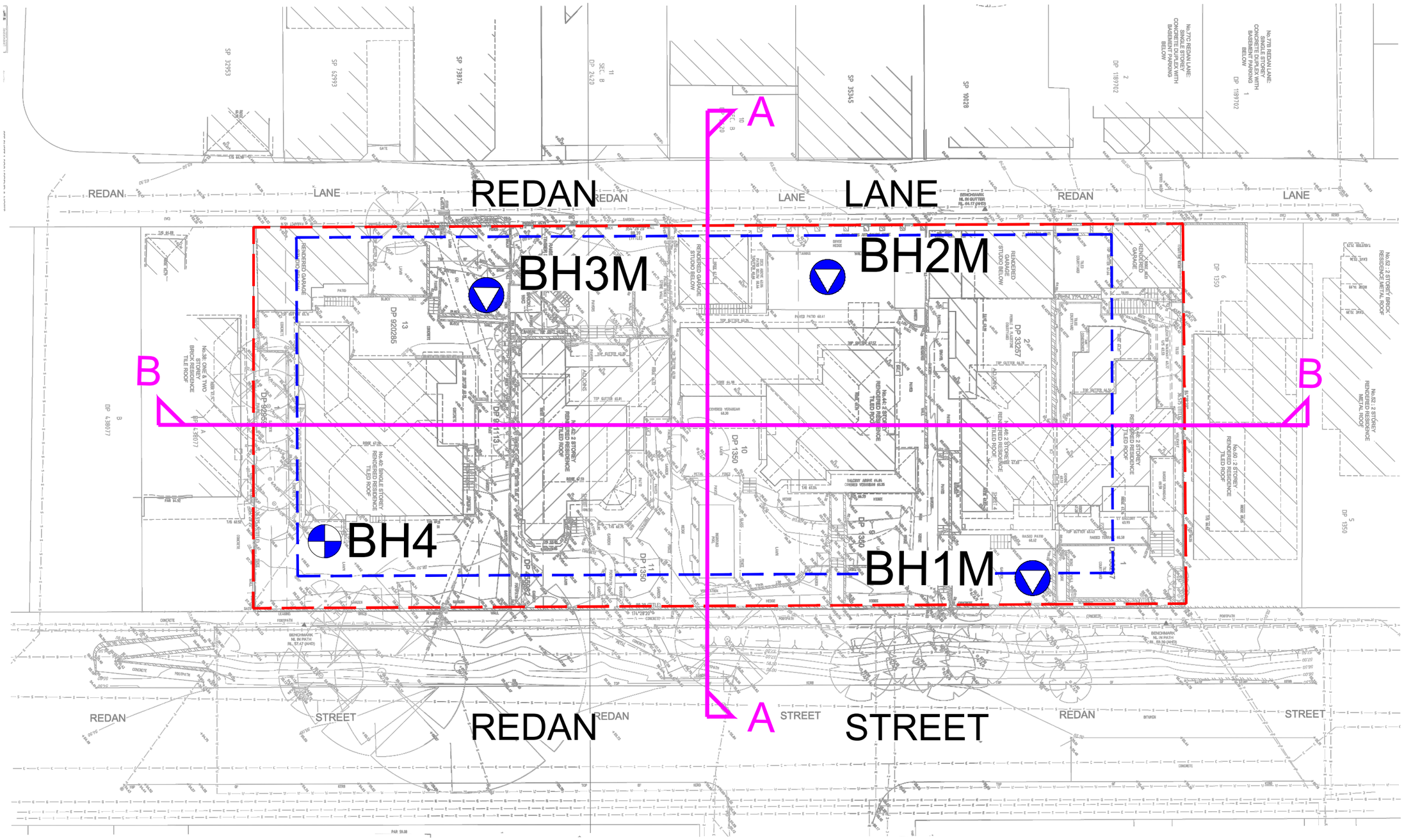
Author	Co-Author	Technical Reviewer
		
Juwon Jun Geotechnical Engineer	Ernest Widjaja Geotechnical Engineer	Huu Dang Principal Design Engineer

Attachments:
Figure 1 – Analysed Sections Plan
Figure 2 – Dewatering Drawdown Contour Plan
Attachment A – PLAXIS 2D Model and Results
Attachment B – Rising Head Test Results
Attachment C – Groundwater Level Monitoring Report
Attachment D – Important Information

Figures

Figure 1 Analysed Sections Plan

Figure 2 Dewatering Drawdown Contour Plan



Map Source: Topographical Survey Plan prepared by LTS Surveyors Pty Ltd - Reference No. 52627-001DT, Latest Revision A, Sheet 2 to 4, dated 22 October 2025

LEGEND (All Locations are Approximate)

- Site boundary
- Proposed Basement Boundary
- PLAXIS Cross Sections
- Monitoring Well Locations
- Borehole Location

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Drawn:	J.J.
Approved:	H.D.
Date:	06-2-26

Mosman Land No.1 Pty Ltd

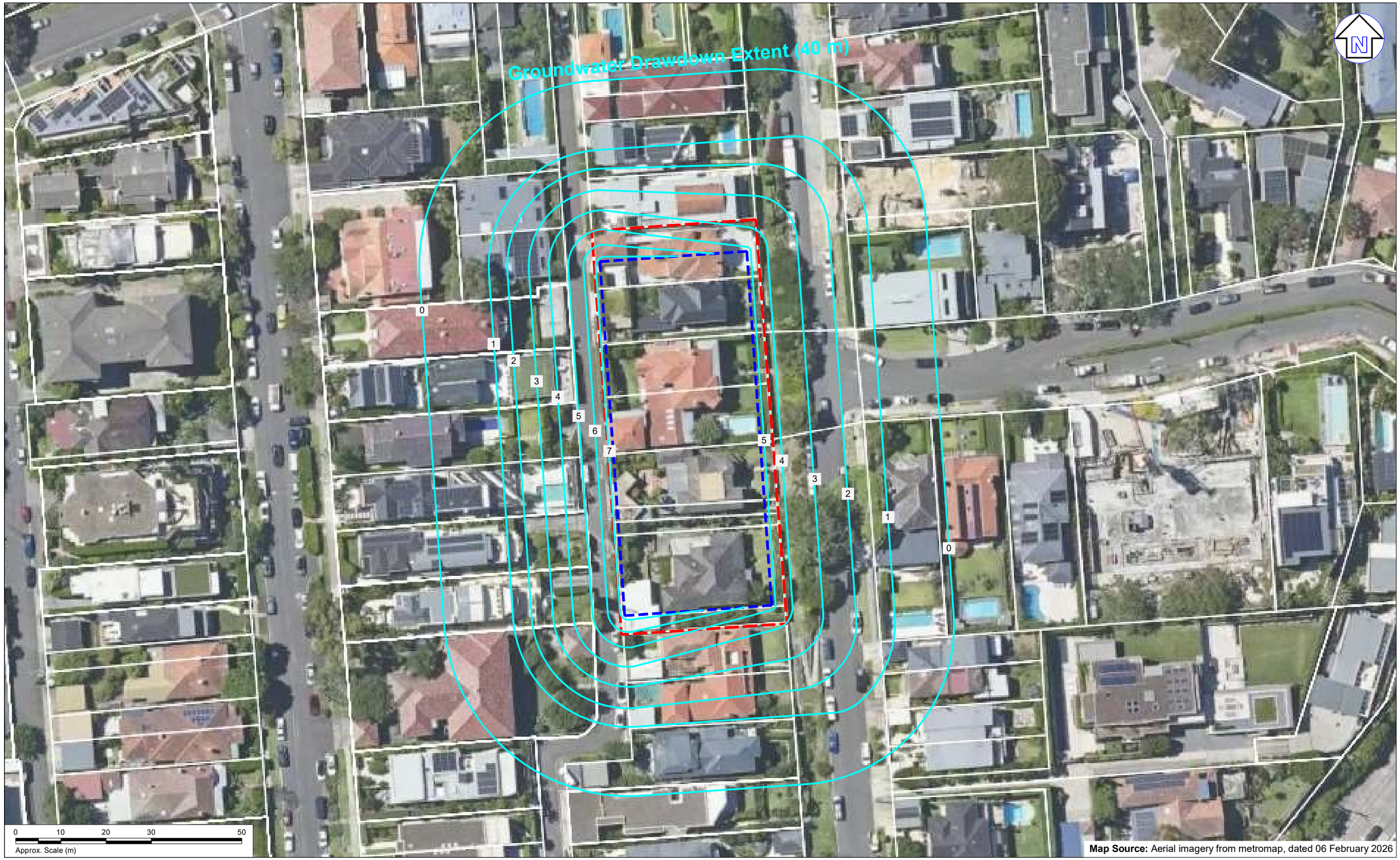
Groundwater Seepage Analysis

40-48 Redan Street, Mosman, NSW

Analysed Sections Plan

Figure: 1

Project: E26955.G12



LEGEND

- Site Boundary
- Proposed Basement Boundary
- Predicted Drawdown Contour (Drawdown shown in metres), 0 m indicates cone of depression extent 40 m from basement boundary

eiaustralia
Contamination | Remediation | Geotechnica
Suite 6.01, 55 Miller Street, PYRMONT 2009
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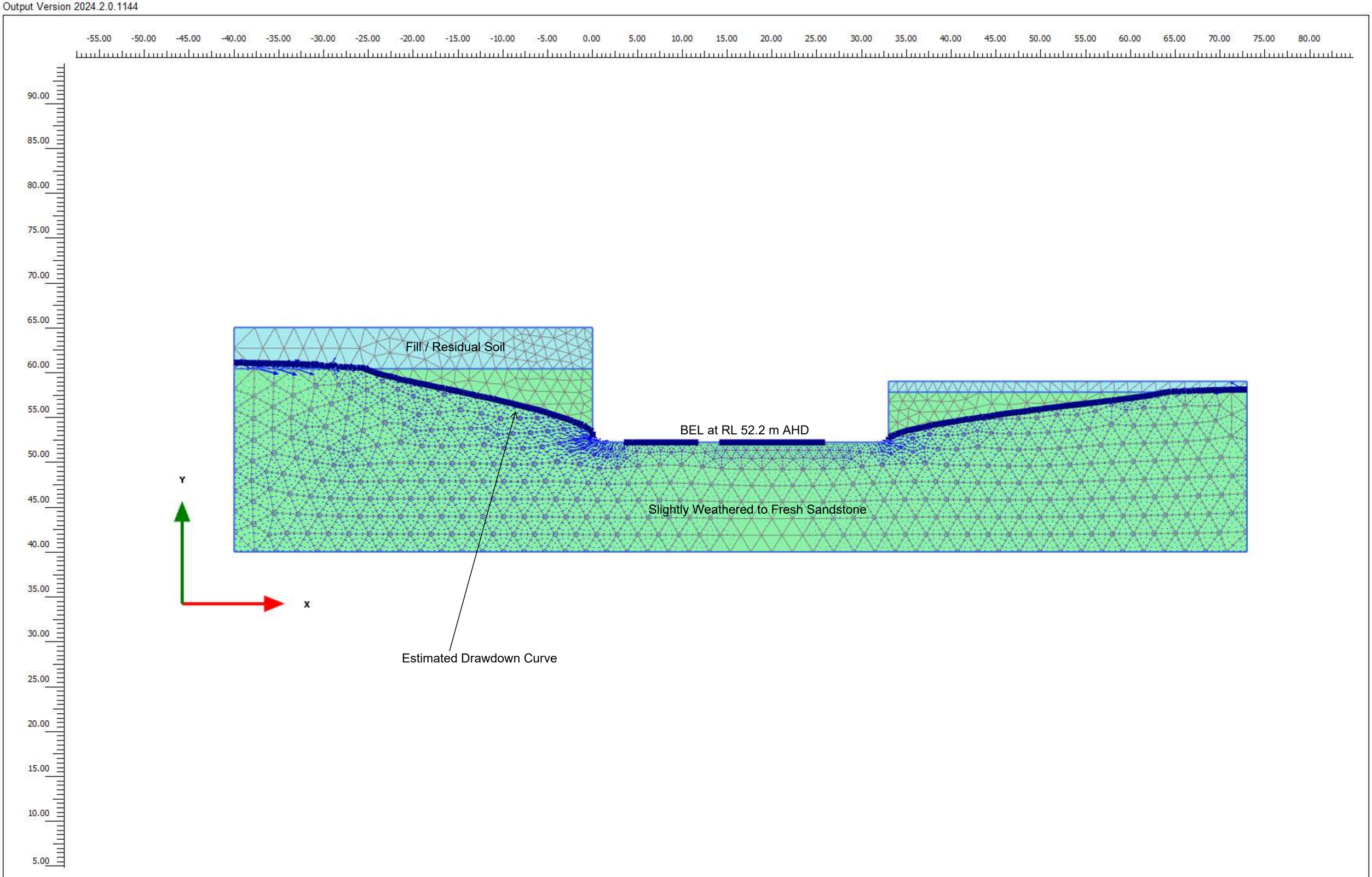
Drawn:	E.W.
Approved:	H.D.
Date:	6/2/26

Mosman Land No.1 Pty Ltd
Groundwater Seepage Analysis
40-48 Redan Street, Mosman NSW
Dewatering Drawdown Contour Plan

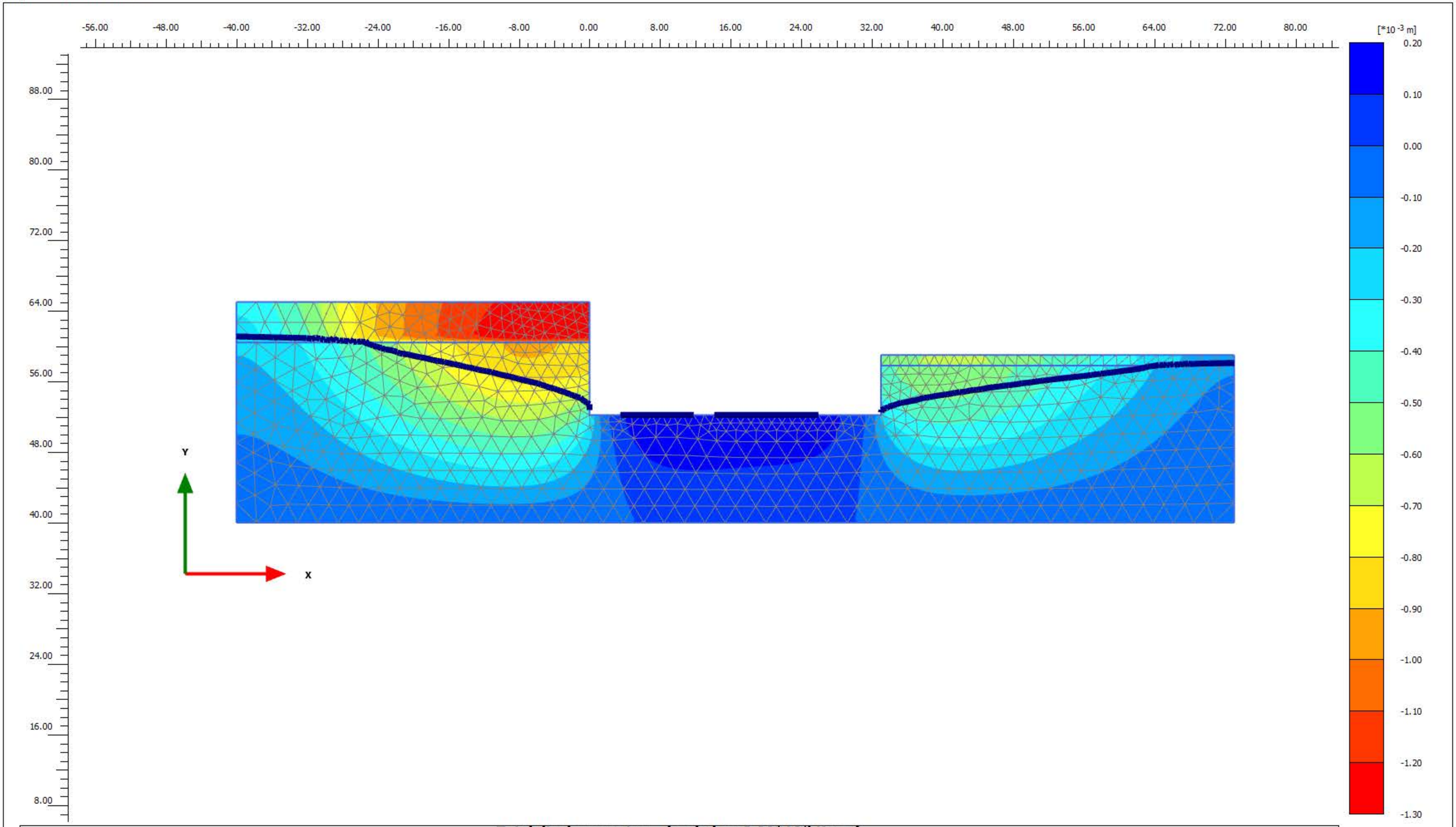
Figure: 2

Project: E26955.G12

Attachment A – PLAXIS 2D Model and Results



PLAXIS® 2D	*Project description* Groundwater Flow and Drawdown Curve for Section A-A		*Date* 6/02/2026
	Project filename E26955.G12.V2_GSA_Section A-A	*Step* 10	*Company* El Australia



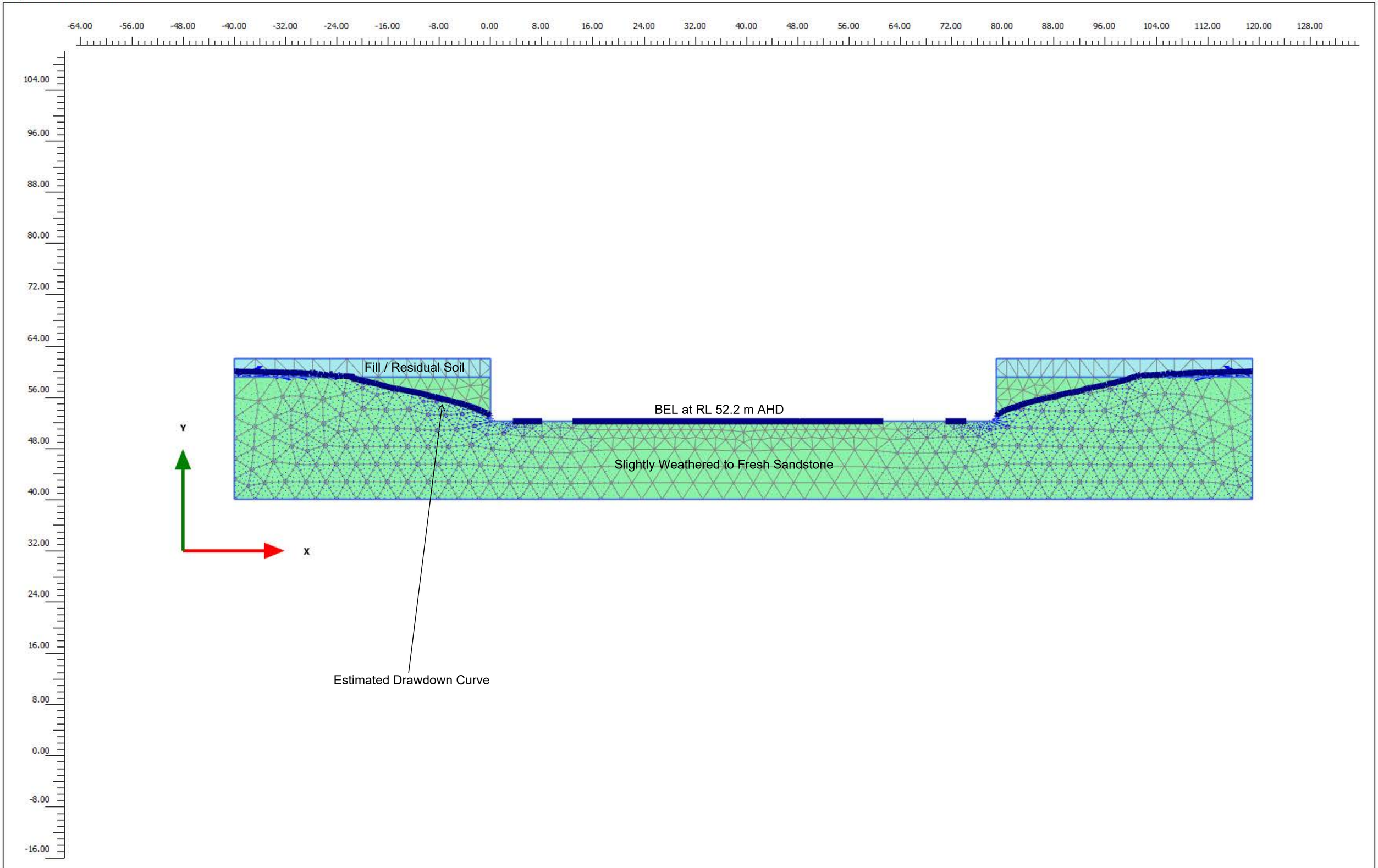
Total displacements u_y (scaled up $2.00*10^3$ times)

Maximum value = $0.1785*10^{-3}$ m (Element 1666 at Node 8027)

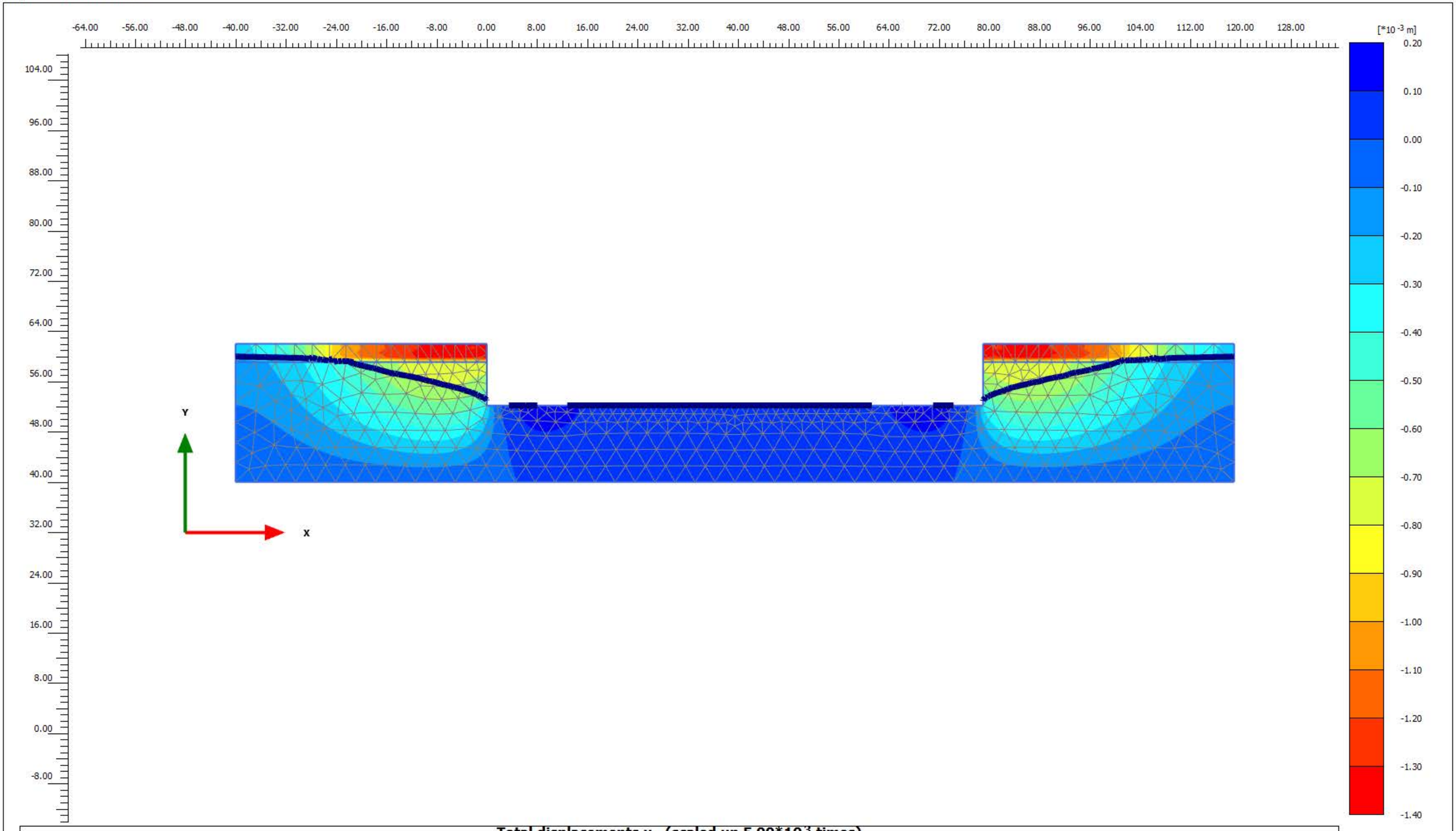
Minimum value = $-1.268*10^{-3}$ m (Element 101 at Node 2650)

PLAXIS® 2D

Project description Drawdown-Induced Settlements for Section A-A			*Date* 6/02/2026
Project filename E26955.G12.V2_GSA_Section A-A	*Step* 10	*Company* El Australia	



PLAXIS® 2D	*Project description* Groundwater Flow and Drawdown Curve for Section B-B		*Date* 6/02/2026
	Project filename E26955.G12.V2_GSA_Section B-B	*Step* 5	*Company* El Australia



Total displacements u_y (scaled up $5.00*10^3$ times)

Maximum value = $0.1273*10^{-3}$ m (Element 1325 at Node 8819)

Minimum value = $-1.347*10^{-3}$ m (Element 26 at Node 1152)

PLAXIS® 2D

Project description			Date
Drawdown-Induced Settlements for Section B-B			6/02/2026
Project filename	**Step**	**Company**	
E26955.G12.V2_GSA_Section B-B	5	El Australia	

Attachment B – Rising Head Test Results

Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	17/12/2025
By	JO		Location	40-48 Redan St, Mosman NSW

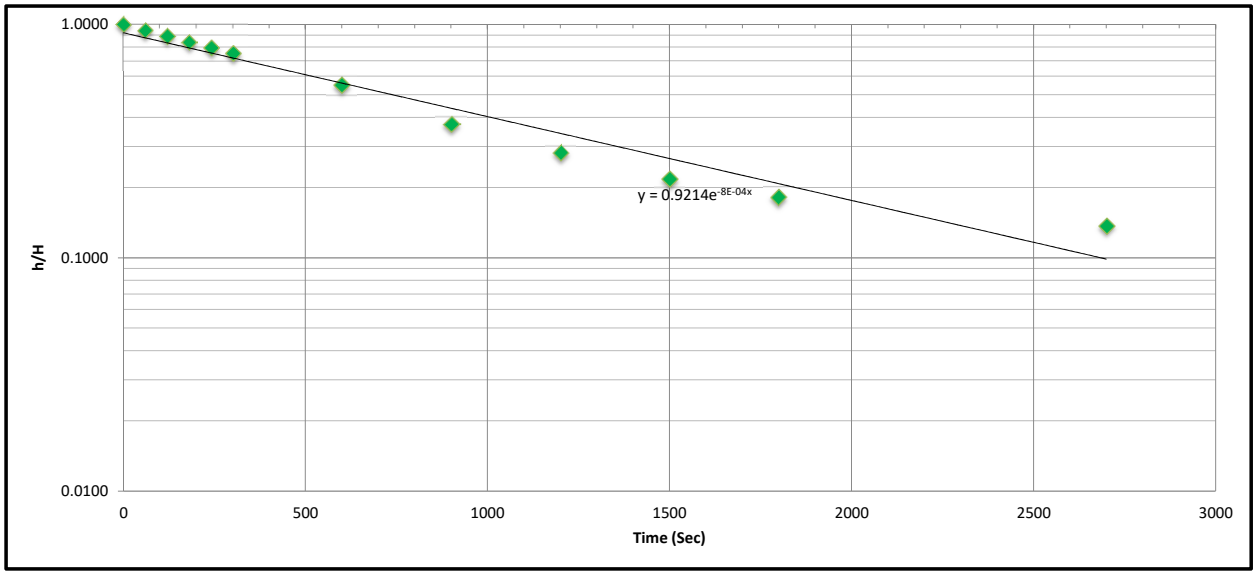
Borehole Detail

BH No.	BH1M
Casing Stick-up (m)	-0.1
Effective Piezo Screen Length (m)	5.5
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	8.79
Static Water Level (m BToC)	3.5
Lag time T0 (sec)	1139.14
Calculated Permeability k	**2.48E-07** m/sec

