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Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

47-97 Marlborough Street, Surry Hills, NSW

E26534.E16.Rev0
9 March 2026

DOCUMENT CONTROL

Report Title:	Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis; 47-97 Marlborough Street, Surry Hills, NSW
Report No:	E26534.E16.Rev0

Copies	Recipient
1 Soft Copy (PDF – Secured, issued by email)	M House Surry Pty Ltd Attention: Ms Kira Freeman Level 3/189 Flinders Lane, MELBOURNE VIC 3000
1 Original (Saved to Digital Archives)	EI Australia Suite 6.01, 55 Miller Street, PYRMONT NSW 2009

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Revision	Details	Date	Amended By
0	Original	9 March 2026	-

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1. INTRODUCTION AND PROJECT DESCRIPTION

This Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis have been prepared by EI Australia on behalf M House Surry Pty Ltd (the Applicant) in support of a Housing Delivery Authority (HDA) nominated State Significant Development Application (SSDA) for a proposed mixed-use development at 47-97 Marlborough Street, Surry Hills, NSW, with concurrent rezoning (SSD-78545225). The report is submitted to the NSW Department of Planning, Housing, and Infrastructure (DPHI).

The application seeks development consent for the redevelopment of the site for an in-fill affordable housing residential development comprising 175 market and affordable housing dwellings. The works will involve the adaptive reuse of the heritage listed warehouse building known as the 'Former David Jones Factory'.

Specifically, the application seeks approval for the following:

- Demolition of the existing car park on the northern portion of the site.
- Site preparation works including:
  - Tree removal.
  - Excavation on the northern portion of the site.
- Alterations and additions to the existing warehouse building for the purposes of a residential flat building comprising:
  - Heritage conservation works to the warehouse building and alterations to the warehouse roof profile on level 8.
  - Four level addition to the warehouse building on the central portion of the site.
  - 134 residential apartments across 9 levels.
  - Indoor communal resident amenity and rooftop communal open space on level 7.
  - Service vehicle access from Goodlet Street to an at-grade loading dock.
  - Lower ground storage, plant and services area.
- Construction of a new residential flat building on the northern portion of the site comprising:
  - Basement car stacker and vehicular access from Landsdowne Street.
  - Retail tenancy on ground level on the corner of Marlborough Street and Landsdowne Street.
  - 38 residential apartments across 9 levels.
- Landscaping and associated public domain works including a private pedestrian link along the western site boundary.
- 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 Wardle appended to the Environmental Impact Statement.

As the proposed basement will likely intercept the local groundwater system, 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 6**, 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 7**. Discharge water quality trigger levels, water treatment, monitoring and reporting requirements are described **Section 8**, with tabulated management controls and dewatering contingency measures in **Section 9**.

Cumulative drawdown and water quality effects from long-term dewatering are assessed against the NSW Aquifer Interference Policy (AIP) in **Section 10**. Findings are reviewed for relevant factors including groundwater utility, ground settlement potential and water treatability, to demonstrate compliance with minimal impact considerations.

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

2. SITE CONTEXT AND DESCRIPTION

The site is legally described as Lot 1 in Deposited Plan (DP) 251056 and Lot 1 in DP225393, covering a total area of approximately 3,413m^2 (**Figure A2, Appendix A**). At the time of reporting, the site was occupied by a commercial building and associated amenities.

The site is located in the City of Sydney local government area (LGA) in Surry Hills (**Figure A1**, **Appendix A**), which is well-serviced by public amenities such as a supermarket, cafes, destination retail shops and a library. Community facilities such as swimming pools, tennis courts, and active open space are easily accessible. The southern portion of the site comprises a locally listed heritage item (the former David Jones Warehouse building) and the northern portion of the site accommodates a car park. The area to the east and south of the site is a Heritage Conservation Area.

The site is in a highly accessible area with the nearest Light Rail Station (Surry Hills) 200m to the north of the site. The site is also close to regular bus services in the immediate vicinity.

The existing building is built to the site boundaries. There are existing street trees along Marlborough Street, as well as some planter boxes containing vegetation on the site's north-eastern frontage to Marlborough Street.

An aerial of the site is provided in **Figure 1-1.**



Figure 1-1 Site Aerial

3. SEARs REPORTING REQUIREMENTS

This Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis report has been prepared to address the *Planning Secretary's Environmental Assessment Requirements* (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) for the subject SSDA, with specific SEAR(s) identified in **Table 3-1**.

Table 3-1 Planning Secretary's Environmental Assessment Requirements (SEARs)

SEAR	SEAR Description	Report Name or Report Section
12 Ground and Groundwater Conditions	▪ Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion ▪ Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as a 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	Groundwater resource use – **Section 5.4** Downstream surface water receptors – **Section 5.6** Groundwater dependent ecosystems – **Section 5.7** Soil salinity – **Section 5.8** Acid sulfate soils – **Section 5.9** Soil erosion – **Section 5.10** Construction dewatering groundwater take in ML/year – **Section 7.2** Potential impact to any surrounding properties via drawdown induced ground settlement – **Section 7.3** Discharge water quality for temporary disposal to municipal storm water system during construction dewatering phase – **Section 8.2** Consideration of the Aquifer Interference Policy and minimal harm assessment – **Section 10.1** Management / mitigation measures and strategies are detailed under Dewatering Contingencies in **Section 9.5**

4. OBJECTIVES, SCOPE AND FRAMEWORK

4.1 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 groundwater seepage analysis (GSA) report, which is attached in **Appendix D**;
- Describe the dewatering methodology, groundwater treatment requirements, monitoring and reporting procedures to be employed during construction phase 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 and reporting procedures for the occupational phase of the development; 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).

4.2 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 beneficial uses of the groundwater source, particularly in relation to any local water supply bores.
- A groundwater monitoring event (GME) completed to characterise baseline groundwater quality prior to dewatering and interpretation of laboratory results in relation to the relevant water quality criteria for the expected receiving waters.

This report also refers to information provided in EI's GSA report, which includes the findings from field-based hydraulic testing and computer-based groundwater modelling. Findings from the GSA report are incorporated into various parts of this hydrogeological report.

4.3 Regulatory Framework

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

Table 4-1 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.
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 2025.	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.
City of Sydney Council Plans and Policies	Provides controls and guidelines for development in the area. ▪ *Sydney Development Control Plan 2012*; and ▪ *Sydney* 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.*

5. SITE DESCRIPTION

5.1 Property Identification, Location and Physical Setting

Site identification details and associated information are summarised in **Table 5-1**. Figures illustrating the site location and assessment area are provided in **Appendix A**.

Table 5-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	47-97 Marlborough Street, Surry Hills, NSW
Lot and DP	Lot 1 in DP251056; and Lot 1 in DP225393
Site Area	3,413m^2 Source: *(LTS, 2025) Internal Detail & Level Floor Plans with 3D Revit Model within Lot 1 in DP225393 and Lot 1 in DP251056 in Surry Hills, Reference 52561-001, 27 June 2025.*
Site Coordinates	North eastern corner of the site (under GDA2020-MGA56): ▪ Easting: 334576.131729 ▪ Northing: 6248563.923884 Source: https://portal.spatial.nsw.gov.au/explorer/index.html
LGA	City of Sydney Council
Current Zoning	MU1 – Mixed Use (*Sydney Local Environmental Plan 2012*)
Current Site Use	The site is occupied by a commercial building comprising three adjoining components: an eight-storey office building in the southern portion, a three storey office building in the middle portion, and a single storey building with roof top open car parking in the northern portion of the site.
Typical Soil Profile	Based on current investigation data (see borehole logs in **Appendix E**), the general sub-surface soil profile comprises a layer of silty sand filling to a maximum depth of 0.7 mBGL, overlying residual clayey sand and sandy / silty clay to a maximum depth of 5 mBGL followed by shale / sandstone to 45.14$^+$ mBGL ($^+$ the maximum depth of investigation in borehole BH101M).

5.2 Surrounding Land Use

The site is situated within a predominantly residential area, as indicated in **Table 5-2**.

Table 5-2 Local Land Use

Direction	Land Use Description
North	Lansdowne Street and Belvoir Street, followed by Ward Park
South	Goodlet Street, followed by residential/commercial properties
East	Marlborough Street, followed by residential/commercial properties
West	Residential/commercial properties, followed by Riley Street

5.3 Regional Setting

A description of the regional setting, including ground surface topography, hydrogeology, acid sulphate soil conditions and soil landscape, is summarised in **Table 5-3**.

Table 5-3 Regional Setting Information

Attribute	Description
Topography	The site surface slopes towards the southeast, with ground elevations varying from RL 48.10 m at the northwest site corner to RL 40.98 m at the southeast site corner. (Source: *LTS, 2025).*
Site Drainage	Expected to be consistent with the ground slope, surface runoff towards the south of the site. Review of City of Sydney floodplain management stormwater catchment data hub indicated the site is located in the Alexandra Canal stormwater catchment, as detailed in **Section 2.6**. (Source: https://data.cityofsydney.nsw.gov.au/search?tags=drainage)
Regional Geology	Information on regional sub-surface conditions, referenced from the Department of Mineral Resources *Sydney 1:100,000 Geological Series Sheet 9130* (DMR, 1983), indicates the northern part of the site to be underlain by the Ashfield Shale Formation of the Mid-Triassic Wianamatta Group, which consists of black to dark-grey shale and laminite, and southern part of the site to be underlain by Quaternary (Holocene and Pleistocene) deposits consisting of medium to fine-grained marine sand with podsols, forming the northern edge of the Botany Sands Aquifer.
Soil Landscapes	The Soil Conservation Service of NSW *Soil Landscapes of the Sydney 1:100,000 Sheet* (Chapman and Murphy, 1989) indicates that the site overlies a Tuggerah (tg) aeolian landscape. The Tuggerah landscape is characterised by gently undulating to rolling coastal dune fields. Local relief to 20 m; slope gradients generally 1-10%; but occasionally up to 35%. North-south oriented dunes with convex narrow crests, moderately inclined slopes and broad, gently inclined, concave swales. Extensively cleared open-forest and eucalypt/apple woodland.
Acid Sulfate Soil (ASS) Risk	With reference to the *Botany Bay Acid Sulfate Soil Risk Map* (1:25,000 scale; Murphy, 1997), the site is not located within an acid sulfate soil (ASS) risk area. In such cases, ASS is not known or expected to occur and “land management activities are not likely to be affected by ASS materials”. With reference to the *Sydney Local Environmental Plan 2012* Acid Sulfate Soils Map, the site lies within a *Class 5* area. In such cases, ASSs are not known or expected to occur and “land management activities are not likely to be affected by ASS materials.”
Nearest Surface Water Feature	The nearest surface water feature is Lake Kippax located within Moore Park, located approximately 970m east of the site. As the site is within the Alexandra Canal stormwater catchment (see Site Drainage, above) it was noted that Sheas Creek (which flows to Alexandra Canal) is located approx. 1.7km southwest of the site.
Groundwater Flow Direction	Groundwater is anticipated to flow in a south to south-westerly direction, towards Alexandra Canal (Ref. Hatley, 2004).

5.4 Local Groundwater Use

An online search of WaterNSW records in relation to registered water bores was conducted on 5 February 2026 (https://realtimedata.waternsw.com.au/water.stm). The search identified one former monitoring bore and no active registered water supply bores within a 500m radius of the site. The archived bore data for the monitoring bore (GW102476) shows the bore licence status as “Abandoned”, as summarised in **Table 5-4**. The marked-up bore location plan and bore details are attached in **Appendix F**.

Table 5-4 Summary of Registered Groundwater Bores within 500m of the site

Bore	Date Drilled	Drilled Depth (m)	Distance / direction from site (m)	SWL (mBGL)	Yield (L/s)	Purpose
GW102476	1/01/1999	4.0	430 m north-east	NR	NR	Monitoring (Abandoned)

Notes: SWL – Standing water level; NR – No data recorded

5.5 Potential Sources of Contamination

Potential contamination sources as noted from the Detailed Site Investigation (DSI) report (EI, 2026c) were as follows:

5.5.1 Potential onsite sources

- Importation of fill of unknown origin and quality for levelling purposes;
- Site soils that may have been impacted by hazardous building materials (including potential asbestos-containing materials [ACM] and lead-based paints) if present, during the demolition of historical site structures;
- Hazardous building materials contained within current site structures;
- Application of pesticides around building (footing) perimeters; and
- Leaks from vehicles in the parking areas, an on-site transformer and potential underground petroleum storage systems (UPSS).

Potential contamination attributed to historical onsite land uses will be removed during bulk excavation for basement construction. Therefore, the potential for residual onsite contamination to impact water quality is deemed to be low.

5.5.2 Potential offsite sources

A review of neighbouring land uses and potential offsite contamination sources was commissioned for the preparation of the DSI report (EI, 2026d). The resulting report by Lotsearch Pty Ltd (Ref. *Lotsearch Report LS096776*) identified a number of historical, potentially contaminating land uses and business activities within 150 m radius of the site, which operated between 1948 and 1993, as follows:

- Auto Service Centre / Larke Hoskins Pty Ltd (Motor garages & engineers), 535 Riley Street, 40 m west of the site (1964 - 1980);
- New Hollywood / Colpan Bros (Dry cleaners), 347 Cleveland Street, 93 m southwest of the site (1979 - 1983);
- United Body Works Pty Ltd (Motor garages & engineers), 2 Young Street, 93 m southwest of the site, 1956 - 1964;
- B.E.S.T. / Cooks Motors, 153-155 Cleveland Street, Redfern, 93 m southwest of the site, 1956 - 1950;
- Mel-Wyn Dry Cleaners (Dry cleaners), 145 Cleveland Street, 98 m south of the site, 1948 - 1952;
- BP Food Plus (Motor garages & service stations), 373 Cleveland St., 108 m south of the site, 1989 - 1993;
- Esso Cleveland Street / Coutinho (Motor garages & service stations), 383 Cleveland Street, 111 m southeast of the site, 1975 - 1991;
- Golden Grove Service Station (Shell) (Motor service stations), 121-125 Cleveland Street, 111 m southeast of the site, 1964 - 1972; and

- Shehadie Bros (Dry cleaners), 307 Cleveland Street, 139 m southwest of the site, 1959 - 1971;
- Imperial Garage (Motor garages & service stations), 397 Cleveland Street, 141 m southeast of the site, 1948 - 1949;
- Malaxos M. & Sons (Dry cleaners), 553 Crown Street, 143 m southeast of the site, 1975 - 1976; and
- Ankara (Dry Cleaners), 314 Cleveland Street, 147 m west of the site, 1984 - 1988.

Given the age of these former activities and considering that evidence of contamination has not been reported, the risk of impacts to local groundwater quality is considered to be low. Furthermore, due to the absence of active groundwater supply bores within the area, there are no local groundwater users at risk of suffering any adverse impacts to groundwater quality; therefore, the risk of lowering of the beneficial use category of the groundwater source due to dewatering is concluded to be low.

Notwithstanding, the design of the water treatment system at the site dewatering activity should be mindful of, and able to respond to the potential detection of petroleum hydrocarbons and/or chlorinated solvent (dry cleaning) chemicals, should they be discovered at significant concentrations during dewatering monitoring.

5.6 Potential Environmental Receptors

During construction dewatering the extracted groundwater will be pumped through a water treatment system and then discharged to the municipal stormwater network, via a drainage pit located on or close to Marlborough Street, which is within the Alexandra Canal stormwater catchment, as indicated on the City of Sydney Data Hub floodplain management catchments search tool (Source: https://data.cityofsydney.nsw.gov.au/search?tags=drainage).

Due to tidal influences and surrounding industrial land uses, Alexandra Canal is deemed to be a moderately disturbed marine ecosystem for discharge water quality considerations, as described in **Section 5.2**.

5.7 Groundwater Dependent Ecosystems

A search of the NSW Water Sharing Plan for the Greater Metropolitan Region groundwater Sources 2023 – Schedule 4 was conducted on 5 February 2026. Table 4 of Schedule 4 did not list any high priority groundwater dependent ecosystems (GDEs) within 500 m of the site.

This information was used in the minimal harm assessment considerations under the NSW Aquifer Interference Policy, as described in **Section 10** of this report.

5.8 Soil Salinity

The site and its surrounding area have not been assigned any salinity classification according to the Map of Salinity Potential (DCCE, 2002). It was therefore assumed that the potential for saline soils was low, and further assessment in regards to soil salinity was therefore considered unwarranted.

5.9 Acid Sulfate Soils

As documented in **Table 2-3**, both the Ku-ring-gai Local Environmental Plan 2015 (Sheet ASS_15) and Prospect/Parramatta Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy 1997), identified a low risk of acid sulfate soils. Given the site elevation, the map information and the proposed development, further assessment of ASS was considered unwarranted for the site.

5.10 Soil Erosion

As the site will be largely covered by building structures and landscaping underlying, constructed basement car parking facilities, pedestrian walkways and drainage control, erosive dispersion is not a significant risk for the proposed development.

The following measures are considered relevant however, for minimising erosion in proposed landscaped areas with vegetation:

- Areas of established vegetation should be maintained (where possible). In areas of deep soil, mulch should be used or salt tolerant plants should be planted to use the groundwater source and reduce infiltration.
- Landscaping plans apply to ‘waterwise’ gardening principles. However, procedures designed to encourage excessive infiltration through the soil should be avoided. In certain landscaping situations, infiltration measures to be incorporated may include a sub-surface drain and liner when rapid infiltration to groundwater is likely to occur.
- Irrigation systems should be properly installed to avoid leakage and smart sprinkler systems should be considered.
- Watering of open space should be kept to a minimum.
- Over-watering must be avoided.

6. GROUNDWATER CONDITIONS

6.1 Previous Investigations

Previous investigations of the site included the following reports:

- EI (2025) *Geotechnical Investigation, 61 Marlborough Street, Surry Hills NSW,* prepared by EI Australia Pty Ltd, report ref. E26534.G03, 8 November 2025;
- EI (2026a) *Additional Geotechnical Investigation, 47-97 Marlborough Street, Surry Hills NSW,* prepared by EI Australia Pty Ltd, report ref. E26534.G04, 3 February 2026;
- EI (2026b) *Groundwater Level Monitoring Report No.1, 61 Marlborough Street, Surry Hills NSW,* prepared by EI Australia Pty Ltd, report ref. E26666.G11.GW02, 23 October 2025 (the 'GLM' report);
- EI (2026c) *Groundwater Seepage Analysis, 47-97 Marlborough Street, Surry Hills NSW,* prepared by EI Australia Pty Ltd, report ref: E26534.G12_Rev0, 11 February 2026 (the 'GSA' report); and
- EI (2026d) *Detailed Site Investigation*, *47-97 Marlborough Street, Surry Hills NSW,* prepared by EI Australia Pty Ltd, report ref: E26534.E02_Rev0, issued as Draft on 20 February 2026 (the 'DSI' report).

The GLM and GSA reports are presented in **Appendix D**. Pertinent details from the above reports are summarised as follows:

- **EI (2026a) Additional Geotechnical Investigation** – Included the drilling of three boreholes (BH101M, BH102M and BH103M), which were converted into groundwater monitoring wells. Borehole and well construction logs are provided in **Appendix F**. Hydraulic conductivity tests were carried out and borehole logs were prepared, as summarised in **Section 6.2**.
- **EI (2026b) GLM Report** – Documented continuous groundwater levels for the monitoring period 22 September 2025 to 8 January 2026 for the monitoring wells BH101M, BH102M and BH103M. The monitoring data was analysed to assess how the groundwater flow regime varied between high and low groundwater depth conditions, as presented in **Section 6.3**.
- **EI (2026c) GSA report** – This report provided details of the proposed excavation shoring design, hydraulic conductivity values based on field test results, site-specific groundwater modelling findings including predicted water level drawdowns, expected groundwater inflow and discharge volumes and predicted, drawdown-induced ground settlement rates.

6.2 Hydrogeological Conceptual Model

Based on a review of published hydrogeological data and previous investigations undertaken at the site, the Hydrogeological Conceptual Model for the site is summarised as follows:

- Subsurface soil profile:
  - Fill - Silty Sand, brown/grey, with brick fragments & gravel, to maximum depth 1.3 m BGL;

  - Residual Soil - Silty Clay, medium plasticity, yellow mottled brown, fine grained, angular to sub-angular gravels, to maximum depth 3 m BGL;
  - Bedrock - Shale, grey to dark grey, brown, with iron staining, very low strength, to maximum depth 11.04 mBGL (groundwater seepage at 7.0 mBGL at BH102M); and
  - Bedrock – Sandstone, pale grey, cross-bedded, minor siltstone & carbonaceous laminations, fine to medium grained, becoming coarser grained with depth, investigation terminated in sandstone at 45.14 mBGL.

- Groundwater is under pressure within the sandstone bedrock, with SWLs ranging between 4.48 and 9.8 mBGL, as measured on 19 September 2025 at monitoring wells BH101M, BH102M and BH103M.
- Based on rising head tests completed at each well, sandstone bedrock hydraulic conductivities were calculated as follows:
  - BH101M - between 8.10 x 10^{-8} and 8.50 x 10^{-8} m/s;
  - BH102M - between 1.90 x 10^{-8} and 5.50 x 10^{-8} m/s; and
  - BH103M - between 1.57 x 10^{-7} and 2.65 x 10^{-7} m/s.
- Groundwater flow direction in the vicinity of the site is anticipated to be in a south-westerly direction, towards Sheas Creek, which drains to Alexandra Canal. Further analysis of hydraulic gradient is presented in **Section 6.3**.

6.3 Pre-Dewatering Groundwater Depth and Hydraulic Gradient

EI completed three months of continuous groundwater level monitoring at the wells BH101M, BH102M and BH103M from 22 September 2025 to 8 January 2026. Monitoring results were reported graphically with rainfall data overlays, as shown in the hydrographs presented with the GSA report (in **Appendix D**). Maximum and minimum groundwater levels recorded during the continuous monitoring period are summarised in **Table 6-1**. Bold values highlight the highest and lowest recorded groundwater levels for the entire monitoring period.

Table 6-1 Summary of Groundwater Monitoring Results

Well ID	Ground Surface RL (mAHD)[1]	Average G/water RL (mAHD)[2]	Highest Groundwater RL (m AHD) / Date / Time	Lowest Groundwater RL (m AHD) / Date / Time	Contoured groundwater levels	
					at time of Highest g/water level (m AHD) [3]	at time of Lowest g/water level (m AHD) [4]
BH101M	49.50	38.99	**39.24** 8/10/2025/18:45	38.71	**39.24**	38.83
BH102M	46.90	38.14	38.89	37.70	38.58	37.74
BH103M	41.80	36.84	37.55	**36.47** 28/12/2025/3:45	37.23	**36.47**

Note 1 – The Ground surface RL at each monitoring well was extrapolated from spot elevation shown on the site survey plan (LTS, 2025).

Note 2 – The average groundwater RL as calculated for the recorded groundwater levels at each well for the indicated continuous groundwater level monitoring period.

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

Note 4 – 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 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 **Figure A3**, **Appendix A**. The analysis showed that:

- The highest recorded groundwater level occurred at BH101M at 12:30am on 8 October 2025. Based on the contour analysis for water levels at this time, groundwater was inferred to be flowing in a south-easterly direction, under a hydraulic gradient of 0.05.
- The lowest recorded groundwater level occurred at BH103M at 7:00am on 28 December 2025. Based on the contour analysis for water levels at this time, groundwater was inferred to be flowing in a south to south-easterly direction, under a hydraulic gradient of 0.08.

Groundwater levels showed no significant variation over the monitoring period, with minimal fluctuation from the initial groundwater level, as indicated in the hydrographs included with the water level monitoring report, attached to the GSA report (**Appendix D**).

Based on groundwater levels observed on the site, a design groundwater level of RL 40.25 m is adopted for the groundwater modelling, as described in the GSA report. The adopted groundwater level for modelling purposes allowed for a possible seasonal variation of 1.0 m above the highest groundwater level encountered in the monitoring wells during the monitoring period.

6.4 Baseline Groundwater Quality Assessment

6.4.1 Monitoring Well Locations

The 19 September 2025 GME involved groundwater level gauging and sampling at the monitoring wells BH101M, BH102M and BH103M. The collected data were used to characterise pre-dewatering groundwater quality. Given the confirmed south to south-easterly groundwater flow direction (**Section 6.3**), BH103M was deemed to be the down-gradient monitoring well.

6.4.2 Sampling Analysis and Quality Plan

The sampling, analytical and quality plan (SAQP) ensured that the data collected were representative of onsite groundwater quality 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).

6.4.3 Data Quality Assessment

Laboratory chain-of-custody, sample receipt documentation and internal laboratory QA/QC data are attached in **Appendix G**, with the laboratory analytical reports are also presented in the same appendix.

A data quality assessment in relation to field tests and laboratory QA/QC is presented in **Appendix H**. 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.

6.4.4 Groundwater Sampling Methodology

The groundwater sampling methodology followed during the GME is described in **Table 6-2**.

Table 6-2 Summary of Groundwater Sampling Methodology

Activity/Item	Details
Fieldwork	The GME involved water level gauging, well purging, field-based testing of physiochemical parameters during groundwater sampling on 19 September 2025.
Well completion and screen interval depths	▪ BH101M: well depth 27.9 mBGL, screen interval 22.0 to 28.0 mBGL; ▪ BH102M: well depth 24.7 mBGL, screen interval 19.0 to 22.0 mBGL; and ▪ BH103M: well depth 25.10 mBGL, screen interval 18.5 to 25.2 mBGL. All depths are approximate approximately and monitoring well construction logs are presented in **Appendix E**.
Well Gauging	Monitoring wells were gauged to determine SWL prior to well purging and groundwater sampling. Gauging was conducted with a water/oil interface probe to assess for the presence of light non-aqueous phase liquid.
Well Purging, Water Quality Measurements and Sampling	Groundwater was purged and sampled by low-flow / minimal draw-down method, using a micro-purging bladder pump with dedicated tubing. During the 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* 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 sampling vials and bottles.
Decontamination Procedure	Sampling equipment (interface probe and portable water quality probes) were decontaminated between sampling locations by washing in a solution of potable water and PFAS-free detergent, 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	Pre-preserved sample containers were supplied by the laboratory as follows: ▪ one, 500ml amber glass, acid-washed and solvent-rinsed bottle; ▪ one, 250ml amber glass, acid-washed and solvent-rinsed bottle; ▪ two, 40ml glass vials, pre-preserved with dilute hydrochloric acid and Teflon-sealed; ▪ one, 150mL, HDPIE 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 6.4.5**. Samples for metals analysis were field-filtered using 0.45 µm pore-size membranes. All sample containers were filled with sample to the brim then capped and stored in insulated chests (containing chilled ice bricks), until completion of the fieldwork and during sample transit to the laboratory.
Sample Transport	After sampling, the chilled chests were transported to SGS Pty Ltd (SGS; the primary laboratory) using strict chain-of-custody (COC) procedures. A Sample Receipt Advice (SRA) form was provided by the laboratory to document sample condition upon receipt. Copies of the SRA forms and COC certificates are presented in **Appendix G**.
Quality Control, 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 required holding timeframes, as documented in the corresponding laboratory reports (also in **Appendix G**). In addition to an inter-laboratory duplicate sample analysed by Envirolab Services Pty Ltd (the secondary laboratory), QC analyses comprised a blind (intra-laboratory) field duplicate analysed by SGS.

6.4.5 Tested Parameters

As summarised in **Table 6-3**, groundwater samples from wells BH101M and BH102M were analysed for a condensed, *Standard suite* of analytes; however, the sample from well BH103M 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 site characterisation purposes.

The *Extended baseline 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 (CO3), 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 parameters were also analysed:
  - Semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs), which included chlorinated VOCs;
  - Total Cyanide;
  - Total Phenols; and
  - Perfluoroalkyl and polyfluoroalkyl substances (PFAS).

The *Standard 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, SVOCs, chlorinated aliphatic compounds; and
- Total cyanide and total phenols.