Based on Hvorslev Method

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		7.89	4.39	1.0000
1	60		7.63	4.13	0.9408
2	120		7.41	3.91	0.8907
3	180		7.19	3.69	0.8405
4	240		7	3.50	0.7973
5	300		6.81	3.31	0.7540
10	600		5.93	2.43	0.5535
15	900		5.14	1.64	0.3736
20	1200		4.74	1.24	0.2825
25	1500		4.45	0.95	0.2164
30	1800		4.3	0.80	0.1822
45	2700		4.10	0.60	0.1367
60	3600		4.00	0.50	0.1139



Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	13/01/2026
By	JJ		Location	40-48 Redan St, Mosman NSW

Borehole Detail

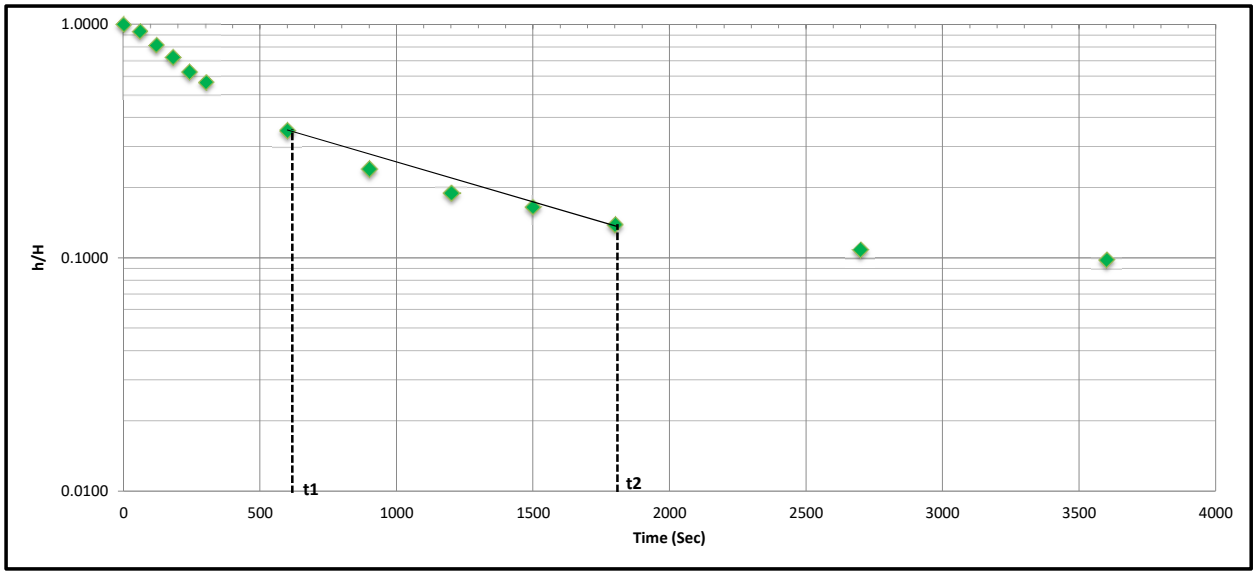
BH No.	BH1M
Casing Stick-up (m)	-0.1
Effective Piezo Screen Length (m)	5.1
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	9
Static Water Level (m BToC)	3.8
Calculated Permeability k	**2.33E-07** m/sec

Based on Hvorslev Method

$$k = \frac{r^2}{2L} \ln\left(\frac{L}{R}\right) \left[\frac{\ln h_1/h_2}{t_2 - t_1}\right]$$

t1	600
t2	1800
h1	0.3525
h2	0.1390

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		6.75	2.95	1.0000
1	60		6.55	2.75	0.9322
2	120		6.21	2.41	0.8169
3	180		5.94	2.14	0.7254
4	240		5.66	1.86	0.6305
5	300		5.48	1.68	0.5695
10	600		4.84	1.04	0.3525
15	900		4.51	0.71	0.2407
20	1200		4.36	0.56	0.1898
25	1500		4.29	0.49	0.1661
30	1800		4.21	0.41	0.1390
45	2700		4.12	0.32	0.1085
60	3600		4.09	0.29	0.0983



Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	17/12/2025
By	JO		Location	40-48 Redan St, Mosman NSW

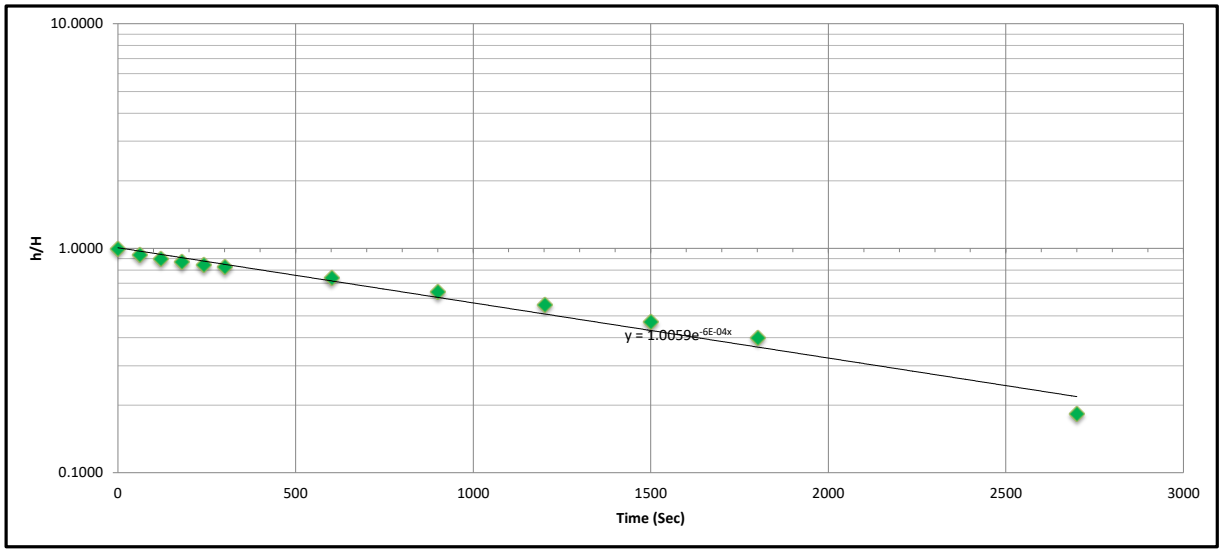
Borehole Detail

BH No.	BH2M
Casing Stick-up (m)	-0.1
Effective Piezo Screen Length (m)	5.34
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	10.8
Static Water Level (m BToC)	5.46
Lag time T0 (sec)	1666.52
Calculated Permeability k	**1.74E-07** m/sec

Based on Hvorslev Method

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		9	3.54	1.0000
1	60		8.77	3.31	0.9350
2	120		8.63	3.17	0.8955
3	180		8.53	3.07	0.8672
4	240		8.45	2.99	0.8446
5	300		8.39	2.93	0.8277
10	600		8.08	2.62	0.7401
15	900		7.73	2.27	0.6412
20	1200		7.45	1.99	0.5621
25	1500		7.13	1.67	0.4718
30	1800		6.88	1.42	0.4011
45	2700		6.11	0.65	0.1836
60	3600		5.61	0.15	0.0424



Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	13/01/2026
By	JJ		Location	40-48 Redan St, Mosman NSW

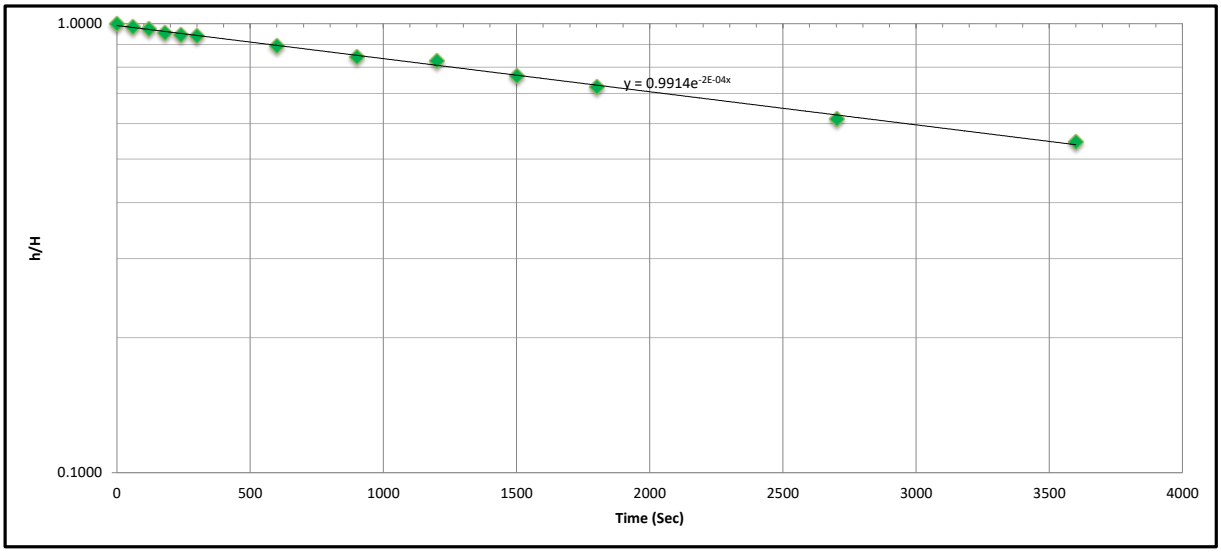
Borehole Detail

BH No.	BH2M
Casing Stick-up (m)	-0.05
Effective Piezo Screen Length (m)	6
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	10.8
Static Water Level (m BToC)	1.88
Lag time T0 (sec)	4925.01
Calculated Permeability k	**5.40E-08** m/sec

Based on Hvorslev Method

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		7.11	5.23	1.0000
1	60		7.04	5.16	0.9866
2	120		6.97	5.09	0.9732
3	180		6.89	5.01	0.9579
4	240		6.84	4.96	0.9484
5	300		6.8	4.92	0.9407
10	600		6.54	4.66	0.8910
15	900		6.3	4.42	0.8451
20	1200		6.2	4.32	0.8260
25	1500		5.88	4.00	0.7648
30	1800		5.66	3.78	0.7228
45	2700		5.10	3.22	0.6157
60	3600		4.74	2.86	0.5468



Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	17/12/2025
By	JO		Location	40-48 Redan St, Mosman NSW

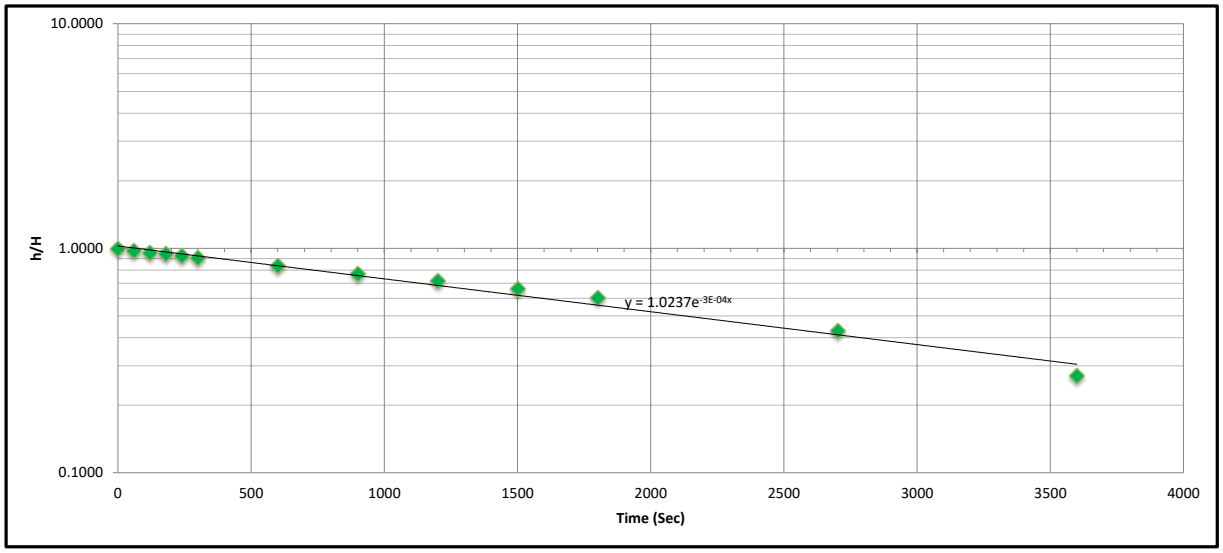
Borehole Detail

BH No.	BH3M
Casing Stick-up (m)	-0.15
Effective Piezo Screen Length (m)	11.92
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	15.22
Static Water Level (m BToC)	3.3
Lag time T0 (sec)	3390.96
Calculated Permeability k	**4.40E-08** m/sec

Based on Hvorslev Method

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		10.44	7.14	1.0000
1	60		10.26	6.96	0.9748
2	120		10.15	6.85	0.9594
3	180		10.03	6.73	0.9426
4	240		9.91	6.61	0.9258
5	300		9.78	6.48	0.9076
10	600		9.27	5.97	0.8361
15	900		8.79	5.49	0.7689
20	1200		8.4	5.10	0.7143
25	1500		8.02	4.72	0.6611
30	1800		7.62	4.32	0.6050
45	2700		6.37	3.07	0.4300
60	3600		5.24	1.94	0.2717



Rising Head Permeability Test

EI Job No.	E26955.G12		Test Date	13/01/2026
By	JJ		Location	40-48 Redan St, Mosman NSW

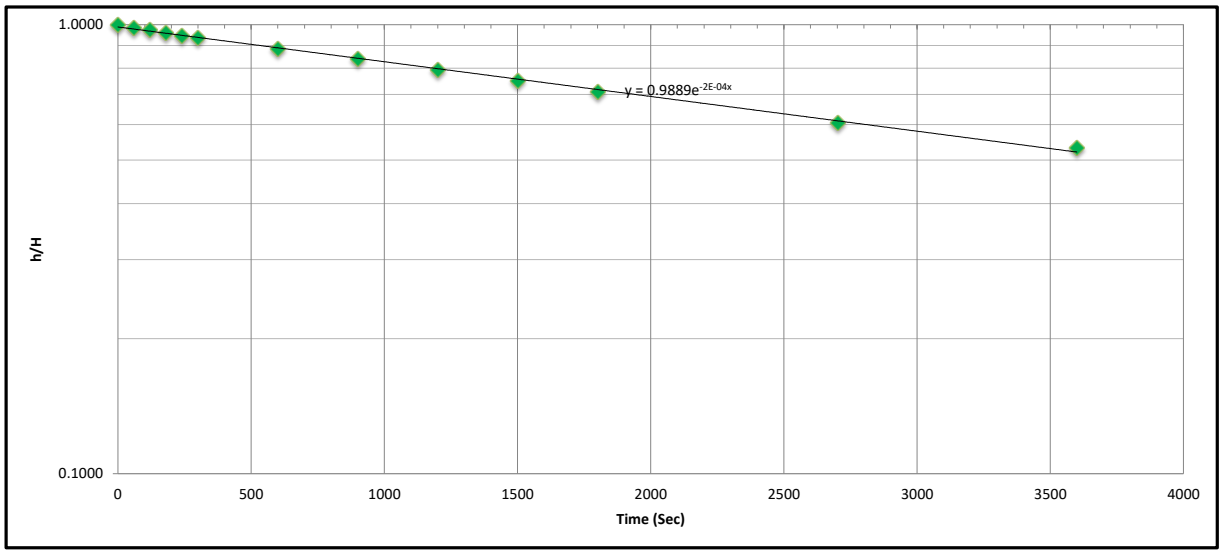
Borehole Detail

BH No.	BH3M
Casing Stick-up (m)	-0.15
Effective Piezo Screen Length (m)	12
Piezo Radius r (m)	0.025
Bore radium (drillhole radius) (m)	0.038
Depth of the piezometer (m BGL)	15.22
Static Water Level (m BToC)	3.25
Lag time T0 (sec)	4914.43
Calculated Permeability k	**3.00E-08** m/sec

Based on Hvorslev Method

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static					
0	0		13.27	10.02	1.0000
1	60		13.1	9.85	0.9830
2	120		13	9.75	0.9731
3	180		12.86	9.61	0.9591
4	240		12.73	9.48	0.9461
5	300		12.66	9.41	0.9391
10	600		12.12	8.87	0.8852
15	900		11.66	8.41	0.8393
20	1200		11.21	7.96	0.7944
25	1500		10.79	7.54	0.7525
30	1800		10.35	7.10	0.7086
45	2700		9.30	6.05	0.6038
60	3600		8.58	5.33	0.5319



Attachment C – Groundwater Level Monitoring Report

Suite 6.01, 55 Miller Street
PYRMONT NSW 2009
www.eiaustralia.com.au
02 9516 0722

27 January 2026
E26955.G11.GW01

Justyn Ng
Mosman Land No.1 Pty Ltd
Level 34 - Suite 3402 Australia Square, 264 George St
SYDNEY NSW 2000

Groundwater Level Monitoring Report No. 1
40-48 Redan St, Mosman NSW 2088

EI Australia (EI) has been engaged to prepare this factual letter report to provide continual groundwater levels at the above site. The monitoring period in this report is from Friday 28 November 2025 to Tuesday 13 January 2026.

Groundwater levels were collected remotely during the monitoring period using data loggers installed within monitoring wells. The data logger / monitoring well details and the groundwater levels observed during the monitoring period are summarised in Table 1 & 2 below.

Table 1 Summary of Data Logger & Well Installation Details

Monitoring Well ID	Top of Well RL (mAHD)	Existing Ground RL (mAHD)	Well Stickup (m)	Well Depth Below Ground (m) [1]	Sensor RL (mAHD)
BH1M	59.00	59.10	-0.10	8.30	50.52
BH2M	60.30	60.30	0.00	10.80	51.53
BH3M	61.45	61.60	-0.15	15.00	47.05

Note 1: The level of the bottom of the well is based on manual measurements after the well installation. The measurement accounts for any variation of the well depth caused by infilling of material through the well screen.

Table 2 Summary of Groundwater Levels

Monitoring Well ID	Average Groundwater RL (mAHD)	Highest Groundwater RL (mAHD)	Lowest Groundwater RL (mAHD)	Highest Groundwater Depth (m Below Ground)	Lowest Groundwater Depth (m Below Ground)
BH1M	54.39	57.09	49.27	2.01	9.83
BH2M	57.44	60.07	52.36	0.23	7.94
BH3M	57.30	59.91	52.18	1.69	9.42

Please do not hesitate to contact the undersigned should you have any questions.

For and on behalf of:
EI AUSTRALIA

Author



Juwon Jun
Geotechnical Engineer

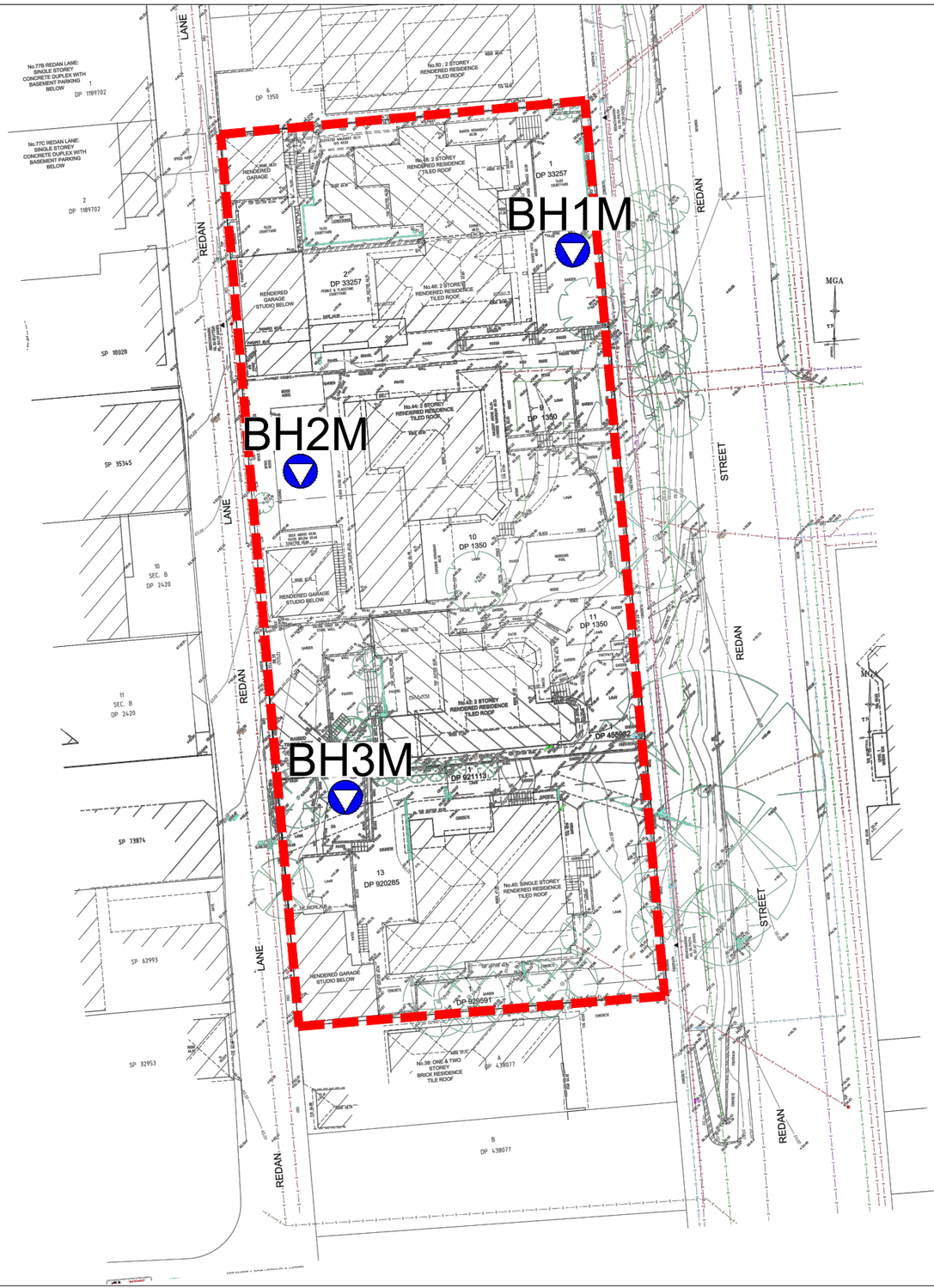
Reviewer



Theo Wood
Geotechnical Engineer

Attachments:

Figure 1: Data Logger Location Plan
Figure 2-4: Groundwater Level, Daily Rainfall vs. Time From 28 November 2025 to 13 January 2026
Important Information



0 10 20 30 50

Approx. Scale (m) 1 : 500 @ A3

Map Source: Matromap

LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Monitoring well locations

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Contamination | Remediation | Geotechnical
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Ph (02) 9516 0722 Fax (02) 9518 5088

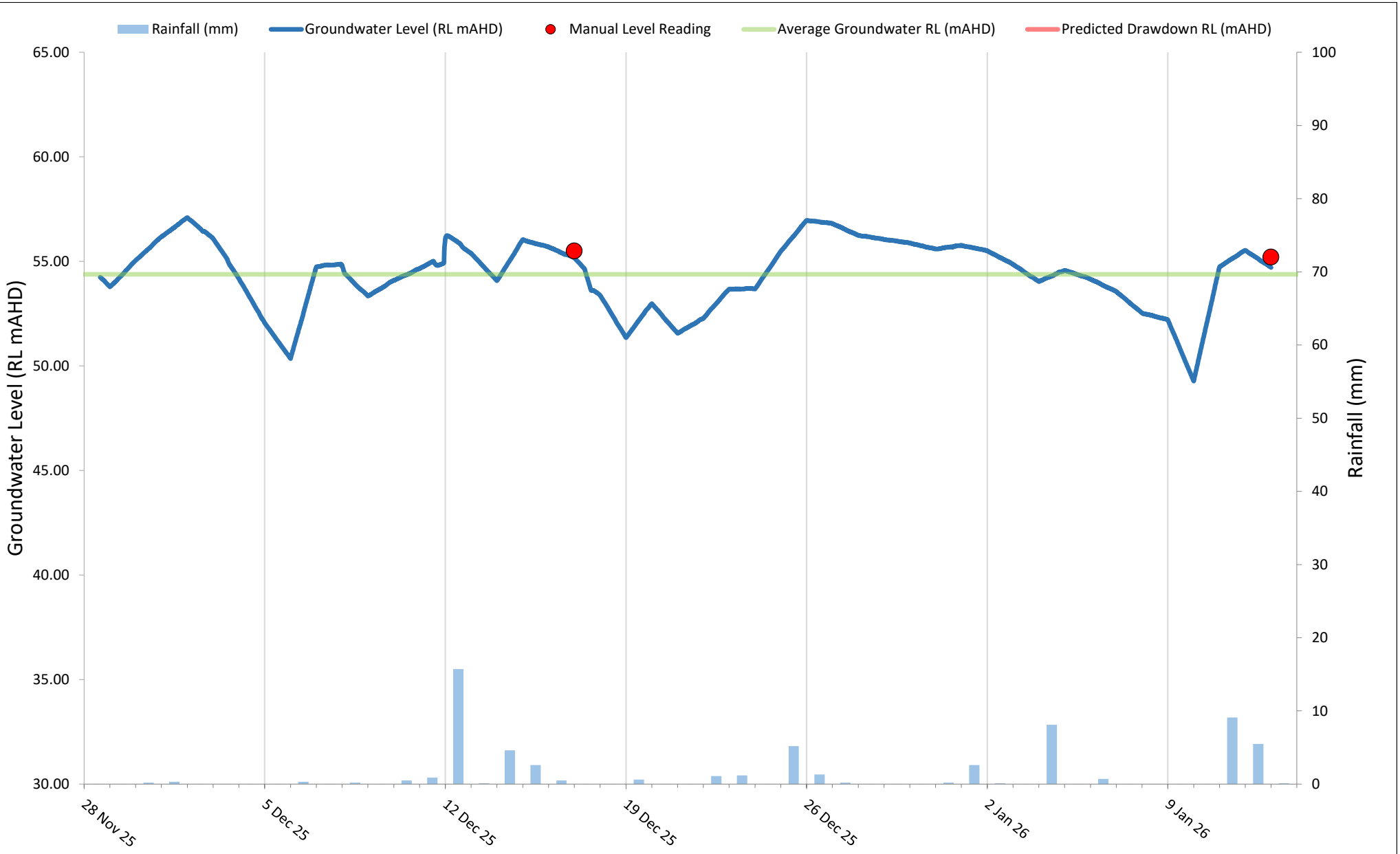
Drawn:	J.J.
Approved:	..
Date:	19-01-26

Time & Place
Groundwater Level Monitoring
40-48 Redan Street, Mosman, NSW

Monitoring Well Location Plan

Figure: 1

Project: E26955.G11



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Drawn:	JJ
Approved:	TW
Date:	27/01/2026

Mosman Land No.1 Pty Ltd

Groundwater Level Monitoring

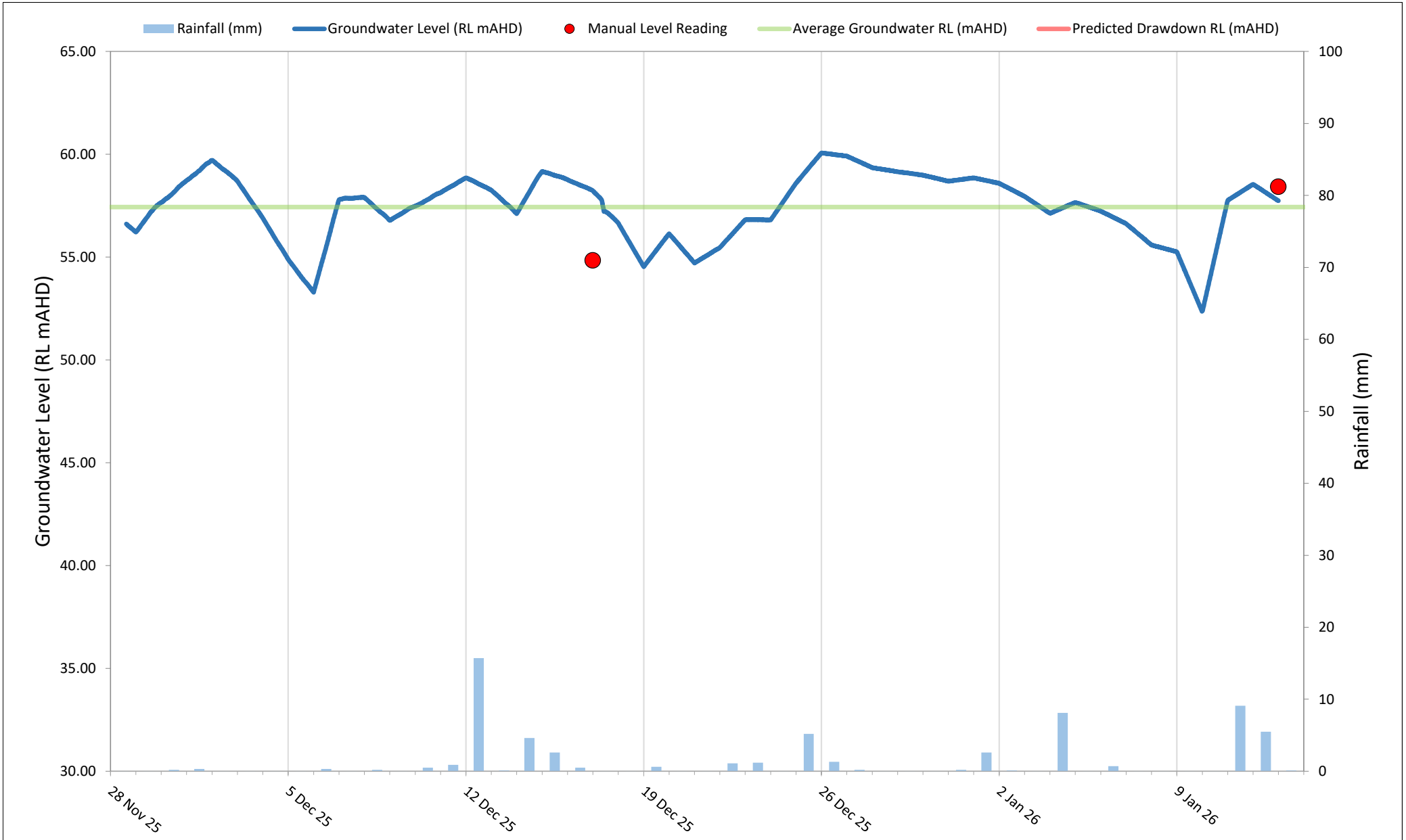
40-48 Redan St, Mosman NSW 2088

BH1M

Figure:

2

Project: E26955.G11.GW01



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Drawn:	JJ
Approved:	TW
Date:	27/01/2026

Mosman Land No.1 Pty Ltd

Groundwater Level Monitoring

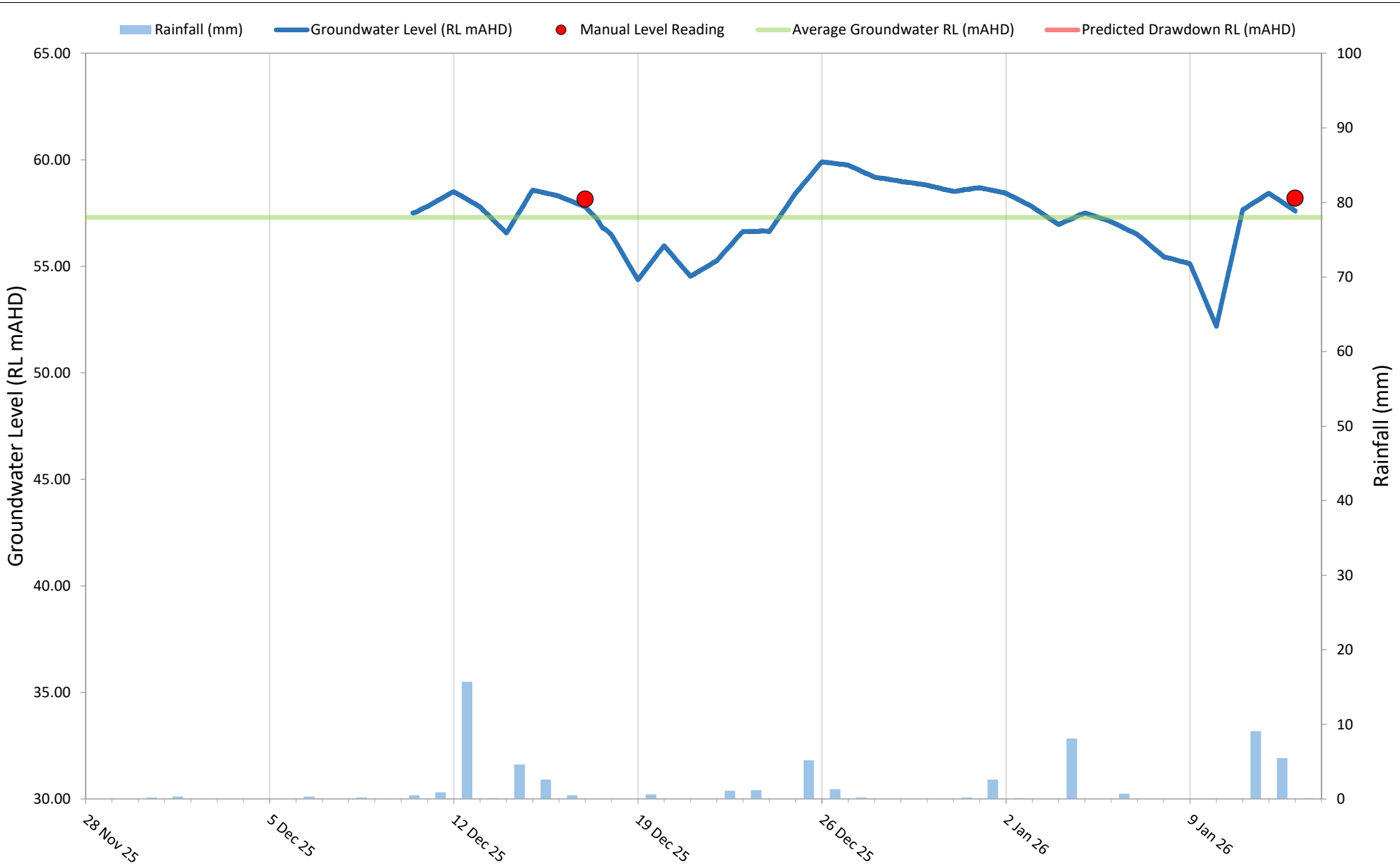
40-48 Redan St, Mosman NSW 2088

BH2M

Figure:

3

Project: E26955.G11.GW01



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Ph. (02) 9516 0722 Fax (02) 9518 5088

Drawn:	JJ
Approved:	TW
Date:	27/01/2026

Mosman Land No.1 Pty Ltd

Groundwater Level Monitoring

40-48 Redan St, Mosman NSW 2088

BH3M

Figure:

4

Project: E26955.G11.GW01

Attachment D – Important Information

Important Information

SCOPE OF SERVICES

The geotechnical report ("the report") has been prepared in accordance with the scope of services as set out in the contract, or as otherwise agreed, between the Client And EI Australia ("EI"). The scope of work may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

EI has relied on data provided by the Client and other individuals and organizations, to prepare the report. Such data may include surveys, analyses, designs, maps and plans. EI has not verified the accuracy or completeness of the data except as stated in the report. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations ("conclusions") are based in whole or part on the data, EI will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to EI.

GEOTECHNICAL ENGINEERING

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared for a specific client, for a specific project and to meet specific needs, and may not be adequate for other clients or other purposes (e.g. a report prepared for a consulting civil engineer may not be adequate for a construction contractor). The report should not be used for other than its intended purpose without seeking additional geotechnical advice. Also, unless further geotechnical advice is obtained, the report cannot be used where the nature and/or details of the proposed development are changed.

LIMITATIONS OF SITE INVESTIGATION

The investigation programme undertaken is a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions. The data derived from the site investigation programme and subsequent laboratory testing are extrapolated across the site to form an inferred geological model, and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Despite investigation, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The engineering logs are the subjective interpretation of subsurface conditions at a particular location and time, made by trained personnel. The actual interface between materials may be more gradual or abrupt than a report indicates.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions can be modified by changing natural forces or man-made influences. The report is based on conditions that existed at the time of subsurface exploration. Construction operations adjacent to the site, and natural events such as floods, or ground water fluctuations, may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. EI should be kept appraised of any such events, and should be consulted to determine if any additional tests are necessary.

VERIFICATION OF SITE CONDITIONS

Where ground conditions encountered at the site differ significantly from those anticipated in the report, either due to natural variability of subsurface conditions or construction activities, it is a condition of the report that EI be notified of any variations and be provided with an opportunity to review the recommendations of this report. Recognition of change of soil and rock conditions requires experience and it is recommended that a suitably experienced geotechnical engineer be engaged to visit the site with sufficient frequency to detect if conditions have changed significantly.

REPRODUCTION OF REPORTS

This report is the subject of copyright and shall not be reproduced either totally or in part without the express permission of this Company. Where information from the accompanying report is to be included in contract documents or engineering specification for the project, the entire report should be included in order to minimize the likelihood of misinterpretation from logs.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the Client and no other party. EI assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of EI or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

EI will not be liable to update or revise the report to take into account any events or emergent circumstances or fact occurring or becoming apparent after the date of the report.

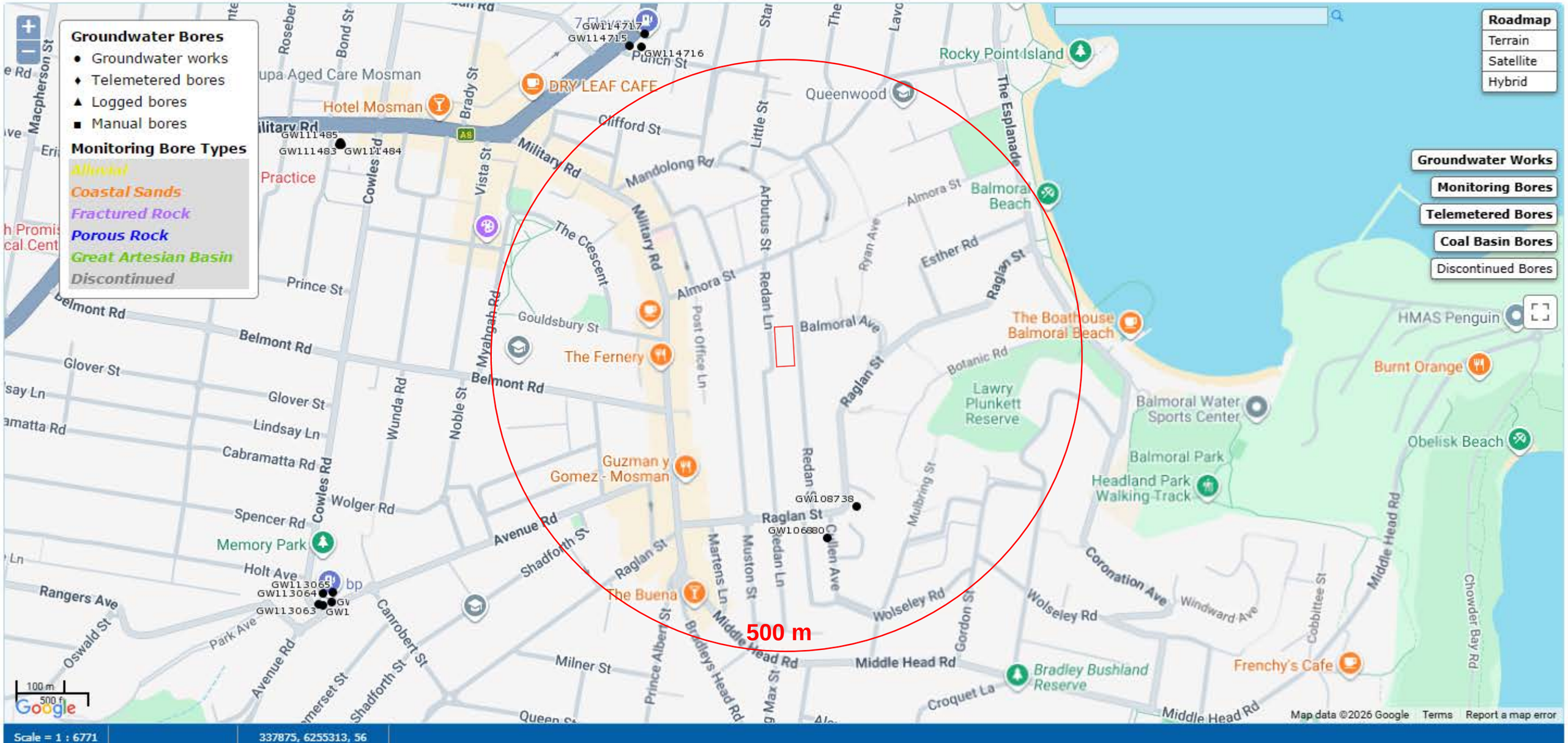
Appendix E – Registered Bore Search

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



Scale = 1 : 6771 | 337875, 6255313, 56

WaterNSW
Work Summary

GW106880

Licence: 10BL164471 **Licence Status:** CONVERTED

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hamm
Owner Type: Private

Commenced Date:
Completion Date: 11/02/2005

Final Depth: 107.90 m
Drilled Depth: 107.90 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Colin Leslie Barden
Assistant Driller:

Property: NATHAN 11b Redan St MOSMAN 2088 NSW
GWMA:
GW Zone:

Standing Water Level (m): 37.800
Salinity Description:
Yield (L/s): 0.200

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	WILLOUGHB	2//504921
Licensed:	CUMBERLA	WILLOUGH	Whole Lot 2//504921

Region: 10 - Sydney South Coast
River Basin: 213 - SYDNEY COAST - GEORGES RIVER
Area/District:

CMA Map: 9130-3N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6255184.000
Easting: 337808.000

Latitude: 33°49'52.1"S
Longitude: 151°14'50.1"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.60	200			Down Hole Hammer
1		Hole	Hole	5.60	107.90	157			Down Hole Hammer
1		Annulus	Concrete	0.00	5.60	200	157		
1	1	Casing	Pvc Class 9	-0.40	77.60	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.40	5.60	157			Driven into Hole
1	1	Opening	Slots - Diagonal	29.60	41.60	140		0	Sawn, PVC Class 9, Screwed and Glued, SL: 100.0mm, A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
8.00	11.00	3.00	Unknown					00:25:00	132.00
30.00	36.00	6.00	Unknown			0.10		00:25:00	170.00
38.00	40.00	2.00	Unknown	37.80		0.10		00:25:00	235.00

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.70	0.70	Clay, brown	Clay	
0.70	6.70	6.00	Sandstone, grey	Sandstone	
6.70	6.80	0.10	Shale, black	Shale	
6.80	7.40	0.60	Shale, grey	Shale	
7.40	8.00	0.60	Sandstone, grey	Sandstone	
8.00	11.00	3.00	Sandstone, grey, water bearing	Sandstone	
11.00	13.50	2.50	Shale, light grey, very soft	Shale	
13.50	30.00	16.50	Sandstone, grey	Sandstone	
30.00	36.30	6.30	Sandstone, grey, coarse grained, water bearing	Sandstone	
36.30	38.00	1.70	Sandstone, light grey	Sandstone	
38.00	40.00	2.00	Sandstone, grey, fractured, water bearing	Sandstone	
40.00	43.00	3.00	Sandstone, grey	Sandstone	
43.00	44.50	1.50	Shale, brown grey	Shale	
44.50	59.50	15.00	Sandstone, grey	Sandstone	
59.50	59.70	0.20	Shale, grey	Shale	
59.70	60.40	0.70	Sandstone, grey	Sandstone	
60.40	60.80	0.40	Shale, light grey	Shale	
60.80	72.10	11.30	Sandstone, light grey	Sandstone	
72.10	72.60	0.50	Shale, brown (soft)	Shale	
72.60	107.90	35.30	Sandstone, grey/light grey	Sandstone	

Remarks

04/02/2010: updated from original form A

*** End of GW106880 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW
Work Summary

GW108738

Licence: 10BL600680 **Licence Status:** CONVERTED

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hamm
Owner Type: Private

Commenced Date:
Completion Date: 26/04/2007

Final Depth: 84.00 m
Drilled Depth: 84.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Paul Sheehy
Assistant Driller:

Property: O'BRIEN 163 Raglan St MOSMAN 2088 NSW
GWMA:
GW Zone:

Standing Water Level (m): 24.000
Salinity Description:
Yield (L/s): 0.400

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	WILLOUGHB	8//285582
Licensed:	CUMBERLA	WILLOUGH	Whole Lot 8//285582

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:

CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6255243.000
Easting: 337861.000

Latitude: 33°49'50.3"S
Longitude: 151°14'52.2"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.50	203			Down Hole Hammer
1		Hole	Hole	5.50	84.00	159			Down Hole Hammer
1		Annulus	Concrete	0.00	5.50	203			
1	1	Casing	Pvc Class 9	-0.50	41.50	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.50	5.50	168			Driven into Hole
1	1	Opening	Slots - Diagonal	23.50	29.50	140		0	Sawn, PVC Class 9, SL: 100.0mm, A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.00	24.50	0.50	Unknown			0.40		00:25:00	220.00

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.80	0.80	clay, sandy	Clay	
0.80	24.00	23.20	sandstone, grey	Sandstone	
24.00	24.50	0.50	sandstone, fractured	Sandstone	
24.50	37.50	13.00	sandstone, grey	Sandstone	
37.50	38.00	0.50	shale	Shale	
38.00	47.00	9.00	sandstone, grey	Sandstone	
47.00	48.50	1.50	sandstone, quartz	Sandstone	
48.50	71.00	22.50	sandstone, grey	Sandstone	
71.00	73.00	2.00	sandstone, quartz	Sandstone	
73.00	76.00	3.00	sandstone, grey	Sandstone	
76.00	78.00	2.00	sandstone, quartz	Sandstone	
78.00	84.00	6.00	sandstone, grey	Sandstone	

Remarks

15/03/2010: updated from original form A

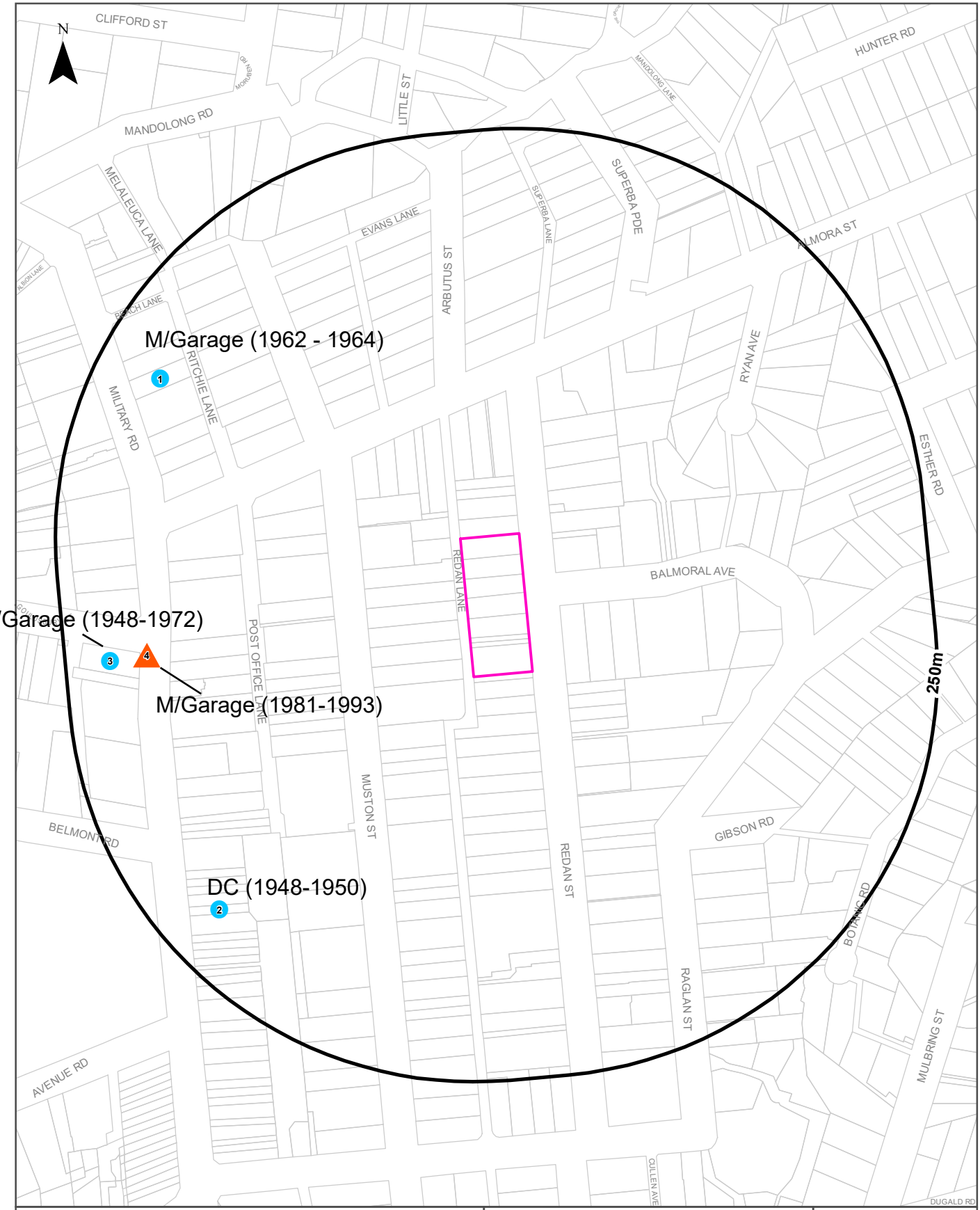
*** End of GW108738 ***

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Appendix F – Potentially Contaminating Activities

Dry Cleaners, Motor Garages & Service Stations

40-48 Redan Street, Mosman, NSW 2088



Legend

- Site Boundary
- Buffer 250m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 40 80 120 160 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 09 January 2026

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2026

Appendix G – Borehole Logs

BOREHOLE LOG

BH ID: BH1M

Location	40-48 Redan Street, Mosman NSW			**Started**	25 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	25 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 25 November 2025
Sheets	1 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈59.10 m (AHD)	**Northing**	6255582.0 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337730.4 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH1M_0.00-0.10		0.00		59.10	FILL: Silty SAND: fine to medium grained, grey-brown, trace rootlets with sub-angular to sub-rounded ironstone gravels	M	-	FILL
		BH1M_0.90-1.00		0.80		58.30	Silty SAND: fine to medium grained, pale grey	M	L	RESIDUAL SOIL
				1.00		58.10	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH1M

Location	40-48 Redan Street, Mosman NSW			**Started**	25 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	25 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 25 November 2025
Sheets	2 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈59.10 m (AHD)	**Northing**	6255582.0 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337730.4 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
				0			*Log continued from previous page.*				
NMLC	90%	100	100	1			SANDSTONE: medium to coarse grained, pale grey, with some bands of indistinct and distinct cross bedding	SW		1.26: BP 0° PR SM CN 1.44: BP 0° PR SM CN 1.62: BP 0° PR SM CN	
		94	94	2				FR		2.97-3.06: XWS 3.63: BP 8° PR SM CN 4.62: BP 0° PR SM CN 4.73: BP 0° PR SM CN 4.86: JT 60° PR SM CN	
				5							
				5.30		53.80	NO CORE: 200mm thick	-			
				5.50		53.60	SANDSTONE: medium to coarse grained, pale grey, with a trace of carbonaceous laminae and nodules, indistinctly cross bedded at 5°-10°			5.79: BP 10° PR SM CN	
		96	86	6				FR		6.60: JT 30° PR SM Clay VN 6.65: BP 9° PR SM CN 6.81: JT 20° PR SM CN 6.88: BP 0° PR SM CN 7.00-7.20: XWZ 7.70: JT 60° PR SM CN 7.73: BP 6° PR SM CN	
				7							
				8						8.56: BP 6° PR SM CN	
				8.68		50.42	NO CORE: 140mm thick	-			
				8.82		50.28	SANDSTONE: medium to coarse grained, pale grey, indistinctly cross bedded at 0°-5°			8.84-9.00: XWZ	
				9		50.10	From 9.00m to 10.00m, medium to coarse grained, pale grey, massive	FR			
				9.00						9.90: JT 60° PR SM CN	
				10							

BOREHOLE CORE LOG

BH ID: BH1M

Location	40-48 Redan Street, Mosman NSW			**Started**	25 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	25 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 25 November 2025
Sheets	3 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈59.10 m (AHD)	**Northing**	6255582.0 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337730.4 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
NMLC	90%	100	100	10.00		49.10	SANDSTONE: medium to coarse grained, distinctly bedded at 0°-10°				
				10.75		48.35	From 10.75m, As above, but massive to indistinctly cross bedded at 0°-5°	FR			
				11							
						47.21	Terminated at 11.89m.				
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH1M

Location	40-48 Redan Street, Mosman NSW			**Started**	25 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	25 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 25 November 2025
Sheets	1 of 1			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈59.10 m (AHD)	**Northing**	6255582.0 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337730.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH1M_0.00-0.10	0.00	59.10	FILL: Silty SAND: fine to medium grained, grey-brown, trace rootlets with sub-angular to sub-rounded ironstone gravels	M
	BH1M_0.90-1.00	0.80	58.30	Silty SAND: fine to medium grained, pale grey	
		1.00	58.10	SANDSTONE: medium to coarse grained, pale grey, with some bands of indistinct and distinct cross bedding	
		5.30	53.80	NO CORE: 200mm thick	
		5.50	53.60	SANDSTONE: medium to coarse grained, pale grey, with a trace of carbonaceous laminae and nodules, indistinctly cross bedded at 5°-10°	
		8.68	50.42	NO CORE: 140mm thick	
		8.82	50.28	SANDSTONE: medium to coarse grained, pale grey, indistinctly cross bedded at 0°-5°	
		9.00	50.10	From 9.00m to 10.00m, medium to coarse grained, pale grey, massive	
		10.00	49.10	SANDSTONE: medium to coarse grained, distinctly bedded at 0°-10°	
		10.75	48.35	From 10.75m, As above, but massive to indistinctly cross bedded at 0°-5°	
		11.89	47.21	Terminated at 11.89m.	