Table 6-3 Summary of Groundwater Quality Test Parameters

Sampling Date	Monitoring Well	Testing
19/09/25	BH101M	Standard suite
	BH102M	Standard suite
	BH103M	Extended baseline suite

6.4.6 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(α)pyrene). For parameters that are not currently addressed by the ANZG marine water DGVs, relevant alternative criteria were adopted, as detailed in **Section 8.2**.

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

6.4.7 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 6-4**. 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 clear to light brown, with low turbidity;
- Sulfuric odour or visual evidence of contamination were detected during well purging and groundwater sampling; and
- No petrochemical or oily sheen was observed on the surface of the purged / sampled groundwater.

The field water quality data indicated that groundwater beneath the site was slightly acidic to slightly alkaline (pH: 5.09 – 9.13), fresh (EC values ranging between 489 – 798 µS/cm), oxygen depleted (DO: 1.93 mg/L), with oxidising conditions as indicated by the positive adjusted redox values (61.2 – 293.05 mV).

Table 6-4 Groundwater Field Data (GME date: 19 September 2025)

Well ID	Date	DO (mg/L)	pH	EC (µS/cm)	Temperature (°C)	Eh [1] (mV)
BH101M	19/09/25	0.00	5.09	798	18.54	293.5
BH102M		0.00	7.01	1148	17.99	275.1
BH103M		1.93	9.13	489	16.9	61.2

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

6.4.8 Laboratory Analytical Results

Laboratory documentation is attached in **Appendix F**. With reference to the results summary tables presented as **Table B1** and **Table B2** (**Appendix B**), the results of the 19 September 2025 (most recent) GME showed compliant groundwater concentrations with the discharge water criteria (DWC) in most samples, with the following exceptions:

- Laboratory pH results ranged between 5.4 and 7.5, and field pH results ranged between 5.09 and 9.13, which are outside of the discharge water criteria (DWC) range of pH 6.5 – 8.4;
- Turbidity was above the DWC value 10 NTU at all three monitoring wells: BH101M (150 NTU), BH102 (110 NTU) and BH103M (240 NTU);

- The dissolved metal aluminium was above the DWC (37 µg/L) at two monitoring wells (74 µg/L in BH101M and 55 µg/L in BH102M);
- The dissolved metal manganese was above the DWC (80 µg/L) at monitoring well BH103M (190 µg/L);
- Total nitrogen was above the DWC value 120 µg/L in groundwater sampled at monitoring well BH103M (950 µg/L);
- Total phosphorus was above the DWC value 25 µg/L in groundwater sampled at monitoring well BH103M (580 µg/L); and
- Filterable Reactive Phosphorus was above the DWC value 10 µg/L in groundwater sampled at monitoring well BH103M (130 µg/L).

6.4.9 Water Treatment Requirements

Water treatment during construction dewatering

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

- pH;
- Turbidity;
- Dissolved metals (particularly aluminium and manganese);
- 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:

- Addition of flocculent/coagulant for settlement of suspended particles, which would lower the 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 settlement to take place; and
- A 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 8.4**. Additional information in regards to water treatment system design and maintenance are provided in **Section 8.5**

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 operational stormwater discharge, as described in **Section 10.3**.

7. DEWATERING METHODOLOGY

7.1 Excavation and Shoring

As stated in **Section 1.2**, the proposed development towards the southern and central portions of the site involves alterations and additions to the existing heritage warehouse building and addition of four extra levels to the existing warehouse building on the central portion of the site. Development of the northern area involves demolition of the existing carpark and construction of a mixed-use development comprising a 10-level residential and retail commercial tower overlying a seven level basement car park stacker.

To achieve the BEL, excavation depths ranging between 26.1 m and 29.1 mBGL are estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

With reference to the GSA report (**Appendix D**), the shoring system will comprise a soldier pile wall followed by vertical cuts in competent bedrock. The excavation face adopted in the groundwater model was therefore assumed to be designed as a fully permeable shoring system that is free to drain inflowing groundwater seepage.

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.

7.2 Estimated Groundwater Take Volume

As described in the GSA report, groundwater seepage analysis was undertaken using the software package PLAXIS 2D Advanced (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. As the basement will be designed as a draining structure for this project, groundwater mounding was not a consideration for modelling purposes.

Based on a specific set of assumptions and field test data, which included determination of the design groundwater level for various sections of the basement, as well as the onsite, layer-specific hydraulic conductivities, groundwater seepage flow into the excavation during basement construction is predicted to be **2.64 ML** over a projected 365 days of construction dewatering (i.e. 7.23 m^3 / day).

It is noted that in accordance with the NSW *Water Management (General) Regulation 2025*, and the current dewatering exemption for *coastal construction of infrastructure*, a Water Access Licence (WAL) is not required for any volume of groundwater taken during the construction phase of the project. A WAL would be required however, for the operational phase of any project where the estimated groundwater take is more than 3 ML/year, in the absence of any other relevant exemption. Based on the modelled seepage inflow volume (< 3 ML) therefore, a WAL is also not required for the operational phase of this project.

7.3 Cone of Depression Extent, Ground Settlement & Drawdown Monitoring

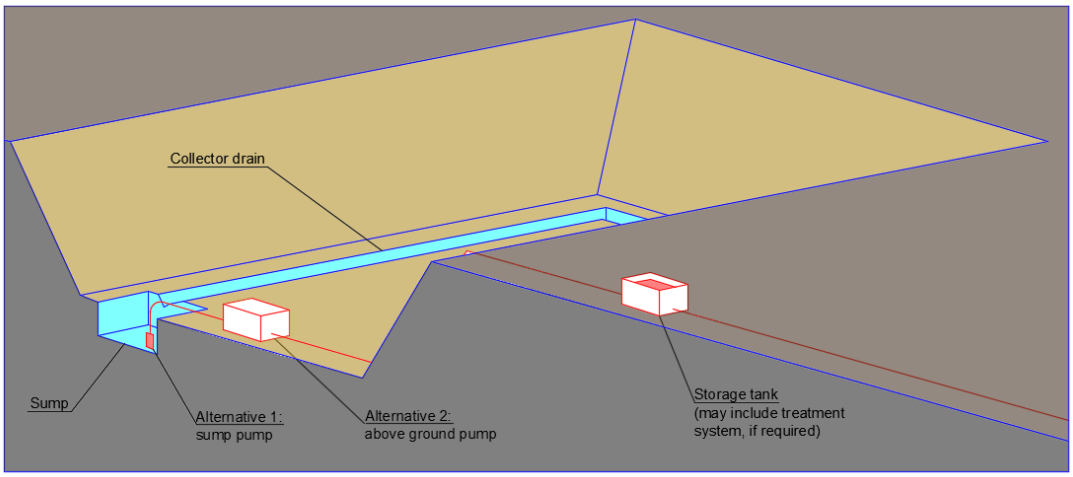
Based on an estimated extent of drawdown influence of 30 m outside of the shored boundary groundwater modelling results predicted a maximum groundwater drawdown of 9 m at the site boundary. The predicted drawdown levels would result in drawdown-induced ground settlements of less than 1mm outside of the constructed basement perimeter, thus posing 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 in selected monitoring wells by electric water contact meter during each dewatering monitoring event, as described in **Section 8.3**.

7.4 Dewatering Method

In low yielding fractured bedrock aquifer conditions a sump and pump system is typically used to control water seepage flow into the excavation during basement construction, as illustrated in **Figure 4-1**.

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



7.4.1 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 predicted rate of groundwater seepage inflows during basement construction, modelled at 7.23 m^3/day (**Section 7.2**).

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 position of the dewatering treatment system and water retention tanks, prior to the commencement of the excavation works.

7.4.2 Operational Phase Dewatering

A drained basement design will require the collection of groundwater seepage via onsite detention storage (OSD tank, or equivalent), with discharge to the municipal stormwater system for the operational life of the project.

It is understood that WaterNSW 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, which found minimal impact requirements would be satisfied, as described in **Section 11**.

7.5 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 8.4.3**), 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 8.4**. For the operation phase, these monitoring events will be conducted annually, as described in **Section 11.3**.

7.6 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 7-1**.

Table 7-1 Assessment of Potential Dewatering Effects

Attribute	Description
Proximity of Groundwater Dependent Ecosystems (GDEs)	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 5.6**.
Potential water supply losses by groundwater users	As described in **Section 5.4**, a review of registered bores within a 500 m radius of the site indicated no water supply bores in the locality, indicating that no groundwater was being utilised or relied on as a water supply source. There are no known groundwater users therefore water supply losses are unlikely to be experienced by local groundwater users.
Potential impacts on groundwater quality resulting from contaminant migration	Former, potential contamination sources have been identified within 150m radius to the site, as described in **Section 5.5.** As groundwater is not utilised for water supply purposes within 500m of the site, it is unlikely that groundwater quality impacts due to site dewatering would cause degradation of the beneficial use category of the groundwater source for any user. Potential on-site contamination sources will be removed during basement excavation.
Potential subsidence of neighbouring structures	Drawdown-induced ground settlement for the proposed development was estimated to be less than 1mm close to the shoring wall, and decreasing at further distances from the basement. Ground settlements less than 10mm are considered to pose a 'Negligible' risk in regards to category of damage risk due to dewatering, as described in the GSA report.
Mounding of water up gradient of structure	As the basement will be designed as a draining structure for this project, groundwater mounding is not a consideration.

8. WATER QUALITY MANAGEMENT

8.1 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 11.3**).

8.2 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 (2018) guidelines do not provide values. This requirement is in compliance with the *Protection of the Environment Operations Act 1997*.

The identified primary receiving water body is Alexandra Canal, which is a concrete-lined stormwater channel, receiving runoff from urban-industrial infrastructure, qualifying it as a disturbed system. As water in the channel is also tidally influenced, it therefore approximates a disturbed marine ecosystem (**Section 5.6**). The ANZG *95% Marine Default Guideline Values* (*DGVs)* and 99% *DGVs* for bio-accumulative toxicants were therefore adopted as the Discharge Water Criteria (DWC). These will be the water quality trigger levels for contingent actions (see **Section 9.5**) 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 8-1**. The listed parameters and their respective criteria are applicable for the assessment of water quality to confirm suitability for discharge to the storm water system.

The listed parameters and corresponding criteria will apply for collected waters being discharged to the storm water system during the construction and occupational phases of the development. It is noted however, that testing of specific analytical parameters is not mandatory after the baseline groundwater quality assessment, in accordance with the *Routine water quality monitoring lists* in Appendix A of DPIE (2022).

Table 8-1 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	
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]
Total 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
Phenol	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 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 typical slightly - moderately disturbed freshwater ecosystems are applied for the indicated parameters (*aluminium, arsenic, boron, selenium, o – xylene and p - xylene*), in the absence of *marine* water criteria. The ANZG 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 CaCO3) 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), 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).

8.3 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 7.4.5**), an additional pre-dewatering GME is unwarranted.

8.4 Discharge Water Quality Monitoring

8.4.1 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 8.6**.

8.4.2 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 receiving water bodies.

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 8-1** (**Section 8.2**) 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:
  - Water pumped from the seepage collection sump will be initially 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 in treated water 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 8-1**).
- 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 groundwater should be discharged until it is proven to meet the 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 10.3**.
- As per the construction phase monitoring, contingency measures detailed in **Section 9.5** 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.

8.4.3 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 8-1**). 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* will be prepared by the appointed Environmental Consultant, as described in **Section 8.6.1.** 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 8.6**, and will be submitted to Council and Water NSW.
- **Annual Dewatering Monitoring Reports** will be prepared as described in **Section 8.6.2**, upon receipt of laboratory data for each annual round of water quality monitoring during the operational phase of the development, as described in **Section 10.3**.

8.4.4 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 8.6**).

8.4.5 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.

8.5 Water Treatment

8.5.1 Treatment System Design

Baseline groundwater quality data to date (**Section 6.4**) indicate that treatment of seeped groundwater will be necessary in relation dissolved metals (particularly aluminium and manganese), nitrogen, phosphorous, pH and turbidity, which have been detected at levels that are outside of the DWC.

EI suggests 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 will be implemented, if necessary, depending on which parameters are found to exceed the DWC during the Trial-Run period described in **Section 8.4.2**.

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 7.4.1**);
- 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 and other parameters, which may be required as described in **Section 9.5** *Dewatering Contingencies*;
- Other water treatment to ensure that discharge water quality meets the DWC values and ranges specified in **Table 8-1**;
- 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 meeting the DWC is discharged to the storm water network.

8.5.2 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.

8.6 Reporting of Dewatering Information

8.6.1 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 I**).

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.

8.6.2 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 8.6.1**), 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 10.3**.

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.

8.6.3 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 I**).

9. SITE MANAGEMENT AND CONTROLS

9.1 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.

9.2 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

9.3 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.

9.4 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).

9.5 Dewatering Contingencies

Contingent actions for scenarios that may arise during dewatering are detailed in **Table 9-1**.

Table 9-1 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 8.2, Table 8-1**. 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 adopted criteria, the treated water outlet may be redirected to receiving water bodies; however 4) Should the analytical result for the confirmation sample show that the discharge water quality does not comply with the

Anticipated Problems	Preventive / Corrective Actions
	adopted criteria, 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 adopted criteria 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 7.2**) 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 8.6**: *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 adopted criteria, follow the corrective actions corresponding to *Water Quality Criteria Exceedance* above. Expand the adopted criteria 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.

10. MINIMAL HARM ASSESSMENT

10.1 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.

10.1.1 Hydrogeological Model Summary

With reference to the site-specific hydrogeological conceptual model (**Section 8.2**), for a bedrock aquifer with groundwater under pressure, groundwater seepage would enter the excavation flowing through joints, faults and bedding plane fractures within the bedrock. 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.

10.1.2 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 was shown to be fresh in terms of water salinity with EC values ranging from 420 to 860 µS/cm, and a maximum laboratory TDS of 510 mg/L (see **Table B2**). With reference to the GSA report, modelled inflow to the basement will be 7.23 m^3/day, which equates to 0.08 L/s. 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.

10.1.3 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 that are under groundwater pressure conditions, 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 40m 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.*

10.1.4 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:

- The lack of registered water supply bores within 500m of the site (**Section 5.4**) indicates that groundwater is not relied on as a local water supply source. As there are no beneficial users of the groundwater source within the zone of drawdown influence that would be adversely affected by any drop in groundwater levels, the *Level 1 minimal harm conditions* in relation to drawdown would be maintained.
- A maximum drawdown of 9 m has been modelled (**Section 7.3**) for the basement boundary during site dewatering activities, based on an estimated cone of depression extent of 30 m for the dewatering activity. As the drawdown close to the site will occur in competent bedrock, with less than 1 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 offsite groundwater contamination sources were identified (<150m) in the form of former automotive motor garages, dry cleaners and service stations. As groundwater is not being utilised for water supply purposes, site dewatering would be unlikely to adversely impact the beneficial use category of the groundwater source and the *Level 1 minimal harm conditions in relation to water quality* would be maintained.
- Any potential on-site 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 is no documented, high priority, groundwater dependant ecosystem within 500 m of the site that would be at risk from any impacts arising from the dewatering activity.
- 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 9.5**, are designed to ensure that potential impacts are minimised.

10.2 Assessment Inputs

The inputs for assessing the potential impacts of dewatering on the groundwater system are summarised in **Table 10-1**.

Table 10-1 Assessment inputs summary

Assessment Items	Comments
1. Estimated water take volume	As detailed in **Section 7.2**, the water take volume is estimated to be **2.64 ML** per year during the construction and operational phases of development.

Assessment Items	Comments
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 down from north-west towards south-east, with ground elevations varying from R.L. 48.10 m at the north-west site corner to R.L. 40.98 m at the south-east site corner.
4. Geotechnical ground characterisation	Refer to GSA report in **Appendix D**.
5. Water level measurements	Groundwater levels were measured at depths from 37.32 m AHD, 37.91 m AHD and 39.7 m AHD at BH101M, BH102M and BH103M during 19 September 2025 GME, as detailed in **Section 6.3**. 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 8.3.2**.
6. Required water level drawdown and potential impacts	The GSA (EI, 2026c) determined approximately 9 m drawdown at the site boundary as a result of the site dewatering. Due to competent bedrock conditions however, less than 1 mm of drawdown induce ground settlement is predicted (**Section 7.3**). Potential impacts are tabulated in **Sections 7.6** and **10.1.4**.
7. Works proposed for dewatering	A drained basement using drainage of sub-soil seepage waters and a sump-and-pump system and water treatment, as described in **Sections 7.4** and **8.5**.
8. The base level of the aquifer	Fractured sandstone bedrock extends below the proposed BEL, see **Section 6.2**.
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 (EI, 2026c) in **Appendix D**.
11. Anticipated duration of dewatering	Construction dewatering is estimated to last 365 days, and will be followed by ongoing dewatering during operational dewatering for the life of the project.
12. Depth of piling embedment beneath bulk excavation	Refer to **Section 7.1** – embedment depth will be provided with final design and detailed shoring plans.

10.3 Operational (Occupational) Phase Dewatering Management

10.3.1 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 8-1**. 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.

10.3.2 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 24 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 and to demonstrate groundwater drawdown levels.

  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. 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 in metres relative to Australian Height Datum and the name and company of the person conducting the monitoring.

  Should the environmental consultant discover that the monitoring wells are no longer functional, Strata Management must be immediately notified to implement the Well Replacement Protocol described in **Section 10.3.3**.

- **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, then every 6 months for year two.

- **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, 24 months and 36 months of operation). Treated water samples will be laboratory analysed for the water quality parameters listed in **Table 8-1**, to confirm compliance with the DWC. Laboratory analytical reports and associated results summary tables must be returned to Strata Management for record archiving. The data will also be attached to the annual monitoring report.

- **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 8.6**), 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 dewatering monitoring report after the 24th 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. Should this not be the case, then ongoing monitoring for occupational phase dewatering will be reviewed accordingly.

The appointed environmental consultant will provide notification to Council to document the termination or continuation of monitoring, if warranted. Should monitoring be continued, a review of monitoring frequency will be undertaken and appropriate notification to Council and WaterNSW will be issued by the appointed environmental consultant, through Strata Management.

10.3.3 Monitoring Well Replacement Protocol

EI notes that the existing groundwater monitoring well BH2M is located outside the basement footprint (the 'external wells'), at least one well (and if practical, all external wells) should be preserved to enable groundwater level monitoring close to the basement.

Should all existing wells be damaged during the construction works, installation of a new, long-term, 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.

11. DEWATERING MANAGEMENT SUMMARY

The requirements of this report are summarised in **Table 11-1**.

Table 11-1 Dewatering Management Summary

Item	Requirement / Procedure
Objective	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 6** for groundwater conditions.* ▪ *See **Section 8.2** for groundwater quality discharge requirements.* ▪ *See **Section 8.4** for groundwater treatment options.* Provide comment on groundwater level changes that occur during dewatering: ▪ *See **Section 7** 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 10.3**.
Pre-Dewatering Groundwater Assessment	As set out in **Section 6**, 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 2 months of continuous groundwater level monitoring, 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 8-1**, **Section 8.2**.
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 8.3**: ▪ 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 adopted criteria, or risks are considered to be significantly low. Should analytical results exceed the adopted discharge criteria, contingencies listed in **Section 9.5** must be followed.*
Monitoring Requirements for Operational Phase Dewatering	As specified in **Section 10.3**: 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 8.2**.
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 9.5**.

12. STATEMENT OF LIMITATIONS

This plan has been prepared for the exclusive use of M House Surry 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 M House Surry 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.

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ABBREVIATIONS

AHD	Australian Height Datum
AIP	Aquifer Interference Policy
ANZECC	Australian and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Governments
ASS	Acid Sulfate Soil
BEGL/BGL	Below Existing Ground Level
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
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



Buckingham Street
Elizabeth Street
Devonshire Street
Riley Street
Crown Street
Bourke Street
Belvoir Street
Belvoir Street
Marlborough Street
High Holborn Street
Goodlet Street
Crown Street
Eastern Distributor
Pitt Street
Chalmers Street
Great Buckingham Street
James Street
Cleveland Street
Bourke Street
South Dowling Street
South Dowling Street
Elizabeth Street
Walker Street
Cooper Street
Morehead Street
Wells Street
Young Street
Baptist Street
Stanley Street
Redfern Street
Redfern
Boronia Street

0 125 250 375 500 m

LEGEND **Note: All locations are approximate**

Site Boundary

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Practical Solutions for Built Environments
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	N.J.
Approved:	R.L.
Date:	12/02/2026

Time and Place Pty Ltd c/o M House Surry Pty Ltd

Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

47-97 Marlborough Street, Surry Hills NSW 2010

Site Locality Plan

Figure: A1

Project: E26534.E16



Map Source: NSW NearMaps, accessed 29/08/2025

LEGEND Note: Areas are approximate

- Site Boundary
- Proposed basement footprint
- Borehole Location (EI, 2024)
- Monitoring Well Location (EI, 2024)
- Monitoring Well Lcoation (EI, 2026a)

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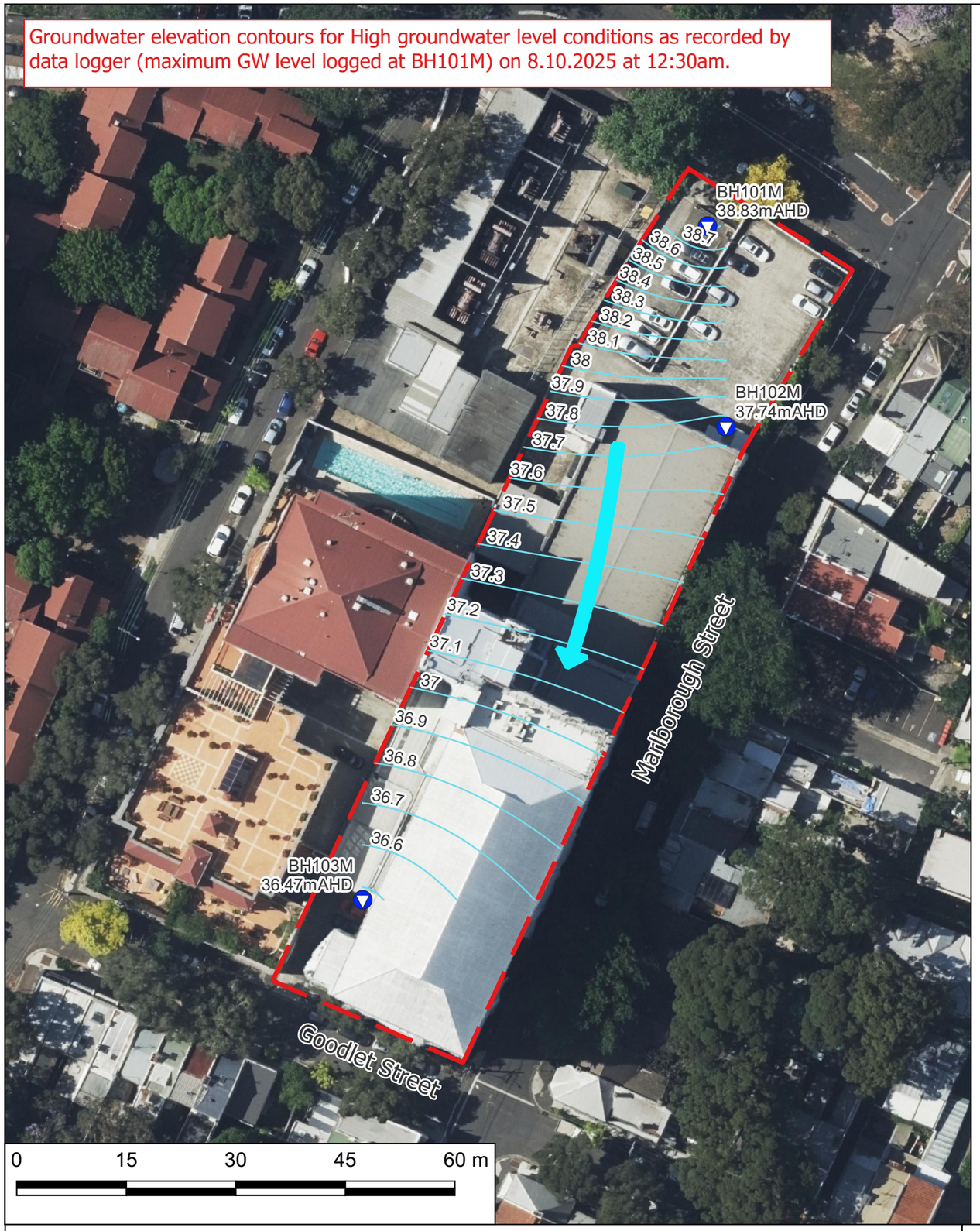
Drawn:	N.J.
Approved:	R.L.
Date:	12/02/2026

Time and Place Pty Ltd c/o M House Surry Pty Ltd
Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis
47-97 Marlborough Street, Surry Hills
Sampling Location Plan

Figure: A2

Project: E26534.E16

Groundwater elevation contours for High groundwater level conditions as recorded by data logger (maximum GW level logged at BH101M) on 8.10.2025 at 12:30am.



Groundwater elevation contours for Low groundwater level conditions as recorded by data logger (minimum GW level logged at BH103M) on 28.12.2025 at 7:00am.



Map Source: NSW DCS Spatial Services, accessed 5/02/2026

LEGEND Note: Areas are approximate

- Site Boundary
- Proposed Basement Boundary
- Groundwater Monitoring Well Locations (EI, 2026a)
- Groundwater Elevation Contour (interval 0.1 mAHD)
- Inferred Groundwater Flow Direction

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Drawn:	N.J.
Approved:	N.K.
Date:	12/02/2026

Time and Place Pty Ltd c/o M House Surry Pty Ltd
Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis
47-97 Marlborough Street, Surry Hills NSW
Groundwater Contour Plan

Figure: A3

Project: E26534.E16

Appendix B – Tables

E26534 - Surry Hills

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 [2] (mg/L)	Field Oil & Grease (Present/Absent)
Groundwater Investigation - Round 1 (EI, 2025)																								
GW_BH101M_1	18/9/2025	NA	NA	NA	NA	NA	NA	NA	NA	798	650	5.09	5.4	88.5	293.5	380	NA	150	89	18.54	0	NA	NA	NA
GW_BH102M_2		NA	NA	NA	NA	NA	NA	NA	NA	1148	860	7.01	5.4	70.1	275.1	510	NA	110	130	17.99	0	NA	NA	NA
GW_BH103M_3		2.6	93	<5	<5	93	<5	110	<5	489	420	9.13	7.5	-143.8	61.2	220	270	240	75	16.9	1.93	6.7	5.9	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.

1 Eh in units of millvolts (mV) - Adjusted redox potential relative to Standard Hydrogen Electrode (SHE), calculated as field Redox probe reading plus field probe potential (205 mV).

2 NPOC stands for Non-Purgeable Organic Carbon

Highlighted value does not meet the adopted criteria

No relevant criteria are currently available

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Table B2 - Summary of Baseline Groundwater Quality - Chemical Parameters

E26534 - Surry Hills

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)																																		
GW_BH101M_1	18/9/2025	<1	<0.1	<1	1	<1	<0.1	2	5	74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	1.5	<0.5	<0.5	<1	<10	<0.5	<0.5	<0.5	<0.3
GW_BH102M_2		<1	0.1	<1	11	<1	<0.1	11	78	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	1.4	<0.5	<0.5	1	110	<0.5	0.6	30	<0.3
GW_BH103M_3		<1	<0.1	<1	1	<1	<0.1	<1	<5	27	<1	110	<1	490	<1	9	0.015	190	6	<1	9.7	<1	110	<1	<1	<0.5	1	<0.5	<0.5	<1	<10	<0.5	<0.5	<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	275		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)																																
GW_BH101M_1	18/9/2025	Absent	<40	<320	<1	<0.1	<0.1	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
GW_BH102M_2		Absent	230	690	<1	<0.1	0.3	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
GW_BH103M_3		Absent	<40	670	NA	<0.1	<0.1	NA	NA	<1	<50	NA	<0.01	<0.01	<0.01	0.38	66	24	0.21	NA	NA	51	20	NA	<10	<0.005	<5	<5	950	950	580	130
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.