BACKFILL DETAILS

Grout
0.00m - 0.50m

Sand
0.50m - 1.00m

Bentonite
1.00m - 3.00m

Sand
3.00m - 9.00m

Bentonite
9.00m - 9.30m

Cuttings
9.30m - 11.89m

STANDPIPE DETAILS

Well Stickup =0.0m
(RL 59.10m)

0.0m - 3.0m
PVC casing (50mm Ø)

3.0m - 9.0m
PVC screen (50mm Ø)

BOREHOLE LOG

BH ID: BH2M

Location	40-48 Redan Street, Mosman NSW			**Started**	26 November 2025	
Client	Mosman Land No.1 Pty Ltd			**Completed**	26 November 2025	
Job No.	E26955.G03			**Logged By**	JO	**Date**	26 November 2025
Sheets	1 of 3			**Review By**	STP	**Date**	12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈60.40 m (AHD)	**Northing**	6255571.6 (MGA 2020 Zone 56)	
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337735.4 (MGA 2020 Zone 56)	

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH2M_0.00-0.10		0.00		60.40	FILL: Silty SAND: fine to medium grained, dark brown with rootlets trace sub-angular to sub-rounded fine to medium grained, pale grey sandstone gravels	M	-	FILL
				0.50		59.90	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH2M

Location	40-48 Redan Street, Mosman NSW			**Started**	26 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	26 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 26 November 2025
Sheets	2 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈60.40 m (AHD)	**Northing**	6255571.6 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337735.4 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0		*Log continued from previous page.*				
NMLC	90%	75	0	0.58	59.82	NO CORE: 80mm thick	-			
						SANDSTONE: fine to medium grained, pale grey-brown, indistinctly cross bedded at 0°-5°	SW		0.70-0.72: XWS	
		100	99	1					1.25: BP 3° PR SM CN	
				1.60	58.80	SANDSTONE: medium to coarse grained, pale grey, distinctly cross bedded at 0°-10°			1.44: BP 0° PR SM CN 1.45: BP 0° PR SM CN 1.57: BP 13° PR SM CN 1.75: BP 3° PR SM CN	
				2					2.17: BP 0° PR SM CN 2.34-2.37: XWS	
		100	98	3					3.19: BP 0° PR SM CN	
				4					3.51: JT 20° PR SM CN 3.54: JT 20° PR SM CN 3.57: BP 10° PR SM CN 3.66: JT 35° CU SM CN	
				4.70	55.70	SANDSTONE: medium to coarse grained, pale grey, with some bands of indistinct and distinct cross bedding			4.46-4.67: JT 80° PR SM CN 4.67-4.70: XWS	
		100	97	5			FR		5.82: BP 10° PR SM CN	
				6					6.58: JT 80° PR SM CN	
				7					7.47: BP 7° PR SM CN 7.75: BP 3° PR SM CN	
		100	78	8					8.75: BP 0° PR SM CN	
				9					9.47: BP 0° PR SM CN	
				10					9.93-10.12: JT 75° PR SM CN	

BOREHOLE CORE LOG

BH ID: BH2M

Location	40-48 Redan Street, Mosman NSW			**Started**	26 November 2025		
Client	Mosman Land No.1 Pty Ltd			**Completed**	26 November 2025		
Job No.	E26955.G03			**Logged By**	JO	**Date**	26 November 2025
Sheets	3 of 3			**Review By**	STP	**Date**	12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈60.40 m (AHD)	**Northing**	6255571.6 (MGA 2020 Zone 56)		
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337735.4 (MGA 2020 Zone 56)		

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
NMLC	90%			10.45		49.95	SANDSTONE: medium to coarse grained, pale grey, with some bands of indistinct and distinct cross bedding	SW	H	10.10: JT 83° PR SM CN	
							SANDSTONE: medium to coarse grained, with a trace of carbonaceous laminae, cross bedded at 0°-10°			10.38: JT 50° PR SM CN 10.48: JT 62° PR SM CN 10.59-10.64: CS 10.60: JT 50° PR SM CN	
						49.60	Terminated at 10.80m.				
				11							
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH2M

Location	40-48 Redan Street, Mosman NSW			**Started**	26 November 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	26 November 2025
Job No.	E26955.G03			**Logged By**	JO **Date** 26 November 2025
Sheets	1 of 1			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	Hard Access Drilling	**Surface RL**	≈60.40 m (AHD)	**Northing**	6255571.6 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337735.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH2M_0.00-0.10	0.00	60.40	FILL: Silty SAND: fine to medium grained, dark brown with rootlets trace sub-angular to sub-rounded fine to medium grained, pale grey sandstone gravels	M
		0.50	59.90	NO CORE: 80mm thick	
		0.58	59.82	SANDSTONE: fine to medium grained, pale grey-brown, indistinctly cross bedded at 0°-5°	
		1.60	58.80	SANDSTONE: medium to coarse grained, pale grey, distinctly cross bedded at 0°-10°	
		4.70	55.70	SANDSTONE: medium to coarse grained, pale grey, with some bands of indistinct and distinct cross bedding	
		10.45	49.95	SANDSTONE: medium to coarse grained, with a trace of carbonaceous laminae, cross bedded at 0°-10°	
			49.60	Terminated at 10.80m.	

BACKFILL DETAILS

Grout
0.00m - 0.50m

Sand
0.50m - 2.80m

Bentonite
2.80m - 4.80m

Sand
4.80m - 10.80m

STANDPIPE DETAILS

Well Stickup =0.0m
(RL 60.40m)

0.0m - 4.80m
PVC casing (50mm Ø)

4.80m - 10.80m
PVC screen (50mm Ø)

BOREHOLE LOG

BH ID: BH3M

Location	40-48 Redan Street, Mosman NSW			**Started**	08 December 2025	
Client	Mosman Land No.1 Pty Ltd			**Completed**	09 December 2025	
Job No.	E26955.G03			**Logged By**	JF	**Date**	09 December 2025
Sheets	1 of 3			**Review By**	STP	**Date**	12 December 2025
Drilling Contractor	STS	**Surface RL**	≈61.60 m (AHD)	**Northing**	6255529.4 (MGA 2020 Zone 56)	
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337706.8 (MGA 2020 Zone 56)	

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH3M_0.20-0.40		0.00		61.60	FILL: Silty SAND: fine to medium grained, dark grey, trace of rootlets	M	-	FILL
				0.79		60.81	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH3M

Location	40-48 Redan Street, Mosman NSW			**Started**	08 December 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	09 December 2025
Job No.	E26955.G03			**Logged By**	JF **Date** 09 December 2025
Sheets	2 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	STS	**Surface RL**	≈61.60 m (AHD)	**Northing**	6255529.4 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337706.8 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
				0			*Log continued from previous page.*				
NMLC	95%	100	72	1			SANDSTONE: fine to medium grained, pale grey and orange brown, indistinctly cross bedded at 0°-10°	HW		0.81: BP 0° PR RO Clay VN 0.94: BP 0° PR RO Clay VN 1.12: BP 0° PR RO Clay VN 1.25: BP 0° IR RO CN	
								SW		1.77: BP 10° PR RO CN 1.93: BP 0° PR RO Clay VN	
		94	82	2		59.60	NO CORE: 90mm thick	-		1.97-2.00: XWS	
				2.09		59.51	SANDSTONE: fine to medium grained, pale grey with orange brown laminae and bands, indistinctly cross bedded at 0°-15°	SW		1.97: JT 75° PR RO Clay VN 2.09-2.13: XWS 2.33: BP 0° PR RO Fe SN	
				3						3.26: BP 0° PR RO Clay VN	
		298	290	3.57		58.03	NO CORE: 320mm thick	-		3.48: BP 0° PR RO Fe SN	
				3.89		57.71	SANDSTONE: medium to coarse grained, pale grey with grey and dark grey laminae, with bands of indistinct and distinct cross bedding at 0°-10°			3.92: JT 70° PR RO CN	
				4						4.46: BP 5° PR RO Clay VN	
		100	97	5						4.92: BP 5° PR RO Clay VN	
				6				FR		5.77: BP 0° PR RO Clay VN 6.06: JT 60° PR RO clay Infilled 6.09: BP 10° PR RO clay Infilled 6.10: JT 65° PR RO clay Infilled 6.15: JT 70° PR RO CN 6.26: JT 30° PR RO CN 6.43: JT 70° PR RO CL 6.44: JT 20° PR RO CN 6.50: JT 70° PR RO CL 6.53: JT 75° PR RO clay Infilled 6.72: BP 0° PR RO clay Infilled 6.78: BP 0° PR RO Clay VN 6.94: BP 5° PR RO Clay VN 6.98: BP 5° PR RO Clay VN 7.11: BP 0° PR RO Clay VN 7.73-7.78: FS 7.84: BP 0° PR RO Clay VN 7.93: JT 80° PR RO quartz Infilled 8.14: BP 5° PR RO quartz SN	
		100	62	7							
	50%	100	38	8							
		100	100	8.43		53.17	NO CORE: 460mm thick	-			
	95%	71	41	8.89		52.71	SANDSTONE: medium to coarse grained, pale grey with grey and dark grey laminae, with a trace of fine grained quartz pebbles, indistinctly cross bedded at 0°-10°	HW		8.93: BP 0° PR RO Clay VN 9.05: BP 0° PR RO Clay VN 9.14: BP 0° PR RO Clay VN	
				9						9.51: BP 0° CU RO Clay VN	
				10				FR			

BOREHOLE CORE LOG

BH ID: BH3M

Location	40-48 Redan Street, Mosman NSW			**Started**	08 December 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	09 December 2025
Job No.	E26955.G03			**Logged By**	JF **Date** 09 December 2025
Sheets	3 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	STS	**Surface RL**	≈61.60 m (AHD)	**Northing**	6255529.4 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337706.8 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
NMLC	95%	100	91	10.08		51.52	SANDSTONE: medium to coarse grained, pale grey with grey and dark grey laminae, with a trace of fine grained quartz pebbles, indistinctly cross bedded at 0°-10° From 10.08m, As above, but with some carbonaceous laminae	FR		10.29: BP 5° PR RO Clay VN 10.35: JT 60° PR RO CN 10.37: JT 70° PR RO CN 10.43: BP 5° PR RO Clay VN 10.58: JT 65° PR RO CN 11.03: BP 5° PR RO Clay VN 11.31: BP 5° PR RO Clay VN 12.22: BP 0° PR RO Clay VN 12.61: BP 5° PR RO Cb SN 13.05: BP 5° PR RO Cb SN 13.57: BP 0° PR RO Clay VN 13.87: BP 5° PR RO Clay VN	
		100	100	11							
		100	95	12							
		100	56	13							
				14							
				14.00		47.60	SANDSTONE: medium to coarse grained, pale grey, with some fine grained quartz pebbles and carbonaceous laminae and nodules, indistinctly cross bedded at 0°-10°			14.24: BP 5° PR RO Cb VN 14.33: BP 0° PR RO Cb VN 14.53: BP 0° PR RO Cb VN 14.65: BP 0° PR RO Cb VN 14.89: BP 0° PR RO Cb VN 14.94: JT 80° PR RO CN	
				15							
						46.38	Terminated at 15.22m.				
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH3M

Location	40-48 Redan Street, Mosman NSW			**Started**	08 December 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	09 December 2025
Job No.	E26955.G03			**Logged By**	JF **Date** 09 December 2025
Sheets	1 of 1			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	STS	**Surface RL**	≈61.60 m (AHD)	**Northing**	6255529.4 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337706.8 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
	BH3M_0.20-0.40	0.00	61.60	FILL: Silty SAND: fine to medium grained, dark grey, trace of rootlets	M	Grout 0.15m - 0.30m Bentonite 0.30m - 1.00m	Well Stickup =-0.15m (RL 61.45m)
		0.79	60.81	SANDSTONE: fine to medium grained, pale grey and orange brown, indistinctly cross bedded at 0°-10°			0.15m - 3.15m PVC casing (50mm Ø)
		2.00	59.60	NO CORE: 90mm thick			
		2.09	59.51	SANDSTONE: fine to medium grained, pale grey with orange brown laminae and bands, indistinctly cross bedded at 0°-15°			
		3.57	58.03	NO CORE: 320mm thick			
		3.89	57.71	SANDSTONE: medium to coarse grained, pale grey with grey and dark grey laminae, with bands of indistinct and distinct cross bedding at 0°-10°		Sand 1.00m - 15.22m	
		8.43	53.17	NO CORE: 460mm thick			
		8.89	52.71	SANDSTONE: medium to coarse grained, pale grey with grey and dark grey laminae, with a trace of fine grained quartz pebbles, indistinctly cross bedded at 0°-10°			3.15m - 15.22m PVC screen (50mm Ø)
		10.08	51.52	From 10.08m, As above, but with some carbonaceous laminae			
		14.00	47.60	SANDSTONE: medium to coarse grained, pale grey, with some fine grained quartz pebbles and carbonaceous laminae and nodules, indistinctly cross bedded at 0°-10°			
		15.22	46.38	Terminated at 15.22m.			

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

BOREHOLE LOG

BH ID: BH4

Location	40-48 Redan Street, Mosman NSW			**Started**	09 December 2025	
Client	Mosman Land No.1 Pty Ltd			**Completed**	10 December 2025	
Job No.	E26955.G03			**Logged By**	JF	**Date**	10 December 2025
Sheets	1 of 3			**Review By**	STP	**Date**	12 December 2025
Drilling Contractor	STS	**Surface RL**	≈58.80 m (AHD)	**Northing**	6255522.6 (MGA 2020 Zone 56)	
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337732.8 (MGA 2020 Zone 56)	

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
HA	GWNE	BH4_0.10-0.30		0.00		58.80	FILL: Silty SAND: fine to medium grained, dark grey, trace of rootlets	M	-	FILL
				0.30		58.50	*Log continued on next page.*			
				1						
				2						
				3						
				4						
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH4

Location	40-48 Redan Street, Mosman NSW			**Started**	09 December 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	10 December 2025
Job No.	E26955.G03			**Logged By**	JF **Date** 10 December 2025
Sheets	2 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	STS	**Surface RL**	≈58.80 m (AHD)	**Northing**	6255522.6 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337732.8 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
				0			*Log continued from previous page.*				
NMLC	95%	25	0	1			NO CORE: 980mm thick	-			
				1.28		57.52	SANDSTONE: fine to medium grained, brown, with red brown laminae, indistinctly cross bedded at 0°-5°	HW		1.31: BP 0° CU RO Clay VN 1.35: BP 0° IR RO Clay VN	
		100	100	1.56		57.24	SANDSTONE: fine to medium grained, pale grey with grey laminae, indistinctly cross bedded at 0°-15°	FR		1.42: BP 5° PR RO Clay VN 1.51: BP 0-10° PR SM tree roots Infilled 1.55-1.56: XWS 2.53: BP 5° PR RO quartz SN	
		80	80	3						2.95: BP 5° PR RO Clay VN	
				3.31		55.49	NO CORE: 220mm thick	-		3.31: BP 0° PR RO Clay VN	
		100	85	3.53		55.27	SANDSTONE: fine to medium grained, grey and pale grey, with dark grey laminae, indistinctly cross bedded at 0°-10°	FR		4.44-4.46: XWS 4.52: BP 5° IR RO Cb Infilled	
				4.52		54.28	SANDSTONE: medium to coarse grained, pale grey with dark grey laminae, with bands of indistinct and distinct cross bedding at 0°-15°			5.20: BP 10° PR RO Cb Infilled 5.28-5.29: XWS	
		100	96	6						5.72: BP 0° PR RO Cb VN	
				7.00		51.80	From 7.00m, As above, but with a trace of carbonaceous laminae			6.54: JT 80° PR RO Cb VN 6.56-6.59: XWS 6.71: BP 0° PR Cb VN	
		100	100	8						7.82: BP 5° PR Cb VN	
		100	100	9						8.62: JT 65° PR RO CN	
				9.20		49.60	SANDSTONE: medium to coarse grained, pale grey, with dark grey laminae, cross bedded at 0°-10°			9.34: BP 0° PR RO Clay VN	
		100	88	9.70		49.10	SANDSTONE: medium to coarse grained, pale grey, with fine grained quartz pebbles and carbonaceous laminae, indistinctly cross bedded at 0°-10°			9.59: BP 5° PR RO Clay VN 9.72: BP 0° PR RO Cb VN	
				10							

BOREHOLE CORE LOG

BH ID: BH4

Location	40-48 Redan Street, Mosman NSW			**Started**	09 December 2025
Client	Mosman Land No.1 Pty Ltd			**Completed**	10 December 2025
Job No.	E26955.G03			**Logged By**	JF **Date** 10 December 2025
Sheets	3 of 3			**Review By**	STP **Date** 12 December 2025
Drilling Contractor	STS	**Surface RL**	≈58.80 m (AHD)	**Northing**	6255522.6 (MGA 2020 Zone 56)
Plant	Tight-Access Drilling Frame	**Inclination**	90°	**Easting**	337732.8 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
NMLC	95%					48.48	SANDSTONE: medium to coarse grained, pale grey, with fine grained quartz pebbles and carbonaceous laminae, indistinctly ~~cross bedded at 0°-10°~~ Terminated at 10.32m.	FR		10.04: JT 75° PR RO CN 10.09: JT 75° PR RO CN ~~10.15: JT 60° PR RO CN~~	

Appendix H – Laboratory Certificates and Analytical Reports

Sheet 1 of 1

Site:	Project No:
40-48 Redon St, Mosman	E26955

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: SOIL	WATER	0.45 µm field filtered	OTHER	Analysis: HM[A] /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM[A] /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	PFAS	pH / Turbidity/ TDS/ EC/ Hardness	OP Pesticides	OC Pesticides	PCBs	Phenols	DPE AN2 Full Suite - Mandatory and Other Parameters	Cyanide	Dewatering Suite	HOLD	Dewatering Suite: pH & EC; TDS / TDU; Hardness; Total Cyanide; Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn); TRH (F1, F2, F3, F4); BTEX; PAH; Total Phenol
RHSM	1	multiple	13.1.26	PM		X	X												X				
RHSM	2	"				X	X		✓			X		X			X						
RHSM	3	"				X	X		X			X		X			X						
SQR DI	4	"				X	X			X													
SQR1	5	"				X				X													
Trip Spike	6	VC	↓	↓		X					X												
Trip Blank	7	VC									X												

Comments

HM A
Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn

DPIE Suite - Mandatory and Other Parameters
(Appendix A suite - see page 2 and 3)
Alkalinity (bicarbonate, carbonate, hydroxide & total)
EC, pH, Redox Potential (Eh), TDS (NTU), Total suspended solids (TSS), Total organic carbon (TOC), Sodium absorption ratio (SAR)
Major Anions
SO4, Cl CO3, Br, F
Major Cations
Ca, Mg, Na, K
Ionic Balance
Metals (Al, Sb, As, Ba, Be, B, Cd, Cr Co, Cu, Fe, Pb, Li, Mn, Hg, Mo, Ni, Se, Si, Ag, Sr, U, V, Zn)
Ammonica, Nitrate, Total nitrogen, oxidised nitrogen, total phosphorous, reactive phosphorous
E. Coli / F. Coliforms / F. Streptococci
TRH / BTEXN/ PAH
OCP, OPP, PCB
SVOC, VOC
Chlorinfated aliphatics, Phenols, PFAS

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other____

Container Type:
J = solvent washed, acid rinsed, Teflon sealed glass jar
S = solvent washed, acid rinsed glass bottle
P = natural HDPE plastic bottle
VC = glass vial, Teflon Septum
ZLB = Zip-Lock Bag BB = Bulk Bag

eiaustralia
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au
COC June 2021 FORM v.5 - SOS

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Sam Buckley	Print:
Signature:	Signature: KW
Date: 13.1.26	Date: 13/01/26 2:20

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sampler's Comments:
(1) Please forward SQR1 to Enviolab
(2) Please cc Sam Buckley & Sharon Li

SGS EHS Sydney COC
SE295567

source: [Untitled].pdf page: 1 SGS Ref: SE295567_COC

SAMPLE RECEIPT ADVICE

SE295567

CLIENT DETAILS

Contact	Sam Buckley
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Sam.buckley@eiaustralia.com.au
Project	**E26955, 40-48 Redan St, Mosman**
Order Number	**E26955**
Samples	7

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 13/1/2026
Report Due	Wed 28/1/2026
SGS Reference	**SE295567**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Tuesday 13/1/2026. Results are expected to be ready by COB Wednesday 28/1/2026.
Please quote SGS reference SE295567 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	7 Water	Type of documentation received	COC
Date documentation received	13/1/2026	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

COMMENTS

TAT extended due to Shutdown Period - 5/1/2026 to 16/1/2026
SQT1 Forwarded to Envirolab.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE295567

CLIENT DETAILS

Client EI AUSTRALIA

Project E26955, 40-48 Redan St, Mosman

SUMMARY OF ANALYSIS

No.	Sample ID	Full 8270 SVOC in Water	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	PCBs in Water	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH1M	167	29	15	23	9	9	77	6
002	BH2M	-	-	-	23	9	9	78	7
003	BH3M	-	-	-	23	9	9	78	7
004	SQD1	-	-	-	-	-	9	11	7
005	SQR1	-	-	-	-	-	9	11	7
006	Trip Spike	-	-	-	-	-	-	11	-
007	Trip Blank	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE295567

CLIENT DETAILS

Client EI AUSTRALIA

Project E26955, 40-48 Redan St, Mosman

SUMMARY OF ANALYSIS

No.	Sample ID	Alkalinity	Anions by Ion Chromatography in Water	Conductivity and TDS by Calculation - Water	Dissolved Oxygen by Membrane Electrode	Forms of Carbon	pH in water	Total and Volatile Suspended Solids (TSS /	Total Dissolved Solids (TDS) in water	Total Phenolics in Water	Turbidity
001	BH1M	10	5	1	3	1	1	1	1	1	1
002	BH2M	-	-	1	-	-	1	-	1	-	1
003	BH3M	-	-	1	-	-	1	-	1	-	1

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE295567

CLIENT DETAILS

Client EI AUSTRALIA

Project E26955, 40-48 Redan St, Mosman

SUMMARY OF ANALYSIS

No.	Sample ID	Ammonia Nitrogen by Discrete Analyser	Calculation of Anion-Cation Balance	E. coli and Thermotolerant coliforms in Water (CFU)	Enterococci in Water	Filterable Reactive Phosphorus (FRP)	Nitrite in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Redox Potential (Eh) in water	TKN Kjeldahl Digestion by Discrete Analyser	Total Phosphorus by Kjeldahl Digestion DA in
001	BH1M	1	4	3	3	1	2	60	2	2	1

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE295567

CLIENT DETAILS

Client EI AUSTRALIA

Project E26955, 40-48 Redan St, Mosman

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	Trace Metals (Dissolved) in Water by ICPMS
001	BH1M	1	7	21
002	BH2M	1	1	8
003	BH3M	1	1	8
004	SQD1	1	-	8
005	SQR1	1	-	8

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

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Sam Buckley
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Sam.buckley@eiaustralia.com.au
Project	**E26955, 40-48 Redan St, Mosman**
Order Number	**E26955**
Samples	7

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE295567 R0**
Date Received	13/1/2026
Date Reported	29/1/2026

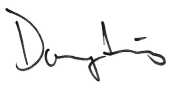
COMMENTS

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

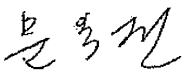
SIGNATORIES



Akheeqar BENIAMEEN
Chemist



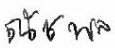
Dong LIANG
Metals/Inorganics Team Leader



Gemma MOON
Organic Chemist



Ly Kim HA
Organic Section Head



Tim MEEYAN
Microbiologist



Ying Ying ZHANG
Laboratory Technician

VOCs in Water [AN433] Tested: 21/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate*	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	**1.4**	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-

VOCs in Water [AN433] Tested: 21/1/2026 (continued)

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-	-	-	-
Total VOC	µg/L	10	<10	<10	<10	-	-

VOCs in Water [AN433] Tested: 21/1/2026 (continued)

PARAMETER	UOM	LOR	Trip Spike WATER - 13/1/2026 SE295567.006	Trip Blank WATER - 13/1/2026 SE295567.007
Benzene	µg/L	0.5	[99%]	<0.5
Toluene	µg/L	0.5	[99%]	<0.5
Ethylbenzene	µg/L	0.5	[100%]	<0.5
m/p-xylene	µg/L	1	[100%]	<1
o-xylene	µg/L	0.5	[100%]	<0.5
Total Xylenes	µg/L	1.5	-	<1.5
Total BTEX	µg/L	3	-	<3
Naphthalene (VOC)*	µg/L	0.5	[97%]	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-
Chloromethane	µg/L	5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-
Bromomethane	µg/L	10	-	-
Chloroethane	µg/L	5	-	-
Trichlorofluoromethane	µg/L	1	-	-
Acetone (2-propanone)	µg/L	10	-	-
Iodomethane	µg/L	5	-	-
1,1-dichloroethene	µg/L	0.5	-	-
Acrylonitrile	µg/L	0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-
Allyl chloride	µg/L	2	-	-
Carbon disulfide	µg/L	2	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	0.5	-	-
1,1-dichloroethane	µg/L	0.5	-	-
Vinyl acetate*	µg/L	10	-	-
MEK (2-butanone)	µg/L	10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-
Bromochloromethane	µg/L	0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-
2,2-dichloropropane	µg/L	0.5	-	-
1,2-dichloroethane	µg/L	0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-
1,1-dichloropropene	µg/L	0.5	-	-
Carbon tetrachloride	µg/L	0.5	-	-
Dibromomethane	µg/L	0.5	-	-
1,2-dichloropropane	µg/L	0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-
2-nitropropane	µg/L	100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-
1,3-dichloropropane	µg/L	0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-
Chlorobenzene	µg/L	0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	-	-

VOCs in Water [AN433] Tested: 21/1/2026 (continued)