2 TRH result was obtained using silica gel clean-up method, to allow quantification of petroleum impacts only.

Highlighted value does not meet the adopted criteria

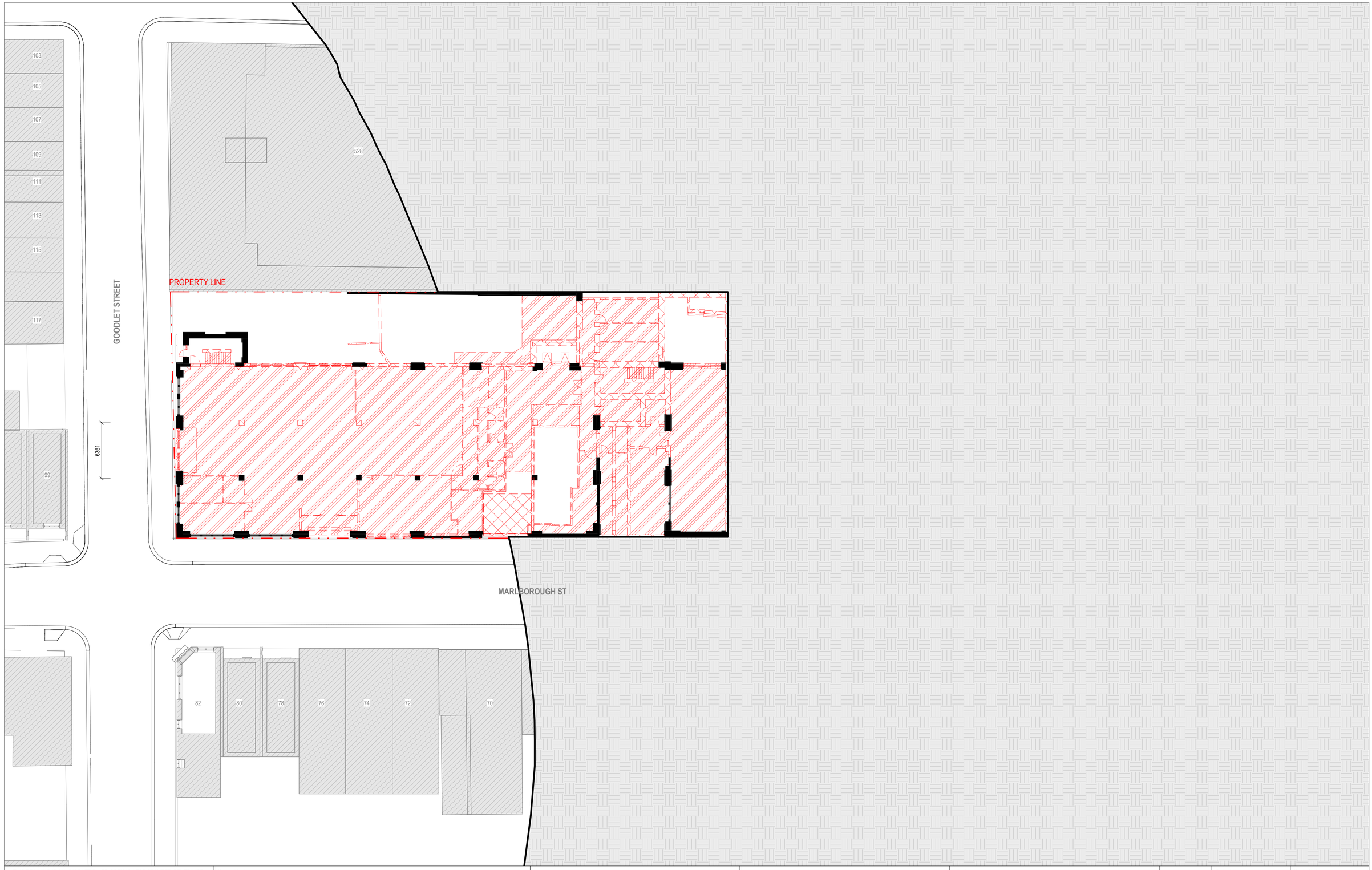
No relevant criteria are currently available

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Appendix C – Survey and Development Plans

THE DISTANCE BETWEEN THESE MARKS SHOULD MEASURE
AS **100mm** WHEN SHEET IS PRINTED TO SCALE AS INDICATED



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General Notes

Rev.	Issue	Revision Description	Date	Appr by
1		FOR INFORMATION	05.02.2026	
2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Client: TIME & PLACE

Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Ground Floor

Project No. 2517
Scale @ A1 1 : 200
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 020
Revision 3

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RILEY ST

528

PROPERTY LINE

GOODLET STREET

LANDSDOWNE STREET

MALBOROUGH ST

CHRISTIE LANE

103
105
107
109
111
113
115
117
99

82 80 78 76 74 72 70 68 66 64 62

58 56 54 52

25
27
29
31

42.44
41.01
43.81
46.41
47.20
50.23
49.07

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3		FOR SSDA COORDINATION	09.03.2026	

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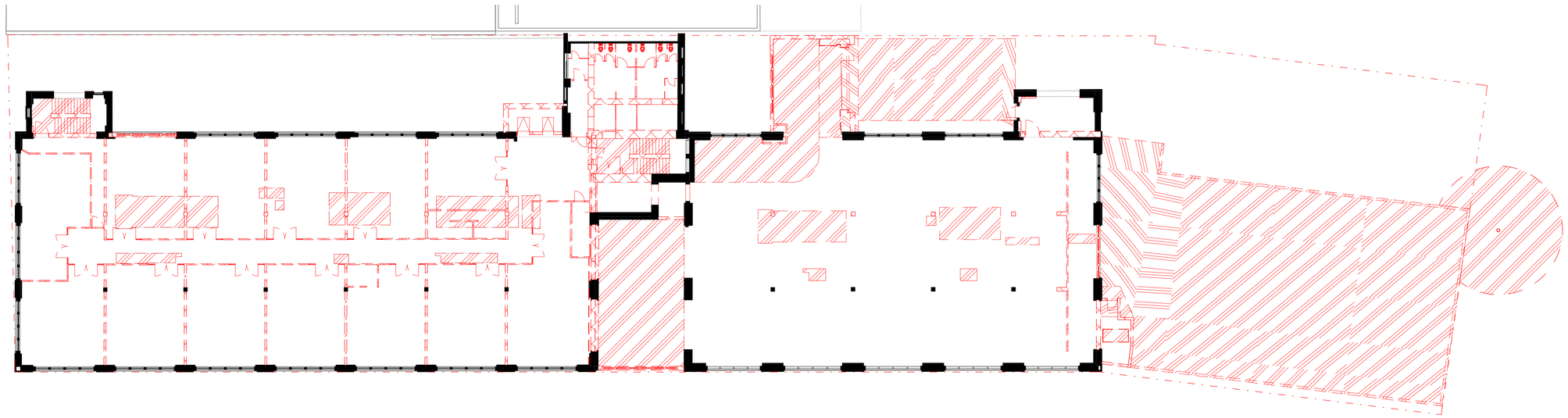
Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 01

Project No. 2517
Scale @ A1 1 : 200
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 021
Revision 3

PRINTED: 9/03/2026 8:32:27 PM
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Rev.	Issue	Revision Description	Date	Appr by
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2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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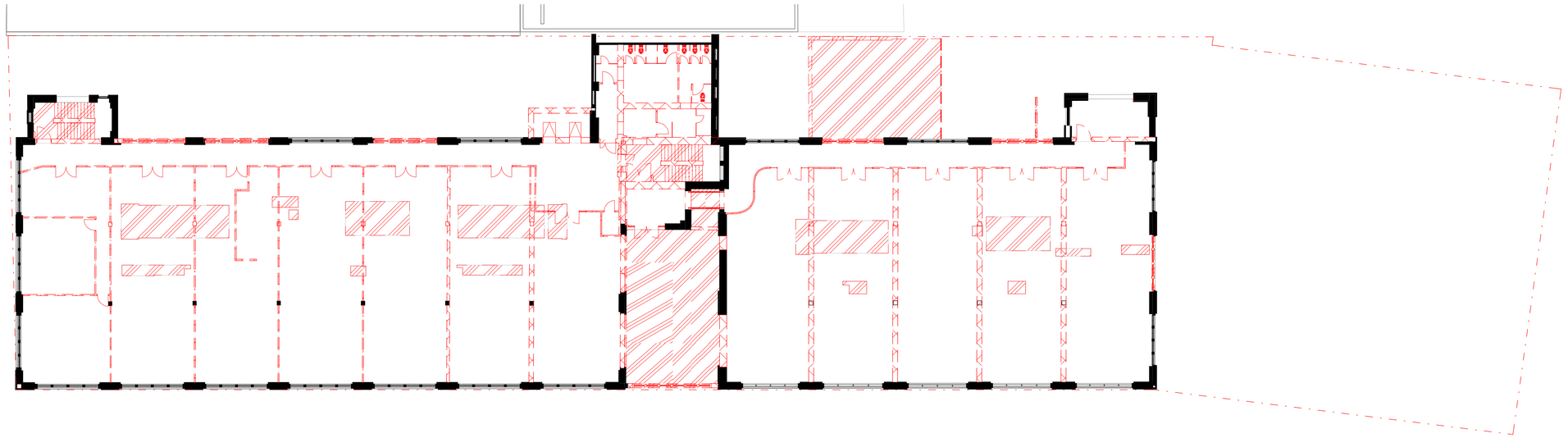
Project Residence
47-97 Marlborough House Surry Hill

Title Existing and Demolition Plan - Level 02

Project No. 2517
Scale @ A1 1 : 200
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 022
Revision 3

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1		FOR INFORMATION	05.02.2026	
2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 03

Project No. 2517

Scale @ A1: 1 : 200

Date

Co-Ord Designer

Drwn Author

Chck Checker

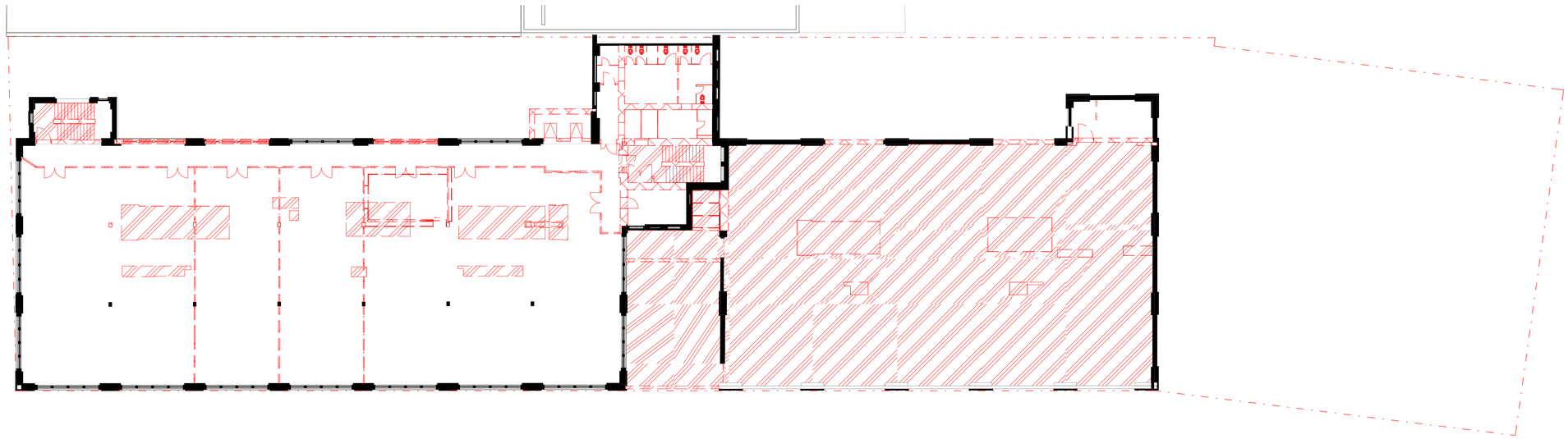
Drawing Status

Drawing No. AR 023

Revision 3

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2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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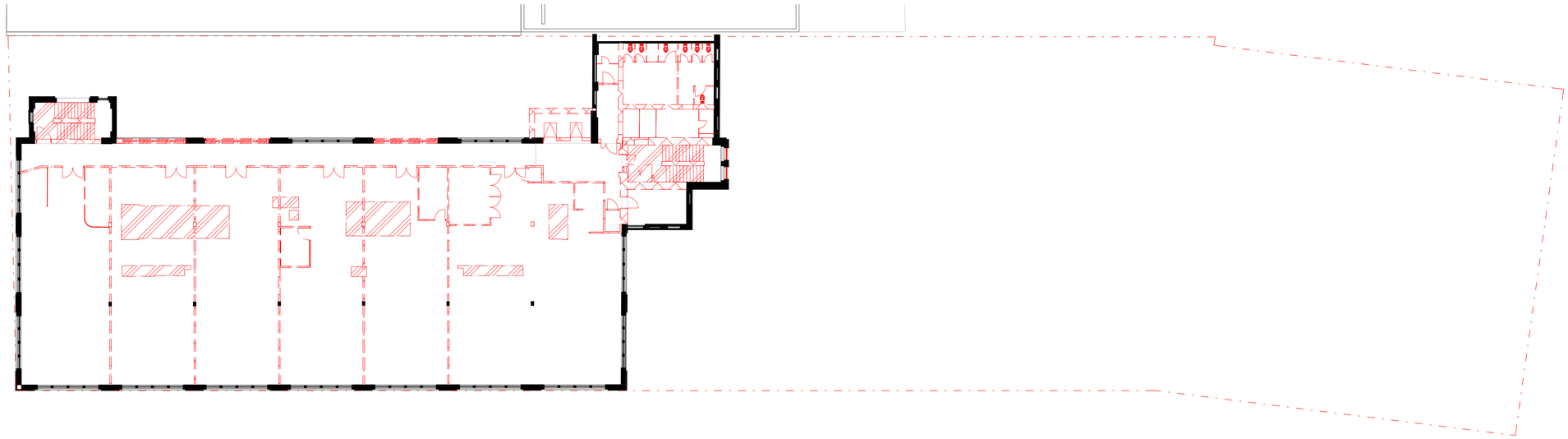
Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 04

Project No.	2517
Scale @ A1	1 : 200
Date	
Co-Ord Designer	
Drwn Author	
Chck Checker	
Drawing Status	
Drawing No.	AR 024
Revision	3

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General Notes

Rev.	Issue	Revision Description	Date	Appr by
1		FOR INFORMATION	28.11.2025	
2		FOR INFORMATION	05.02.2026	
3		FOR SSDA COORDINATION	26.02.2026	
4		FOR SSDA COORDINATION	09.03.2026	

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Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 05

Project No. 2517

Scale @ A1 1 : 200

Date

Co-Ord Designer

Drwn Author

Chck Checker

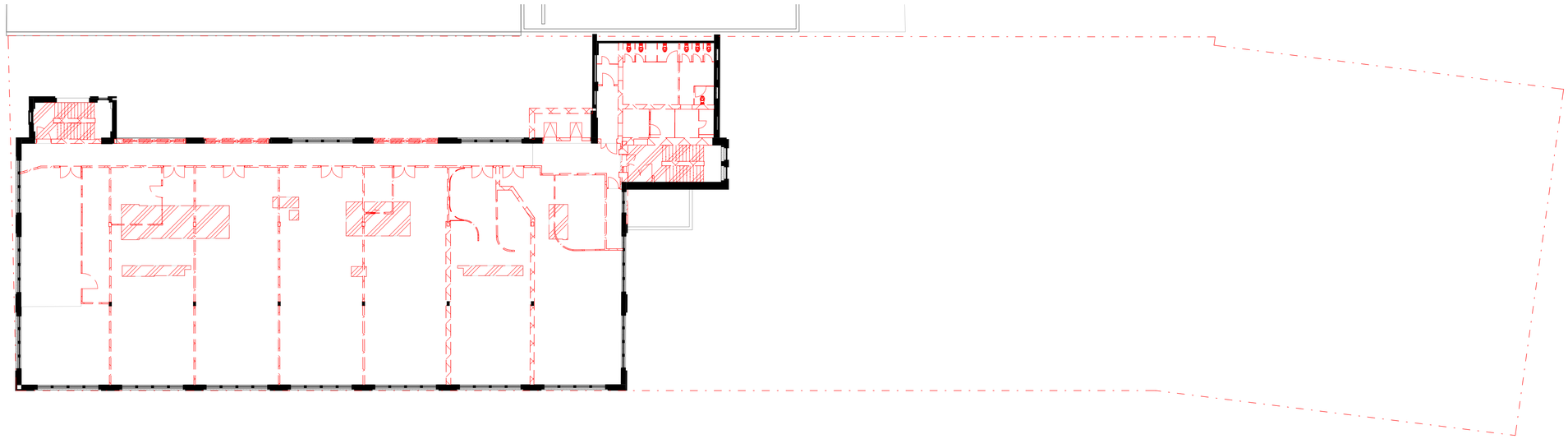
Drawing Status

Drawing No. AR 025

Revision 4

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1		FOR INFORMATION	05.02.2026	
2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Client: TIME & PLACE

Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 06

Project No. 2517

Scale @ A1 1 : 200

Date

Co-Ord Designer

Drwn Author

Chck Checker

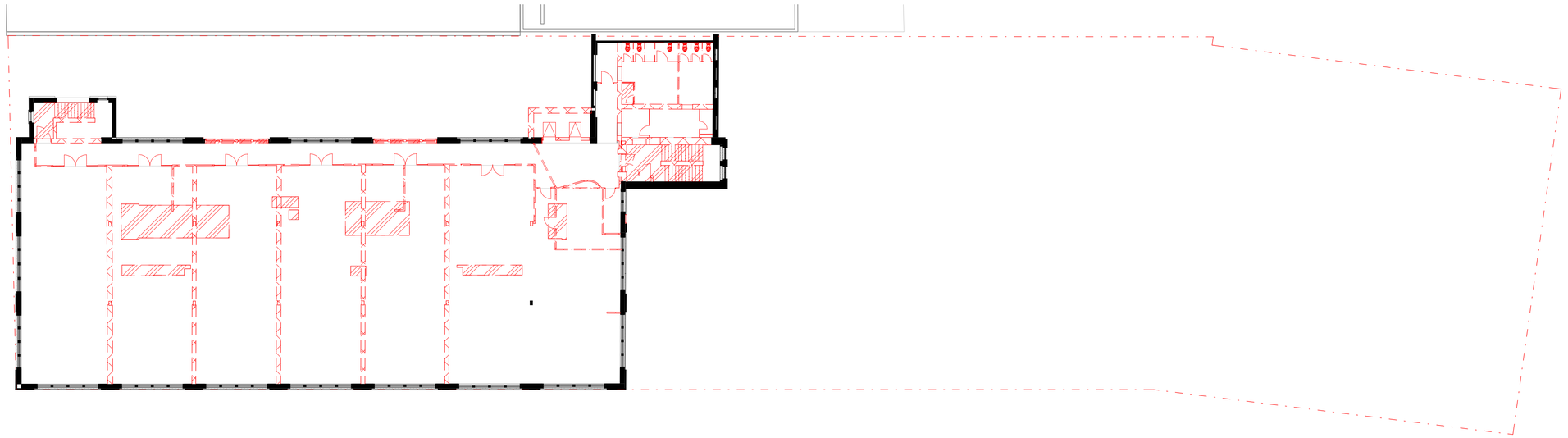
Drawing Status

Drawing No. AR 026

Revision 3

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2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Project: Residence
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Title: Existing and Demolition Plan - Level 07

Project No. 2517

Scale @ A1 1 : 200

Date

Co-Ord Designer

Drwn Author

Chck Checker

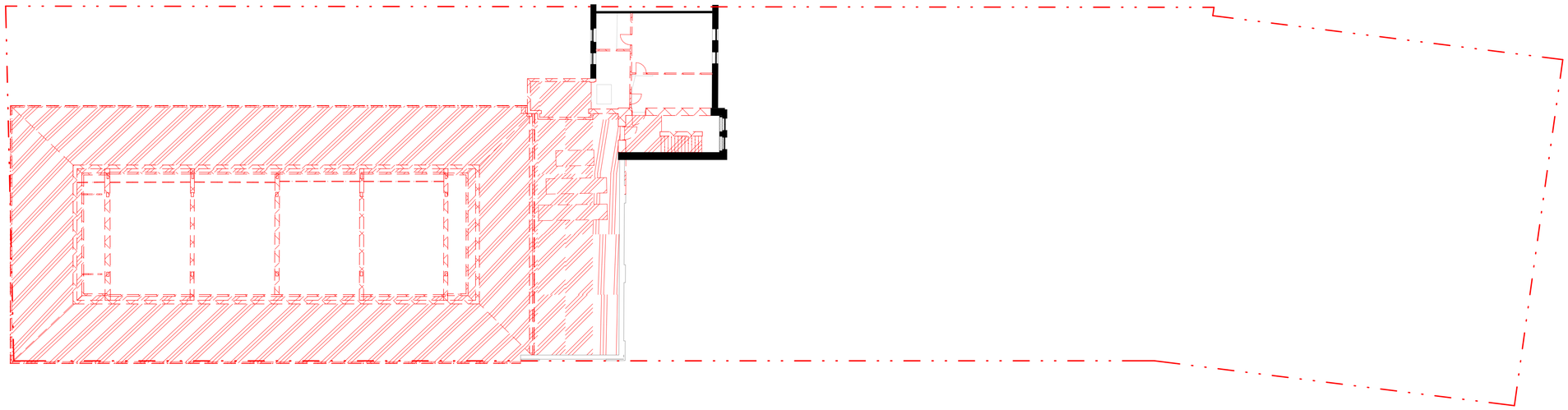
Drawing Status

Drawing No. AR 027

Revision 3

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2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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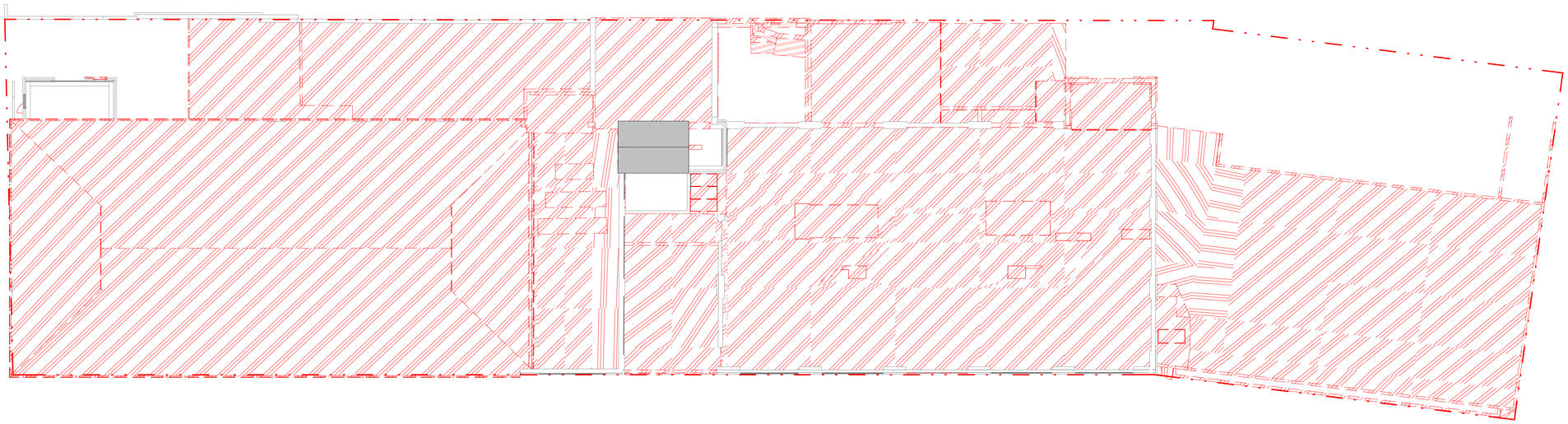
Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Level 08

Project No. 2517
Scale @ A1 1 : 200
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 028
Revision 3

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2		FOR SSDA COORDINATION	26.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Project: Residence
47-97 Marlborough House Surry Hill

Title: Existing and Demolition Plan - Roof Plan

Project No. 2517

Scale @ A1: 1 : 200

Date

Co-Ord Designer

Drwn Author

Chck Checker

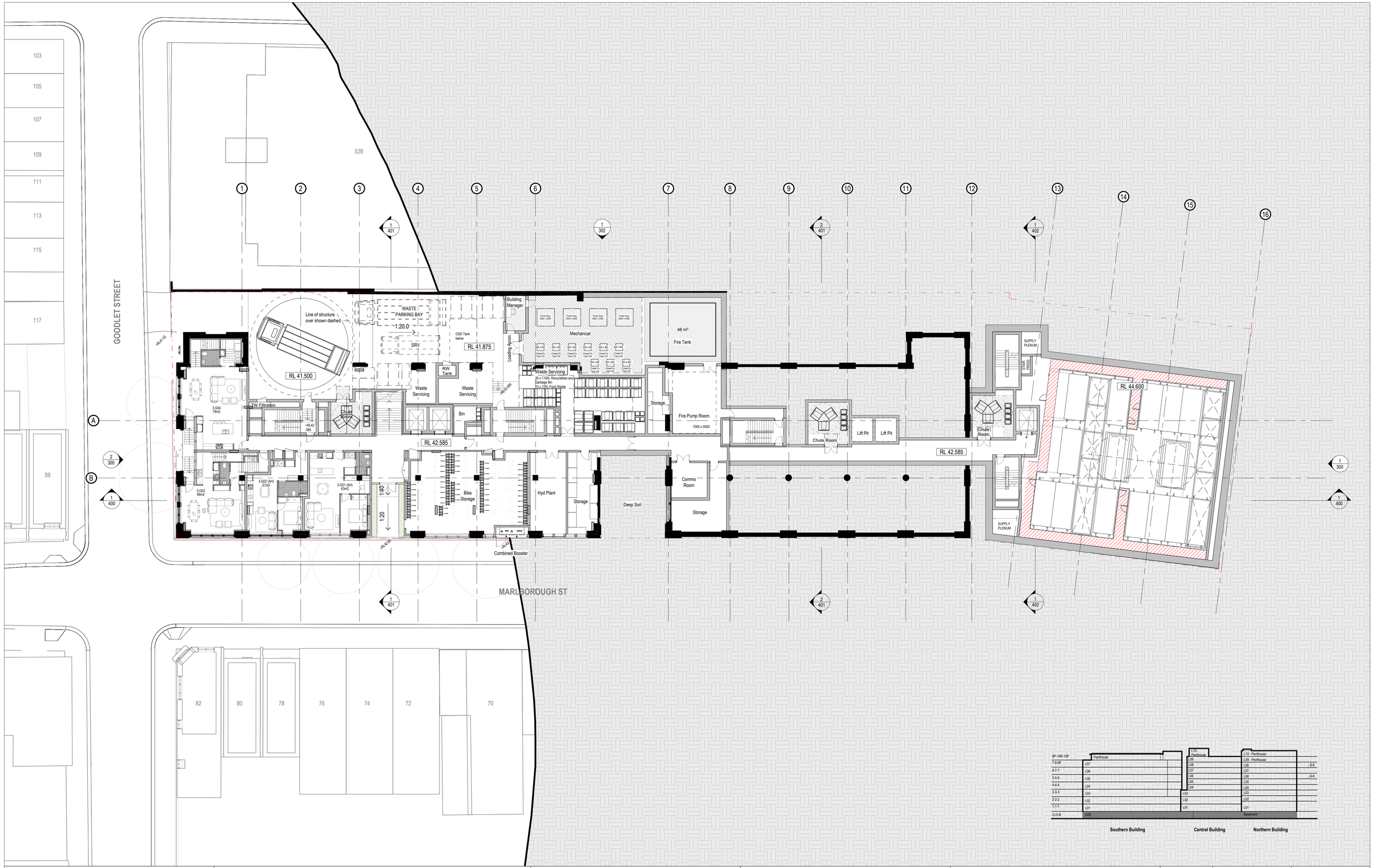
Drawing Status

Drawing No. AR 029

Revision 3

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GOODLET STREET
MARLBOROUGH ST
528
103
105
107
109
111
113
115
117
99
82
80
78
76
74
72
70
WASTE PARKING BAY
1:20.0
SRV
RL 41.875
RL 41.500
OSD Tank below
Building Manager
Loading Apron
Mechanical
Pump Duty 2500 x 2000
46 m³
Fire Tank
Waste Servicing
30 x 1100L Recyclables and Garbage Bin
13 x 120L Food Waste
RW Tank
Waste Servicing
Waste Servicing
Bin
Storage
Fire Pump Room
7000 x 5000
Chute Room
Lift Pit
Lift Pit
Chute Room
SUPPLY PLENUM
STAIRS BELOW
RL 44.600
RL 42.585
RL 42.585
RL 42.585
TW Filtration
Chute Room
3.024 79m2
3.G03 66m2
3.G02 (AH) 51m2
3.G01 (AH) 62m2
Bike Storage
Hyd Plant
Storage
Deep Soil
Comms Room
Storage
Combined Booster
1:40
1:20
Line of structure over shown dashed
+RL41.53
+RL42
+RL42.585
+RL42.585
+RL42.585

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General Notes

Rev.	Issue	Revision Description	Date	Appr by
4		FOR INFORMATION	05.11.2025	
5		FOR INFORMATION	06.11.2025	
6		FOR INFORMATION	24.11.2025	
7		FOR INFORMATION	27.11.2025	
8		FOR INFORMATION	28.11.2025	
9		FOR INFORMATION	19.01.2026	
10		FOR INFORMATION	23.01.2026	
11		FOR INFORMATION	30.01.2026	
12		FOR INFORMATION	05.02.2026	
13		FOR SSDA COORDINATION	26.02.2026	
14		FOR SSDA COORDINATION	09.03.2026	

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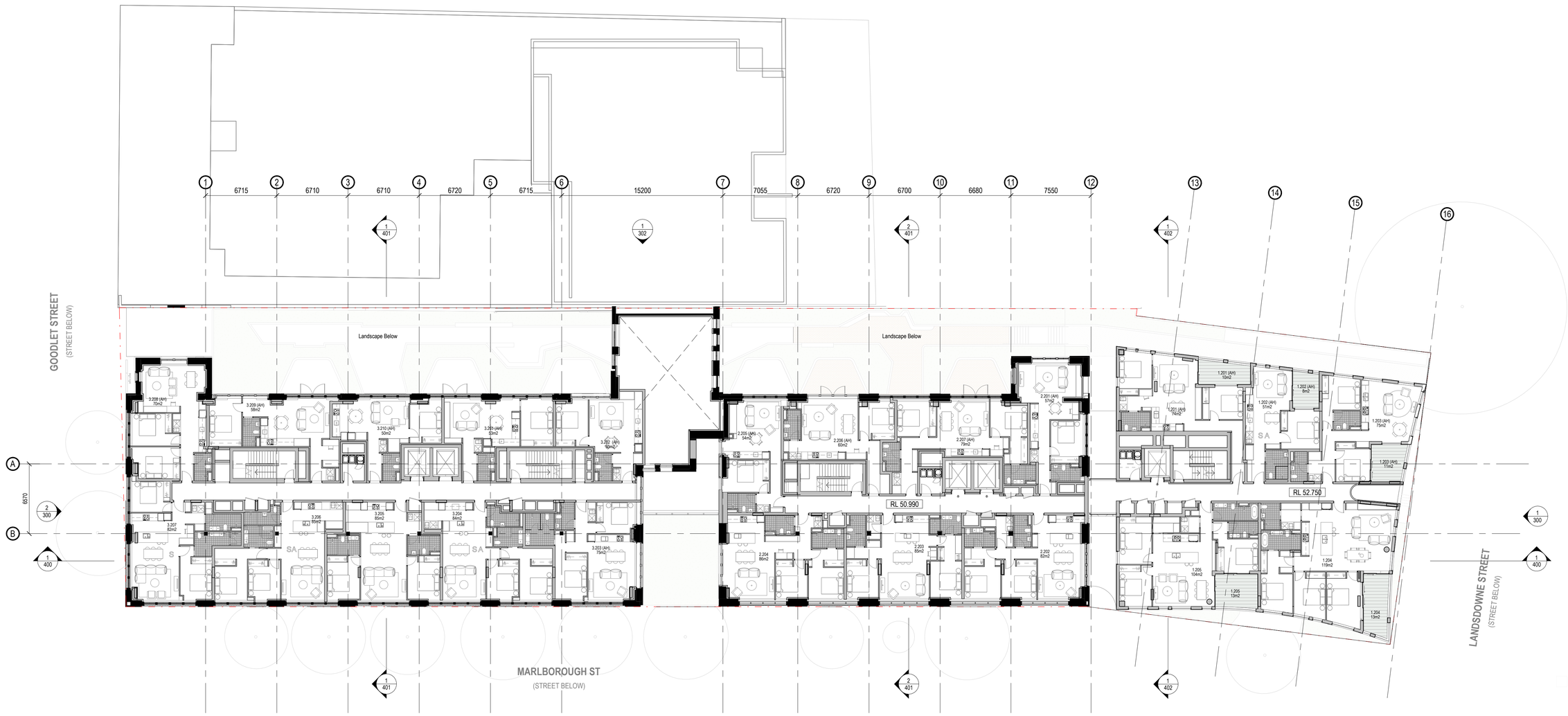
Project: Residence
47-97 Marlborough House Surry Hill

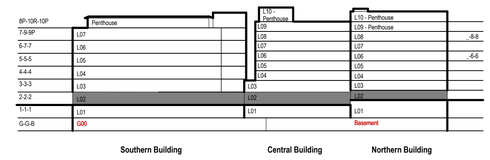
Title: GA Plan - Level 01 (01-01-01)

Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 103
Revision 14

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4		FOR INFORMATION	28.11.2025	
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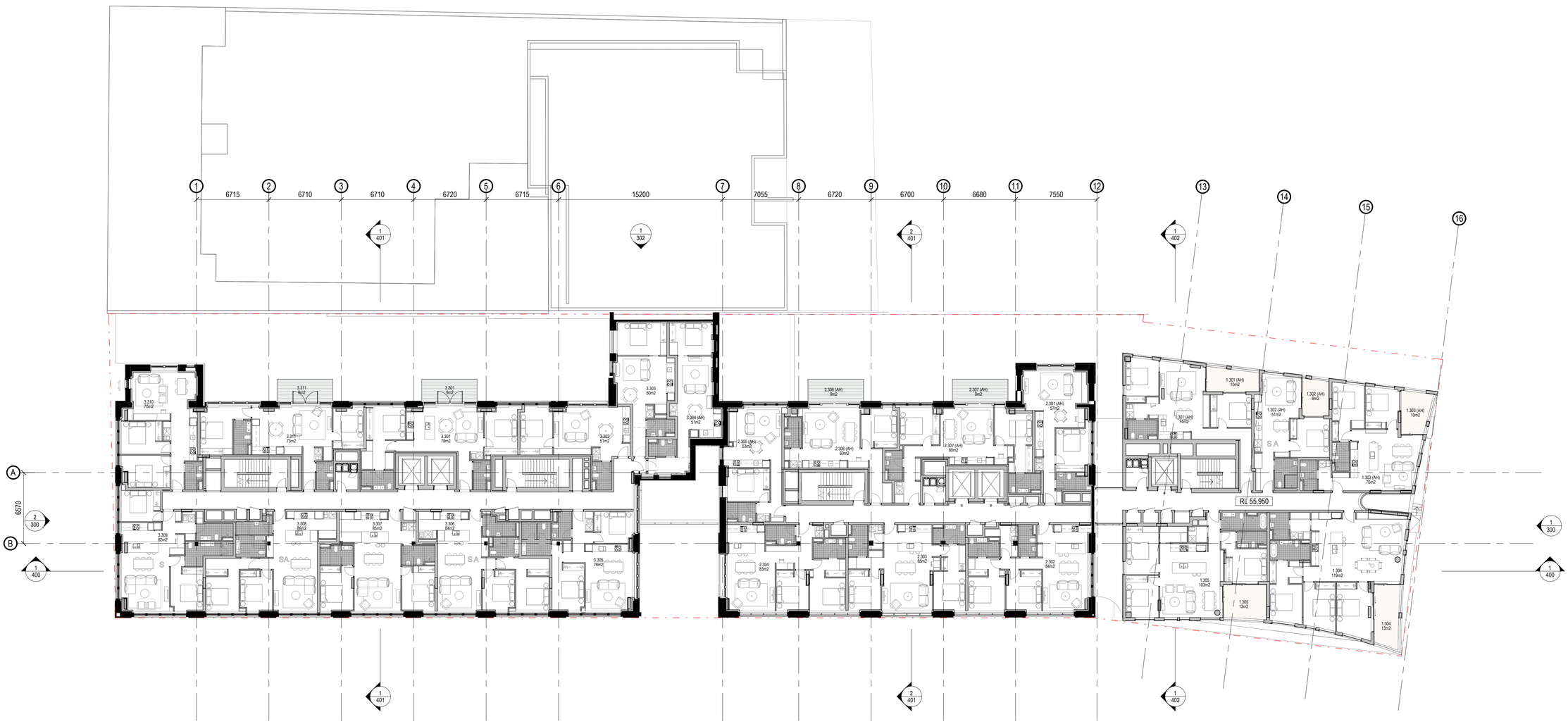
Project Residence
47-97 Marlborough House Surry Hill

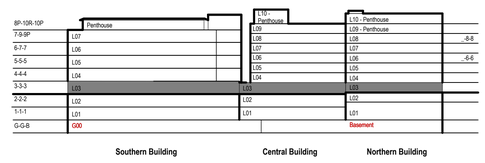
Title GA Plan - Level 02 (02-02-02)

Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 104
Revision 8

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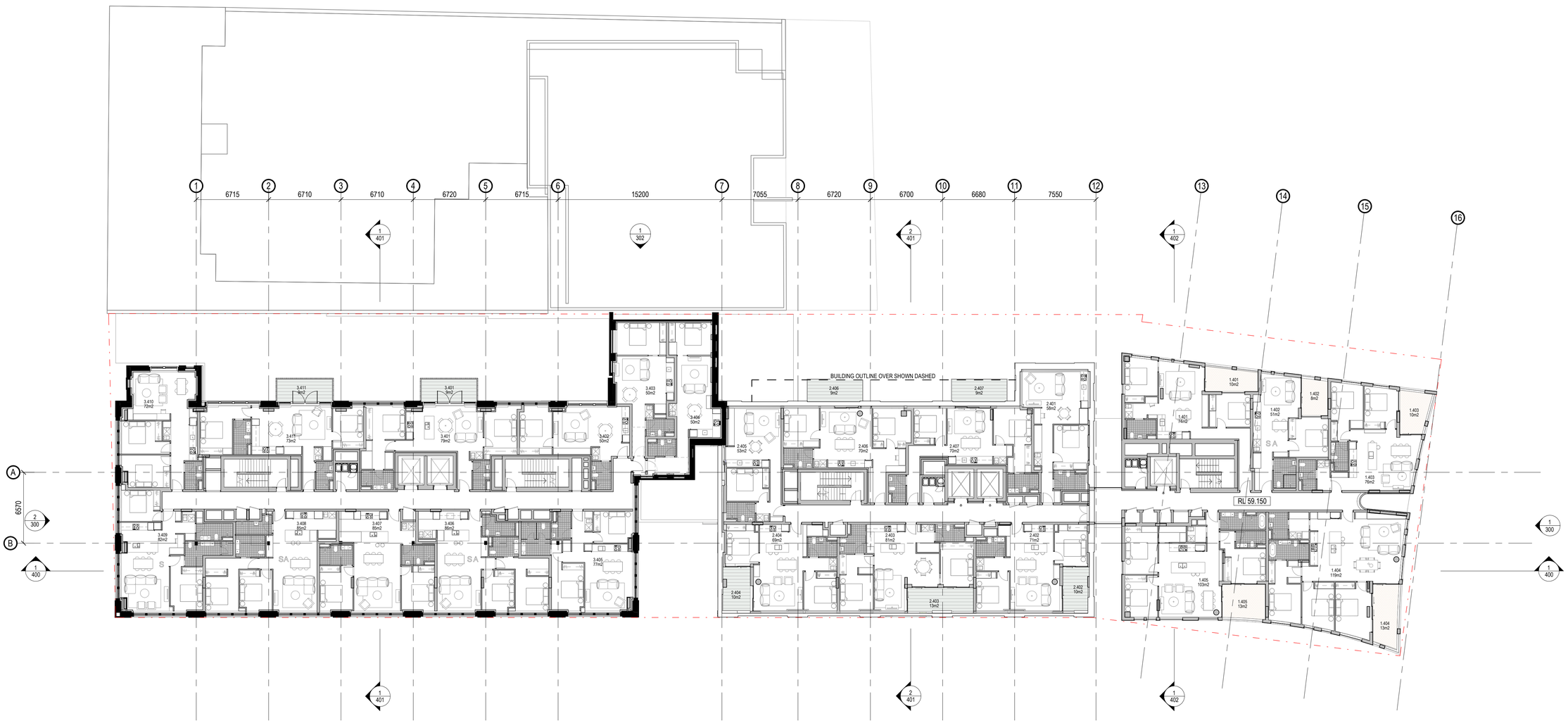
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47-97 Marlborough House Surry Hill

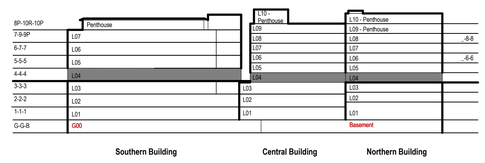
Title: GA Plan - Level 03 (03-03-03)

Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 105
Revision 9

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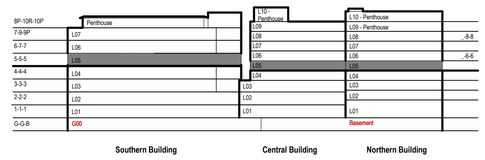
Title: GA Plan - Level 04 (04-04-04)

Project No. 2517
Scale @ A1: As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 106
Revision 8

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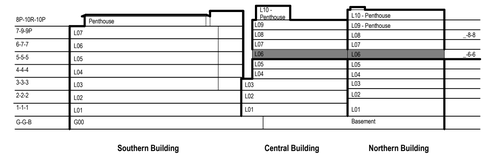
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Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 107
Revision 8

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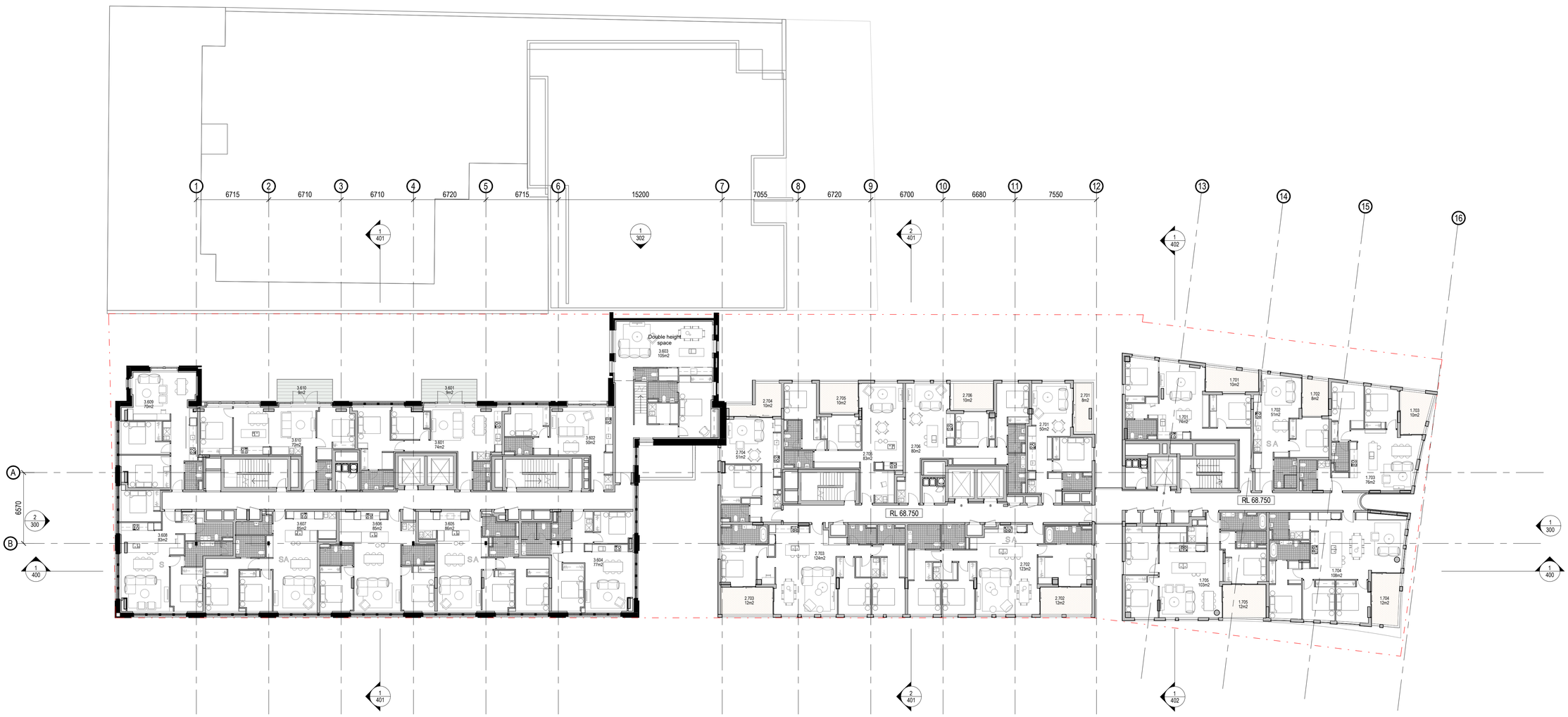
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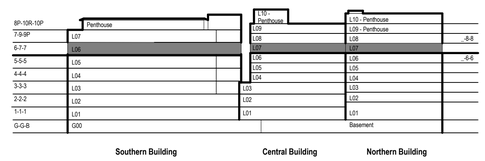
Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status

Drawing No. AR 108
Revision 9

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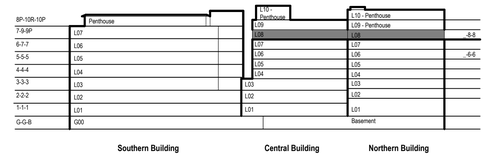
Title: GA Plan - Level 07 (06-07-07)

Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 109
Revision 9

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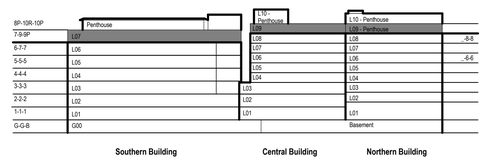
Title GA Plan - Level 08 (_-08-08)

Project No. 2517
Scale @ A1 As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 110
Revision 9

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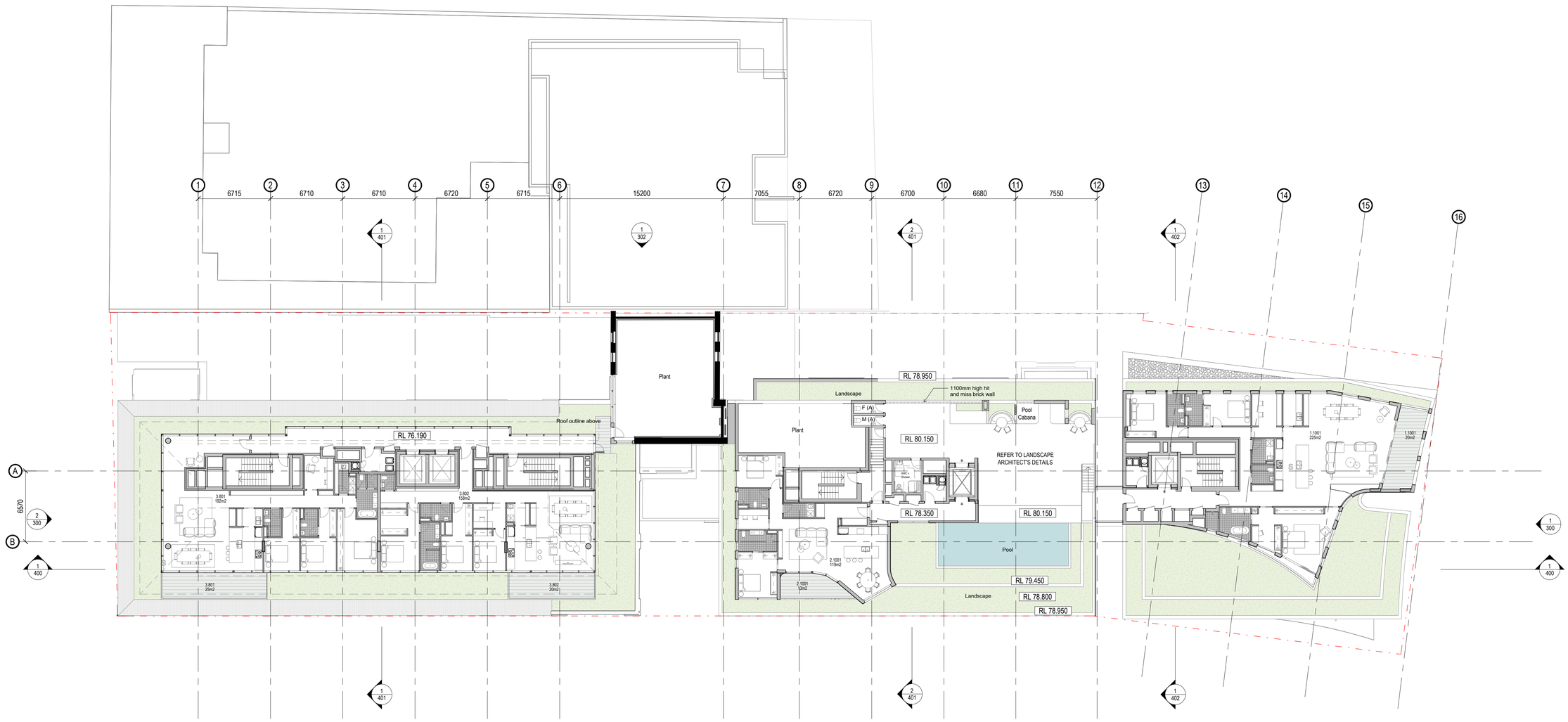
Project: Residence
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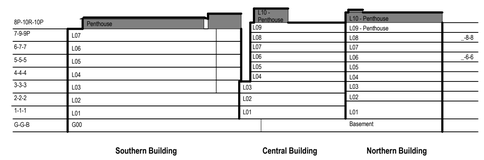
Title: GA Plan - Level 09 (07-09-09P)

Project No. 2517
Scale @ A1: As indicated
Date
Co-Ord Designer
Drwn Author
Chck Checker
Drawing Status
Drawing No. AR 111
Revision 8

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3		FOR INFORMATION	05.11.2025	
4		FOR INFORMATION	06.11.2025	
5		FOR INFORMATION	24.11.2025	
6		FOR INFORMATION	27.11.2025	
7		FOR INFORMATION	28.11.2025	
8		FOR INFORMATION	23.01.2026	
9		FOR INFORMATION	30.01.2026	
10		FOR INFORMATION	05.02.2026	
11		FOR SSDA COORDINATION	26.02.2026	
12		FOR SSDA COORDINATION	09.03.2026	

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Nom Architect: Jasmin Williamson 11989

Client: TIME & PLACE

Project: Residence
47-97 Marlborough House Surry Hill

Title: GA Plan - Level 10 (08P-10P-10P)

Project No. 2517

Scale @ A1: As indicated

Date

Co-Ord Designer

Drwn Author

Chck Checker

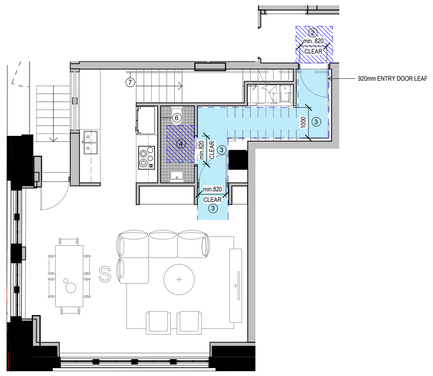
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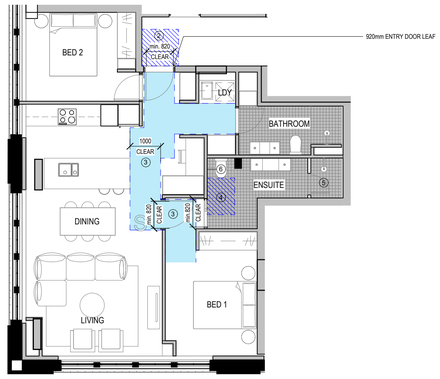
Revision 12

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THE DISTANCE BETWEEN THESE MARKS SHOULD MEASURE
AS **100mm** WHEN SHEET IS PRINTED TO SCALE AS INDICATED



1 LHA PLAN - TOWNHOUSE LEVEL G
Scale 1 : 100

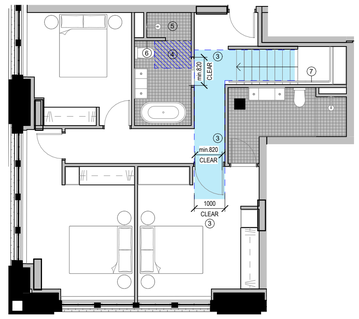


3 LHA PLAN - 2 BED
Scale 1 : 100

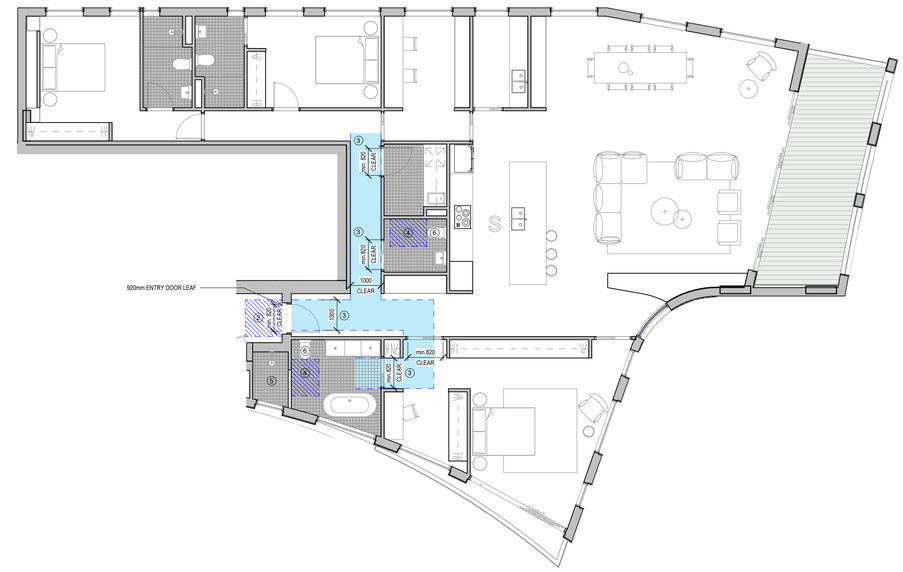
REFER TO DWG AR 913 FOR APARTMENT LOCATION.