PARAMETER	UOM	LOR	Trip Spike WATER - 13/1/2026 SE295567.006	Trip Blank WATER - 13/1/2026 SE295567.007
Bromobenzene	µg/L	0.5	-	-
n-propylbenzene	µg/L	0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-
4-chlorotoluene	µg/L	0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-
tert-butylbenzene	µg/L	0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-
sec-butylbenzene	µg/L	0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-
n-butylbenzene	µg/L	0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 21/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	100	<100	<100	<100	<100	<100
TRH C29-C36	µg/L	100	<100	<100	<100	<100	<100
Total TRH (C10-C36)	µg/L	50	<50	<50	<50	<50	<50
TRH >C10-C16	µg/L	50	<50	<50	<50	<50	<50
TRH >C10-C16 - Naphthalene (F2)	µg/L	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	µg/L	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	µg/L	100	<100	<100	<100	<100	<100
Total TRH (>C10-C40)	µg/L	50	<50	<50	<50	<50	<50

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5
2-methylnaphthalene	µg/L	0.5	<0.5	<0.5	<0.5
1-methylnaphthalene	µg/L	0.5	<0.5	<0.5	<0.5
Acenaphthylene	µg/L	0.5	<0.5	<0.5	<0.5
Acenaphthene	µg/L	0.5	<0.5	<0.5	<0.5
Fluorene	µg/L	0.5	<0.5	<0.5	<0.5
Phenanthrene	µg/L	0.5	<0.5	<0.5	<0.5
Anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Chrysene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(b&j)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Dibenzo(ah)anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(ghi)perylene	µg/L	0.5	<0.5	<0.5	<0.5
Total PAH	µg/L	0.5	<0.5	<0.5	<0.5

OC Pesticides in Water [AN420] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Alpha BHC	µg/L	0.2	<0.2
Hexachlorobenzene (HCB)	µg/L	0.2	<0.2
Beta BHC	µg/L	0.2	<0.2
Lindane (gamma BHC)	µg/L	0.2	<0.2
Delta BHC	µg/L	0.2	<0.2
Heptachlor	µg/L	0.2	<0.2
Aldrin	µg/L	0.2	<0.2
Heptachlor epoxide	µg/L	0.2	<0.2
Gamma Chlordane	µg/L	0.2	<0.2
Alpha Chlordane	µg/L	0.2	<0.2
Chlordane (alpha + gamma chlordane)	µg/L	0.2	<0.2
Alpha Endosulfan	µg/L	0.2	<0.2
p,p'-DDE	µg/L	0.2	<0.2
Dieldrin	µg/L	0.2	<0.2
Endrin	µg/L	0.2	<0.2
Beta Endosulfan	µg/L	0.2	<0.2
p,p'-DDD	µg/L	0.2	<0.2
Endrin aldehyde	µg/L	0.2	<0.2
Endosulfan sulphate	µg/L	0.2	<0.2
p,p'-DDT	µg/L	0.2	<0.2
Endrin ketone	µg/L	0.2	<0.2
Methoxychlor	µg/L	0.2	<0.2
Mirex	µg/L	0.2	<0.2
Total Aldrin and Dieldrin	µg/L	0.2	<0.2
Total p,p' DDE/DDT/DDD	µg/L	0.2	<0.2
Total OC Pesticides	µg/L	0.2	<0.2
Total OCP VIC EPA IWRG621	µg/L	0.2	<0.2
Total Other OCP VIC EPA IWRG621	µg/L	0.2	<0.2

OP Pesticides in Water [AN420] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Azinphos-methyl	µg/L	0.5	<0.5
Bromophos Ethyl	µg/L	0.5	<0.5
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Dichlorvos	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Ethion	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.5	<0.5
Malathion	µg/L	0.5	<0.5
Methidathion	µg/L	0.5	<0.5
Parathion-ethyl (Parathion)	µg/L	0.5	<0.5
Total OP Pesticides	µg/L	0.5	<0.5

PCBs in Water [AN420] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Arochlor 1016	µg/L	1	<1	<1	<1
Arochlor 1221	µg/L	1	<1	<1	<1
Arochlor 1232	µg/L	1	<1	<1	<1
Arochlor 1242	µg/L	1	<1	<1	<1
Arochlor 1248	µg/L	1	<1	<1	<1
Arochlor 1254	µg/L	1	<1	<1	<1
Arochlor 1260	µg/L	1	<1	<1	<1
Total PCBs	µg/L	5	<5	<5	<5

Full 8270 SVOC in Water [AN420] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Acenaphthene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(b&j&k)fluoranthene	µg/L	0.2	<0.2
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
Naphthalene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
2-acetylaminofluorene	µg/L	0.5	<0.5
7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5
3-methylcholanthrene	µg/L	0.5	<0.5
Aldrin	µg/L	0.1	<0.1
Alpha-BHC	µg/L	0.1	<0.1
Beta-BHC	µg/L	0.1	<0.1
Delta-BHC	µg/L	0.1	<0.1
Gamma-BHC (Lindane)	µg/L	0.1	<0.1
p,p-DDD	µg/L	0.1	<0.1
p,p-DDE	µg/L	0.1	<0.1
p,p-DDT	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Alpha-endosulfan	µg/L	0.1	<0.1
Beta-endosulfan	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1
Alpha-chlordane	µg/L	0.1	<0.1
Gamma-chlordane	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Azinphos-methyl (Guthion)	µg/L	0.2	<0.2
Bromophos ethyl	µg/L	0.2	<0.2
Carbophenothion	µg/L	0.5	<0.5
Chlorfenvinphos-cis	µg/L	5	<5
Chlorfenvinphos-trans	µg/L	0.5	<0.5
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
Chlorpyrifos-methyl	µg/L	0.5	<0.5
Co-Ral (Coumaphos)	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Dichlorvos	µg/L	0.5	<0.5
Demeton-S-methyl	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Disulfoton (Di-syston)	µg/L	0.5	<0.5
EPN*	µg/L	0.5	<0.5

Full 8270 SVOC in Water [AN420] Tested: 23/1/2026 (continued)

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Ethion	µg/L	0.2	<0.2
Ethoprophos (ethoprop or prophos)	µg/L	0.5	<0.5
Famphur (Famophos)	µg/L	0.5	<0.5
Fenamiphos (Phenamiphos)	µg/L	0.5	<0.5
Fenchlorophos (Ronnel)	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2
Fenthion	µg/L	0.5	<0.5
Malathion (Maldison)	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Mevinphos-cis/trans	µg/L	1	<1
o,o,o-triethyl phosphorothioate	µg/L	0.5	<0.5
Parathion ethyl (Parathion)	µg/L	0.2	<0.2
Parathion methyl	µg/L	0.5	<0.5
Phorate	µg/L	0.5	<0.5
Pirimiphos-ethyl	µg/L	0.5	<0.5
Pirimiphos-methyl	µg/L	0.5	<0.5
Profenofos	µg/L	0.5	<0.5
Prothiophos (Tokuthion)*	µg/L	0.5	<0.5
Sulfotepp	µg/L	0.5	<0.5
Tetrachlorvinphos (Stirophos)*	µg/L	0.5	<0.5
PCB Congener C28	µg/L	0.1	<0.1
PCB Congener C52	µg/L	0.1	<0.1
PCB Congener C101	µg/L	0.1	<0.1
PCB Congener C118	µg/L	0.1	<0.1
PCB Congener C138	µg/L	0.1	<0.1
PCB Congener C153	µg/L	0.1	<0.1
PCB Congener C180	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
1,2-dichlorobenzene	µg/L	0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5
1,4-dichlorobenzene	µg/L	0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5
Hexachlorocyclopentadiene	µg/L	2	<2
Hexachloroethane	µg/L	0.5	<0.5
Hexachloroproprene	µg/L	0.5	<0.5
Pentachlorobenzene	µg/L	0.5	<0.5
Pentachloroethane	µg/L	0.5	<0.5
1,2,3,5 and 1,2,4,5 -tetrachlorobenzene	µg/L	1	<1
1,2,3,4-tetrachlorobenzene	µg/L	0.5	<0.5
1/2-Chloronaphthalene	µg/L	1	<1
1,2,4-trichlorobenzene	µg/L	0.5	<0.5
Bis(2-ethylhexyl)phthalate	µg/L	10	<10
Bis(2-ethylhexyl)adipate	µg/L	1	<1
Butyl benzyl phthalate	µg/L	1	<1
Di-n-butyl phthalate	µg/L	10	<10
Diethyl phthalate	µg/L	5	<5
Dimethyl phthalate	µg/L	1	<1
Di-n-octyl phthalate	µg/L	1	<1
Carbofuran	µg/L	0.5	<0.5
Carbaryl	µg/L	0.5	<0.5
Trifluralin	µg/L	0.5	<0.5
N-nitroso-di-n-butylamine (NDBA)	µg/L	1	<1
N-nitroso-diethylamine (NDEA)	µg/L	1	<1
N-nitroso-di-n-propylamine (NDPA)	µg/L	1	<1
N-nitroso-morpholine (NMOR)	µg/L	1	<1
N-nitroso-piperidine (NPIP)	µg/L	1	<1

Full 8270 SVOC in Water [AN420] Tested: 23/1/2026 (continued)

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
N-nitroso-pyrrolidine (NPYR)	µg/L	1	<1
4-amino biphenyl	µg/L	1	<1
Acetophenone	µg/L	1	<1
1,3-dinitrobenzene	µg/L	1	<1
2,4-dinitrotoluene	µg/L	1	<1
2,6-dinitrotoluene	µg/L	1	<1
Isophorone	µg/L	1	<1
Nitrobenzene	µg/L	1	<1
p-(dimethylamino) azobenzene	µg/L	1	<1
Phenacetin	µg/L	1	<1
Pentachloronitrobenzene (quintozene)	µg/L	1	<1
Aniline	µg/L	5	<5
4-chloroaniline	µg/L	1	<1
2-nitroaniline	µg/L	1	<1
3-nitroaniline	µg/L	1	<1
4-nitroaniline	µg/L	1	<1
Diphenylamine	µg/L	1	<1
o-toluidine	µg/L	1	<1
5-nitro-o-toluidine	µg/L	1	<1
1-naphthylamine	µg/L	2	<2
2-naphthylamine	µg/L	2	<2
Bis(2-chloroethoxy) methane	µg/L	1	<1
Bis(2-chloroethyl) ether	µg/L	1	<1
Bis(2-chloroisopropyl) ether	µg/L	1	<1
4-chlorophenyl phenyl ether	µg/L	1	<1
4-bromophenyl phenyl ether	µg/L	1	<1
Methyl methanesulfonate	µg/L	1	<1
Ethyl methanesulfonate	µg/L	1	<1
Dibenzofuran	µg/L	1	<1
Benzyl alcohol	µg/L	1	<1
Safrole	µg/L	1	<1
Isosafrole Isomer 1	µg/L	1	<1
Isosafrole Isomer 2	µg/L	1	<1
1,4-naphthoquinone	µg/L	1	<1
Thionazin	µg/L	1	<1
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5
2,3,4,6-tetrachlorophenol	µg/L	0.5	<0.5
2,4,5-trichlorophenol	µg/L	0.5	<0.5
4-chloro-3-methylphenol	µg/L	2	<2
2-chlorophenol	µg/L	0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5
2,4-dimethylphenol	µg/L	0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5
Phenol	µg/L	0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5
Pentachlorophenol	µg/L	0.5	<0.5
4-nitrophenol	µg/L	1	<1
Total Endosulfan (alpha+beta+sulfate)	µg/L	0.2	<0.2

Total Phenolics in Water [AN295] Tested: 15/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Total Phenols	mg/L	0.05	<0.05

pH in water [AN101] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
pH**	No unit	-	**5.7**	**4.3**	**4.8**

Conductivity and TDS by Calculation - Water [AN106] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Conductivity @ 25 C	µS/cm	2	**480**	**340**	**520**

Turbidity [AN119] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Turbidity	NTU	0.5	**40**	**140**	**110**

Total Dissolved Solids (TDS) in water [AN113] Tested: 15/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Total Dissolved Solids Dried at 175-185°C	mg/L	10	330	190	300

Anions by Ion Chromatography in Water [AN245] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Chloride	mg/L	0.05	**24**
Bromide	mg/L	0.05	<0.05
Fluoride	mg/L	0.1	**0.63**
Sulfate, SO4	mg/L	1	**17**
Nitrate Nitrogen, NO3-N	mg/L	0.005	**0.043**

Alkalinity [AN135] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Bicarbonate Alkalinity as CaCO3	mg/L	5	**230**
Bicarbonate Alkalinity as HCO3	mg/L	5	**280**
Carbonate Alkalinity as CaCO3	mg/L	5	<5
Carbonate Alkalinity as CO3	mg/L	5	<5
Hydroxide Alkalinity as CaCO3	mg/L	5	<5
Hydroxide Alkalinity as OH	mg/L	5	<5
Total Alkalinity as CaCO3	mg/L	5	**230**
Carbonate Hardness as CaCO3*	mg CaCO3/L	2	**230**
Non-Carbonate Hardness as CaCO3*	mg CaCO3/L	2	-
Negative Hardness as CaCO3*	mg CaCO3/L	-100	-

Dissolved Oxygen by Membrane Electrode [AN176] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Temperature*	°C	-	**19.4**
Dissolved Oxygen**	mg/L	0.5	**4.3**
Dissolved Oxygen (percent saturation)**	%	1	**46.8**

Total and Volatile Suspended Solids (TSS / VSS) [AN114] Tested: 16/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Total Suspended Solids Dried at 103-105°C	mg/L	5	**83**

Forms of Carbon [AN190] Tested: 16/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Total Organic Carbon as NPOC	mg/L	0.2	**13**

Ammonia Nitrogen by Discrete Analyser [AN291] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Ammonia Nitrogen, NH_3 as N	mg/L	0.01	**1.1**

Calculation of Anion-Cation Balance (SAR Calc) [AN121] Tested: 28/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Sum of Ions*	mg/L	10	**380**
Anion-Cation Balance	%	-100	**-3.03**
TFSS*	mg/L	10	**380**
Sodium Adsorption Ratio*	No unit	0.1	**0.4**

Nitrite in Water [AN277] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005
Total Oxidised Nitrogen, NOx-N	mg/L	0.005	**0.044**

TKN Kjeldahl Digestion by Discrete Analyser [AN281/292] Tested: 15/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Total Kjeldahl Nitrogen	mg/L	0.05	**2.2**
Total Nitrogen (calc)	mg/L	0.05	**2.2**

Total Phosphorus by Kjeldahl Digestion DA in Water [AN279/AN293] Tested: 15/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	**0.04**

Filterable Reactive Phosphorus (FRP) [AN278] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005

Redox Potential (Eh) in water [AN240] Tested: 14/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Eh of Sample Relative to Standard H+ Electrode***	mV	-500	**444**
Temperature of Sample*	°C	0.1	**16.0**

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 28/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	**0.13**
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	**0.19**
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	**0.03**
Perfluorooctanoic acid (PFOA)	µg/L	0.01	**0.06**
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.01
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	**0.03**
Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.01
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2	µg/L	0.01	<0.01
Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.01
N-Methylperfluoroctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01
N-Ethylperfluoroctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05
N-Ethylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05
Sum of PFOS and PFHxS	µg/L	0.01	**0.03**
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	**0.08**
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	**0.08**
Sum of PFAS A	µg/L	0.01	**0.28**
Sum of PFAS B	µg/L	0.01	<0.01
Sum of PFAS C	µg/L	0.01	**0.15**
Sum of Positive PFAS	µg/L	0.01	**0.43**

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 22/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
Arsenic	µg/L	1	3	7	<1	12	<1
Cadmium	µg/L	0.1	0.2	0.6	0.9	0.6	<0.1
Chromium	µg/L	1	2	8	6	9	<1
Copper	µg/L	1	1	3	9	3	<1
Lead	µg/L	1	2	2	3	2	<1
Nickel	µg/L	1	5	4	12	4	<1
Zinc	µg/L	5	8	17	39	16	<5
Silver	µg/L	1	<1	-	-	-	-
Aluminium	µg/L	5	87	980	1100	990	<5
Antimony	µg/L	1	<1	-	-	-	-
Barium	µg/L	1	94	-	-	-	-
Beryllium	µg/L	1	<1	-	-	-	-
Boron	µg/L	5	68	-	-	-	-
Cobalt	µg/L	1	1	-	-	-	-
Iron	µg/L	5	780	-	-	-	-
Manganese	µg/L	1	130	-	-	-	-
Molybdenum	µg/L	1	2	-	-	-	-
Selenium	µg/L	1	<1	-	-	-	-
Strontium	µg/L	1	230	-	-	-	-
Uranium	µg/L	1	<1	-	-	-	-
Vanadium	µg/L	1	3	-	-	-	-

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 23/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003
Total Hardness by Calculation	mg CaCO3/L	5	**220**	**29**	**38**
Sodium Adsorption Ratio	No unit	0.2	**0.4**	-	-
Sodium, Na	mg/L	0.5	**15**	-	-
Potassium, K	mg/L	0.1	**7.4**	-	-
Lithium, Li	mg/L	0.005	<0.005	-	-
Silicon, Si*	mg/L	0.05	**5.8**	-	-
Soluble Silicon as Silica, SiO2*	mg/L	0.1	**12**	-	-

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 22/1/2026

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001	BH2M WATER - 13/1/2026 SE295567.002	BH3M WATER - 13/1/2026 SE295567.003	SQD1 WATER - 13/1/2026 SE295567.004	SQR1 WATER - 13/1/2026 SE295567.005
Mercury, Hg	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

E. coli, Total and Faecal (Thermotolerant) coliforms in Water (MPN) [AN735] Tested: As stated below

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Date & Time Processed*	No unit	-	2026-01-15 10:00
E. coli	MPN/100mL	1	**34**
Date & Time Processed Coliforms*	No unit	-	2026-01-15 10:00
Faecal Coliforms	MPN/100mL	1	**180**

Enterococci in Water [AN750] Tested: As stated below

PARAMETER	UOM	LOR	BH1M WATER - 13/1/2026 SE295567.001
Date & Time Processed*	No unit	-	2026-01-15 10:00
Enterococci*	MPN/100mL	1	**17**

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN106	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present , measured by the conductivity, are present as NaCl.
AN113	Total Dissolved Solids: A well-mixed filtered sample of known volume is evaporated to dryness at 180°C and the residue weighed. Approximate methods for correlating chemical analysis with dissolved solids are available . Reference APHA 2540 C.
AN113	The Total Dissolved Solids residue may also be ignited at 550 C and volatile TDS (Organic TDS) and non-volatile TDS (Inorganic) can be determined.
AN114	Total Suspended and Volatile Suspended Solids: The sample is homogenised by shaking and a known volume is filtered through a pre-weighed GF/C filter paper and washed well with deionised water. The filter paper is dried and reweighed. The TSS is the residue retained by the filter per unit volume of sample. Reference APHA 2540 D. Internal Reference AN114
AN119	Turbidity by Nepholometry: Small particles in a light beam scatter light at a range of angles. A turbidimeter measures this scatter and reports results compared to turbidity standards, in NTU. This procedure is not suitable for very dark coloured liquids or samples with high solids because light absorption causes artificially low light scatter and low turbidity. Reference APHA 2130B.
AN121	This method is used to calculation the balance of major Anions and Cations in water samples and converts major ion concentration to milliequivalents and then summed. Anions sum and Cation sum is calculated as a difference and expressed as a percentage.
AN135	Alkalinity (and forms of) by Titration: The sample is titrated with standard acid to pH 8.3 (P titre) and pH 4.5 (T titre) and permanent and/or total alkalinity calculated. The results are expressed as equivalents of calcium carbonate or recalculated as bicarbonate, carbonate and hydroxide. Reference APHA 2320. Internal Reference AN135
AN176	Dissolved Oxygen: DO can also be measured directly using an oxygen permeable membrane electrode and meter. Under steady state conditions the current is directly proportional to the DO conc. DO can also be measured via Luminescent dissolved oxygen probes (LDO) which also operates using an oxygen permeable membrane with an oxygen sensitive luminescent dye making up the second probe layer. The presence of oxygen causes changes in the lifetime and intensity of luminescence, which are then quantified. Zero headspace is required for sample analysis, if headspace is observed report comment will be recorded . Reference APHA 4500-C, G & O.
AN190	TOC and DOC in Water: A homogenised micro portion of sample is injected into a heated reaction chamber packed with an oxidative catalyst that converts organic carbon to carbon dioxide. The CO2 is measured using a non-dispersive infrared detector. The process is fully automated in a commercially available analyser. If required a sugar value can be calculated from the TOC result . Reference APHA 5310 B.
AN190	Chemical oxygen demand can be calculated/estimated based on the O2/C relation as 2.67*NPOC (TOC). This is an estimate only and the factor will vary with sample matrix so results should be interpreted with caution.
AN240	Oxidation-Reduction Potential (Eh): Electrometric measurements are made by potentiometric determination of electron activity (or intensity) with an inert indicator electrode and a suitable reference electrode. At redox equilibrium, the potential difference between the two electrodes equals the redox potential of the system. This measurement is then corrected for the difference between the potential of the reference electrode and that of the standard hydrogen electrode.

AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B
AN277	Nitrite ions, when reacted with a reagent containing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride produce a highly coloured azo dye that is measured photometrically at 540nm.
AN278	Filterable Reactive Phosphorus by DA (determined on filtered sample): Orthophosphate reacts with ammonium molybdate (Mo VI) and potassium antimonyl tartrate (Sb III) in acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue colour and the absorbance is read at 880 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-P F
AN279/AN293(Sydney)	The sample is digested with Sulphuric acid, K2SO4 and CuSO4. All forms of phosphorus are converted into orthophosphate. The digest is cooled and placed on the discrete analyser for colorimetric analysis.
AN281	An unfiltered water or soil sample is first digested in a block digestor with sulfuric acid, K2SO4 and CuSO4. The ammonia produced following digestion is then measured colourimetrically using the Discrete Analyser. A portion of the digested sample is buffered to an alkaline pH, and interfering cations are complexed. The ammonia then reacts with salicylate and hypochlorite to give a blue colour whose absorbance is measured at 660nm and compared with calibration standards. This is proportional to the concentration of Total Kjeldahl Nitrogen in the original sample.
AN291	Ammonia in solution reacts with hypochlorite ions from Sodium Dichloroisocyanuate, and salicylate in the presence of Sodium Nitroprusside to form indophenol blue and measured at 660 nm by Discrete Analyser.
AN295	The water sample or extract of sample is distilled in a phosphoric acid stream. Phenolic compounds in the distillate react with a reagent stream of potassium hexacyanoferrate(III) and 4-Amino-2,3-dimethyl-3-pryazolin-5-one in an alkaline medium to form a coloured complex which is analysed spectrophotometrically onboard a continuous flow analyser.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken . This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.

AN404	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN735	The Colilert matrix contains two nutrient indicators, ONPG (ortho-nitro-phenyl B-d- galactopyranoside) and MUG (4-methyl-umbelliferyl B-d-glucruonide). As coliforms grow, they use B-galactosidase to metabolise ONPG which causes yellow colouration of the matrix via the nitro-phenyl. E.coli possesses an additional enzyme, B-glucuronidase, which it uses to metabolise MUG and display florescence (caused by the 4 methyl-umbelliferyl). Incubation at 37°C.
AN735	Non target organisms are suppressed by a combination of high salts, detergents etc. present within the matrix . Faecal coliforms are thermotolerant, thus they can be enumerated by testing at 44.5°C.
AN750	A method for the simultaneous detection, enumeration and confirmation of Enterococci from waters using Defined Substrate Technology (DST) - Enterolert Test Kit.
Calculation	Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L. If TDS is >500mg/L free or total carbon dioxide cannot be reported . APHA4500CO2 D.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR			
***	Indicates that both * and ** apply.		Sample listed, but not received.		
NAD	No Asbestos Detected.	NA	Not Applicable.		