LHA SILVER LEVEL DESIGN FEATURES:

1. **A safe continuous and step free path of travel** from the street entrance and/or parking area to a dwelling entrance that is level.
2. At least one, level (step-free) **entrance** into the dwelling.
   - A door with minimum clear opening width of 820mm.
   - A level (step-free) transition and threshold.
   - A level landing area of at least 1200mm x 1200mm on the arrival side of the door.
3. **Internal doors and corridors** that facilitate comfortable and unimpeded movement between spaces.
   - A doorways to rooms on the entry level used for living, dining, bedroom, bathroom, kitchen, laundry and sanitary compartment purposes with a minimum clear opening width of 820mm and a level transition and threshold.
   - Internal corridors / passageways to the doorway referred to above with a minimum clear width of 1000mm.
4. A **toilet** on the ground (or entry) level that provides easy access.
   - Toilet on the ground (or entry) level that provides a minimum clear circulation space of 900mm x 1200mm forward of the toilet pan exclusive of the swing of the door.
   - The toilet pan located in the corner of the room to enable installation of grabrails at a future date.
5. A bathroom that contains a **hobless shower recess**.
   - A slip resistant and hobless shower recess, located in the corner of the room to enable the installation of grabrails at a future date.
   - Shower screens to be removed as required.
6. **Reinforced walls** around the toilet, shower and bath to support the safe installation of grabrails at a later date.
7. **Stairways** are designed to reduce the likelihood of injury and also enable future adaptation.
   - A continuous handrail on one side of the stairway where there is a rise of more than 1m.



2 LHA PLAN - TOWNHOUSE LEVEL 1
Scale 1 : 100



4 LHA PLAN- PENTHOUSE
Scale 1 : 100

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1		FOR SSDA COORDINATION	09.03.2026	

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Nom Architect: Jasmin Williamson 11989

Client TIME & PLACE

Project Residence
47-97 Marlborough House Surry Hill

Title LHA Silver Level Apartments

Project No. 2517

Scale @ A1 As indicated

Date AUG 2025

Co-Ord Designer

Drwn Author

Chck Checker

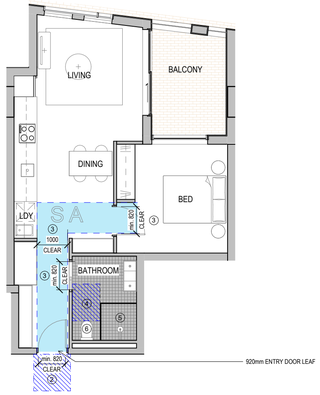
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Drawing No. AR 920

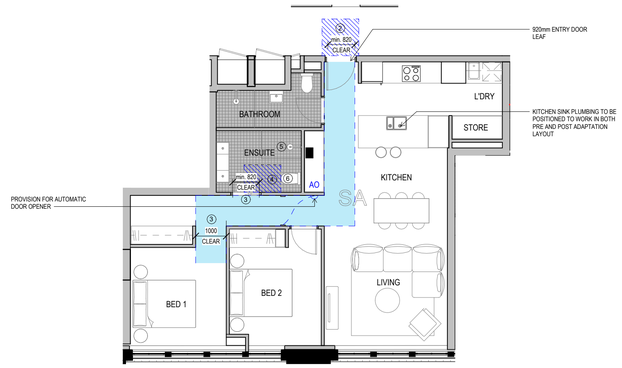
Revision 1

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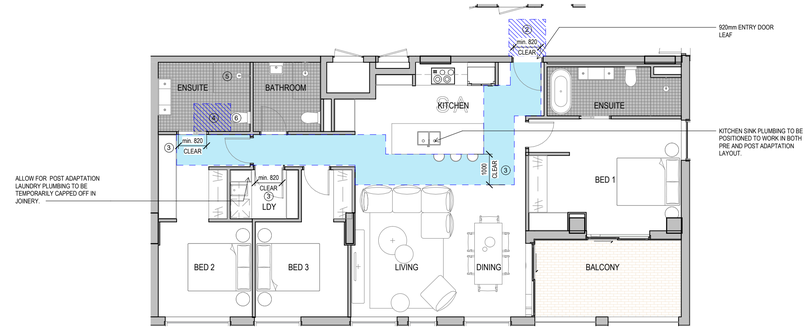
THE DISTANCE BETWEEN THESE MARKS SHOULD MEASURE
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1 PRE-ADAPTATION PLAN - 1 BED
Scale 1 : 100



2 PRE-ADAPTATION PLAN - 2 BED
Scale 1 : 100

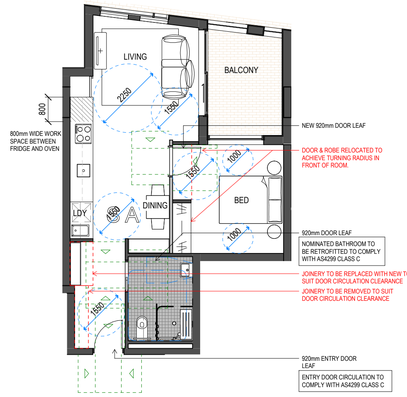


3 PRE-ADAPTATION PLAN - 3 BED
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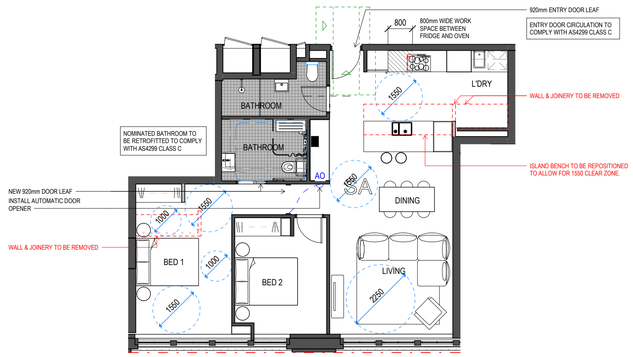
REFER TO DWG AR 913 FOR APARTMENT LOCATION.

LHA SILVER LEVEL DESIGN FEATURES:

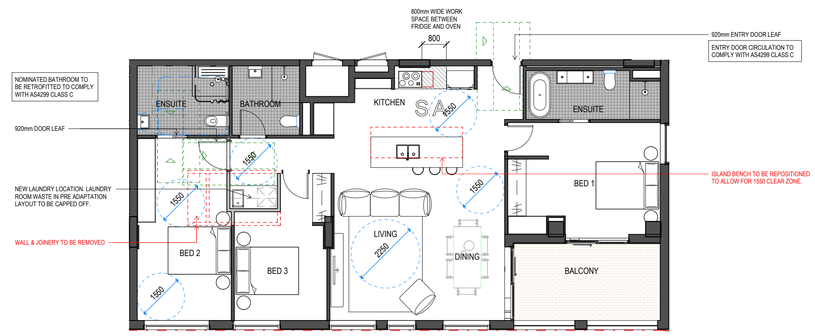
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4 POST-ADAPTATION PLAN - 1 BED
Scale 1 : 100



5 POST-ADAPTATION PLAN - 2 BED
Scale 1 : 100



6 POST-ADAPTATION PLAN - 3 BED
Scale 1 : 100

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Client: TIME & PLACE

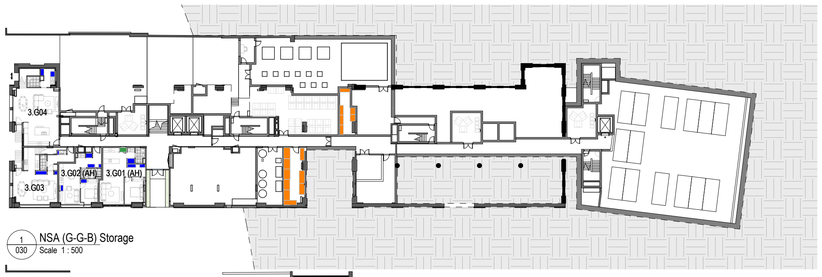
Project: Residence
47-97 Marlborough House Surry Hill

Title: LHA Silver Level and Adaptable Apartments

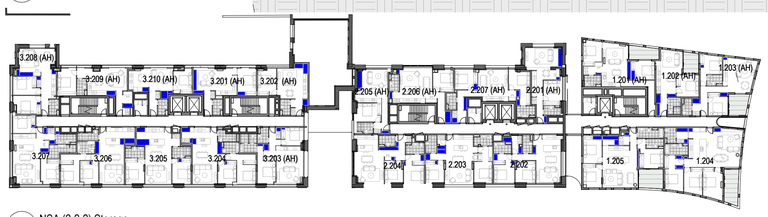
Project No. 2517
Scale @ A1: As indicated
Date: AUG 2025
Co-Ord: Designer
Drwn: Author
Chck: Checker
Drawing Status
Drawing No. AR 921
Revision 1

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1 / 030 NSA (G-G-B) Storage
Scale 1 : 500



3 / 031 NSA (2-2-2) Storage
Scale 1 : 500



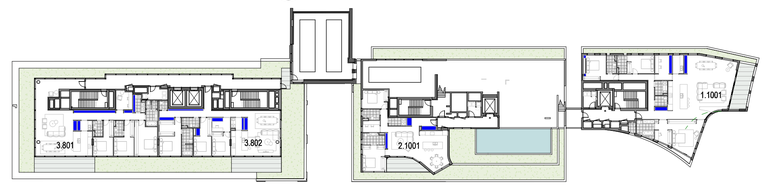
5 / 031 NSA (4-4-4) Storage
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7 / 030 NSA (_6-6) Storage
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10 / 030 NSA (_8-8) Storage
Scale 1 : 500



11 / 030 NSA (8-10-10) Storage
Scale 1 : 500



2 / 031 NSA (1-1-1) Storage
Scale 1 : 500



4 / 031 NSA (3-3-3) Storage
Scale 1 : 500



6 / 031 NSA (5-5-5) Storage
Scale 1 : 500



8 / 031 NSA (6-7-7) Storage
Scale 1 : 500



9 / 031 NSA (7-9-9P) Storage
Scale 1 : 500

STORAGE

- Internal storage 2.4m height
- Internal storage Ceiling 1m height
- External storage. Cage, 2.4 m height

APARTMENT STORAGE SOUTH BUILDING

Building	Apart. Number	Apart. Type	Internal Volume	TOTAL Volume
Southern	3.101	1B	6.5	6.5
Southern	3.102 (AH)	1B	7.6	7.6
Southern	3.103 (AH)	2B	4.4	8.4
Southern	3.104	2B	8.0	8.0
Southern	3.105	2B	8.2	8.2
Southern	3.106	2B	7.4	11.3
Southern	3.107	2B	8.0	8.0
Southern	3.201 (AH)	2B	8.2	8.2
Southern	3.202 (AH)	1B	7.7	7.7
Southern	3.203 (AH)	2B	4.4	8.4
Southern	3.204	2B	8.0	8.0
Southern	3.205	2B	8.2	8.2
Southern	3.206	2B	8.0	8.0
Southern	3.207	2B	5.9	8.4
Southern	3.208 (AH)	2B	8.5	8.5
Southern	3.209	1B	6.3	6.3
Southern	3.210 (AH)	1B	6.2	6.2
Southern	3.301	2B	8.6	8.6
Southern	3.302	1B	6.7	6.7
Southern	3.303 (AH)	1B	6.0	6.0
Southern	3.304 (AH)	1B	6.1	6.1
Southern	3.305	2B	4.4	8.6
Southern	3.306	2B	8.0	8.0
Southern	3.307	2B	8.2	8.2
Southern	3.308	2B	8.4	8.4
Southern	3.309	2B	5.9	8.2
Southern	3.310	2B	8.5	8.5
Southern	3.311	2B	8.0	10.2
Southern	3.401	2B	8.6	8.6
Southern	3.402	1B	6.7	6.7
Southern	3.403	1B	6.0	6.0
Southern	3.404	1B	6.1	6.1
Southern	3.405	2B	4.4	8.6
Southern	3.406	2B	8.0	8.0
Southern	3.407	2B	8.2	8.2
Southern	3.408	2B	8.4	8.4
Southern	3.409	2B	5.9	8.2
Southern	3.410	2B	8.5	8.5
Southern	3.411	2B	8.0	10.2
Southern	3.501	2B	8.6	8.6
Southern	3.502	1B	6.7	6.7
Southern	3.503	1B	6.0	6.0
Southern	3.504	1B	6.1	6.1
Southern	3.505	2B	4.4	8.9
Southern	3.506	2B	8.0	8.0
Southern	3.507	2B	8.2	8.2
Southern	3.508	2B	8.9	8.9
Southern	3.509	2B	5.9	8.2
Southern	3.510	2B	8.5	8.5
Southern	3.511	2B	8.0	10.2
Southern	3.601	2B	6.0	8.1
Southern	3.602	1B	6.0	6.0
Southern	3.603	3B	10.1	10.1
Southern	3.604	2B	4.4	8.9
Southern	3.605	2B	8.0	8.0
Southern	3.606	2B	8.2	8.2
Southern	3.607	2B	8.4	8.4
Southern	3.608	2B	5.9	8.2
Southern	3.609	2B	8.5	8.5
Southern	3.610	2B	11.5	11.5
Southern	3.701	2B	8.6	8.6
Southern	3.702	1B	6.1	6.1
Southern	3.703	2B	4.4	8.2
Southern	3.704	2B	8.0	8.0
Southern	3.705	2B	8.2	8.2
Southern	3.706	2B	8.4	8.4
Southern	3.707	2B	5.9	8.2
Southern	3.708	2B	8.5	8.5
Southern	3.709	2B	8.0	10.2
Southern	3.801	3B	15.6	15.6
Southern	3.802	3B	15.6	15.6
Southern	3.G01 (AH)	1B	6.0	6.0
Southern	3.G02 (AH)	1B	6.7	6.7
Southern	3.G03	3B	10.4	10.4
Southern	3.G04	3B	10.5	10.5

APARTMENT STORAGE CENTRAL BUILDING

Building	Apartment Number	Apart. Type	Internal Volume	TOTAL Volume
Central	2.101 (AH)	1B	6.0	6.0
Central	2.102 (AH)	1B	6.0	6.0
Central	2.103 (AH)	1B	6.0	6.0
Central	2.104 (AH)	1B	6.7	6.7
Central	2.105 (AH)	1B	6.6	6.6
Central	2.106 (AH)	1B	6.2	6.2
Central	2.107 (AH)	2B	8.1	8.1
Central	2.201 (AH)	1B	6.0	6.0
Central	2.202	2B	8.0	8.0
Central	2.203	2B	8.0	8.0
Central	2.204	2B	8.0	8.0
Central	2.205 (AH)	1B	6.3	6.3
Central	2.206 (AH)	1B	6.1	6.1
Central	2.207 (AH)	2B	8.1	8.1
Central	2.301 (AH)	1B	6.0	6.0
Central	2.302	2B	8.0	8.0
Central	2.303	2B	8.0	8.0
Central	2.304	2B	8.0	8.0
Central	2.305 (AH)	1B	6.3	6.3
Central	2.306 (AH)	1B	6.1	6.1
Central	2.307 (AH)	2B	8.1	8.1
Central	2.401	1B	7.9	7.9
Central	2.402	2B	8.1	8.1
Central	2.403	2B	8.0	8.0
Central	2.404	2B	9.8	9.8
Central	2.405	1B	6.0	6.0
Central	2.406	2B	8.0	8.0
Central	2.407	2B	4.8	8.2
Central	2.501	1B	8.6	8.6
Central	2.502	3B	10.8	10.8
Central	2.503	3B	11.8	11.8
Central	2.504	1B	6.3	6.3
Central	2.505	2B	8.9	8.9
Central	2.506	2B	8.0	8.0
Central	2.601	1B	7.8	7.8
Central	2.602	3B	10.8	10.8
Central	2.603	3B	11.8	11.8
Central	2.604	1B	6.3	6.3
Central	2.605	2B	8.9	8.9
Central	2.606	2B	8.0	8.0
Central	2.701	1B	7.1	7.1
Central	2.702	3B	10.8	10.8
Central	2.703	3B	11.8	11.8
Central	2.704	1B	6.3	6.3
Central	2.705	2B	8.9	8.9
Central	2.706	2B	8.0	8.0
Central	2.801	1B	7.8	7.8
Central	2.802	3B	10.8	10.8
Central	2.803	3B	11.8	11.8
Central	2.804	1B	6.3	6.3
Central	2.805	2B	8.9	8.9
Central	2.806	2B	8.0	8.0
Central	2.901	1B	7.8	7.8
Central	2.902	3B	10.8	10.8
Central	2.903	3B	11.8	11.8
Central	2.904	1B	6.3	6.3
Central	2.905	2B	8.9	8.9
Central	2.906	2B	8.0	8.0
Central	2.1001	2B	10.0	10.0

APARTMENT STORAGE NORTH BUILDING

Building	Apart. Number	Apart. Type	Internal Volume	TOTAL Volume
Northern	1.201 (AH)	2B	8.0	8.0
Northern	1.202 (AH)	1B	6.3	6.3
Northern	1.203 (AH)	2B	5.7	8.1
Northern	1.204	3B	11.7	11.7
Northern	1.205	3B	10.1	10.1
Northern	1.301 (AH)	2B	8.0	8.0
Northern	1.302 (AH)	1B	6.3	6.3
Northern	1.303 (AH)	2B	6.2	8.4
Northern	1.304	3B	11.7	11.7
Northern	1.305	3B	10.1	10.1
Northern	1.401	2B	8.0	8.0
Northern	1.402	1B	6.3	6.3
Northern	1.403	2B	6.2	8.4
Northern	1.404	3B	11.7	11.7
Northern	1.405	3B	10.1	10.1
Northern	1.501	2B	8.0	8.0
Northern	1.502	1B	6.3	6.3
Northern	1.503	2B	6.2	8.4
Northern	1.504	3B	11.7	11.7
Northern	1.505	3B	10.1	10.1
Northern	1.601	2B	8.0	8.0
Northern	1.602	1B	6.3	6.3
Northern	1.603	2B	6.2	8.4
Northern	1.604	3B	10.8	10.8
Northern	1.605	3B	10.1	10.1
Northern	1.701	2B	8.2	8.2
Northern	1.702	3B	14.6	14.6
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General Notes

Rev.	Issue	Revision Description	Date	Appr by
1		FOR INFORMATION	10.10.2025	
2		FOR INFORMATION	15.10.2025	
3		FOR INFORMATION	10.11.2025	
4		FOR INFORMATION	28.11.2025	
5		FOR INFORMATION	27.01.2026	
6		FOR SSDA COORDINATION	09.03.2026	

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Nom Architect: Jasmin Williamson 11989

Client: TIME & PLACE

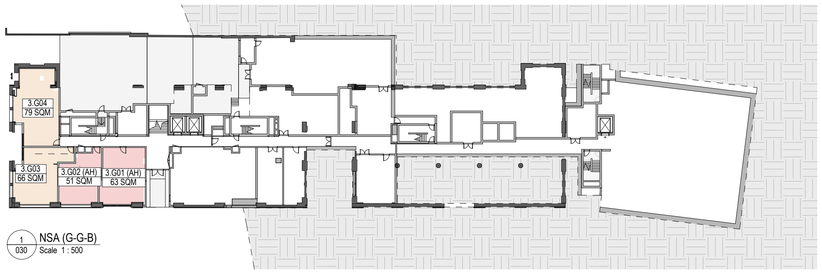
Project: Residence
47-97 Marlborough House Surry Hill

Title: STORAGE

Project No. 2517
Scale @ A1: As indicated
Date: AUG 2025
Co-Ord: Designer
Drwn: Author
Chck: Checker
Drawing Status
Drawing No. AR 930
Revision: 6

PRINTED: 9/03/2026 8:29:58 PM
FILE: Autodesk Docs://Marlborough House Surry Hills/2517_SD_Marlborough_New Building_R23.rvt

THE DISTANCE BETWEEN THESE MARKS SHOULD MEASURE
AS 100mm WHEN SHEET IS PRINTED TO SCALE AS INDICATED



1 / 030 NSA (G-G-B)
Scale 1 : 500



2 / 031 NSA (1-1-1)
Scale 1 : 500

BP-10R-10P			
7-9-9P	Penthouse	L10 - Penthouse	
6-7-7	L07	L09 - Penthouse	
5-5-5	L06	L08	-8-8
4-4-4	L05	L07	
3-3-3	L04	L06	-6-6
2-2-2	L03	L05	
1-1-1	L02	L04	
G-G-B	L01	L03	
	G00	L02	
		L01	
		Basement	

ROOMS

- Residential (BTS)
- Residential (AH)
- Retail

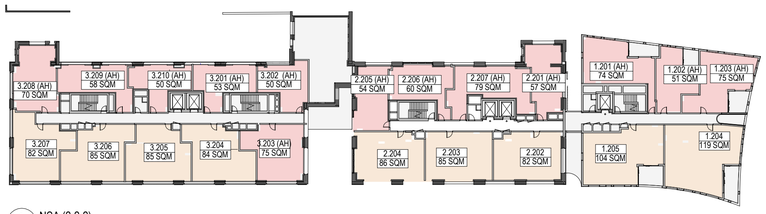
Net Sellable Area (NSA) method of measurements:

net sellable area means the sum of the floor area of each apartment measured from the internal surface of external walls , party walls, service riser walls and

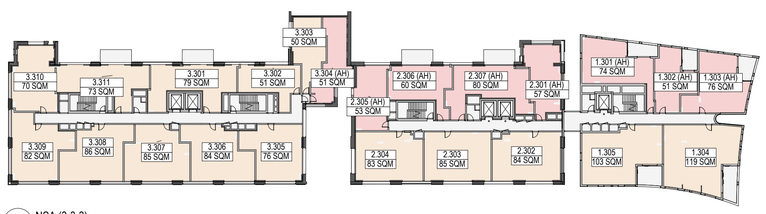
Includes :
(a)usable portion underneath a stair, measured at 1.4 metre above the floor

Excludes:
(a) services penetrations and services walls
(b) load bearing columns and walls
(c) voids above a floor or a stair

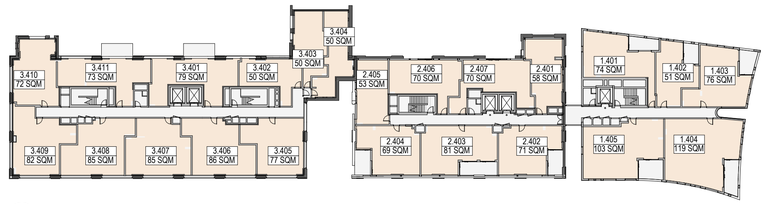
Essentially, net sellable area measures the area which the owner have rights to demolish and renovate.



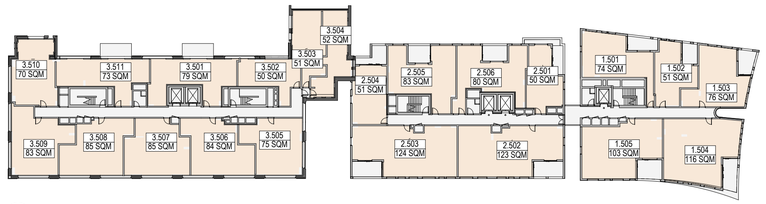
3 / 031 NSA (2-2-2)
Scale 1 : 500



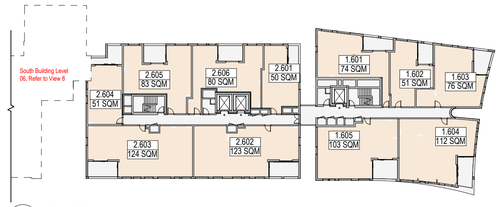
4 / 031 NSA (3-3-3)
Scale 1 : 500



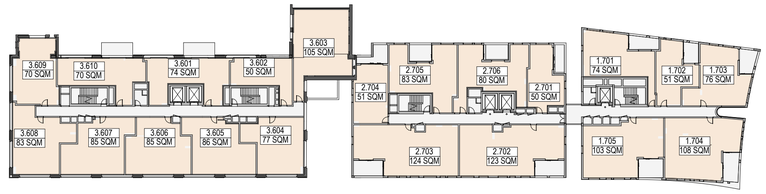
5 / 031 NSA (4-4-4)
Scale 1 : 500



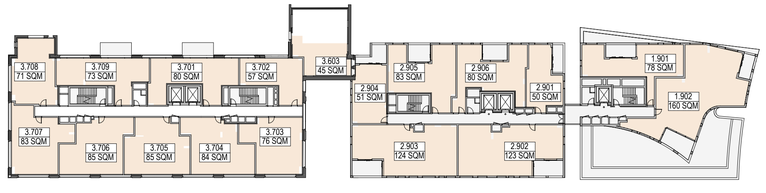
6 / 031 NSA (5-5-5)
Scale 1 : 500



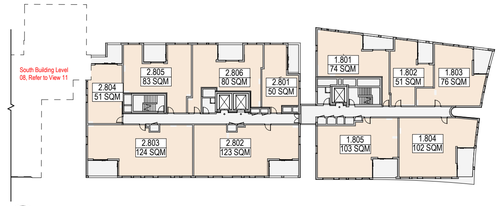
7 / 030 NSA (_6-6)
Scale 1 : 500



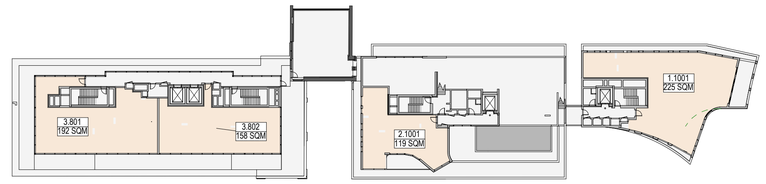
8 / 031 NSA (6-7-7)
Scale 1 : 500



9 / 031 NSA (7-9-9P)
Scale 1 : 500



10 / 030 NSA (_8-8)
Scale 1 : 500



11 / 030 NSA (8-10-10)
Scale 1 : 500

NSA- Room Area Schedule - Southern BTS

LEVEL	NSA
South - L08	350 m²
South - L07	739 m²
South - L06	786 m²
South - L05	786 m²
South - L04	789 m²
South - L03	735 m²
South - L02	336 m²
South - L01	543 m²
South - G00	145 m²
	5,208 m²

NSA- Room Area Schedule - Central BTS

LEVEL	NSA
North/Central - L10	119 m²
North/Central - L09	511 m²
North/Central - L08	511 m²
North/Central - L07	511 m²
North/Central - L06	511 m²
North/Central - L05	511 m²
North/Central - L04	472 m²
Central - L03	253 m²
Central - L02	253 m²
	3,652 m²

NSA- Room Area Schedule - Northern BTS

LEVEL	NSA
North/Central - L10	225 m²
North/Central - L09	237 m²
North/Central - L08	407 m²
North/Central - L07	413 m²
North/Central - L06	417 m²
North/Central - L05	421 m²
North/Central - L04	423 m²
North - L03	222 m²
North - L02	223 m²
	2,988 m²

NSA- Room Area Schedule - Northern Retail

LEVEL	TYPE	AREA
North - L01	Retail	142 m²

NSA- Room Area Schedule - Southern AH

LEVEL	NSA
South - L03	51 m²
South - L02	356 m²
South - L01	127 m²
South - G00	113 m²
	647 m²

NSA- Room Area Schedule - Central AH

LEVEL	NSA
Central - L03	250 m²
Central - L02	249 m²
South - L01	396 m²
	895 m²

NSA- Room Area Schedule - Northern AH

LEVEL	NSA
North - L03	201 m²
North - L02	200 m²
	402 m²

SUBTOTAL NSA BTS

Residential (BTS)	11,848 m²

SUBTOTAL NSA AH

Residential (AH)	1,943 m²

SUBTOTAL NSA Retail

Retail	142 m²

TOTAL NSA

13,933 m²

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Nom Architect: Jasmin Williamson 11989