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

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

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

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

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

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

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

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

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

STATEMENT OF QA/QC PERFORMANCE

SE295567 R0

CLIENT DETAILS

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Facsimile	(Not specified)
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Project	**E26955, 40-48 Redan St, Mosman**
Order Number	**E26955**
Samples	7

LABORATORY DETAILS

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SGS Reference	**SE295567 R0**
Date Received	13 Jan 2026
Date Reported	29 Jan 2026

COMMENTS

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

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

All Data Quality Objectives were met with the exception of the following:

Extraction Date	E. coli, Total and Faecal (Thermotolerant) coliforms in Water (MPN)	1 item
	Enterococci in Water	1 item
	Full 8270 SVOC in Water	1 item
	OC Pesticides in Water	1 item
	OP Pesticides in Water	1 item
	PAH (Polynuclear Aromatic Hydrocarbons) in Water	3 items
	PCBs in Water	3 items
	TRH (Total Recoverable Hydrocarbons) in Water	5 items
Surrogate	Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	1 item

SAMPLE SUMMARY

Sample counts by matrix	7 Water	Type of documentation received	COC
Date documentation received	13/1/2026	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE295567 R0

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

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

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

Alkalinity

Method: ME-(AU)-[ENV]AN135

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374217	13 Jan 2026	13 Jan 2026	27 Jan 2026	14 Jan 2026	27 Jan 2026	14 Jan 2026

Ammonia Nitrogen by Discrete Analyser

Method: ME-(AU)-[ENV]AN291

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374218	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	14 Jan 2026

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374269	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	15 Jan 2026

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374224	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	14 Jan 2026
BH2M	SE295567.002	LB374224	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	14 Jan 2026
BH3M	SE295567.003	LB374224	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	14 Jan 2026

Dissolved Oxygen by Membrane Electrode

Method: ME-(AU)-[ENV]AN176

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374219	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026

E. coli, Total and Faecal (Thermotolerant) coliforms in Water (MPN)

Method: ME-(AU)-[ENV]AN735

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374314	13 Jan 2026	13 Jan 2026	14 Jan 2026	15 Jan 2026†	18 Jan 2026	14 Jan 2026

Enterococci in Water

Method: ME-(AU)-[ENV]AN750

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374314	13 Jan 2026	13 Jan 2026	14 Jan 2026	15 Jan 2026†	18 Jan 2026	14 Jan 2026

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374218	13 Jan 2026	13 Jan 2026	10 Feb 2026	14 Jan 2026	10 Feb 2026	14 Jan 2026

Forms of Carbon

Method: ME-(AU)-[ENV]AN190

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374440	13 Jan 2026	13 Jan 2026	20 Jan 2026	16 Jan 2026	20 Jan 2026	16 Jan 2026

Full 8270 SVOC in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375128	13 Jan 2026	13 Jan 2026	10 Feb 2026	22 Jan 2026	10 Feb 2026	23 Jan 2026
BH2M	SE295567.002	LB375128	13 Jan 2026	13 Jan 2026	10 Feb 2026	22 Jan 2026	10 Feb 2026	23 Jan 2026
BH3M	SE295567.003	LB375128	13 Jan 2026	13 Jan 2026	10 Feb 2026	22 Jan 2026	10 Feb 2026	23 Jan 2026
SQD1	SE295567.004	LB375128	13 Jan 2026	13 Jan 2026	10 Feb 2026	22 Jan 2026	10 Feb 2026	23 Jan 2026
SQR1	SE295567.005	LB375128	13 Jan 2026	13 Jan 2026	10 Feb 2026	22 Jan 2026	10 Feb 2026	23 Jan 2026

Metals in Water (Dissolved) by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375269	13 Jan 2026	13 Jan 2026	12 Jul 2026	23 Jan 2026	12 Jul 2026	23 Jan 2026
BH2M	SE295567.002	LB375269	13 Jan 2026	13 Jan 2026	12 Jul 2026	23 Jan 2026	12 Jul 2026	23 Jan 2026
BH3M	SE295567.003	LB375269	13 Jan 2026	13 Jan 2026	12 Jul 2026	23 Jan 2026	12 Jul 2026	23 Jan 2026

HOLDING TIME SUMMARY

SE295567 R0

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

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

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

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374218	13 Jan 2026	13 Jan 2026	17 Jan 2026	14 Jan 2026	17 Jan 2026	14 Jan 2026

OC Pesticides in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

OP Pesticides in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

PCBs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375652	13 Jan 2026	13 Jan 2026	10 Feb 2026	28 Jan 2026	25 Feb 2026	28 Jan 2026

pH in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374224	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026
BH2M	SE295567.002	LB374224	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026
BH3M	SE295567.003	LB374224	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026

Redox Potential (Eh) in water

Method: ME-(AU)-[ENV]AN240

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374223	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281/292

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374346	13 Jan 2026	13 Jan 2026	10 Feb 2026	15 Jan 2026	10 Feb 2026	15 Jan 2026

Total and Volatile Suspended Solids (TSS / VSS)

Method: ME-(AU)-[ENV]AN114

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374443	13 Jan 2026	13 Jan 2026	20 Jan 2026	16 Jan 2026	23 Jan 2026	16 Jan 2026

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374352	13 Jan 2026	13 Jan 2026	20 Jan 2026	15 Jan 2026	20 Jan 2026	16 Jan 2026
BH2M	SE295567.002	LB374352	13 Jan 2026	13 Jan 2026	20 Jan 2026	15 Jan 2026	20 Jan 2026	16 Jan 2026

HOLDING TIME SUMMARY

SE295567 R0

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

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

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

Total Dissolved Solids (TDS) in water (continued)

Method: ME-(AU)-[ENV]AN113

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3M	SE295567.003	LB374352	13 Jan 2026	13 Jan 2026	20 Jan 2026	15 Jan 2026	20 Jan 2026	16 Jan 2026

Total Phenolics in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374344	13 Jan 2026	13 Jan 2026	27 Jan 2026	15 Jan 2026	27 Jan 2026	15 Jan 2026

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374346	13 Jan 2026	13 Jan 2026	10 Feb 2026	15 Jan 2026	10 Feb 2026	15 Jan 2026

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375160	13 Jan 2026	13 Jan 2026	12 Jul 2026	22 Jan 2026	12 Jul 2026	23 Jan 2026
BH2M	SE295567.002	LB375160	13 Jan 2026	13 Jan 2026	12 Jul 2026	22 Jan 2026	12 Jul 2026	23 Jan 2026
BH3M	SE295567.003	LB375160	13 Jan 2026	13 Jan 2026	12 Jul 2026	22 Jan 2026	12 Jul 2026	23 Jan 2026
SQD1	SE295567.004	LB375160	13 Jan 2026	13 Jan 2026	12 Jul 2026	22 Jan 2026	12 Jul 2026	23 Jan 2026
SQR1	SE295567.005	LB375160	13 Jan 2026	13 Jan 2026	12 Jul 2026	22 Jan 2026	12 Jul 2026	23 Jan 2026

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH2M	SE295567.002	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
BH3M	SE295567.003	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQD1	SE295567.004	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026
SQR1	SE295567.005	LB375289	13 Jan 2026	13 Jan 2026	20 Jan 2026	23 Jan 2026†	04 Mar 2026	28 Jan 2026

Turbidity

Method: ME-(AU)-[ENV]AN119

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374222	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026
BH2M	SE295567.002	LB374222	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026
BH3M	SE295567.003	LB374222	13 Jan 2026	13 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026	14 Jan 2026

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026
BH2M	SE295567.002	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026
BH3M	SE295567.003	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026
SQD1	SE295567.004	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
SQR1	SE295567.005	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
Trip Spike	SE295567.006	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
Trip Blank	SE295567.007	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE295567.001	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026
BH2M	SE295567.002	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
BH3M	SE295567.003	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
SQD1	SE295567.004	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
SQR1	SE295567.005	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	23 Jan 2026
Trip Spike	SE295567.006	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026
Trip Blank	SE295567.007	LB374978	13 Jan 2026	13 Jan 2026	27 Jan 2026	21 Jan 2026	27 Jan 2026	27 Jan 2026

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

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

Full 8270 SVOC in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	BH1M	SE295567.001	%	40 - 130%	74
2-fluorobiphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	82
d5-nitrobenzene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	72
d5-phenol (Surrogate)	BH1M	SE295567.001	%	20 - 130%	62

OC Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1M	SE295567.001	%	40 - 130%	110

OP Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	64
d14-p-terphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	70
d5-nitrobenzene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	60

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	64
	BH2M	SE295567.002	%	40 - 130%	69
	BH3M	SE295567.003	%	40 - 130%	68
d14-p-terphenyl (Surrogate)	BH1M	SE295567.001	%	40 - 130%	70
	BH2M	SE295567.002	%	40 - 130%	70
	BH3M	SE295567.003	%	40 - 130%	73
d5-nitrobenzene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	60
	BH2M	SE295567.002	%	40 - 130%	68
	BH3M	SE295567.003	%	40 - 130%	66

PCBs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1M	SE295567.001	%	40 - 130%	110
	BH2M	SE295567.002	%	40 - 130%	72
	BH3M	SE295567.003	%	40 - 130%	74

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	51
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 300%	138
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 300%	79
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 300%	45
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	97
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	108
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	103
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	86
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	5 - 150%	99
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	70
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	74
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	35 - 150%	92
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	77
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	30 - 150%	83
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	62
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	20 - 150%	53
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	40 - 150%	93
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	35
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	30 - 170%	24 ④
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	30
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	20 - 150%	30
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	38
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	BH1M	SE295567.001	%	10 - 150%	31

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units

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

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VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	90
	BH2M	SE295567.002	%	40 - 130%	90
	BH3M	SE295567.003	%	40 - 130%	91
	SQD1	SE295567.004	%	40 - 130%	91
	SQR1	SE295567.005	%	40 - 130%	88
	Trip Spike	SE295567.006	%	40 - 130%	91
	Trip Blank	SE295567.007	%	40 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH1M	SE295567.001	%	40 - 130%	87
	BH2M	SE295567.002	%	40 - 130%	87
	BH3M	SE295567.003	%	40 - 130%	87
	SQD1	SE295567.004	%	40 - 130%	88
	SQR1	SE295567.005	%	40 - 130%	86
	Trip Spike	SE295567.006	%	40 - 130%	92
	Trip Blank	SE295567.007	%	40 - 130%	85
d8-toluene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	85
	BH2M	SE295567.002	%	40 - 130%	84
	BH3M	SE295567.003	%	40 - 130%	85
	SQD1	SE295567.004	%	40 - 130%	86
	SQR1	SE295567.005	%	40 - 130%	85
	Trip Spike	SE295567.006	%	40 - 130%	97
	Trip Blank	SE295567.007	%	40 - 130%	84

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	90
	BH2M	SE295567.002	%	40 - 130%	90
	BH3M	SE295567.003	%	40 - 130%	91
	SQD1	SE295567.004	%	40 - 130%	91
	SQR1	SE295567.005	%	40 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH1M	SE295567.001	%	60 - 130%	87
	BH2M	SE295567.002	%	60 - 130%	87
	BH3M	SE295567.003	%	60 - 130%	87
	SQD1	SE295567.004	%	60 - 130%	88
	SQR1	SE295567.005	%	60 - 130%	86
d8-toluene (Surrogate)	BH1M	SE295567.001	%	40 - 130%	85
	BH2M	SE295567.002	%	40 - 130%	84
	BH3M	SE295567.003	%	40 - 130%	85
	SQD1	SE295567.004	%	40 - 130%	86
	SQR1	SE295567.005	%	40 - 130%	85

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

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

Alkalinity

Method: ME-(AU)-[ENV]AN135

Sample Number	Parameter	Units	LOR	Result
LB374217.001	Bicarbonate Alkalinity as CaCO3	mg/L	5	<5
	Carbonate Alkalinity as CaCO3	mg/L	5	<5
	Total Alkalinity as CaCO3	mg/L	5	<5

Ammonia Nitrogen by Discrete Analyser

Method: ME-(AU)-[ENV]AN291

Sample Number	Parameter	Units	LOR	Result
LB374218.001	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	<0.01

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result
LB374269.001	Fluoride	mg/L	0.1	<0.10
	Chloride	mg/L	0.05	<0.05
	Bromide	mg/L	0.05	<0.05
	Nitrate Nitrogen, NO3-N	mg/L	0.005	<0.005
	Sulfate, SO4	mg/L	1	<1.0

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB374224.001	Conductivity @ 25 C	µS/cm	2	<2

Dissolved Oxygen by Membrane Electrode

Method: ME-(AU)-[ENV]AN176

Sample Number	Parameter	Units	LOR	Result
LB374219.001	Dissolved Oxygen**	mg/L	0.5	<0.5

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result
LB374218.001	Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005

Forms of Carbon

Method: ME-(AU)-[ENV]AN190

Sample Number	Parameter	Units	LOR	Result
LB374440.001	Total Organic Carbon as NPOC	mg/L	0.2	<0.2

Full 8270 SVOC in Water

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

Sample Number		Parameter	Units	LOR	Result
LB375289.001	01-PAHs	Acenaphthene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Benzo(b&j&k)fluoranthene	µg/L	0.2	<0.2
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		Naphthalene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		2-acetylaminofluorene	µg/L	0.5	<0.5
		7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5
		3-methylcholanthrene	µg/L	0.5	<0.5
	02-OCs	Aldrin	µg/L	0.1	<0.1
		Alpha-BHC	µg/L	0.1	<0.1

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

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

Full 8270 SVOC in Water (continued) — **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB375289.001	02-OCs	Beta-BHC	µg/L	0.1	<0.1
		Delta-BHC	µg/L	0.1	<0.1
		Gamma-BHC (Lindane)	µg/L	0.1	<0.1
		p,p-DDD	µg/L	0.1	<0.1
		p,p-DDE	µg/L	0.1	<0.1
		p,p-DDT	µg/L	0.1	<0.1
		Dieldrin	µg/L	0.1	<0.1
		Alpha-endosulfan	µg/L	0.1	<0.1
		Beta-endosulfan	µg/L	0.1	<0.1
		Endosulfan sulphate	µg/L	0.1	<0.1
		Endrin	µg/L	0.1	<0.1
		Heptachlor	µg/L	0.1	<0.1
		Heptachlor epoxide	µg/L	0.1	<0.1
		Methoxychlor	µg/L	0.1	<0.1
		Mirex	µg/L	0.1	<0.1
		Alpha-chlordane	µg/L	0.1	<0.1
		Gamma-chlordane	µg/L	0.1	<0.1
		Endrin ketone	µg/L	0.1	<0.1
	03-OPs	Azinphos-methyl (Guthion)	µg/L	0.2	<0.2
		Bromophos ethyl	µg/L	0.2	<0.2
		Carbophenothion	µg/L	0.5	<0.5
		Chlorfenvinphos-cis	µg/L	5	<5
		Chlorfenvinphos-trans	µg/L	0.5	<0.5
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Chlorpyrifos-methyl	µg/L	0.5	<0.5
		Co-Ral (Coumaphos)	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Dichlorvos	µg/L	0.5	<0.5
		Demeton-S-methyl	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Disulfoton (Di-syston)	µg/L	0.5	<0.5
		EPN*	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Ethoprophos (ethoprop or prophos)	µg/L	0.5	<0.5
		Famphur (Famophos)	µg/L	0.5	<0.5
		Fenamiphos (Phenamiphos)	µg/L	0.5	<0.5
		Fenchlorophos (Ronnel)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Fenthion	µg/L	0.5	<0.5
		Malathion (Maldison)	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Mevinphos-cis/trans	µg/L	1	<1
		o,o,o-triethyl phosphorothioate	µg/L	0.5	<0.5
		Parathion ethyl (Parathion)	µg/L	0.2	<0.2
		Parathion methyl	µg/L	0.5	<0.5
		Phorate	µg/L	0.5	<0.5
		Pirimiphos-ethyl	µg/L	0.5	<0.5
		Pirimiphos-methyl	µg/L	0.5	<0.5
		Profenofos	µg/L	0.5	<0.5
		Prothiophos (Tokuthion)*	µg/L	0.5	<0.5
		Sulfotepp	µg/L	0.5	<0.5
	04-PCB UPAC(7) Congeners	PCB Congener C28	µg/L	0.1	<0.1
		PCB Congener C52	µg/L	0.1	<0.1
		PCB Congener C101	µg/L	0.1	<0.1
		PCB Congener C118	µg/L	0.1	<0.1
		PCB Congener C138	µg/L	0.1	<0.1
		PCB Congener C153	µg/L	0.1	<0.1
		PCB Congener C180	µg/L	0.1	<0.1
	05-SVCH (Cl Benzenes, Hydrocarbons & VOCs)	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5

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

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

Full 8270 SVOC in Water (continued) — **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB375289.001	05-SVCH (Cl Benzenes, Hydrocarbons & VOCs)	1,4-dichlorobenzene	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
		Hexachlorocyclopentadiene	µg/L	2	<2
		Hexachloroethane	µg/L	0.5	<0.5
		Hexachloroproprene	µg/L	0.5	<0.5
		Pentachlorobenzene	µg/L	0.5	<0.5
		Pentachloroethane	µg/L	0.5	<0.5
		1,2,3,5 and 1,2,4,5 -tetrachlorobenzene	µg/L	1	<1
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	<0.5
		1/2-Chloronaphthalene	µg/L	1	<1
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	10	<10
		Bis(2-ethylhexyl)adipate	µg/L	1	<1
		Butyl benzyl phthalate	µg/L	1	<1
		Di-n-butyl phthalate	µg/L	10	<10
		Diethyl phthalate	µg/L	5	<5
		Dimethyl phthalate	µg/L	1	<1
		Di-n-octyl phthalate	µg/L	1	<1
	07-Carbamates	Carbofuran	µg/L	0.5	<0.5
		Carbaryl	µg/L	0.5	<0.5
	08-Herbicides (normal)	Trifluralin	µg/L	0.5	<0.5
	09-Nitrosamines	N-nitroso-di-n-butylamine (NDBA)	µg/L	1	<1
		N-nitroso-diethylamine (NDEA)	µg/L	1	<1
		N-nitroso-di-n-propylamine (NDPA)	µg/L	1	<1
		N-nitroso-morpholine (NMOR)	µg/L	1	<1
		N-nitroso-piperidine (NPIP)	µg/L	1	<1
		N-nitroso-pyrrolidine (NPYR)	µg/L	1	<1
		4-amino biphenyl	µg/L	1	<1
	10-Nitroaromatics and Ketones	Acetophenone	µg/L	1	<1
		1,3-dinitrobenzene	µg/L	1	<1
		2,4-dinitrotoluene	µg/L	1	<1
		2,6-dinitrotoluene	µg/L	1	<1
		Isophorone	µg/L	1	<1
		Nitrobenzene	µg/L	1	<1
		p-(dimethylamino) azobenzene	µg/L	1	<1
		Phenacetin	µg/L	1	<1
		Pentachloronitrobenzene (quintozene)	µg/L	1	<1
	11-Anilines and Amines	Aniline	µg/L	5	<5
		4-chloroaniline	µg/L	1	<1
		2-nitroaniline	µg/L	1	<1
		3-nitroaniline	µg/L	1	<1
		4-nitroaniline	µg/L	1	<1
		Diphenylamine	µg/L	1	<1
		o-toluidine	µg/L	1	<1
		5-nitro-o-toluidine	µg/L	1	<1
		1-naphthylamine	µg/L	2	<2
		2-naphthylamine	µg/L	2	<2
	12-Haloethers	Bis(2-chloroethoxy) methane	µg/L	1	<1
		Bis(2-chloroethyl) ether	µg/L	1	<1
		Bis(2-chloroisopropyl) ether	µg/L	1	<1
		4-chlorophenyl phenyl ether	µg/L	1	<1
		4-bromophenyl phenyl ether	µg/L	1	<1
	13-Other SVOCs	Methyl methanesulfonate	µg/L	1	<1
		Ethyl methanesulfonate	µg/L	1	<1
		Dibenzofuran	µg/L	1	<1
		Benzyl alcohol	µg/L	1	<1
		Safrole	µg/L	1	<1
		Isosafrole Isomer 1	µg/L	1	<1
		Isosafrole Isomer 2	µg/L	1	<1
		1,4-naphthoquinone	µg/L	1	<1
		Thionazin	µg/L	1	<1

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

Full 8270 SVOC in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB375289.001	14-Speciated Routine Phenols	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
		2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
		2,6-dichlorophenol	µg/L	0.5	<0.5
		2,4,5-trichlorophenol	µg/L	0.5	<0.5
		4-chloro-3-methylphenol	µg/L	2	<2
		2-chlorophenol	µg/L	0.5	<0.5
		2,4-dichlorophenol	µg/L	0.5	<0.5
		2,4-dimethylphenol	µg/L	0.5	<0.5
		2-nitrophenol	µg/L	0.5	<0.5
		Phenol	µg/L	0.5	<0.5
		2,4,6-trichlorophenol	µg/L	0.5	<0.5
		Pentachlorophenol	µg/L	0.5	<0.5
		4-nitrophenol	µg/L	1	<1
	Surrogates	d5-phenol (Surrogate)	%	-	104
		d5-nitrobenzene (Surrogate)	%	-	108
		2-fluorobiphenyl (Surrogate)	%	-	110
		2,4,6-Tribromophenol (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	104

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB375128.001	Mercury, Hg	mg/L	0.0001	<0.0001

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB375269.001	Potassium, K	mg/L	0.1	<0.1
	Silicon, Si*	mg/L	0.05	<0.05
	Sodium, Na	mg/L	0.5	<0.5

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Number	Parameter	Units	LOR	Result
LB374218.001	Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005

OC Pesticides in Water

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

Sample Number	Parameter	Units	LOR	Result
LB375289.001	Alpha BHC	µg/L	0.2	<0.2
	Hexachlorobenzene (HCB)	µg/L	0.2	<0.2
	Beta BHC	µg/L	0.2	<0.2
	Lindane (gamma BHC)	µg/L	0.2	<0.2
	Delta BHC	µg/L	0.2	<0.2
	Heptachlor	µg/L	0.2	<0.2
	Aldrin	µg/L	0.2	<0.2
	Heptachlor epoxide	µg/L	0.2	<0.2
	Gamma Chlordane	µg/L	0.2	<0.2
	Alpha Chlordane	µg/L	0.2	<0.2
	Chlordane (alpha + gamma chlordane)	µg/L	0.2	<0.2
	Alpha Endosulfan	µg/L	0.2	<0.2
	p,p'-DDE	µg/L	0.2	<0.2
	Dieldrin	µg/L	0.2	<0.2
	Endrin	µg/L	0.2	<0.2
	Beta Endosulfan	µg/L	0.2	<0.2
	p,p'-DDD	µg/L	0.2	<0.2
	Endrin aldehyde	µg/L	0.2	<0.2
	Endosulfan sulphate	µg/L	0.2	<0.2
	p,p'-DDT	µg/L	0.2	<0.2
	Endrin ketone	µg/L	0.2	<0.2
	Methoxychlor	µg/L	0.2	<0.2
	Mirex	µg/L	0.2	<0.2

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OP Pesticides in Water

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

Sample Number	Parameter	Units	LOR	Result
LB375289.001	Azinphos-methyl	µg/L	0.5	<0.5
	Bromophos Ethyl	µg/L	0.5	<0.5
	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	<0.5
	Diazinon (Dimpylate)	µg/L	0.5	<0.5
	Dichlorvos	µg/L	0.5	<0.5
	Dimethoate	µg/L	0.5	<0.5
	Ethion	µg/L	0.5	<0.5
	Fenitrothion	µg/L	0.5	<0.5
	Malathion	µg/L	0.5	<0.5
	Methidathion	µg/L	0.5	<0.5
	Parathion-ethyl (Parathion)	µg/L	0.5	<0.5

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB375289.001	Naphthalene	µg/L	0.5	<0.5
	2-methylnaphthalene	µg/L	0.5	<0.5
	1-methylnaphthalene	µg/L	0.5	<0.5
	Acenaphthylene	µg/L	0.5	<0.5
	Acenaphthene	µg/L	0.5	<0.5
	Fluorene	µg/L	0.5	<0.5
	Phenanthrene	µg/L	0.5	<0.5
	Anthracene	µg/L	0.5	<0.5
	Fluoranthene	µg/L	0.5	<0.5
	Pyrene	µg/L	0.5	<0.5
	Benzo(a)anthracene	µg/L	0.5	<0.5
	Chrysene	µg/L	0.5	<0.5
	Benzo(b&j)fluoranthene	µg/L	0.5	<0.5
	Benzo(k)fluoranthene	µg/L	0.5	<0.5
	Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5
	Benzo(a)pyrene	µg/L	0.5	<0.5
	Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5
	Dibenzo(ah)anthracene	µg/L	0.5	<0.5
	Benzo(ghi)perylene	µg/L	0.5	<0.5

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result
LB375289.001	Arochlor 1016	µg/L	1	<1
	Arochlor 1221	µg/L	1	<1
	Arochlor 1232	µg/L	1	<1
	Arochlor 1242	µg/L	1	<1
	Arochlor 1248	µg/L	1	<1
	Arochlor 1254	µg/L	1	<1
	Arochlor 1260	µg/L	1	<1

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB375652.001	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05
	Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01
	Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01
	Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01
	Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.01
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.01
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.01
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.01
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.01
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01

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

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB375652.001	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01
	Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.01	<0.01
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.01
	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01
	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01
	N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	µg/L	0.05	<0.05
	N-Ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	0.05	<0.05
	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.05	<0.05
	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.05	<0.05

Total and Volatile Suspended Solids (TSS / VSS)

Method: ME-(AU)-[ENV]AN114

Sample Number	Parameter	Units	LOR	Result
LB374443.001	Total Suspended Solids Dried at 103-105°C	mg/L	5	<5

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Sample Number	Parameter	Units	LOR	Result
LB374352.001	Total Dissolved Solids Dried at 175-185°C	mg/L	10	<10

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result
LB374344.001	Total Phenols	mg/L	0.05	<0.05

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Sample Number	Parameter	Units	LOR	Result
LB374346.001	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	<0.02

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB375160.001	Aluminium	µg/L	5	<5
	Antimony	µg/L	1	<1
	Arsenic	µg/L	1	<1
	Barium	µg/L	1	<1
	Beryllium	µg/L	1	<1
	Boron	µg/L	5	<5
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Cobalt	µg/L	1	<1
	Copper	µg/L	1	<1
	Iron	µg/L	5	<5
	Lead	µg/L	1	<1
	Manganese	µg/L	1	<1
	Molybdenum	µg/L	1	<1
	Nickel	µg/L	1	<1
	Selenium	µg/L	1	<1
	Silver	µg/L	1	<1
	Strontium	µg/L	1	<1
	Uranium	µg/L	1	<1
	Vanadium	µg/L	1	<1
	Zinc	µg/L	5	<5
LB375160.025	Aluminium	µg/L	5	<5

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Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB375160.025	Antimony	µg/L	1	<1
	Arsenic	µg/L	1	<1
	Barium	µg/L	1	<1
	Beryllium	µg/L	1	<1
	Boron	µg/L	5	<5
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Cobalt	µg/L	1	<1
	Copper	µg/L	1	<1
	Iron	µg/L	5	<5
	Lead	µg/L	1	<1
	Manganese	µg/L	1	<1
	Molybdenum	µg/L	1	<1
	Nickel	µg/L	1	<1
	Selenium	µg/L	1	<1
	Silver	µg/L	1	<1
	Strontium	µg/L	1	<1
	Uranium	µg/L	1	<1
	Vanadium	µg/L	1	<1
	Zinc	µg/L	5	<5

Turbidity

Method: ME-(AU)-[ENV]AN119

Sample Number	Parameter	Units	LOR	Result
LB374222.001	Turbidity	NTU	0.5	<0.5

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB374978.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		1,1-dichloroethene	µg/L	0.5	<0.5
		Iodomethane	µg/L	5	<5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5

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

VOCs in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB374978.001	Halogenated Aliphatics	Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		o-xylene	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	0.5	<0.5
		Vinyl acetate*	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	86
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB374978.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	86

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

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

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

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

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

Alkalinity

Method: ME-(AU)-[ENV]AN135

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374217.007	Bicarbonate Alkalinity as CaCO3	mg/L	5	230	230	17	1
		Carbonate Alkalinity as CaCO3	mg/L	5	<5	<5	200	0
		Total Alkalinity as CaCO3	mg/L	5	230	230	17	1

Ammonia Nitrogen by Discrete Analyser

Method: ME-(AU)-[ENV]AN291

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374218.006	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	1.1	1.1	16	0

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374269.014	Fluoride	mg/L	0.1	0.63	0.67	30	5
		Chloride	mg/L	0.05	24	24	15	1
		Bromide	mg/L	0.05	<0.05	<0.05	162	0
		Nitrate Nitrogen, NO3-N	mg/L	0.005	0.043	0.043	27	2
		Sulfate, SO4	mg/L	1	17	17	21	1

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295581.001	LB374224.009	Conductivity @ 25 C	µS/cm	2	640	640	15	1

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374218.006	Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005	<0.005	200	0

Forms of Carbon

Method: ME-(AU)-[ENV]AN190

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374440.012	Total Organic Carbon as NPOC	mg/L	0.2	13	13	17	2

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295869.002	LB375128.024	Mercury, Hg	µg/L	0.0001	<0.00005	<0.00005	200	199

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374218.006	Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005	<0.005	200	0

OC Pesticides in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.004	LB375289.023	Alpha BHC	µg/L	0.2	<0.2	<0.2	200	0
		Hexachlorobenzene (HCB)	µg/L	0.2	<0.2	<0.2	200	0
		Beta BHC	µg/L	0.2	<0.2	<0.2	200	0
		Lindane (gamma BHC)	µg/L	0.2	<0.2	<0.2	200	0
		Delta BHC	µg/L	0.2	<0.2	<0.2	200	0
		Heptachlor	µg/L	0.2	<0.2	<0.2	200	0
		Aldrin	µg/L	0.2	<0.2	<0.2	200	0
		Heptachlor epoxide	µg/L	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	µg/L	0.2	<0.2	<0.2	200	0
		Alpha Chlordane	µg/L	0.2	<0.2	<0.2	200	0
		Chlordane (alpha + gamma chlordane)	µg/L	0.2	<0.2	<0.2	200	0
		Alpha Endosulfan	µg/L	0.2	<0.2	<0.2	200	0

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

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

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

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

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

OC Pesticides in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.004	LB375289.023		p,p'-DDE	µg/L	0.2	<0.2	<0.2	200	0
			Dieldrin	µg/L	0.2	<0.2	<0.2	200	0
			Endrin	µg/L	0.2	<0.2	<0.2	200	0
			Beta Endosulfan	µg/L	0.2	<0.2	<0.2	200	0
			p,p'-DDD	µg/L	0.2	<0.2	<0.2	200	0
			Endrin aldehyde	µg/L	0.2	<0.2	<0.2	200	0
			Endosulfan sulphate	µg/L	0.2	<0.2	<0.2	200	0
			p,p'-DDT	µg/L	0.2	<0.2	<0.2	200	0
			Endrin ketone	µg/L	0.2	<0.2	<0.2	200	0
			Methoxychlor	µg/L	0.2	<0.2	<0.2	200	0
			Mirex	µg/L	0.2	<0.2	<0.2	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.36	0.37	30	5

OP Pesticides in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.004	LB375289.023		Azinphos-methyl	µg/L	0.5	<0.5	<0.5	200	0
			Bromophos Ethyl	µg/L	0.5	<0.5	<0.5	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	µg/L	0.5	<0.5	<0.5	200	0
			Dichlorvos	µg/L	0.5	<0.5	<0.5	200	0
			Dimethoate	µg/L	0.5	<0.5	<0.5	200	0
			Ethion	µg/L	0.5	<0.5	<0.5	200	0
			Fenitrothion	µg/L	0.5	<0.5	<0.5	200	0
			Malathion	µg/L	0.5	<0.5	<0.5	200	0
			Methidathion	µg/L	0.5	<0.5	<0.5	200	0
			Parathion-ethyl (Parathion)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.34	0.35	30	3
			d14-p-terphenyl (Surrogate)	µg/L	-	0.34	0.36	30	6
			d5-nitrobenzene (Surrogate)	µg/L	-	0.33	0.34	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.004	LB375289.023		Naphthalene	µg/L	0.5	<0.5	<0.5	200	0
			2-methylnaphthalene	µg/L	0.5	<0.5	<0.5	200	0
			1-methylnaphthalene	µg/L	0.5	<0.5	<0.5	200	0
			Acenaphthylene	µg/L	0.5	<0.5	<0.5	200	0
			Acenaphthene	µg/L	0.5	<0.5	<0.5	200	0
			Fluorene	µg/L	0.5	<0.5	<0.5	200	0
			Phenanthrene	µg/L	0.5	<0.5	<0.5	200	0
			Anthracene	µg/L	0.5	<0.5	<0.5	200	0
			Fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(a)anthracene	µg/L	0.5	<0.5	<0.5	200	0
			Chrysene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(b&j)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(k)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Dibenzo(ah)anthracene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(ghi)perylene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.33	0.34	30	3
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.34	0.35	30	3
			d14-p-terphenyl (Surrogate)	µg/L	-	0.34	0.36	30	6
SE295941.002	LB375289.014		Naphthalene	µg/L	0.5	<0.5	<0.5	200	0
			2-methylnaphthalene	µg/L	0.5	<0.5	<0.5	200	0
			1-methylnaphthalene	µg/L	0.5	<0.5	<0.5	200	0
			Acenaphthylene	µg/L	0.5	<0.5	<0.5	200	0
			Acenaphthene	µg/L	0.5	<0.5	<0.5	200	0
			Fluorene	µg/L	0.5	<0.5	<0.5	200	0
			Phenanthrene	µg/L	0.5	<0.5	<0.5	200	0
			Anthracene	µg/L	0.5	<0.5	<0.5	200	0

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

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295941.002	LB375289.014		Fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(a)anthracene	µg/L	0.5	<0.5	<0.5	200	0
			Chrysene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(b&j)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(k)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5	<0.5	200	0
			Dibenzo(ah)anthracene	µg/L	0.5	<0.5	<0.5	200	0
			Benzo(ghi)perylene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.36	0.31	30	13
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.37	0.30	30	20
			d14-p-terphenyl (Surrogate)	µg/L	-	0.35	0.30	30	17

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.001	LB375652.013	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05	200	0
		Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.01	0.01	200	4
		Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFOS and PFHxS	µg/L	0.01	0.01	0.01	200	4
		Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	0.01	0.01	200	4
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	0.01	0.01	200	4
		(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	103	101	200	2
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	114	110	200	3
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	76	75	200	1
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	91	87	200	5
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	85	82	200	4
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	98	101	200	2
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	102	107	200	4
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	69	68	200	1
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	135	104	200	26
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	107	72	200	39
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	62	50	200	21

pH in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295581.001	LB374224.009	pH**	pH Units	-	8.1	8.1	16	0

Redox Potential (Eh) in water

Method: ME-(AU)-[ENV]AN240

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB374223.003	Eh of Sample Relative to Standard H+ Electrode***	mV	-500	444	440	15	1

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281/292

Original	Duplicate	Parameter	Units	LOR

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

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

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

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

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

TKN Kjeldahl Digestion by Discrete Analyser (continued)

Method: ME-(AU)-[ENV]AN281/292

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295585.001	LB374346.014	Total Kjeldahl Nitrogen	mg/L	0.05	130	130	15	1

Total and Volatile Suspended Solids (TSS / VSS)

Method: ME-(AU)-[ENV]AN114

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295604.001	LB374443.013	Total Suspended Solids Dried at 103-105°C	mg/L	5	<5	<5	200	0
SE295713.001	LB374443.024	Total Suspended Solids Dried at 103-105°C	mg/L	5	610	640	16	5

Total Dissolved Solids (TDS) in water

Method: ME-(AU)-[ENV]AN113

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295565.009	LB374352.013	Total Dissolved Solids Dried at 175-185°C	mg/L	10	7200	7100	15	2
SE295585.001	LB374352.024	Total Dissolved Solids Dried at 175-185°C	mg/L	10	1600	1900	16	13

Total Phenolics in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295581.001	LB374344.008	Total Phenols	mg/L	0.05	<0.05	<0.05	200	0

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295585.001	LB374346.014	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	20	19	15	1
SE295645.001	LB374346.027	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	4.9	4.4	15	10

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295567.001	LB375160.014	Aluminium	µg/L	5	87	86	21	1
		Antimony	µg/L	1	<1	<1	200	0
		Arsenic	µg/L	1	3	3	55	2
		Barium	µg/L	1	94	94	16	0
		Beryllium	µg/L	1	<1	<1	200	0
		Boron	µg/L	5	68	68	22	0
		Cadmium	µg/L	0.1	0.2	0.1	91	34
		Chromium	µg/L	1	2	2	66	4
		Cobalt	µg/L	1	1	1	95	1
		Copper	µg/L	1	1	1	84	3
		Iron	µg/L	5	780	790	16	1
		Lead	µg/L	1	2	2	63	2
		Manganese	µg/L	1	130	130	16	2
		Molybdenum	µg/L	1	2	2	65	8
		Nickel	µg/L	1	5	5	36	3
		Selenium	µg/L	1	<1	<1	200	0
		Silver	µg/L	1	<1	<1	200	0
		Strontium	µg/L	1	230	230	15	1
		Uranium	µg/L	1	<1	<1	181	0
		Vanadium	µg/L	1	3	3	48	0
		Zinc	µg/L	5	8	8	80	2
SE295894.004	LB375160.034	Aluminium	µg/L	5	410	400	16	2
		Arsenic	µg/L	1	<1	<1	183	0
		Boron	µg/L	5	18	19	42	1
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	169	0
		Copper	µg/L	1	3	3	50	2
		Iron	µg/L	5	260	250	17	1
		Lead	µg/L	1	<1	<1	147	0
		Manganese	µg/L	1	3	3	48	5
		Nickel	µg/L	1	<1	<1	145	0

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

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

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

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

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

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295894.004	LB375160.034	Zinc	µg/L	5	18	18	42	0
SE295941.005	LB375160.028	Aluminium	µg/L	5	<5	<5	200	0
		Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Turbidity

Method: ME-(AU)-[ENV]AN119

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295581.001	LB374222.009	Turbidity	NTU	0.5	7.2	7.3	22	2

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295870.008	LB374978.023	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.6	9.0	30	5
			d8-toluene (Surrogate)	µg/L	-	8.6	9.7	30	12
			Bromofluorobenzene (Surrogate)	µg/L	-	9.0	11.5	30	24
		Totals	Total BTEX	µg/L	3	<3	<3	200	0
SE295941.005	LB374978.024	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	170	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.7	9.1	30	4
			d8-toluene (Surrogate)	µg/L	-	8.6	9.7	30	12
			Bromofluorobenzene (Surrogate)	µg/L	-	9.0	11.7	30	27
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE295870.008	LB374978.023		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.6	9.0	30	5
			d8-toluene (Surrogate)	µg/L	-	8.6	9.7	30	12
			Bromofluorobenzene (Surrogate)	µg/L	-	9.0	11.5	30	24
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
SE295941.005	LB374978.024		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.7	9.1	30	4
			d8-toluene (Surrogate)	µg/L	-	8.6	9.7	30	12
			Bromofluorobenzene (Surrogate)	µg/L	-	9.0	11.7	30	27
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

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

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

Ammonia Nitrogen by Discrete Analyser

Method: ME-(AU)-[ENV]AN291

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374218.002	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	2.5	2.5	80 - 120	102

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374269.002	Fluoride	mg/L	0.1	2.0	2	80 - 120	101
	Chloride	mg/L	0.05	20	20	80 - 120	99
	Bromide	mg/L	0.05	2.1	2	80 - 120	103
	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.2	2	80 - 120	110
	Sulfate, SO4	mg/L	1	20	20	80 - 120	98

Conductivity and TDS by Calculation - Water

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374224.002	Conductivity @ 25 C	µS/cm	2	1000	1015	85 - 115	100

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374218.002	Filterable Reactive Phosphorus as P	mg/L	0.005	0.10	0.1	80 - 120	100

Forms of Carbon

Method: ME-(AU)-[ENV]AN190

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374440.002	Total Organic Carbon as NPOC	mg/L	0.2	20	20	80 - 120	98

Full 8270 SVOC in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002	01-PAHs	Acenaphthene	µg/L	0.1	41	40	60 - 140	103
		Acenaphthylene	µg/L	0.1	40	40	60 - 140	99
		Anthracene	µg/L	0.1	46	40	60 - 140	114
		Benzo(a)pyrene	µg/L	0.1	45	40	60 - 140	111
		Fluoranthene	µg/L	0.1	41	40	60 - 140	102
		Naphthalene	µg/L	0.1	35	40	60 - 140	87
		Phenanthrene	µg/L	0.1	43	40	60 - 140	107
		Pyrene	µg/L	0.1	41	40	60 - 140	103
	02-OCs	Aldrin	µg/L	0.1	3.2	4	60 - 140	79
		Delta-BHC	µg/L	0.1	4.0	4	60 - 140	101
		p,p-DDT	µg/L	0.1	2.9	4	60 - 140	72
		Dieldrin	µg/L	0.1	4.2	4	60 - 140	104
		Endrin	µg/L	0.1	3.0	4	60 - 140	75
		Heptachlor	µg/L	0.1	2.9	4	60 - 140	72
	03-OPs	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	7.4	8	60 - 140	92
		Diazinon (Dimpylate)	µg/L	0.5	8.3	8	60 - 140	104
		Dichlorvos	µg/L	0.5	7.5	8	60 - 140	94
		Ethion	µg/L	0.2	6.2	8	60 - 140	78
	05-SVCH (Cl	Hexachlorobenzene (HCB)	µg/L	0.1	3.9	4	60 - 140	98
	Benzenes,	Hexachlorobutadiene	µg/L	0.5	3.9	4	60 - 140	97
		Hexachloroethane	µg/L	0.5	3.9	4	60 - 140	98
		Pentachlorobenzene	µg/L	0.5	3.8	4	60 - 140	96
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	4.1	4	60 - 140	102
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	10	<10	8	60 - 140	84
		Butyl benzyl phthalate	µg/L	1	6	8	60 - 140	69
		Di-n-butyl phthalate	µg/L	10	<10	8	60 - 140	82
		Diethyl phthalate	µg/L	5	7	8	60 - 140	92
		Dimethyl phthalate	µg/L	1	6	8	60 - 140	76
		Di-n-octyl phthalate	µg/L	1	6	8	60 - 140	69
	09-Nitrosamine	N-nitroso-di-n-propylamine (NDPA)	µg/L	1	35	32	60 - 140	109
	10-Nitroaromat	Pentachloronitrobenzene (quintozene)	µg/L	1	5	4	60 - 140	127

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

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

Full 8270 SVOC in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002	14-Speciated	2,4-dichlorophenol	µg/L	0.5	41	40	60 - 140	102
	Routine	Phenol	µg/L	0.5	43	40	60 - 140	109
		2,4,6-trichlorophenol	µg/L	0.5	40	40	60 - 140	100
		Pentachlorophenol	µg/L	0.5	41	40	60 - 140	103
	Surrogates	d5-phenol (Surrogate)	µg/L	-	2.2	2	40 - 130	112
		d5-nitrobenzene (Surrogate)	µg/L	-	0.58	0.5	40 - 130	116
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.55	0.5	40 - 130	110
		2,4,6-Tribromophenol (Surrogate)	µg/L	-	4.3	5	40 - 130	87
		d14-p-terphenyl (Surrogate)	µg/L	-	0.51	0.5	40 - 130	102

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375269.002	Lithium, Li	mg/L	0.005	0.082	0.1	80 - 120	82
	Potassium, K	mg/L	0.1	48	55	80 - 120	87
	Silicon, Si*	mg/L	0.05	0.20	0.25	80 - 120	80
	Sodium, Na	mg/L	0.5	50	50.5	80 - 120	100

Nitrite in Water

Method: ME-(AU)-[ENV]AN277

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374218.002	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.095	0.1	80 - 120	95

OC Pesticides in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002	Lindane (gamma BHC)	µg/L	0.2	8.7	10	60 - 140	87
	Heptachlor	µg/L	0.2	8.6	10	60 - 140	86
	Aldrin	µg/L	0.2	8.8	10	60 - 140	88
	Dieldrin	µg/L	0.2	8.8	10	60 - 140	88
	Endrin	µg/L	0.2	8.1	10	60 - 140	81
	p,p'-DDT	µg/L	0.2	10	10	60 - 140	104

OP Pesticides in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	8.9	10	60 - 140	89
		Diazinon (Dimpylate)	µg/L	0.5	10	10	60 - 140	101
		Dichlorvos	µg/L	0.5	8.7	10	60 - 140	87
		Ethion	µg/L	0.5	9.5	10	60 - 140	95
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.35	0.5	40 - 130	71
		d14-p-terphenyl (Surrogate)	µg/L	-	0.38	0.5	40 - 130	76
		d5-nitrobenzene (Surrogate)	µg/L	-	0.36	0.5	40 - 130	71

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002		Naphthalene	µg/L	0.5	16	20	60 - 140	80
		Acenaphthylene	µg/L	0.5	18	20	60 - 140	88
		Acenaphthene	µg/L	0.5	18	20	60 - 140	89
		Phenanthrene	µg/L	0.5	20	20	60 - 140	99
		Anthracene	µg/L	0.5	19	20	60 - 140	96
		Fluoranthene	µg/L	0.5	18	20	60 - 140	92
		Pyrene	µg/L	0.5	19	20	60 - 140	94
		Benzo(a)pyrene	µg/L	0.5	20	20	60 - 140	99
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.36	0.5	40 - 130	71
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.35	0.5	40 - 130	71
		d14-p-terphenyl (Surrogate)	µg/L	-	0.38	0.5	40 - 130	76

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375289.002	Arochlor 1260	µg/L	1	9	10	60 - 140	87

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR

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

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

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375652.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.23	0.2	40 - 160	113
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.16	0.2	40 - 160	82
	Perfluorononanoic acid (PFNA)	µg/L	0.01	0.14	0.2	40 - 160	72
	Perfluorodecanoic acid (PFDA)	µg/L	0.01	0.19	0.2	40 - 160	96
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	0.21	0.2	40 - 160	105
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	0.18	0.2	40 - 160	90
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.13	0.2	40 - 160	65
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	0.16	0.2	40 - 160	78

pH in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374224.003	pH**	No unit	-	7.5	7.415	98 - 102	100

Redox Potential (Eh) in water

Method: ME-(AU)-[ENV]AN240

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374223.001	Eh of Sample Relative to Standard H+ Electrode***	mV	-500	432	428	90 - 110	101

Total and Volatile Suspended Solids (TSS / VSS)

Method: ME-(AU)-[ENV]AN114

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374443.002	Total Suspended Solids Dried at 103-105°C	mg/L	5	94	100	80 - 120	94

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374344.002	Total Phenols	mg/L	0.05	0.22	0.2	80 - 120	112

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374346.002	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.1	1	80 - 120	112

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375160.002	Aluminium	µg/L	5	21	20	80 - 120	105
	Antimony	µg/L	1	23	20	80 - 120	116
	Arsenic	µg/L	1	19	20	80 - 120	94
	Barium	µg/L	1	19	20	80 - 120	97
	Beryllium	µg/L	1	20	20	80 - 120	98
	Boron	µg/L	5	17	20	80 - 120	84
	Cadmium	µg/L	0.1	21	20	80 - 120	105
	Chromium	µg/L	1	20	20	80 - 120	101
	Cobalt	µg/L	1	21	20	80 - 120	105
	Copper	µg/L	1	21	20	80 - 120	105
	Iron	µg/L	5	21	20	80 - 120	104
	Lead	µg/L	1	21	20	80 - 120	105
	Manganese	µg/L	1	21	20	80 - 120	105
	Molybdenum	µg/L	1	21	20	80 - 120	105
	Nickel	µg/L	1	20	20	80 - 120	102
	Selenium	µg/L	1	21	20	80 - 120	104
	Silver	µg/L	1	16	20	80 - 120	80
	Strontium	µg/L	1	22	20	80 - 120	108
	Uranium	µg/L	1	22	20	80 - 120	111
	Vanadium	µg/L	1	20	20	80 - 120	101
	Zinc	µg/L	5	21	20	80 - 120	103
LB375160.026	Aluminium	µg/L	5	21	20	80 - 120	104
	Antimony	µg/L	1	22	20	80 - 120	108

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

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

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB375160.026	Arsenic	µg/L	1	19	20	80 - 120	95
	Barium	µg/L	1	19	20	80 - 120	95
	Beryllium	µg/L	1	19	20	80 - 120	96
	Boron	µg/L	5	17	20	80 - 120	83
	Cadmium	µg/L	0.1	21	20	80 - 120	103
	Chromium	µg/L	1	20	20	80 - 120	101
	Cobalt	µg/L	1	21	20	80 - 120	104
	Copper	µg/L	1	21	20	80 - 120	106
	Iron	µg/L	5	22	20	80 - 120	109
	Lead	µg/L	1	21	20	80 - 120	106
	Manganese	µg/L	1	21	20	80 - 120	103
	Molybdenum	µg/L	1	21	20	80 - 120	106
	Nickel	µg/L	1	20	20	80 - 120	101
	Selenium	µg/L	1	21	20	80 - 120	106
	Silver	µg/L	1	17	20	80 - 120	83
	Strontium	µg/L	1	20	20	80 - 120	102
	Uranium	µg/L	1	22	20	80 - 120	109
	Vanadium	µg/L	1	20	20	80 - 120	100
	Zinc	µg/L	5	21	20	80 - 120	103

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374978.002	Halogenated	1,1-dichloroethene	µg/L	0.5	61	45.45	60 - 140	135
	Aliphatics	1,2-dichloroethane	µg/L	0.5	52	45.45	60 - 140	115
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	53	45.45	60 - 140	116
	Halogenated	Chlorobenzene	µg/L	0.5	48	45.45	60 - 140	106
	Monocyclic	Benzene	µg/L	0.5	33	25	60 - 140	130
	Aromatic	Toluene	µg/L	0.5	32	25	60 - 140	128
		Ethylbenzene	µg/L	0.5	29	25	60 - 140	117
		m/p-xylene	µg/L	1	58	50	60 - 140	116
		o-xylene	µg/L	0.5	30	25	60 - 140	120
	Trihalomethan	Chloroform (THM)	µg/L	0.5	61	45.45	60 - 140	133

Volatile Petroleum Hydrocarbons in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB374978.002	TRH C6-C10	µg/L	50	460	400	60 - 140	115
	TRH C6-C9	µg/L	40	410	350	60 - 140	118

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

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

Anions by Ion Chromatography in Water

Method: ME-(AU)-[ENV]AN245

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295595.002	LB374269.015	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.3	0.036	2	111

Forms of Carbon

Method: ME-(AU)-[ENV]AN190

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295563.001	LB374440.005	Total Organic Carbon as NPOC	mg/L	0.2	56	6.9	50	99

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281/292

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295554.001	LB374346.028	Total Kjeldahl Nitrogen	mg/L	0.05	3.3	0.74	2.5	103

Total Phenolics in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295588.001	LB374344.004	Total Phenols	mg/L	0.05	0.22	<0.05	0.2	109

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295554.001	LB374346.028	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.1	0.07	1	108

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE295869.001	LB375160.004	Arsenic	µg/L	1	20	<1	20	101
		Cadmium	µg/L	0.1	20	0.1	20	98
		Chromium	µg/L	1	19	<1	20	93
		Copper	µg/L	1	19	1	20	90
		Lead	µg/L	1	20	<1	20	99
		Nickel	µg/L	1	33	15	20	87
		Zinc	µg/L	5	150	140	20	77
SE295894.001	LB375160.030	Arsenic	µg/L	1	20	0.915	20	94
		Boron	µg/L	5	43	23.017	20	98
		Cadmium	µg/L	0.1	21	-0.002	20	103
		Chromium	µg/L	1	20	0.398	20	100
		Copper	µg/L	1	23	2.541	20	104
		Lead	µg/L	1	21	0.4	20	104
		Manganese	µg/L	1	22	1.913	20	103
		Nickel	µg/L	1	21	0.726	20	101
		Zinc	µg/L	5	24	3.239	20	102

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE295567.004	LB374978.025	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	25	130
			Toluene	µg/L	0.5	<0.5	25	130
			Ethylbenzene	µg/L	0.5	<0.5	25	128
			m/p-xylene	µg/L	1	<1	50	126
			o-xylene	µg/L	0.5	<0.5	25	133
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.8	-	102
			d8-toluene (Surrogate)	µg/L	-	8.6	-	108
			Bromofluorobenzene (Surrogate)	µg/L	-	9.1	-	106
		Totals	Total BTEX	µg/L	3	<3	-	-

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

Volatile Petroleum Hydrocarbons in Water (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE295567.004	LB374978.025		TRH C6-C10	µg/L	50	<50	400	101
			TRH C6-C9	µg/L	40	<40	350	111
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.8	-	102
			d8-toluene (Surrogate)	µg/L	-	8.6	-	108
			Bromofluorobenzene (Surrogate)	µg/L	-	9.1	-	106
		VPH F	Benzene (F0)	µg/L	0.5	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-	-

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com/en-au/industry/environmental-health-and-safety

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

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Sheet 1 of 1

Site: 40-48 Reedon St, Morman

Project No: E26955

Laboratory: Envirolab Services
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	SOIL	WATER	0.45 µm field filtered	OTHER	HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) Suite	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	HOLD		TCLP HM [B] / PAH
SQT1	1	Multiple	13.1.26	PM		X	X				X																

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

Job No: 264612
Date Received: 14/1/26
Time Received: 1515
Received By: CW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J = solvent washed, acid rinsed, Tefton sealed glass jar
S = solvent washed, acid rinsed glass bottle
P = natural HDPE plastic bottle
VC = glass vial, Tefton Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (Envirolab):
Print: Sam Buckley	Print:
Signature:	Signature:
Date: 13.1.26	Date:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sampler's Comments:
① Please cc Sam Buckley
② Sharon Li

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

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

SAMPLE RECEIPT ADVICE

Client Details

Client	EI Australia
Attention	Sam Buckley

Sample Login Details

Your reference	E26955, 40-48 Reclon St, Mosman
Envirolab Reference	399612
Date Sample Received	14/01/2026
Date Instructions Received	14/01/2026
Date Results Expected to be Reported	21/01/2026

Sample Condition

Samples received in appropriate condition for analysis	VOC vials have headspace
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

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

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
SQT1	✓	✓	✓

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

Additional Info

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

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

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

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

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement (Envirolab Terms) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 399612

Client Details

Client	EI Australia
Attention	Sam Buckley
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E26955, 40-48 Reclon St, Mosman**
Number of Samples	1 Water
Date samples received	14/01/2026
Date completed instructions received	14/01/2026

Analysis Details

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

Samples were analysed as received from the client unless as indicated below in the method summaries. 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	21/01/2026
Date of Issue	19/01/2026

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Results Approved By
Liam Timmins, Organics Supervisor
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		399612-1
Your Reference	UNITS	SQT1
Date Sampled		13/01/2026
Type of sample		Water
Date extracted	-	15/01/2026
Date analysed	-	16/01/2026
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	102
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	96

svTRH (C10-C40) in Water		
Our Reference		399612-1
Your Reference	UNITS	SQT1
Date Sampled		13/01/2026
Type of sample		Water
Date extracted	-	15/01/2026
Date analysed	-	15/01/2026
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	82

HM in water - dissolved		
Our Reference		399612-1
Your Reference	UNITS	SQT1
Date Sampled		13/01/2026
Type of sample		Water
Date prepared	-	16/01/2026
Date analysed	-	16/01/2026
Arsenic-Dissolved	µg/L	13
Cadmium-Dissolved	µg/L	0.7
Chromium-Dissolved	µg/L	9
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	2
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	4
Zinc-Dissolved	µg/L	20

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

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			15/01/2026	[NT]	[NT]	[NT]	[NT]	15/01/2026	[NT]
Date analysed	-			16/01/2026	[NT]	[NT]	[NT]	[NT]	16/01/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	87	[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	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			15/01/2026	[NT]	[NT]	[NT]	[NT]	15/01/2026	[NT]
Date analysed	-			15/01/2026	[NT]	[NT]	[NT]	[NT]	15/01/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	97	[NT]	[NT]	[NT]	[NT]	125	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	399612-1
Date prepared	-			16/01/2026	[NT]	[NT]	[NT]	[NT]	16/01/2026	16/01/2026
Date analysed	-			16/01/2026	[NT]	[NT]	[NT]	[NT]	16/01/2026	16/01/2026
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	106
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	99	103
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	102
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	104
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	99
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	102
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	103

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

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.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

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

Report Comments

VOC vials have headspace

Appendix I – Quality Assurance / Quality Control Assessment

J1 QUALITY ASSURANCE / QUALITY CONTROL PROGRAM

Quality assurance comprises an assessment of the reliability of the field procedures and laboratory results against standard industry practices and the SAQP. A summary of the project QA/QC measures incorporated into this investigation is presented in **Table J-1**.