Client: TIME & PLACE

Project: Residence
47-97 Marlborough House Surry Hill

Title: NSA

Project No. 2517 | Scale @ A1: As indicated
Date: AUG 2025 | Co-Ord: Designer
Drwn: Author | Chck: Checker
Drawing Status

Drawing No. AR 951 | Revision 6

PRINTED: 9/03/2026 8:39:56 PM
FILE: Autodesk Docs://Marlborough House Surry Hills/2517_SD_Marlborough_New Building_R25.rvt

THE DISTANCE BETWEEN THESE MARKS SHOULD MEASURE
AS 100mm WHEN SHEET IS PRINTED TO SCALE AS INDICATED

Apartment Schedule - Southern BTS

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA	APT COUNT
3.101	South - L01	1B	63 m²	15.0 m²	1
3.104	South - L01	2B2B	84 m²		1
3.105	South - L01	2B2B	84 m²		1
3.106	South - L01	2B2B	84 m²		1
3.107	South - L01	2B2B	75 m²	15.0 m²	1
3.204	South - L02	2B2B	84 m²		1
3.205	South - L02	2B2B	85 m²		1
3.206	South - L02	2B2B	85 m²		1
3.207	South - L02	2B2B	82 m²		1
3.301	South - L03	2B2B	79 m²	9.0 m²	1
3.302	South - L03	1B	51 m²	0.0 m²	1
3.303	South - L03	1B	50 m²		1
3.305	South - L03	2B2B	76 m²		1
3.306	South - L03	2B2B	84 m²		1
3.307	South - L03	2B2B	85 m²		1
3.308	South - L03	2B2B	86 m²		1
3.309	South - L03	2B2B	82 m²		1
3.310	South - L03	2B1B	70 m²		1
3.311	South - L03	2B2B	73 m²	9.0 m²	1
3.401	South - L04	2B2B	79 m²	9.0 m²	1
3.402	South - L04	1B	50 m²	0.0 m²	1
3.403	South - L04	1B	50 m²		1
3.404	South - L04	1B	50 m²		1
3.405	South - L04	2B1B	77 m²		1
3.406	South - L04	2B2B	86 m²		1
3.407	South - L04	2B2B	85 m²		1
3.408	South - L04	2B2B	85 m²		1
3.409	South - L04	2B2B	82 m²		1
3.410	South - L04	2B1B	72 m²		1
3.411	South - L04	2B2B	73 m²	9.0 m²	1
3.501	South - L05	2B2B	79 m²	9.0 m²	1
3.502	South - L05	1B	50 m²	0.0 m²	1
3.503	South - L05	1B	51 m²		1
3.504	South - L05	1B	52 m²		1
3.505	South - L05	2B2B	75 m²		1
3.506	South - L05	2B2B	84 m²		1
3.507	South - L05	2B2B	85 m²		1
3.508	South - L05	2B2B	85 m²		1
3.509	South - L05	2B2B	83 m²		1
3.510	South - L05	2B1B	70 m²		1
3.511	South - L05	2B2B	73 m²	9.0 m²	1
3.601	South - L06	2B2B	74 m²	9.0 m²	1
3.602	South - L06	1B	50 m²		1
3.603	South - L06	TH	105 m²		1
3.603	South - L07	TH	45 m²		0
3.604	South - L06	2B2B	77 m²		1
3.605	South - L06	2B2B	86 m²		1
3.606	South - L06	2B2B	85 m²		1
3.607	South - L06	2B2B	85 m²		1
3.608	South - L06	2B2B	83 m²		1
3.609	South - L06	2B1B	70 m²		1
3.610	South - L06	2B1B	70 m²	9.0 m²	1
3.701	South - L07	2B2B	80 m²	9.0 m²	1
3.702	South - L07	1B1B	57 m²		1
3.703	South - L07	2B2B	76 m²		1
3.704	South - L07	2B2B	84 m²		1
3.705	South - L07	2B2B	85 m²		1
3.706	South - L07	2B2B	85 m²		1
3.707	South - L07	2B2B	83 m²		1
3.708	South - L07	2B1B	71 m²		1
3.709	South - L07	2B2B	73 m²	9.0 m²	1
3.801	South - L08	PH	192 m²	25.0 m²	1
3.802	South - L08	PH	158 m²	20.0 m²	1
3.G03	South - G00	TH	66 m²		1
3.G03	South - L01	TH	76 m²		0
3.G04	South - G00	TH	79 m²		1
3.G04	South - L01	TH	78 m²		0

TOTAL SOUTH BTS 64

*3.G03 / 3.G04 / 3.603 ARE DOUBLE-HEIGHT APARTMENTS.

Apartment Schedule - Southern AH

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA
3.102 (AH)	South - L01	1B	51 m²	15.0 m²
3.103 (AH)	South - L01	2B2B	75 m²	
3.201 (AH)	South - L02	1B	53 m²	0.0 m²
3.202 (AH)	South - L02	1B	50 m²	0.0 m²
3.203 (AH)	South - L02	2B2B	75 m²	
3.208 (AH)	South - L02	2B1B	70 m²	
3.209 (AH)	South - L02	1B	58 m²	0.0 m²
3.210 (AH)	South - L02	1B	50 m²	0.0 m²
3.304 (AH)	South - L03	1B	51 m²	
3.G01 (AH)	South - G00	1B	63 m²	
3.G02 (AH)	South - G00	1B	51 m²	

TOTAL SOUTH AH: 11

Apartment Schedule - Central BTS

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA
2.202	Central - L02	2B2B	82 m²	
2.203	Central - L02	2B2B	85 m²	
2.204	Central - L02	2B2B	86 m²	
2.302	Central - L03	2B2B	84 m²	
2.303	Central - L03	2B2B	85 m²	
2.304	Central - L03	2B2B	83 m²	
2.401	North/Central - L04	1B	58 m²	
2.402	North/Central - L04	2B1B	71 m²	10.0 m²
2.403	North/Central - L04	2B2B	81 m²	13.0 m²
2.404	North/Central - L04	2B1B	69 m²	0.0 m²
2.405	North/Central - L04	1B	53 m²	
2.406	North/Central - L04	2B1B	70 m²	9.0 m²
2.407	North/Central - L04	2B2B	70 m²	9.0 m²
2.501	North/Central - L05	1B	50 m²	8.0 m²
2.502	North/Central - L05	3B	123 m²	12.0 m²
2.503	North/Central - L05	3B	124 m²	12.0 m²
2.504	North/Central - L05	1B	51 m²	10.0 m²
2.505	North/Central - L05	2B2B	83 m²	10.0 m²
2.506	North/Central - L05	2B2B	80 m²	10.0 m²
2.601	North/Central - L06	1B	50 m²	8.0 m²
2.602	North/Central - L06	3B	123 m²	12.0 m²
2.603	North/Central - L06	3B	124 m²	12.0 m²
2.604	North/Central - L06	1B	51 m²	10.0 m²
2.605	North/Central - L06	2B2B	83 m²	10.0 m²
2.606	North/Central - L06	2B2B	80 m²	10.0 m²
2.701	North/Central - L07	1B	50 m²	8.0 m²
2.702	North/Central - L07	3B	123 m²	12.0 m²
2.703	North/Central - L07	3B	124 m²	12.0 m²
2.704	North/Central - L07	1B	51 m²	10.0 m²
2.705	North/Central - L07	2B2B	83 m²	10.0 m²
2.706	North/Central - L07	2B2B	80 m²	10.0 m²
2.801	North/Central - L08	1B	50 m²	8.0 m²
2.802	North/Central - L08	3B	123 m²	12.0 m²
2.803	North/Central - L08	3B	124 m²	12.0 m²
2.804	North/Central - L08	1B	51 m²	10.0 m²
2.805	North/Central - L08	2B2B	83 m²	10.0 m²
2.806	North/Central - L08	2B2B	80 m²	10.0 m²
2.901	North/Central - L09	1B	50 m²	8.0 m²
2.902	North/Central - L09	3B	123 m²	12.0 m²
2.903	North/Central - L09	3B	124 m²	12.0 m²
2.904	North/Central - L09	1B	51 m²	10.0 m²
2.905	North/Central - L09	2B2B	83 m²	10.0 m²
2.906	North/Central - L09	2B2B	80 m²	10.0 m²
2.1001	North/Central - L10	PH	119 m²	13.0 m²

TOTAL CENTRAL BTS: 44

Apartment Schedule - Central AH

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA
2.101 (AH)	South - L01	1B	56 m²	
2.102 (AH)	South - L01	1B	50 m²	
2.103 (AH)	South - L01	1B	51 m²	
2.104 (AH)	South - L01	1B	58 m²	
2.105 (AH)	South - L01	1B	51 m²	15.0 m²
2.106 (AH)	South - L01	1B	50 m²	15.0 m²
2.107 (AH)	South - L01	2B2B	81 m²	15.0 m²
2.201 (AH)	Central - L02	1B	57 m²	
2.205 (AH)	Central - L02	1B	54 m²	
2.206 (AH)	Central - L02	1B	60 m²	
2.207 (AH)	Central - L02	2B2B	79 m²	
2.301 (AH)	Central - L03	1B	57 m²	
2.305 (AH)	Central - L03	1B	53 m²	0.0 m²
2.306 (AH)	Central - L03	1B	60 m²	9.0 m²
2.307 (AH)	Central - L03	2B2B	80 m²	9.0 m²

TOTAL CENTRAL AH: 15

Apartment Schedule - Northern BTS

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA
1.204	North - L02	3B	119 m²	13.0 m²
1.205	North - L02	3B	104 m²	13.0 m²
1.304	North - L03	3B	119 m²	13.0 m²
1.305	North - L03	3B	103 m²	13.0 m²
1.401	North/Central - L04	2B1B	74 m²	10.0 m²
1.402	North/Central - L04	1B	51 m²	8.0 m²
1.403	North/Central - L04	2B2B	76 m²	10.0 m²
1.404	North/Central - L04	3B	119 m²	13.0 m²
1.405	North/Central - L04	3B	103 m²	13.0 m²
1.501	North/Central - L05	2B1B	74 m²	10.0 m²
1.502	North/Central - L05	1B	51 m²	8.0 m²
1.503	North/Central - L05	2B2B	76 m²	10.0 m²
1.504	North/Central - L05	3B	116 m²	12.0 m²
1.505	North/Central - L05	3B	103 m²	12.0 m²
1.601	North/Central - L06	2B1B	74 m²	10.0 m²
1.602	North/Central - L06	1B	51 m²	8.0 m²
1.603	North/Central - L06	2B2B	76 m²	10.0 m²
1.604	North/Central - L06	3B	112 m²	12.0 m²
1.605	North/Central - L06	3B	103 m²	12.0 m²
1.701	North/Central - L07	2B1B	74 m²	10.0 m²
1.702	North/Central - L07	1B	51 m²	8.0 m²
1.703	North/Central - L07	2B2B	76 m²	10.0 m²
1.704	North/Central - L07	3B	108 m²	12.0 m²
1.705	North/Central - L07	3B	103 m²	12.0 m²
1.801	North/Central - L08	2B1B	74 m²	10.0 m²
1.802	North/Central - L08	1B	51 m²	8.0 m²
1.803	North/Central - L08	2B2B	76 m²	10.0 m²
1.804	North/Central - L08	3B	102 m²	12.0 m²
1.805	North/Central - L08	3B	103 m²	12.0 m²
1.901	North/Central - L09	2B2B	78 m²	10.0 m²
1.902	North/Central - L09	PH	160 m²	22.0 m²
1.1001	North/Central - L10	PH	225 m²	20.0 m²

TOTAL NORTHERN BTS: 32

Apartment Schedule - Northern AH

APT NO.	LEVEL	APT TYPE	APT AREA	BALCONY AREA
1.201 (AH)	North - L02	2B1B	74 m²	10.0 m²
1.202 (AH)	North - L02	1B	51 m²	9.0 m²
1.203 (AH)	North - L02	2B2B	75 m²	11.0 m²
1.301 (AH)	North - L03	2B1B	74 m²	10.0 m²
1.302 (AH)	North - L03	1B	51 m²	8.0 m²
1.303 (AH)	North - L03	2B2B	76 m²	10.0 m²

TOTAL NORTHERN AH: 6

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General Notes

Rev.	Issue	Revision Description	Date	Appr by
1		FOR INFORMATION	15.10.2025	
2		FOR INFORMATION	03.02.2026	
3		FOR SSDA COORDINATION	09.03.2026	

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Client: TIME & PLACE

Project: Residence
47-97 Marlborough House Surry Hill

Title: Apartment Schedules

Project No. 2517

Scale @ A1

Date

Co-Ord Designer

Drwn Author

Chck Checker

Drawing Status

Drawing No. AR 952

Revision 3

PRINTED: 9/03/2026 8:30:29 PM
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Appendix D – Groundwater Seepage Analysis and Groundwater Level Monitoring Report

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11 February 2025
E26534.G12

Ms Grace Hunt
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SYDNEY NSW 2000

Groundwater Seepage Analysis
Proposed Mixed-Use Development
47-97 Marlborough Street, Surry Hills NSW

1 INTRODUCTION

1.1 BACKGROUND

At the request of Ms Grace Hunt of M House Surry Pty Ltd (the Client), EI Australia (EI) has prepared this Groundwater Seepage Analysis for 47-97 Marlborough Street, Surry Hills NSW (the site).

The following documents were used to assist in the preparation of this analysis:

- Architectural Drawings prepared by Wardle – Project no: 2517, Drawing no: AR 101 of Revision 1, AR 400 of Revision 3, dated 6 November 2025;
- Site survey plan prepared by LTS, Reference No. 52561 002DT, Sheets 1 to 5, dated 22 August 2025;
- Consultant Standard Text prepared by Urbis, Version 1, dated 27 October 2025.

EI has completed the following relevant reports for the site:

- Geotechnical investigation (GI) report, Reference No. E26534.G03, dated 8 November 2024;
- Additional Geotechnical Investigation (AGI) report, Reference No. E26534.G04, dated 3 February 2026;
- Groundwater Monitoring Report, Reference No. E26534.G11, dated 3 February 2026.

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

Based on the provided documents, EI understands that proposed development towards the southern portions and the central portion of the site involves alterations and additions to the existing heritage warehouse building and addition of four extra levels to the existing warehouse building on the central portion of the site. Development towards the northern portion of the site involves demolition of the existing carpark and construction of a mixed-use development comprising of residential and retail spaces of ten levels above ground overlying a seven level basement car park stacker.

The Finished Floor Level (FFL) of the lowest basement carpark stacker is proposed to have RL 21.2 m AHD. A Bulk Excavation Level (BEL) of RL 20.9 m AHD is assumed which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths ranging between 26.1 m and 29.1 m Below Existing Ground levels (BEGL) are estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

1.2 ASSESSMENT OBJECTIVES

The objective of this GSA is to provide an estimation of the groundwater take volumes that require pumping out during the construction and operational stage of the development, estimation of the groundwater drawdown as a result of the dewatering, and its associated ground settlements (if any).

2 SITE MODEL

2.1 MODELLED SECTION

For the purpose of the groundwater take assessment, a half cross sections is considered. Location of this section is shown in the attached **Figure 1**.

2.2 SUBSURFACE CONDITIONS AND PERMEABILITY

For the purpose of this groundwater seepage analysis, the subsurface conditions encountered in the boreholes (BH101M and BH102M) as outlined in EI's GI report referenced above have been used. For the purpose of this modelling, the subsurface conditions encountered in the borehole BH101M have been adopted in the model. A summary of adopted subsurface conditions and permeability values are presented in **Table 1** below.

Table 1 Summary of Subsurface Conditions and Adopted Design Parameters

Material [1]	Approximate Range of Depths of Top of Unit (m BEGL) [2]	Approximate Range of RL's of Top of Unit (m AHD) [2]	Adopted Average RL of Top of Unit (m AHD) [2]	Adopted Permeability (m/s)	$k_{Vertical}$/ $k_{Horizontal}$
Fill (Silty Sand) [3]	0.13 to 0.2	41.67 to 49.37	49.40	1×10^{-5}	1.0
Residual Soil (Silty Clay) [3]	0.4 to 1.3	41.30 to 48.20	48.20	1×10^{-7}	1.0
Class IV/V Shale[4]	3.0	43.90 to 46.50	46.50	1×10^{-7}	0.5
Class III Shale [4]	7.0 to 8.69	38.21 to 42.50	42.50	1×10^{-7}	0.3
Class III Sandstone [4]	11.04	38.46	38.5	5×10^{-7}	0.3
Class II Sandstone[5]	9.7 to 11.95	37.2 to 37.55	37.5	6×10^{-8}	0.3

Notes:

1 For more detailed descriptions of subsurface conditions reference should be made to the EI's GI report.
2 Depths and levels presented in **Table 1** above are generalised using the levels from the Geotechnical Investigation across the excavation area for the purpose of groundwater seepage analysis.
3 Permeability values have been correlated for material encountered during the GSA using Look (2014).
4 Permeability values have been correlated for material encountered during the GSA using Pells et al. (2019).
5 Average permeability value of the bedrock was calculated based on the average of the permeability values calculated in the boreholes from the rising head tests as discussed in **Section 2.3**.

2.3 GROUNDWATER OBSERVATIONS AND PUMP OUT TESTS

EI carried out the rising head tests on 22 September 2025 and 8 January 2026 within the monitoring wells (BH101M, BH102M and BH103M). Further to the completion of rising head tests on 22 September 2025, data loggers were installed in the groundwater monitoring wells (BH101M, BH102M and BH103M) for long-term groundwater monitoring. EI had visited the site on 8 January 2026 to download the data from the data loggers and decommission the data loggers installed in the monitoring wells. The details of the rising head tests are presented in the **Table 2** and the results are presented graphically in **Attachment B**. The summary of the groundwater levels recorded during the monitoring period from 22 September 2025 to 8 January 2026 are shown in **Table 3**. The full report of this continuous groundwater levels from Groundwater Level Monitoring Report No.1 is provided in **Attachment C**.

Table 2 Monitoring Well Details and Pump Out Test Results

Monitoring Well/ Test ID	Well Depth (m BEGL)	Screen Length (m)	Screened Section	Date of Test	Approximate RL of Groundwater Level (m AHD)	Estimated Permeability (m/s)
BH101M[1]	27.35	6	Class II Sandstone	22-Sep-25	38.87	$8.10x10^{-8}$
				8-Jan-26	38.62	$8.50x10^{-8}$
BH102M	24.80	6	Class II Sandstone	22-Sep-25	38.82	$1.90x10^{-8}$
				8-Jan-26	37.52	$5.50x10^{-8}$
BH103M	24.1	6	Class II Sandstone	22-Sep-25	37.43	$1.57x10^{-7}$
				8-Jan-26	36.6	$2.65x10^{-7}$

The permeability values obtained from monitoring wells (BH101M and BH102M) have been used in the groundwater model. The permeability values derived from monitoring well (BH103M) have not been used, as it is located at a considerable distance from the proposed excavation area and is therefore considered less relevant for modelling purposes. In addition, the results are considered anomalous and not representative of the interpreted subsurface conditions. For the purpose of this model, the average of the permeability's obtained from the monitoring wells (BH101M and BH102M) is adopted for the Class II sandstone bedrock as shown in **Table 1** above.

Table 3 Summary of Groundwater Levels from the Long-term Groundwater Monitoring

Monitoring Well ID	Average Groundwater RL (m AHD)	Approximate Highest RL of Groundwater Level (m AHD)	Approximate Lowest RL of Groundwater Level (m AHD)
BH101M	38.99	39.24	38.71
BH102M	38.14	38.89	37.70
BH103M	36.84	37.55	36.47

Based on the measured groundwater levels above, a design groundwater level (GWL) of RL 40.25 m AHD is adopted in the model. The adopted groundwater level has considered possible seasonal variation of 1.0 m above the highest water tables encountered in the monitoring wells (BH101M) as shown in **Table 3** above.

2.4 MAXIMUM EXTENT OF THE CONE OF DEPRSSION

There is no surface waterbody nearby the site. The estimated maximum extent of the cone of depression has been determined using Sichardt's Formula, as follows:

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

where:

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

The coefficient of 3000 is based on empirical observations, predominantly for sandy aquifers. The lowest coefficient outlined in Sichardt's formula is approximately 1000, which would result in a smaller radius of influence. Therefore, using a coefficient of 3000 in this case is considered conservative.

Based on the formula above, the maximum extent of cone of depression is calculated to be 15 m approximately. Hence so we have conservatively assumed a cone of depression of 30 m from the boundaries. This extent has been adopted in the numerical model as a distance from the basement perimeter to the constant head boundary.

2.5 SHORING SYSTEM

At the time of this assessment, no detailed shoring designs were available. Based on the geotechnical investigation report referenced above, it is assumed that the shoring system may be comprised of soldier pile wall followed by vertical cuts in the competent bedrock. Therefore the shoring system is modelled as permeable shoring system and is freely allowable to drain water.

This assessment does not assess the overall stability and embedment depth 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 for flow into the proposed basement excavation during construction has been undertaken using PLAXIS 2D, a finite element groundwater seepage analysis software. PLAXIS 2D estimates the seepage rate of water entering the excavation from through and beneath the shoring wall. 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 outside the site boundaries. The permeability values presented in **Table 1** above were adopted for each unit.
- The design groundwater levels as provided at **Section 2.3** of this report were assumed to be constant at 30 m away from the shoring wall as outlined in the **Section 2.4** of this report.
- A “No-Flow” boundary is defined along the symmetric line (the centre of the excavation), at 12 m from the perimeter shoring wall.
- The shoring walls surrounding the basement excavation has a total length of about 96 m approximately.
- For the simplicity of this model, temporary dewatering will be undertaken within the basement retaining wall perimeter to the BEL of RL 20.9 m AHD.

The PLAXIS 2D model is presented in **Attachment A**. **Table 4** below provides the estimated groundwater inflow rate into the basement for each Scenario.

Table 4 Summary of Analysis Results

Shoring System	Inflow per m length of perimeter wall (m^3/day)	Inflow into excavation (m^3/day)	Total Inflow during construction (ML/365 days)
Soldier Pile Wall / Vertical Cut Bedrock	7.55×10^{-2}	7.25	2.64

3.2 ASSESSMENT OF GROUNDWATER TAKE DURING OPERATIONAL PHASE

A drained basement using sub-soil drainage and a sump-and-pump system was assumed. Therefore, the estimated volume of groundwater removed beneath the basement during the operation stage of the development will be same as the volume of water calculated during the construction stage of the development which is 2.64 ML per year.

3.3 GROUNDWATER DRAWDOWN AND DRAWDOWN INDUCED SETTLEMENT

EI have completed a settlement analysis using PLAXIS 2D to estimate the potential drawdown-induced settlements as a result of the above predicted drawdown. The predicted drawdown over the zone of influence and settlement is shown in **Table 5**. The predicted drawdown may serve as the predetermined groundwater level for monitoring during construction.

Table 5 Predicted Groundwater Drawdown and Associated Ground Settlement

Shoring system	Maximum Drawdown (m)	Ground settlement (mm)
Soldier Pile Wall / Vertical Cut Bedrock	9	1.5

The maximum ground settlements outside the proposed basement footprint due to the dewatering are estimated to be around 1.5 mm as the dewatering is occurring primarily in bedrock and are considered to be a 'Negligible' risk in regards to category of damage risk due to dewatering, as defined in Cashman and Preene (2021), as shown in the excerpt in **Plate 1**. It should be noted that this 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.

Although the PLAXIS 2D 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.

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)

4 CONCLUSIONS AND COMMENTS

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

- The construction and operational phases of the proposed development, the groundwater take was calculated to be 2.64 ML per year approximately.
- The above estimate is based on the following assumptions:
  - The shoring wall system is an fully drained retention system;
  - Continuous dewatering in order to maintain the groundwater at a depth of BEL during construction;
  - The basement walls and slab will be designed as drained structure for the development lifetime.
  - 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 ground settlements resulting from the predicted groundwater drawdowns outside the basement boundary are estimated to be around 1.5 mm. This level of settlement is considered to pose 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 M House Surry 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 M House Surry 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

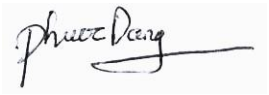
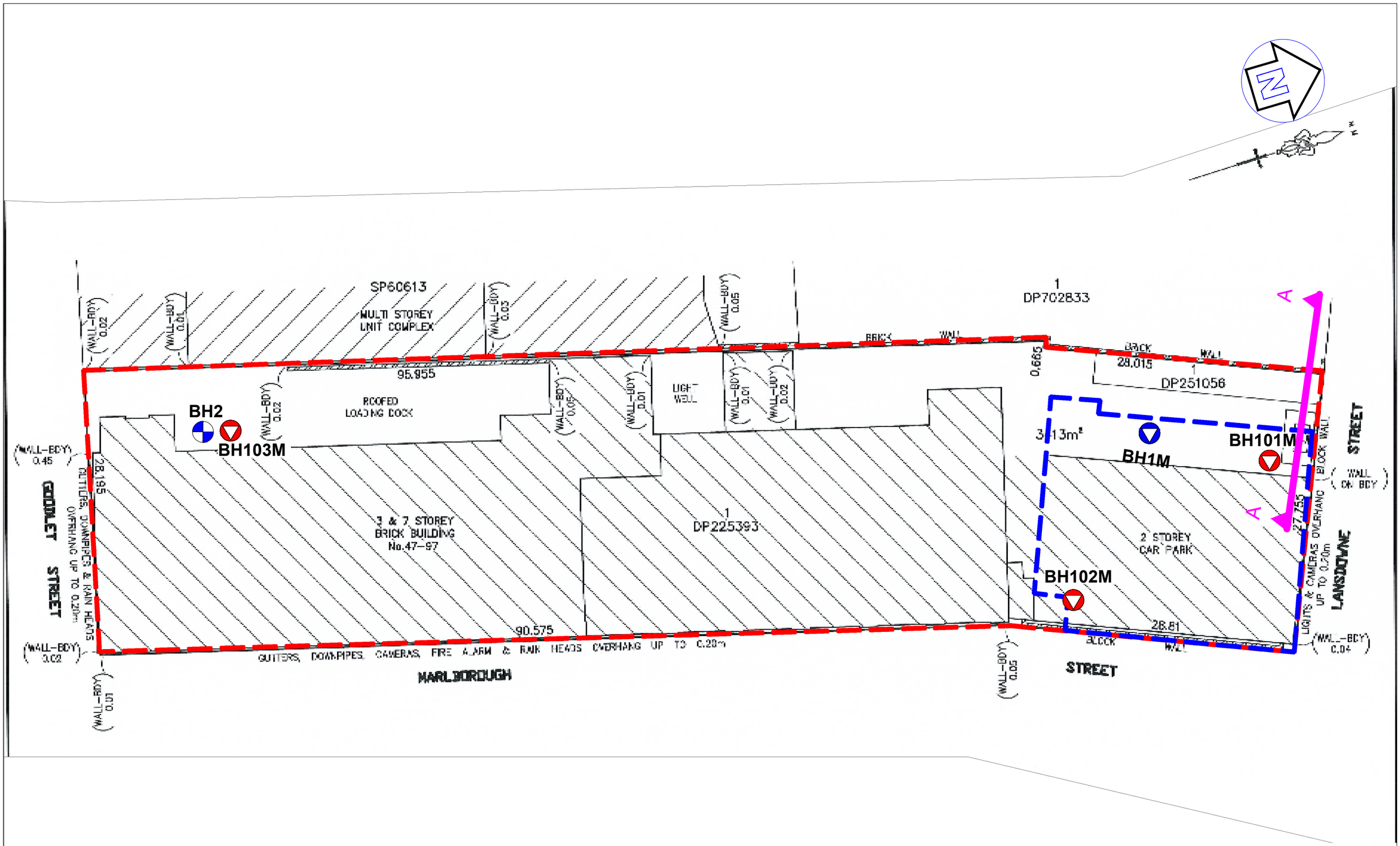
Author	Technical Reviewer
	