Table J-1 Project QC Measures

Task	Description	Project
Field QA/QC		
General	Work was to be undertaken following standard field procedures which are based on industry accepted standard practice.	Groundwater samples were obtained using sample bottles/vials provided by the laboratory.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Soil Screening with PID	The PID was serviced and calibrated as per manufacturer requirements. PID calibrated at the beginning of each day of fieldwork.	Yes
Equipment Decontamination	Sampling equipment to be decontaminated after the collection of each soil sample by washing with phosphate-free detergent and potable water, followed by a final distilled water rinse. One rinsate blank would be collected and analysed for the primary contaminants. All results should be non-detect.	All concentrations were reported as below the detection limits.
Transport	Samples stored in a chilled cooler box and transported to the laboratories. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation and transport duration.	Yes
Trip Blanks	Trip blank samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results to be below the laboratory LOR, indicating satisfactory sample transport and handling conditions were achieved.	Yes
Trip Spikes	Trip spike samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results to be within 80-120% recovery, indicating satisfactory sample transport and handling conditions were achieved.	Yes

Task	Description	Project
Field Duplicates	Field duplicate samples were to be analysed as follows (as per NEPM): ▪ intra-laboratory duplicates at a rate of 1 in 20 primary samples; and ▪ inter-laboratory duplicates at a rate of 1 in 20 primary samples. Field and laboratory acceptable limits between 30-50% RPD as stated by AS4482.1–2005. RPDs that exceed this range may be considered acceptable where: ▪ Results are less than 10 times the limits of reporting (LOR); ▪ Results are less than 20 times the LOR and the RPD is less than 50%; or ▪ Heterogeneous materials or volatile compounds are encountered. Non-compliance is to be documented in the report and the sample re-analysed or a higher level conservatively adopted.	Laboratory duplicates prepared and analysed. Minor non-conformance, with negligible effects on data use for interpretative purposes. Non-conformance included: - Arsenic for samples BH2M and SQD1 (52.63%). - Arsenic for samples BH2M and STD1 (60%). Both primary and duplicate concentrations for arsenic were below the adopted site assessment criteria and as such, minor non-conformances are not considered to impact on the integrity of the results for interpretative purposes. Field QC samples and calculated RPD values are presented in **Table J-5** at the end of this Appendix. Copies of laboratory reports are included in **Appendix I**.
Laboratory QA/QC		
Laboratory Analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.	Yes SGS - primary laboratory Envirolab - secondary laboratory Laboratory QA/QC analyses are included in **Appendix I.**
	Appropriate detection limits were used for the analyses to be undertaken.	Practical Quantitation Limits for all tested parameters during the investigation are presented in laboratory analytical reports in **Appendix I.**
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.	No. Holding times were exceeded for the following analytes: ▪ E. coli, Total and Faecal (Thermotolerant) coliforms(MPN) ▪ Enterococci ▪ SVOCs ▪ OC Pesticides ▪ OP Pesticides ▪ PAHs ▪ PCBs The reported exceedances are attributed to the laboratory's failure to complete sample extraction within the prescribed holding time. Groundwater samples were delivered to the primary laboratory on 13 January 2026 however, extraction was not completed until 23 January 2026, resulting in the holding time being exceeded by three days.

Task	Description	Project
Method Blanks	A method blank contains the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criterion aims to find no detectable contamination in the reagents. Each analysis procedure should be subject to a method blank analysis. The results of each should indicate that contaminants were not detected.	Yes
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.	Assessment of laboratory duplicates has been undertaken by the laboratory. All laboratory control standards were within acceptable ranges.
Laboratory Control Standard	A laboratory control standard is a standard reference material used in preparing primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.	Assessment of laboratory control standard has been undertaken by the laboratory. All laboratory control standards were within acceptable ranges.
Matrix Spikes	Matric spikes are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.	Assessment of matrix spikes has been undertaken by the laboratory. All laboratory control standards were within acceptable ranges.
Surrogate Spikes	Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.	Assessment of surrogate spikes has been undertaken by the laboratory. All data quality objectives were met with the exception of PFAS compound *D3-N-MEFOSAA* due to matrix interference. With no explicit criteria for this compound this minor exceedance is not expected to impact the integrity of the results for interpretative purposes.
Conclusion	The QA/QC indicators should either all comply with the required standards or showed no variations that would have no significant effect on the quality of the data.	Assessment of the investigation QA/QC is presented in the following sections.

J2 RELATIVE PERCENTAGE DIFFERENCE (RPD) CALCULATION

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C_O = Concentration obtained for the primary sample; and

C_R = Concentration obtained for the blind replicate or split duplicate sample.

J3 FIELD QA/QC

J3.1 Field QC Samples

The field (intra- / inter- laboratory) duplicate samples collected during the investigation are summarised in **Table J-2**. Inter-laboratory duplicates were analysed by the secondary laboratory, Envirolab.

Table J-2 Field QC Sampling Program

Matrix	Primary QA Sample	Duplicate (Primary Lab)	Triplicate (Secondary Lab)	Total Duplicates
Groundwater	BH2M	SQD1	SQT1	2

J3.2 Field QC Summary

Review of the field data quality indicators is presented in **Table J-3** below.

Table J-3 Field Data Quality Indicators

QA Component	Data Quality Indicator(s)	Conformance
Accuracy – a quantitative measure of the closeness of reported data to the "true" value	SOPs appropriate and complied with	Yes
	Results for inter-laboratory (split field) duplicates acceptable	Yes
Precision – A quantitative measure of the variability (or reproducibility) of data	SOPs appropriate and complied with	Yes
	Results for intra-laboratory (blind field) duplicates acceptable	Yes
Completeness – A measure of the amount of useable data from a data collection activity	Each critical location sampled	Yes
	Samples collected at targeted locations and depth	Yes
	SAQP appropriate and complied with	Yes
	Experienced sampler	Yes
	Field documentation correct	Yes

QA Component	Data Quality Indicator(s)	Conformance
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Same sampling method used on each occasion/location	Yes
	Experienced sampler	Yes
	Same type of samples collected (filtered, size, fractions)	Yes
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	Appropriate media sampled according to SAQP	Yes
	Each media identified in SAQP sampled	Yes
	Appropriate sample collection methodologies, handling, storage and preservation techniques used	Yes

J3.3 Conclusion for the Field QA/QC

All field work, including equipment decontamination and sample preservation and transport, was conducted in general accordance with the SAQP, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQIs were met.

All samples, including field QC samples, were transported to the primary and secondary laboratories under refrigerated conditions, using strict COC procedures. Relevant documents (COC forms) were presented with the samples at the times of delivery. All supporting documents (COCs and SRAs) were completed in full and signed, where appropriate. EI considered the field QA/QC program carried out during this investigation to be appropriate.

J4 LABORATORY QA/QC

J4.1 Laboratory Accreditation

Primary and intra-laboratory duplicate samples were analysed by SGS (located in Alexandria NSW), with inter-laboratory duplicate samples analysed by Envirolab (located in Chatswood NSW). All laboratories are accredited by NATA for the analyses undertaken.

J4.2 Laboratory QC Summary

Review of the laboratory data quality indicators is presented in **Table J-4** below.

Table J-4 Laboratory Data Quality Indicators

DQI	Item	Conformance
Completeness A measure of the amount of useable data (expressed as %) from a data collection activity	All critical samples analysed according to SAQP and proposal	Yes
	All analytes analysed according to SAQP in proposal	Yes
	Appropriate methods and PQLs	Yes
	Sample documentation complete	Yes

DQI	Item	Conformance
	Sample holding times complied with	Partial
Comparability The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Sample analytical methods used (including clean-up)	Yes
	Sample PQLs (justify/ quantify if different)	Yes
	Same laboratories (justify/ quantify if different)	Yes
	Same units (justify/ quantify if different)	Yes
Representativeness Confidence that data are representative of each media	All key samples analysed according to SAQP in the proposal	Yes
Precision A quantitative measure of the variability (or reproducibility) of data	Analysis of laboratory duplicates	Yes
	Analysis of field duplicates	Yes
	Analysis of laboratory-prepared volatile trip spikes	No
Accuracy A quantitative measure of the closeness of reported data to the true value	Analysis of field blanks	Yes
	Analysis of rinsate / rinsate blanks	Yes
	Analysis of method blanks	Yes
	Analysis of matrix spikes (MS)	Yes
	Analysis of surrogate spikes	Yes
	Analysis of reference materials	Not applicable
	Analysis of laboratory control samples	Yes

J4.3 Conclusion for the Laboratory QA/QC

All contracted laboratories (SGS and Envirolab) were accredited by NATA for the analyses undertaken. All analytical procedures used were industry recognised and endorsed standard methods. Appropriate QC measures were integrated into each testing batch and the DQIs were met, or if not, the variability was suitably justified.

All final reports were submitted in full and included all requested analyses, as per the signed COC forms. EI considered the laboratory QA/QC programs carried out during this investigation to be appropriate.

J5 SUMMARY OF PROJECT QA/QC

The sampling (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation were consistent with EI protocols.

The project DQOs specified above were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the GME were accurate, precise and representative of baseline water quality conditions. It was therefore considered that the data were sufficiently precise and accurate and that the results could be used for interpretative purposes.

Appendix J – DCR AND WORKS SURRENDER FORM

Clear form Print

Application to surrender a water supply work approval

Please refer to the accompanying guide to the application to surrender a water supply work approval under Section 108 of the *Water Management Act 2000* (WMA).

What you need to do

Before filling in this form, applicants are advised to read the guide for an for an application to surrender a water supply work approval, which has step-by-step instructions on each section.

Please complete the form with a black/blue ink pen and use BLOCK letters. You can also type directly in this form. Once completed, please print and sign the form.

Submit your application form

- email a scanned copy to Customer.Helpdesk@waternsw.com.au, or
- by post to **WaterNSW, PO Box 398, Parramatta NSW 2124**

If there is not enough space in the form, please attach additional pages to the back of the form.



WaterNSW customers are encouraged to book a phone appointment with us to discuss your water licensing enquiries. Visit waternsw.com.au/licensing

Section A: Water supply work approval to be surrendered

Complete this section with the details of the water supply work approval to be surrendered and the date of surrender (must be the date the application is submitted or a future date). An example of a type of work can be a bore, dam or a pump.

A1 Water supply work approval number	A2 Date to be surrendered
A3 Type of work to be surrendered	
A4 Reason for surrender	

Section B: Water supply work approval holder/s details

List ALL holders of the water supply work approval that is to be surrendered and all holders must sign the declaration (Section F). See the guide for further information. If there are more than four holders, photocopy/print additional copies of Section B complete it and attach it to this form. Please note that applications submitted via email must include the email addresses of all listed applicants.

Holder

B1 Title (Mr, Mrs, Ms)	B2 Surname	
B3 Given name(s)		
B4 Company/corporation name *(if applicable)*		
B5 ACN *(if applicable)*	B6 ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
B7 Position held *(if applicable)*		
B8 Name of company representative *(if applicable)*		
B9 Postal address		
B10 Suburb	B11 State	B12 Postcode
B13 Phone	B14 Mobile phone	
B15 Email		

Additional holder (if applicable)

B16 Title (Mr, Mrs, Ms)	B17 Surname	
B18 Given name(s)		
B19 Company/corporation name *(if applicable)*		
B20 ACN *(if applicable)*	B21 ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
B22 Position held *(if applicable)*		
B23 Name of company representative *(if applicable)*		
B24 Postal address		
B25 Suburb	B26 State	B27 Postcode
B28 Phone	B29 Mobile phone	
B30 Email		

Additional holder (if applicable)

B31 Title (Mr, Mrs, Ms)	B32 Surname	
B33 Given name(s)		
B34 Company/corporation name *(if applicable)*		
B35 ACN *(if applicable)*	B36 ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
B37 Position held *(if applicable)*		
B38 Name of company representative *(if applicable)*		
B39 Postal address		
B40 Suburb	B41 State	B42 Postcode
B43 Phone	B44 Mobile phone	
B45 Email		

Additional holder (if applicable)

B46 Title (Mr, Mrs, Ms)	B47 Surname	
B48 Given name(s)		
B49 Company/corporation name *(if applicable)*		
B50 ACN *(if applicable)*	B51 ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
B52 Position held *(if applicable)*		
B53 Name of company representative *(if applicable)*		
B54 Postal address		
B55 Suburb	B56 State	B57 Postcode
B58 Phone	B59 Mobile phone	
B60 Email		
B61 If more than four holders, specify total number of applicants and please provide these details on an additional page and attach it to this form.		

Section C: Nominated contact person

Note: If there is only one holder, you do not need to complete this section. If there are multiple holders and this section has not been completed, WaterNSW will assume the first holder listed on the form is the nominated contact person.

If a third party is acting on behalf of the water supply work approval holders and they are to be considered the nominated contact, their details must be provided below.

C1 Title (Mr, Mrs, Ms)	C2 Surname	
C3 Given name(s)		
C4 Company/corporation name *(if applicable)*		
C5 ACN *(if applicable)*	C6 ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
C7 Position held *(if applicable)*		
C8 Name of company representative *(if applicable)*		
C9 Postal address		
C10 Suburb	C11 State	C12 Postcode
C13 Phone	C14 Mobile phone	
C15 Email		

Listing a nominated contact person assists us in processing your application where there are multiple holders. We may need to contact the nominated contact person to discuss the details contained in your application. In addition, any request for additional information about your application will be sent to the nominated contact person. Any information provided by the nominated contact person will be relied upon by WaterNSW in considering this application. A delay in responding to any such request may result in your application being further delayed or refused.

The rights and liabilities arising in relation to this application is shared by all applicants and not limited to the nominated contact person. Any changes to any details of an application for a surrender (except for minor changes to contact details of an applicant) or withdrawal of the application must be in writing and signed and dated by all holders. Further, the Notice of decision issued in relation to your application will be sent to all applicants.

Section D: Nominated water access licence

Provide details below of any water access licences attached to this water supply work approval. If there is a nominated water access licence and you wish to continue to take water using this water access licence, another water supply work will need to be nominated. To nominate a new water supply work approval, use either the groundwater or surface water forms.

Nominated water access licence

D1 Nominated water access licence number

Section E: Decommission of water supply works

To surrender a water supply work approval the work/s must be unable to be used to take water unless it is exempt. For further information on exemptions, visit our Approvals webpage. Refer to the guide for surrender an approval for information on the action to be taken for decommissioning different types of works.

For bores

All constructed bores have been approved for decommissioning (where required under the water sharing plan (WSP), or relevant information provided. All bores are to be decommissioned in line with the minimum construction requirement for water bores in Australia.

Note: A Bore construction report (previously known as a 'Form A') is to be lodged for all decommissioned bores.

I/We, the applicant/s, understand and acknowledge that:

Please tick which is applicable.

☐ Bore has not been constructed

☐ Bore unable to be located on property and statutory declaration provided

☐ Bore has been constructed and decommissioned in line with the requirements outlined in the guide to the application and a Bore construction report (Form A) has been submitted by the Driller

Other works

For all other constructed water supply work approvals including pumps, pipes and dam, the work has been decommissioned unless exempt. Please tick which is applicable.

☐ Work/s have not been constructed

☐ Constructed work/s have been decommissioned

☐ Constructed works are exempt from requiring an approval

What specific exemption are you claiming? (Please provide justification for the works in their current shape/form/capacity or advise of any proposed modifications).

Section F: Declaration of approval holder(s)

- Each applicant should sign Section F.
- If there are more than four applicants, photocopy/print multiple copies of the entire form after Sections A to E have been completed (before anyone signs Section F).

Section F must be fully completed and signed by each holder of the water supply work approval that is being surrendered. If it is not fully completed, WaterNSW will return the application to the applicant/s as an invalid application. Please refer to the accompanying guide for surrendering a water supply work approval.

If there are multiple holders, please ensure that you retain signed copies of the completed application form for your records. It is an offence, under section 344 of the *Water Management Act 2000*, to make a statement that you know to be false or misleading in, or in connection with, this application.

I/We, the undersigned applicants, acknowledge and agree:

1. that I/we apply to surrender the water supply work approval as described in this application and all works included on the approval have been decommissioned unless exempt.
2. that this application will be determined in accordance with the *Water Management Act 2000* and any associated regulations or guidelines as in force from time to time, and that no right or entitlement shall arise pending determination of this application.
3. that the authorised contact person (where applicable) has my permission to act for and on my behalf in relation to any aspect of this application unless otherwise notified by us, and that WaterNSW will rely on information provided by the authorised contact person in its consideration of this application.
4. that the authorised contact person (where applicable) has my permission to act for and on my behalf in relation to any aspect of this application unless otherwise notified by us, and that WaterNSW will rely on information provided by the authorised contact person in its consideration of this application.
5. that all information contained in this application is accurate, true and complete in every detail and that the State will rely on such information.
6. that I/we have read and understood the information contained in the WaterNSW privacy statement (below).
7. that by entering a mobile phone number and/or email address, you consent to WaterNSW communicating with you electronically in relation to this application. Unless you indicate otherwise, all correspondence will be sent via email or SMS.
8. that WaterNSW may collect, use, and disclose my personal information as outlined in the WaterNSW privacy statement (below) and I consent to WaterNSW collecting, using and disclosing my personal information in accordance with the WaterNSW privacy statement.
9. that I/we consent to WaterNSW sharing my personal information with NSW Government agencies or State-Owned Corporations from time to time.
10. that the State does not provide any legal, financial, or technical advice in connection with this application and that any such advice, if required, is to be obtained independently.
11. that details about any approval arising out of this application will be recorded in the publicly available Water Register pursuant to the *Water Management Act 2000*.
12. that if this application is incomplete, it will not be accepted; and that more information may be requested if it is considered that it would be relevant to the consideration of this application.

I/We, the undersigned, apply for an approval described above for the nature and purpose specified in the application.

I/We state that the information provided for the purpose of this application is accurate and true.

For applications made by individuals

Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date

For applications made by a corporation

Executed for and on behalf of the applicant in accordance with section 127 of the *Corporations Act 2001 (Cth)* (if a company) or by its duly authorised officer (for other types of corporations):

Name of corporation		
ACN *(if applicable)*	ABN *(If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*	
Position of signatory *(Tick the appropriate box)*	☐ company director ☐ duly authorised officer	☐ sole director ☐ company secretary
Name of signatory	Signature	Date
Position of signatory *(Tick the appropriate box)*	☐ company director ☐ duly authorised officer	☐ sole director ☐ company secretary
Name of signatory	Signature	Date

Privacy statement

The personal information you provide on this form will be used and protected in accordance with WaterNSW Privacy policy. It is being collected by WaterNSW and will be used for purposes related to assessing and processing your application, or in connection with the operation of any approval granted, or for research-related purposes such as customer surveys. It may be used from time to time to contact you about services WaterNSW provides.

WaterNSW will not disclose your personal information to anybody else unless authorised by law. The provision of this information is voluntary. However, if you choose not to provide the requested information, we will not be able to process your application. You have the right to request access to, and correct details of, your personal information held by WaterNSW. Further information regarding privacy can be obtained from our website at waternsw.com.au

If an approval is granted, the *Water Management Act 2000* requires that various details relating to the approval are to be recorded in the Register of Water Approvals kept by the Minister. Information recorded in the register is publicly available.

Offences and penalties

It is an offence, under section 344 of the *Water Management Act 2000*, to make a statement that you know to be false or misleading in, or in connection with, this application.

A corporation found guilty of an offence against section 344 is liable to a penalty not exceeding $2.002 million. An individual found guilty of an offence against section 344 is liable to a penalty not exceeding $500,500. An access licence or approval may be suspended or cancelled under the *Water Management Act 2000* in certain circumstances. These include if the holder of the licence or approval is convicted of an offence under that Act.

Need help?

If you need further assistance, please contact our Customer Service Centre on 1300 662 077, Monday to Friday between 8am to 5pm or email Customer.Helpdesk@waternsw.com.au

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Clear form Print

Completion report for dewatering work

Providing a completion report is a condition of the approval and a copy of the completed form **must** be supplied **when or before you surrender the approval** to finalise the dewatering activity. You cannot surrender the approval without it.

All the information to be supplied is specified within this form.

To complete the form, you will be required to gather data at the commencement of works and during the dewatering activity.

What you need to do

Use this form to record and report groundwater taken by aquifer interference activities.[1]

Section A to E:

These sections require information on the following:
Approval held, dewatering duration/groundwater source, details of person taking water, activity description and location.

Section F to I:

For these sections you will be required to gather data at the commencement of works and during the dewatering activity.

Information to enter includes:
Summary of total water taken, record of metered volumes taken, summary of water level measurements from monitoring bores and water testing undertaken.

Note:

- Information must be supplied in accordance with approval held, refer to approval.
- To measure volumes, a meter must be used[7].
- Excel soft copies of measurement data may also be required. Please ensure these are provided in accordance with the instructions shown in that section.

Section J:

Complete form declaration.

Refer to the end of the form for information on:

- Returning completed forms and any attachments
- Where to get help
- Privacy statement
- Notes section

Section A: Approval held

Report submission date
Dewatering approval number
Approval expiry date

Section B: Dewatering duration / groundwater source

Dewatering duration	Days/Weeks/Months/Years
Dewatering start date	
Dewatering end date	
Groundwater source[2]	

Section C: Details of person taking water[3]

Full name		
Company/organisation (including ACN/ABN)		
Postal address		
Suburb	State	Postcode
Phone		
Email		

Section D: Activity description

Project name	
Describe the activity/s resulting in groundwater being taken[4]	
Describe the means by which the groundwater is being taken[5]	
Is your dewatering activity exempt from obtaining a water access licence under the Water Management (General) Regulation 2018	☐ Yes ☐ No
If no, please provide your water access licence number	

Section E: Activity location

Address		
Suburb	State	Postcode

or

Lot / Deposited Plan / Section

or

GPS coordinates[6] *(for example, 32.25316 S 148.60022 E)*

Section F: Summary of total water taken

Provide the below in accordance to approval held. **Important:** a meter must be used to measure volumes[7].

1. Duration of dewatering (pumping)[8] either a) or b):		
a) ☐ for water year	1 July	**to** 30 June
b) ☐ during dewatering period	From	**to**

2. Total volume pumped in either **a)**, **b)** or **c)** units[9]		
a) ☐ in Litres		L
b) ☐ in Kilolitres		kL
c) ☐ in Megalitres		ML

Section G: Record of metered volumes taken

Complete this section to record **metered** volumes taken. Either **daily** or **weekly** readings are required.

Refer to the conditions of your approval and the exemption (if applicable) to determine the reading frequency you need to provide.

Notes:

- A meter must be used to measure volumes[7].
- Please update the table required.
- If entries are longer than 5 lines, provide an Excel spreadsheet soft copy with the data. If a soft copy is provided - use the same headings and naming conventions as per the required daily or weekly table following.

Daily

Are any attachments included?	☐ Yes ☐ No
If yes, provide attachment name/s	

Meter brand type		**Meter serial number**	

Start date and time	**Start meter reading**	**End date and time**	**End meter reading**	**Volume taken**	**Units** (L, kL, ML)	**Date and time record made**

Weekly

If entries are longer than 5 lines, provide an Excel spreadsheet soft copy with the data. If provided in soft copy - use the same headings and naming conventions as per the table below.

Are any attachments included? ☐ Yes ☐ No
If yes, provide attachment name/s

Meter brand type		**Meter serial number**	

Week ending	**Start date and time**	**Start meter reading**	**End date and time**	**End meter reading**	**Volume taken**	**Units** (L, kL, ML)	**Date and time record made**

Section H: Summary of water level measurements from monitoring bores

Refer to the approval you hold to determine if required. If required, enter information in the table below and provide all measurement data separately in an Excel spreadsheet (soft copy).

If automatic loggers are used, the default Excel output soft copy, will be accepted provided it includes all the relevant measurement data and units.

If automatic loggers are not used, the Excel output soft copy must include as a minimum the following:

- Bore ID
- Date
- Time
- Water level measurement (m below MP)
- Measuring point description
- Measuring point RL (m AHD)
- Comments.

Are any attachments included?	☐ Yes ☐ No
If yes, provide attachment name/s	

Bore ID	Measuring point RL (m AHD)	Depth to water before dewatering (m)	Depth to water during dewatering (m)	Depth to water after dewatering (m)	File name of measurements spreadsheet attached
For Example: MB1	1.000	0.5	4.0	0.6	MB1.xlsx

Section I: Water testing undertaken

ⓘ Information supporting these entries must be captured and supplied as an attachment in Excel soft copy form.

Are any attachments included?	☐ Yes ☐ No
If yes, provide attachment name/s	

a) Range in pH measured	
b) Range in electrical conductivity (Salinity) in (µS/cm)	
c) Any other exceedance of water quality criteria?	☐ Yes (specify on the next page) ☐ No

Exceedance(s)

Section J: Declaration

I declare all information contained in this record is accurate, true and complete.

Signature	Date	
Name/Company officeholder		
Position	Phone	
Address		
Suburb	State	Postcode
Email		

Giving false or misleading information is a serious offence under Part 5A of the *Crimes Act 1900*. It is an offence under section 91J of the *Water Management Act 2000* for a person to make a statement or furnish information in or in connection with a metering record required to be kept that the person knows to be false or misleading in a material particular.

Privacy statement

The personal information that is provided in this form will be managed by WaterNSW in accordance with its Privacy Procedure, or other such Policy document as updated from time to time. The information provided in this form is being collected and used for purposes relating to the Record confirmation of specified matters before water is taken described in this form to the *Water Management Act 2000* (NSW). The information provided in this form may be disclosed to public authorities and other authorised parties as required.

If you choose not to provide the requested information in this form, you may not be able to take water and you may be in breach of the *Water Management Act 2000*. You have the right to request access to, and correct details of, your personal information held by WaterNSW. Further information regarding privacy can be obtained from waternsw.com.au/privacy

Returning completed forms

Please return your completed form/s and any attachments to:
Customer.Helpdesk@waternsw.com.au
In the subject line: Dewatering completion report - Approval (Approval reference number)

or by post to: **WaterNSW, PO Box 398, Parramatta NSW 2124**

Where to get help

Further information is available at waternsw.com.au/dewatering. If you need further assistance, please contact our Customer Service Centre on 1300 662 077, Monday to Friday between 8am to 5pm or email Customer.Helpdesk@waternsw.com.au

Notes

1. **Aquifer interference activity** has the same meaning as set out in the Dictionary to the *Water Management Act 2000* which is an activity involving any of the following:

   a. the penetration of an aquifer,
   b. the interference with water in an aquifer,
   c. the obstruction of the flow of water in an aquifer,
   d. the taking of water from an aquifer in the course of carrying out mining, or any other activity prescribed by the regulations,
   e. the disposal of water taken from an aquifer as referred to in paragraph d).

2. Refer to your approval for the **groundwater source** you are taking water from.

3. For infrastructure or construction projects this may be the **applicant's representative** for example a contractor.

4. **Describe the activity/s taking groundwater** while conducting the aquifer interference activity, and the number of works involved. For example:

   - extraction using a battery of 15 spear points to dewater a building construction site
   - groundwater extracted from a permanent sump in a building basement
   - groundwater extracted from a trench or excavation

5. Examples of the **means by which the groundwater is taken** include surface pump, airlift, downhole/submersible pump, bailer, water removed with ground materials, water freely draining from a cutting, pit seepage / inflow, evaporation from artificial lake that has filled from groundwater. Where several means of take are involved please identify the number and type of each.

6. Please provide GPS coordinates as longitude and latitude in decimal degrees.

7. Metering equipment must be used to measure volumes. Metering equipment consists of a meter and a data logger. **Telemetry is not required.** However, other metering equipment and standards may be specified by a condition of the water supply work approval. In the **event metering equipment becomes faulty**, you must report within 24 hours to WaterNSW at waternsw.com.au/s91i. An offence applies under section 91IA of the *Water Management Act 2000* for failing to report faulty metering equipment within 24 hours.

8. For Section F - I: Duration of dewatering (pumping) is elapsed time between the start and end dates for a period of continuous take. If the period of take extends over more than one water year, annual reporting may be required. This record must be retained for five years.

9. Record the **total volume of groundwater taken** in the water year/s for the groundwater source in either litres (L), kilolitres (kL) or megalitres (ML).

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