Gokul Pothineni **Geotechnical Engineer**	**Huu Dang** **Principal Design Engineer**

Figure 1 – Analysed Section Plan
Attachment A – PLAXIS 2D Model and Results of Analysed Sections
Attachment B– Rising Head Tests
Attachment C – Long-Term Groundwater Monitoring
Attachment D – Important Information

Figures

Figure 1 Analysed Section Plan



Map Source: Hill & Blume - Project No. 65402 RS, Sheet 2 of 2, Dated 17 April 2024

LEGEND (All Locations are Approximate)

- Site Boundary
- Excavation Boundary
- Borehole Locations (September 2024)
- Monitoring Well Locations on (September 2024)
- Monitoring Well Locations (September 2025)

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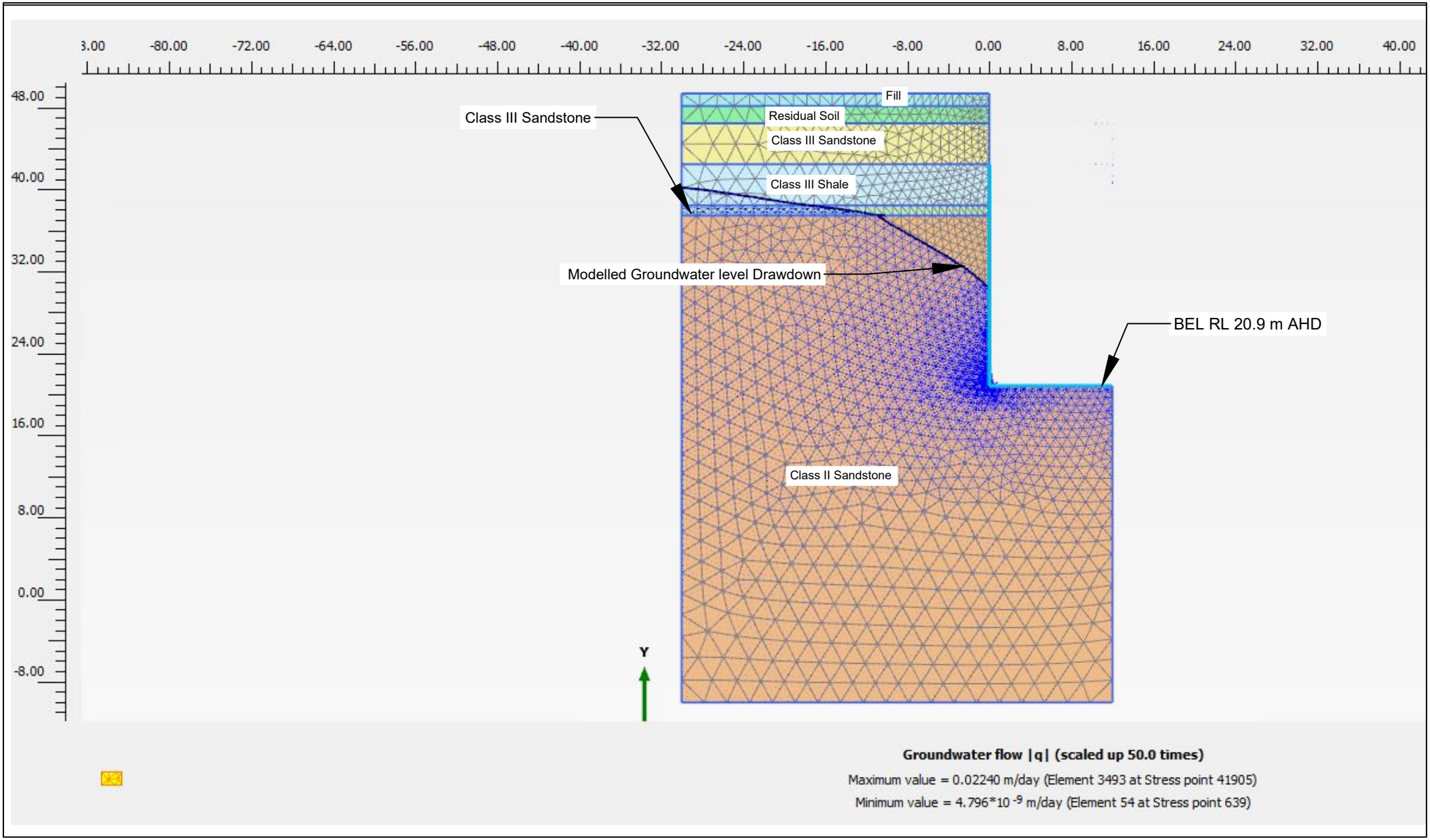
Drawn:	D.C.
Approved:	G.P.
Date:	11-09-25

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Additional Geotechnical Investigation
47-97 Marlborough Street, Surry Hills NSW
Analysed Section Plan

Figure: 1

Project: E26534.G04

Attachment A – PLAXIS 2D Model and Results (Section A-A)



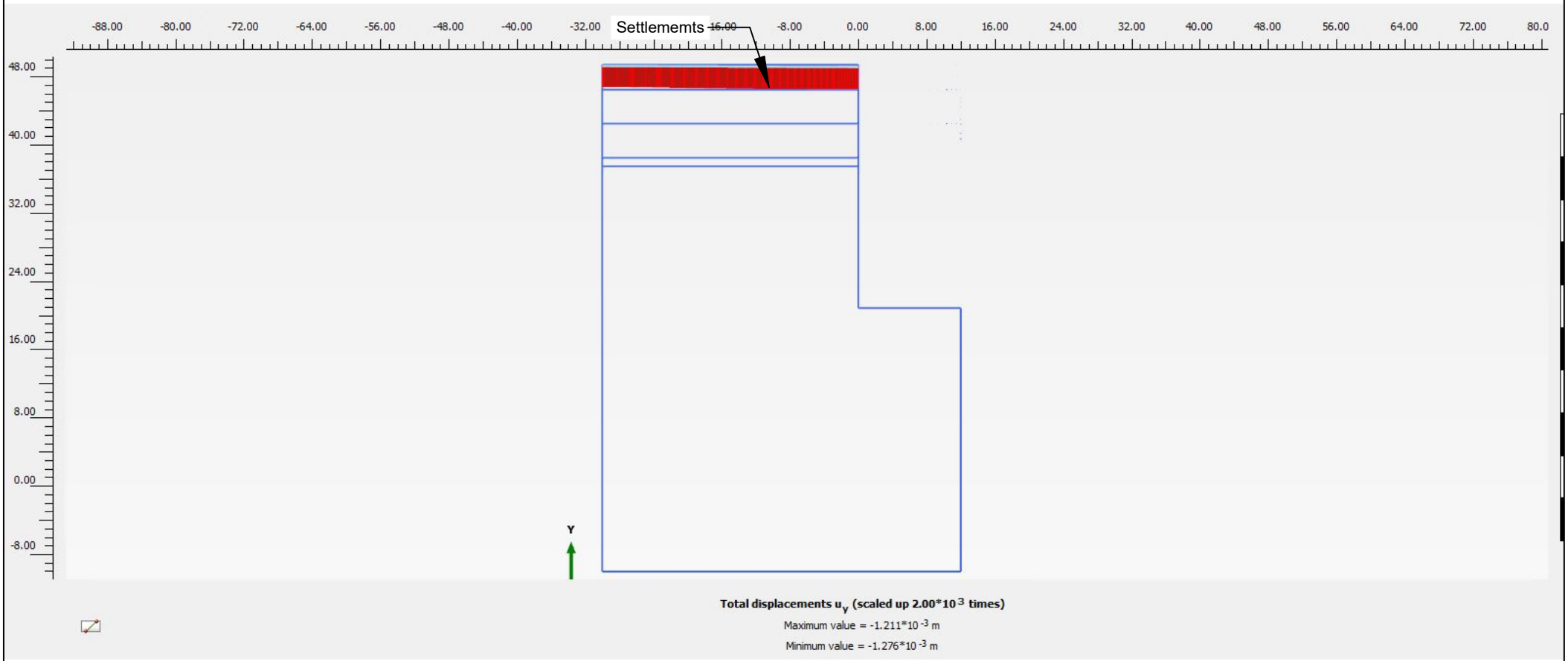
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Groundwater Seepage Analysis
47-97 MArlborough Street, Surry Hills
PLAXIS 2D Model and Results

Appendix:
A

Project: E26534.G12



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Groundwater Seepage Analysis
47-97 Marlborough Street, Surry Hills
PLAXIS 2D Model and Results

Appendix:
A

Project: E26534.G12

Attachment B – Rising Head Tests

Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	22/09/2025
By	MS		Location	BH101M

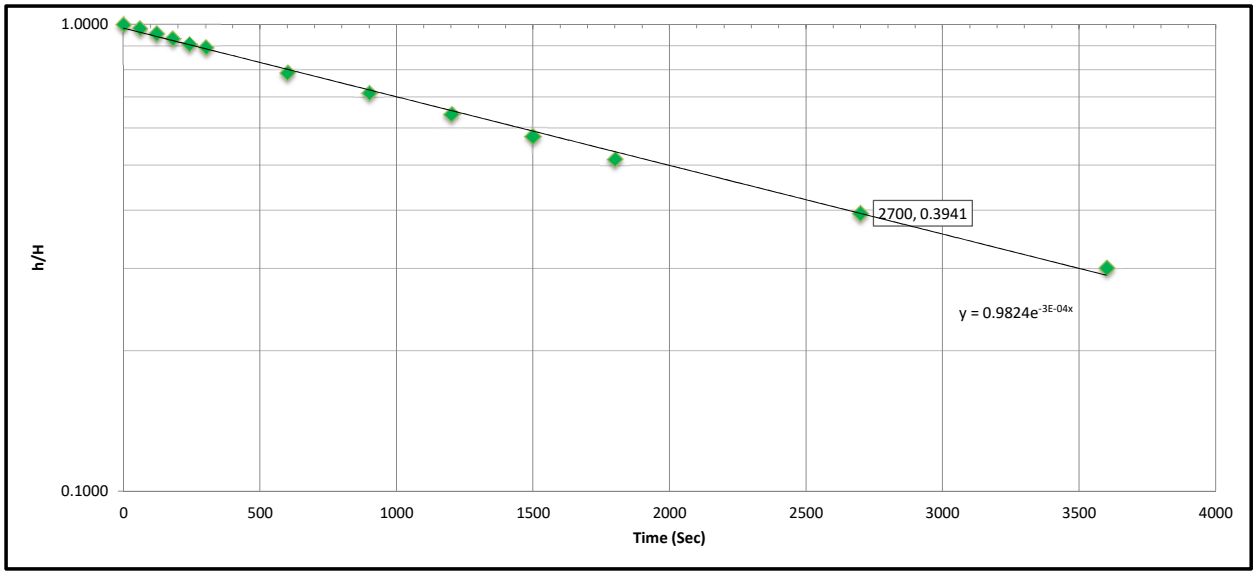
Borehole Detail

BH No.	BH101M	
Casing Stick-up (m)	-0.1	
Effective Piezo Screen Length (m)	6	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	27.25	
Static Water Level (m BToC)	10.73	
Lag time T0 (sec)	3255.32	
Calculated Permeability k	**8.10E-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			10.73		
0	0		21.92	11.19	1.0000
1	60		21.7	10.97	0.9803
2	120		21.43	10.70	0.9562
3	180		21.18	10.45	0.9339
4	240		20.9	10.17	0.9088
5	300		20.74	10.01	0.8945
10	600		19.55	8.82	0.7882
15	900		18.72	7.99	0.7140
20	1200		17.91	7.18	0.6416
25	1500		17.18	6.45	0.5764
30	1800		16.5	5.77	0.5156
45	2700		15.14	4.41	0.3941
60	3600		14.10	3.37	0.3012



Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	22/09/2025
By	MS		Location	BH102M

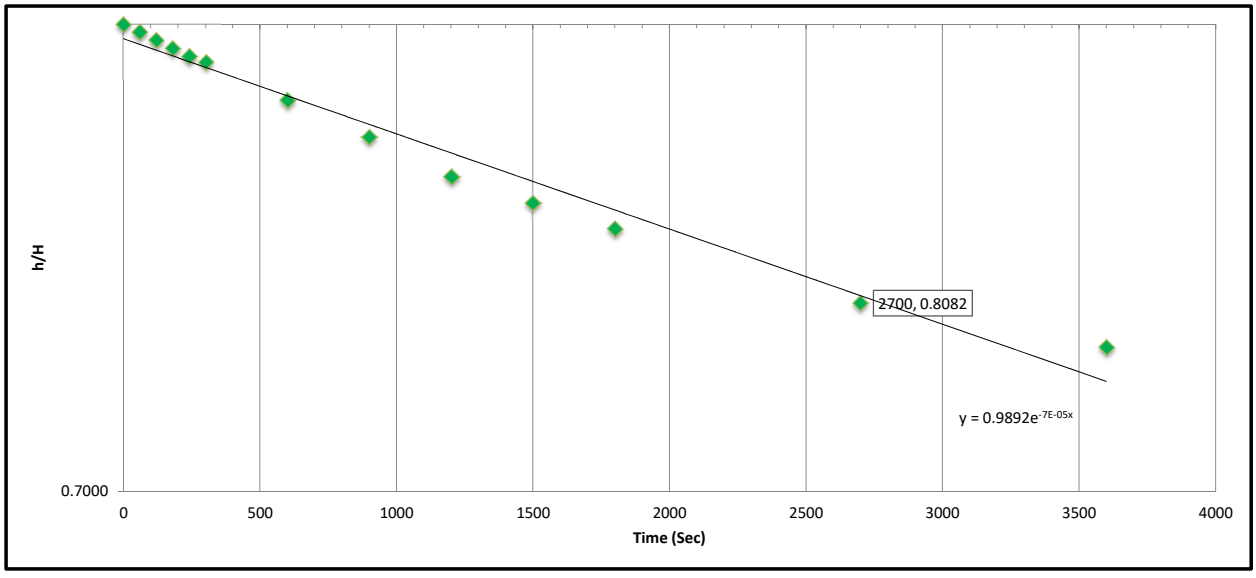
Borehole Detail

BH No.	BH102M	
Casing Stick-up (m)	-0.1	
Effective Piezo Screen Length (m)	6	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	24.7	
Static Water Level (m BToC)	7.98	
Lag time T0 (sec)	14045.89	
Calculated Permeability k	**1.90E-08**	m/sec

Based on Hvorslev Method

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

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			7.98		
0	0		17.94	9.96	1.0000
1	60		17.88	9.90	0.9940
2	120		17.82	9.84	0.9880
3	180		17.76	9.78	0.9819
4	240		17.7	9.72	0.9759
5	300		17.66	9.68	0.9719
10	600		17.38	9.40	0.9438
15	900		17.12	9.14	0.9177
20	1200		16.85	8.87	0.8906
25	1500		16.67	8.69	0.8725
30	1800		16.5	8.52	0.8554
45	2700		16.03	8.05	0.8082
60	3600		15.76	7.78	0.7811



Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	22/09/2025
By	MS		Location	BH103M

Borehole Detail

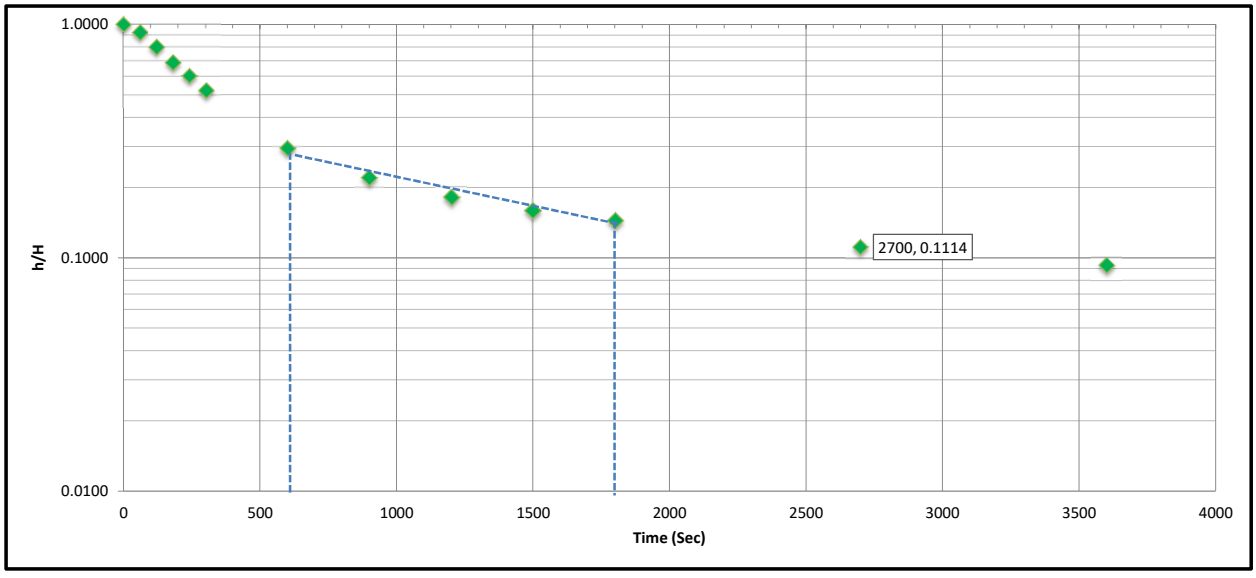
BH No.	BH103M	
Casing Stick-up (m)	-0.1	
Effective Piezo Screen Length (m)	6	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	24	
Static Water Level (m BToC)	4.27	
Lag time T0 (sec)	-238.43	
Calculated Permeability k	**1.57E-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	0.2958
h2	0.1448

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			4.27		
0	0		12.35	8.08	1.0000
1	60		11.74	7.47	0.9245
2	120		10.74	6.47	0.8007
3	180		9.84	5.57	0.6894
4	240		9.15	4.88	0.6040
5	300		8.51	4.24	0.5248
10	600		6.66	2.39	0.2958
15	900		6.04	1.77	0.2191
20	1200		5.74	1.47	0.1819
25	1500		5.56	1.29	0.1597
30	1800		5.44	1.17	0.1448
45	2700		5.17	0.90	0.1114
60	3600		5.02	0.75	0.0928



Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	8/01/2026
By	MS		Location	

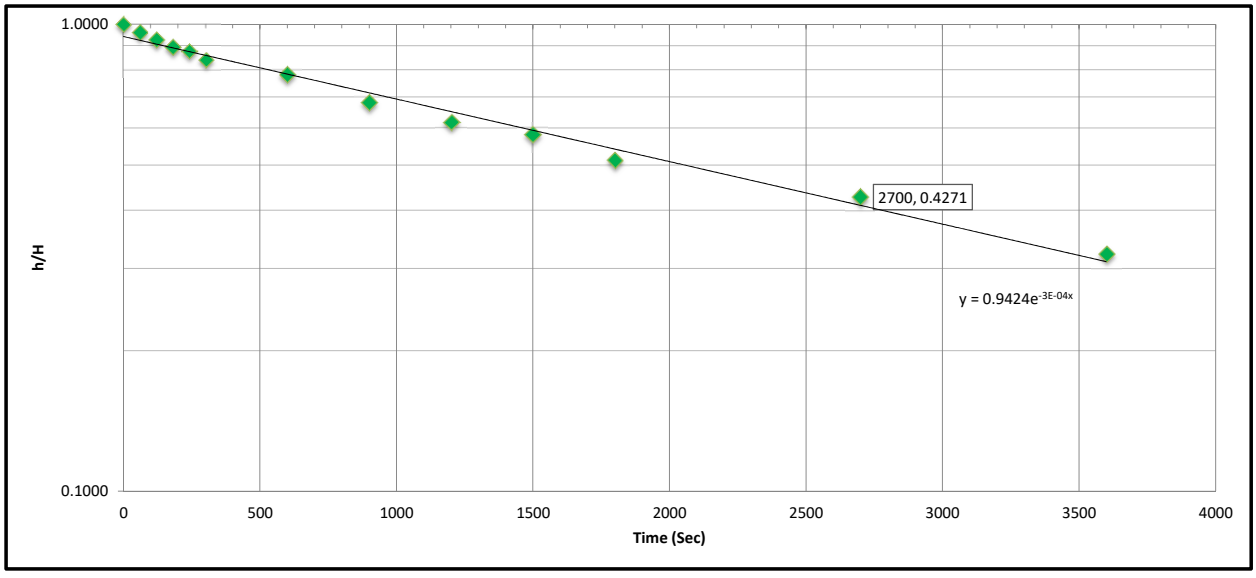
Borehole Detail

BH No.	BH101M	
Casing Stick-up (m)	-0.1	
Effective Piezo Screen Length (m)	6	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	27.25	
Static Water Level (m BToC)	11.88	
Lag time T0 (sec)	3114.18	
Calculated Permeability k	**8.50E-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			11.88		
0	0		22.3	10.42	1.0000
1	60		21.9	10.02	0.9616
2	120		21.53	9.65	0.9261
3	180		21.21	9.33	0.8954
4	240		21.02	9.14	0.8772
5	300		20.63	8.75	0.8397
10	600		20.03	8.15	0.7821
15	900		18.99	7.11	0.6823
20	1200		18.29	6.41	0.6152
25	1500		17.93	6.05	0.5806
30	1800		17.21	5.33	0.5115
45	2700		16.33	4.45	0.4271
60	3600		15.23	3.35	0.3215



Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	8/01/2026
By	MS		Location	BH102M

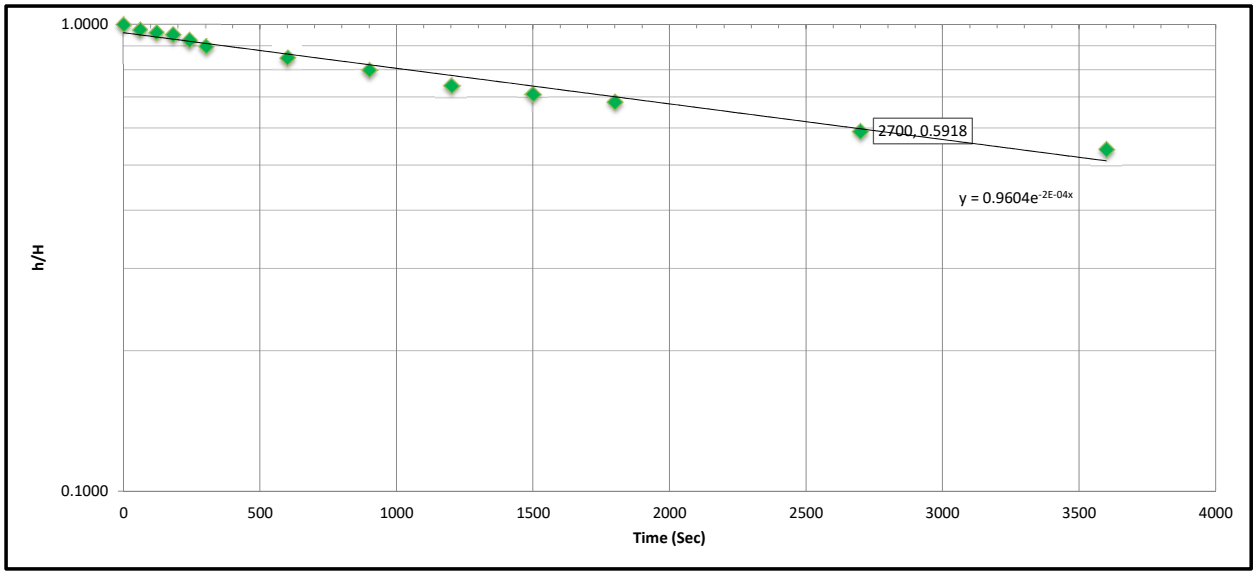
Borehole Detail

BH No.	BH102M	
Casing Stick-up (m)	-0.1	
Effective Piezo Screen Length (m)	6	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	24.7	
Static Water Level (m BToC)	9.28	
Lag time T0 (sec)	4768.20	
Calculated Permeability k	**5.50E-08**	m/sec

Based on Hvorslev Method

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

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			9.28		
0	0		18.76	9.48	1.0000
1	60		18.52	9.24	0.9747
2	120		18.41	9.13	0.9631
3	180		18.3	9.02	0.9515
4	240		18.07	8.79	0.9272
5	300		17.81	8.53	0.8998
10	600		17.31	8.03	0.8470
15	900		16.85	7.57	0.7985
20	1200		16.31	7.03	0.7416
25	1500		16.02	6.74	0.7110
30	1800		15.76	6.48	0.6835
45	2700		14.89	5.61	0.5918
60	3600		14.41	5.13	0.5411



Rising Head Permeability Test

EI Job No.	E26534.G12		Test Date	8/01/2026
By	MS		Location	BH103M

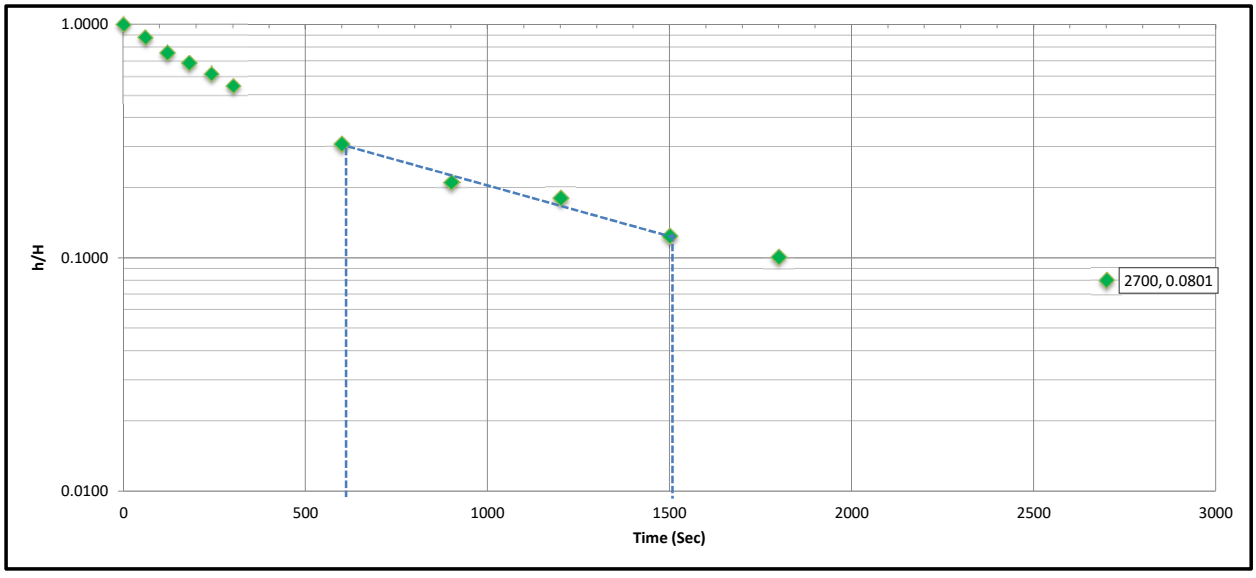
Borehole Detail

BH No.	BH103M			
Casing Stick-up (m)	-0.1			
Effective Piezo Screen Length (m)	6			
Piezo Radius r (m)	0.025			
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038		
Depth of the piezometer (m BGL)	24			
Static Water Level (m BToC)	5.1		t1	600
Lag time T0 (sec)	-238.43		t2	1500
			h1	0.3063
Calculated Permeability k	**2.65E-07**	m/sec	h2	0.1240

Based on Hvorslev Method

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

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			5.10		
0	0		14.21	9.11	1.0000
1	60		13.12	8.02	0.8804
2	120		12.01	6.91	0.7585
3	180		11.35	6.25	0.6861
4	240		10.74	5.64	0.6191
5	300		10.11	5.01	0.5499
10	600		7.89	2.79	0.3063
15	900		7.02	1.92	0.2108
20	1200		6.74	1.64	0.1800
25	1500		6.23	1.13	0.1240
30	1800		6.02	0.92	0.1010
45	2700		5.83	0.73	0.0801
60	3600		5.21	0.11	0.0121



Attachment C – Long-term Groundwater Monitoring

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

11 February 2026
E26534.G11.GW01

Ms Grace Hunt
M House Surry Pty Ltd
Suite 3402, Level 34 264 George Street
SYDNEY NSW 2000

Groundwater Level Monitoring Report No. 1
61 Marlborough Street Surry Hills

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 Monday 22 September 2025 to Thursday 8 January 2026.

Groundwater levels during the monitoring period were collected using data loggers installed within the 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)
BH101M	49.40	49.50	-0.10	27.35	28.22
BH102M	46.80	46.90	-0.10	24.80	22.17
BH103M	41.70	41.80	-0.10	24.10	17.77

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)
BH101M	38.99	39.24	38.71	10.26	10.79
BH102M	38.14	38.89	37.70	8.01	9.20
BH103M	36.84	37.55	36.47	4.25	5.33

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

For and on behalf of:
EI AUSTRALIA

Author



Mastan Vali Shaik
Geotechnical Engineer

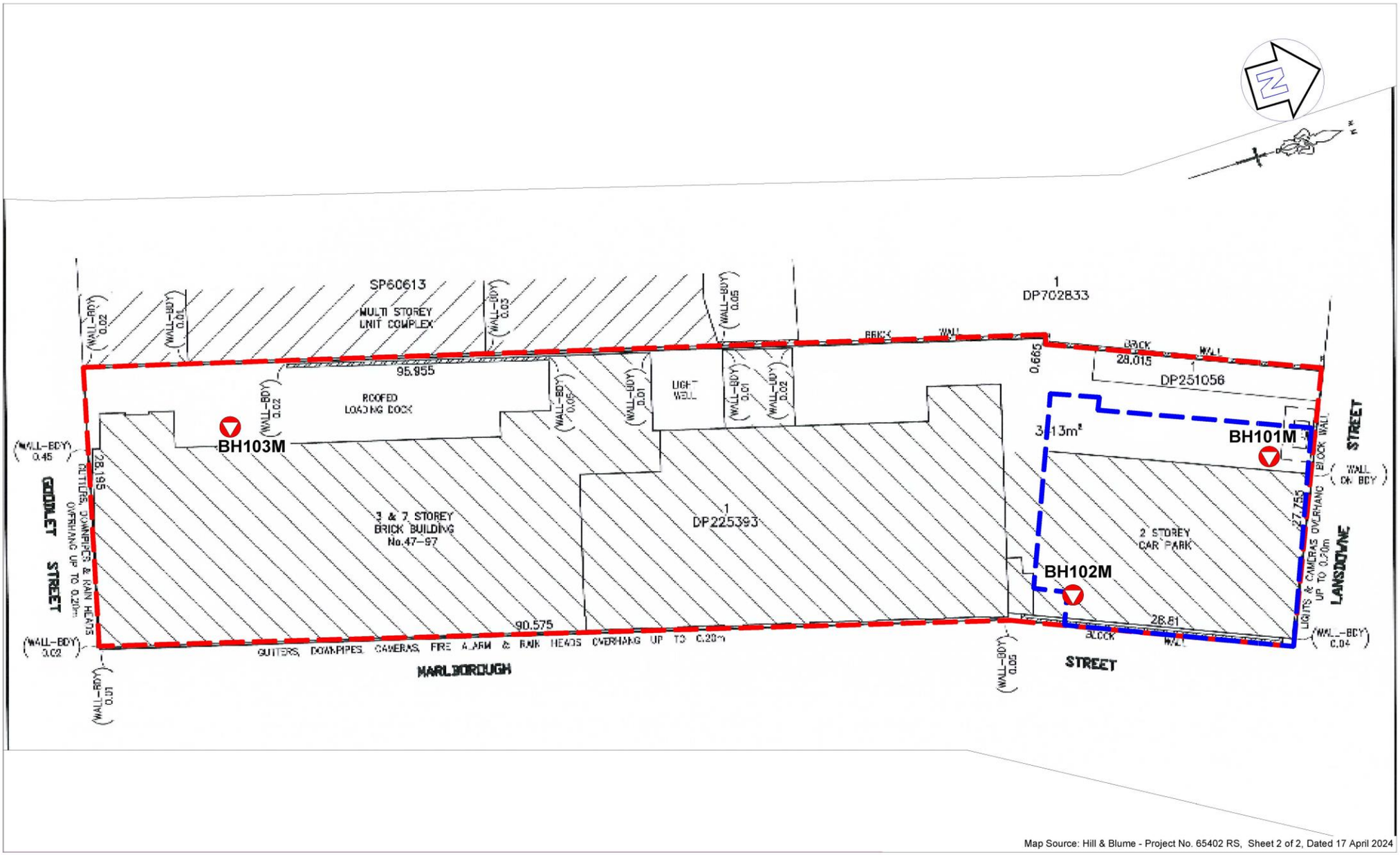
Reviewer



Gokul Pothineni
Geotechnical Engineer

Attachments:

Figure 1: Data Logger Location Plan
Figure 2-4: Groundwater Level, Daily Rainfall vs. Time From 22 September 2025 to 8 January 2026
Important Information



Map Source: Hill & Blume - Project No. 65402 RS, Sheet 2 of 2, Dated 17 April 2024

LEGEND (All Locations are Approximate)

- Site Boundary
- Excavation Boundary
- Borehole Locations (September 2024)
- Monitoring Well Locations (September 2025)

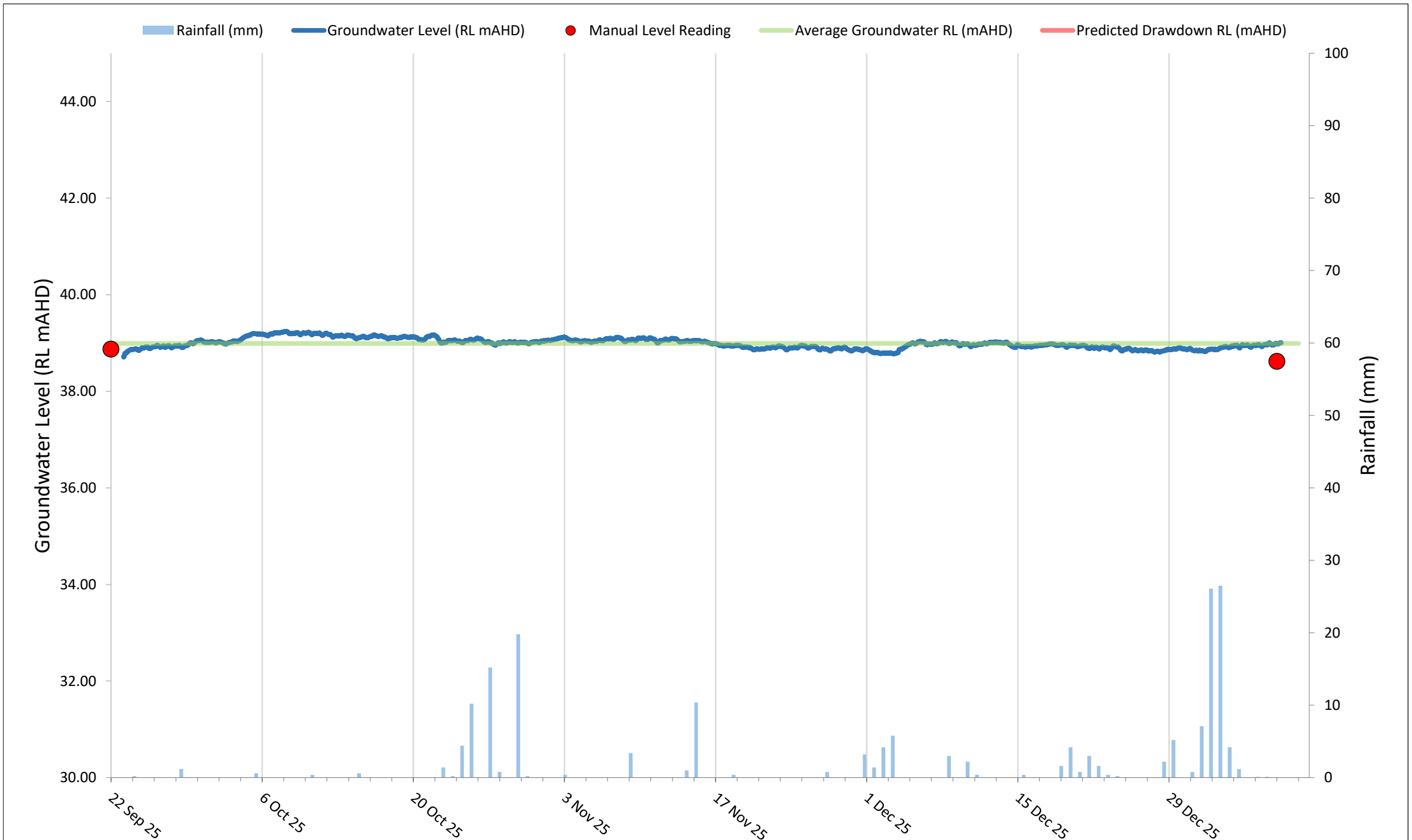
eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	D.C.
Approved:	G.P.
Date:	11-09-25

M House Surry Pty Ltd
Additional Geotechnical Investigation
47-97 Marlborough Street, Surry Hills NSW
Borehole Location Plan

Figure: 2

Project: E26534.G04



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Approved:	GP
Date:	11/02/2026

M House Surry Pty Ltd

Groundwater Level Monitoring

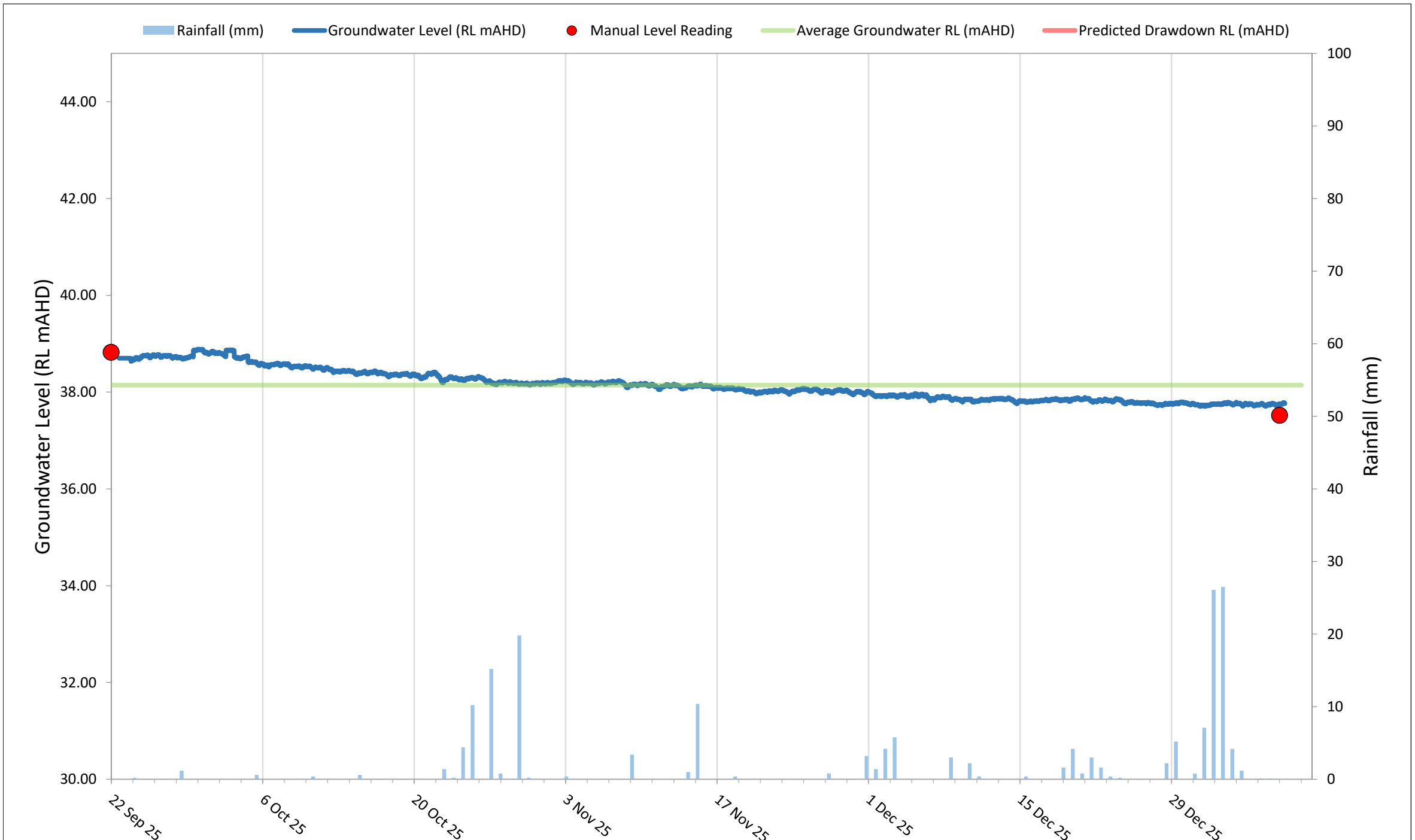
61 Marlborough Street Surry Hills

BH101M

Figure:

2

Project: E26534.G11.GW01



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Date:	11/02/2026

M House Surry Pty Ltd

Groundwater Level Monitoring

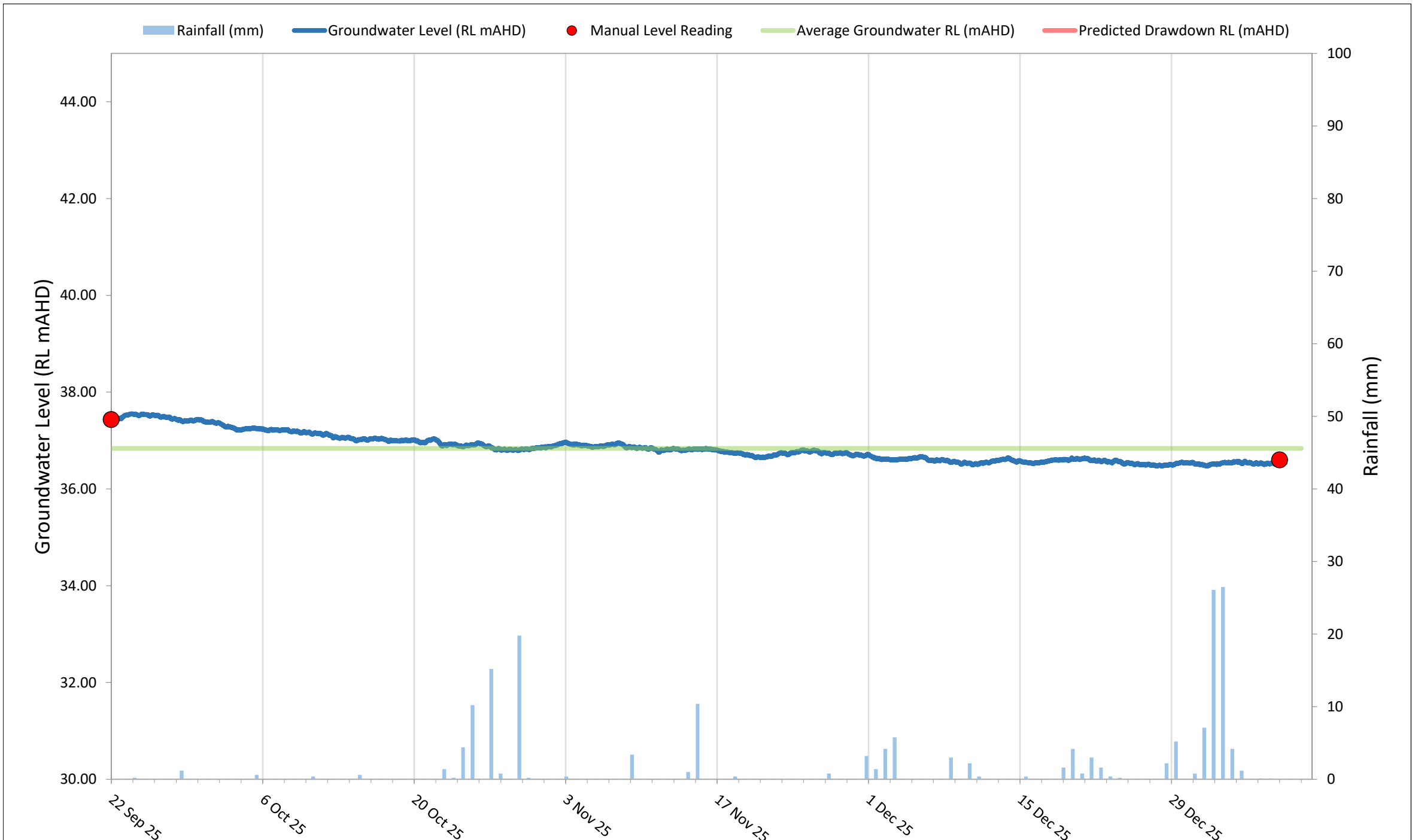
61 Marlborough Street Surry Hills

BH102M

Figure:

3

Project: E26534.G11.GW01



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

Drawn:	MS
Approved:	GP
Date:	11/02/2026

M House Surry Pty Ltd

Groundwater Level Monitoring

61 Marlborough Street Surry Hills

BH103M

Figure:

4

Project: E26534.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 – Borehole Logs

BOREHOLE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	1 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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			0.00		49.50	CONCRETE: 130mm thick	-		CONCRETE
				0.13		49.37	FILL: Silty SAND: fine to medium grained, brown /grey, with angular to sub-angular gravels.			FILL
		BH101M_0.50-0.95 SPT 0.50-0.95 3,5,5 N=10		0.50		49.00	From 0.50m, with brick fragments.	M	-	
		BH101M_1.00-1.10		1.00		48.50	From 1.00m, brown.			
				1.30		48.20	Silty CLAY: medium plasticity, yellow mottled brown, fine grained, angular to sub-angular gravels trace.			RESIDUAL SOIL
		BH101M_1.50-1.95 SPT 1.50-1.95 2,5,8 N=13		2.00		47.50	From 2.00m, grading into extremely weathered bedrock, highly weathered angular to sub-angular shale gravels, very low strength.	M < PL	St	
		BH101M_2.50-2.60								
		BH101M_3.00-3.15 SPT 3.00-3.15 20/150 mm HB N=R		3.00		46.50	SHALE: grey, brown, with iron staining, very low strength	-	-	WEATHERED ROCK
		BH101M_4.00-4.15 SPT 4.00-4.15 14/150 mm N=R		4.00		45.50	*Log continued on next page.*			
				5						
				6						
				7						
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	2 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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	100%	100	5	4			SHALE: grey, iron stained.	DW		4.10-4.80: BP SN 0-10°, OP, FE 4.80-4.92: CZ 5.00-5.30: BP SN 0-10°, OP, FE 5.30-5.47: CZ 5.32-5.48: CZ 5.47-5.68: BP SN 0-10°, OP, FE 5.68-5.97: CZ 5.80-5.97: CZ 6.00-6.07: FS SN	
				6.28		43.22	From 6.28m, dark grey, distinctly laminated at 0°-5°.			6.15-6.17: CS 6.26: XWS 6.38: BP SM Fe SN 6.47-6.49: CS 6.51-6.53: CS 6.57: BP SM Fe SN 6.61-6.65: CS 6.73: BP SM Fe SN 6.86: CS 6.98: BP SM SN 7.06: JT 5° PR SM CN 7.27: JT 10° IR SM CL 7.30: JT 10° PR SM CN 7.42: JT 30° PR SM CN 7.63: JT 30° PR SM CN 7.74: JT 30° PR SM CN 7.88: JT 30° CU SM CN 7.96: DB 8.13: DB 8.20: JT 70° CU SM CN 8.50: JT 40° CU SM CN 8.75-9.00: FZ	
		100	83	8.00		41.50	From 8.00m, dark gray, massive.	FR			
	90%			10						9.07-9.20: FZ 9.38: DB	

BOREHOLE CORE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	3 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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	99	11 11.04		38.46	From 8.00m, dark gray, massive. SANDSTONE: fine to medium grained, pale grey, indistinctly cross-bedded at 5°.			10.00: HB 10.08: DB 10.41: JT 5° PR RO CL 10.54: JT PR RO Clay Infilled 10.93: JT 20° CU SM CN 11.04: CO 11.35: JT 5° CU RO CN 11.70: BP Clay Infilled 11.76: JT 70° CU RO CN 11.80: JT 5-2° CU RO CN 11.97: JT 5° CU RO Clay Infilled 12.00: HB 12.31: BP 30°	
		100	100	12 13 14						13.45: DB 13.57: DB 14.00: HB	
				14.44		35.06	From 14.44m, distinctly cross-bedded at 5°–15°, with some massive facies; overall thickness less than 1m.			14.46: BP 15°	
		100	99	15 15.54		33.96	From 15.54m, occasional presence of minor siltstone and carbonaceous laminations.	FR		15.00: HB 15.58: BP 5° 15.88: BP 5° CN 16.04: JT 10-15° IR RO CN 16.15: BP CN 16.43: JT 80° CU RO CN 16.63: JT 80° CU RO CN 16.90: BP 5° 17.15: JT 7° PR RO CN 17.38: JT 5° CU RO CN	
		100	99	16 17 18 19 20						17.96: JT 5° CU RO CN 18.12: BP CN 18.60: JT 10° CU RO CN 18.81: JT 10° CU RO CN 19.15: JT 5° CU RO CN 19.63: JT 10° CU RO CN	

BOREHOLE CORE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	4 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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	21			From 15.54m, occasional presence of minor siltstone and carbonaceous laminations.			19.95: JT 10° CU RO CN 20.05: JT 5° CU RO CN	
										21.47: DB 21.52: DB	
				22.00		27.50	From 22.00m, medium to coarse-grained, grey, generally distinctly cross-bedded at 0°–5°; indistinct bedding observed in exposed sections.			22.20: BP Clay VN	
				23						23.45: BP CN 23.68: DB	
				24						24.50: BP CN 24.73: DB	
				25				FR		25.10: BP CN	
		100	100	26						26.25: BP CN	
				27						27.05: HB	
				28						28.20: HB 28.30: HB	
		100	99	29						28.80: JT 10° PR RO CN 28.95: BP CN 29.16: HB 29.25: HB	
				30						29.81: HB	

BOREHOLE CORE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	5 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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	99	31			From 22.00m, medium to coarse-grained, grey, generally distinctly cross-bedded at 0°–5°; indistinct bedding observed in exposed sections.			30.65: JT 20° PR RO CN 30.94: BP CN 31.57: BP CN 31.68: BP CN 31.72: BP CN 32.44: JT 20° PR RO CN 32.80: HB 32.85: HB 33.02: BP CN	
				32							
				33		16.50					
				33.00			From 33.00m, distinctly to indistinctly cross-bedded at 0°–5°, minor massive facies and siltstone and carbonaceous laminations.			33.90: JT 80° PR RO CN 34.06: JT 70° PR RO CN 34.15: JT 90° PR RO CN 34.23: JT 80° PR RO CN 34.31: DB	
				34							
		100	99	35				FR		35.00: HB 35.67: HB 35.80: HB	
				36						36.00: HB	
				37						36.90: HB 37.00: HB	
		100	100	38						37.82: HB 38.00: HB 38.46: BP CN	
				39						39.00: HB 39.33: JT 70° PR RO CN	
				40						39.90: HB	

BOREHOLE CORE LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	6 of 6			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (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	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
NMLC	90%	100	100	41			From 33.00m, distinctly to indistinctly cross-bedded at 0°–5°, minor massive facies and siltstone and carbonaceous laminations.	FR	VL 0-1 L 0-3 M 1 H 3 VH 10 EH	40.00: HB 40.96: HB 41.00: HB 41.72: HB 41.84: HB 41.97: HB 42.00: HB 42.20: BP CN 42.35: HB	30 100 300 1000 3000
				42							
				43		6.50				42.98: HB 43.14: BP CN	
		100	100	43.00			From 43.00m, massive with dark grey flakes.				
				44						44.22: BP CN	
				45		4.36	Terminated at 45.14m. Target Depth Reached.			44.88: HB	
				46							
				47							
				48							
				49							
				50							

MONITORING WELL LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	1 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		0.00	49.50	CONCRETE: 130mm thick	-		Well Stickup =0.0m (RL 49.50m)
		0.13	49.37	FILL: Silty SAND: fine to medium grained, brown / grey, with angular to sub-angular gravels.			
	BH101M_0.50-0.95 SPT 0.50-0.95 3,5,5 N=10	0.50	49.00	From 0.50m, with brick fragments.	M		
	BH101M_1.00-1.10	1.00	48.50	From 1.00m, brown.			
		1.30	48.20	Silty CLAY: medium plasticity, yellow mottled brown, fine grained, angular to sub-angular gravels trace.			
	BH101M_1.50-1.95 SPT 1.50-1.95 2,5,8 N=13	2.00	47.50	From 2.00m, grading into extremely weathered bedrock, highly weathered angular to sub-angular shale gravels, very low strength.	M < PL		
	BH101M_2.50-2.60						
	BH101M_3.00-3.15 SPT 3.00-3.15 20/150 mm HB N=R	3.00	46.50	SHALE: grey, brown, with iron staining, very low strength	-		
	BH101M_4.00-4.15 SPT 4.00-4.15 14/150 mm N=R	4.00	45.50	SHALE: grey, iron stained.			
		6.28	43.22	From 6.28m, dark grey, distinctly laminated at 0°-5°.			
		8.00	41.50	From 8.00m, dark gray, massive.			

MONITORING WELL LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	2 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		11	38.46	From 8.00m, dark gray, massive.		Sand 0.00m - 20.00m	0.0m - 22.0m PVC casing (50mm Ø)
		11.04		SANDSTONE: fine to medium grained, pale grey, indistinctly cross-bedded at 5°.			
		12					
		13					
		14					
		14.44	35.06	From 14.44m, distinctly cross-bedded at 5°–15°, with some massive facies; overall thickness less than 1m.			
		15					
		15.54	33.96	From 15.54m, occasional presence of minor siltstone and carbonaceous laminations.			
		16					
		17					
		18					
		19					
		20					

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

MONITORING WELL LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	3 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
					From 15.54m, occasional presence of minor siltstone and carbonaceous laminations.		Bentonite 20.00m - 21.00m	
		22.00		27.50	From 22.00m, medium to coarse-grained, grey, generally distinctly cross-bedded at 0°–5°; indistinct bedding observed in exposed sections.		Sand 21.00m - 28.00m	22.0m - 28.0m PVC screen (50mm Ø)

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

MONITORING WELL LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	4 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		31			From 22.00m, medium to coarse-grained, grey, generally distinctly cross-bedded at 0°–5°; indistinct bedding observed in exposed sections.			
		32						
		33		16.50	From 33.00m, distinctly to indistinctly cross-bedded at 0°–5°, minor massive facies and siltstone and carbonaceous laminations.			
		33.00						
		34						
		35						
		36					Sand 28.00m - 45.14m	
		37						
		38						
		39						
		40						

MONITORING WELL LOG

BH ID: BH101M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	01 September 2025
Client	Time & Place			**Completed**	02 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 02 September 2025
Sheets	5 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈49.50 m (AHD)	**Northing**	6248676.6 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334609.4 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		41			From 33.00m, distinctly to indistinctly cross-bedded at 0°–5°, minor massive facies and siltstone and carbonaceous laminations.			
		42						
		43.00		6.50	From 43.00m, massive with dark grey flakes.			
		44						
		45		4.36	Terminated at 45.14m. Target Depth Reached.			
		46						
		47						
		48						
		49						
		50						

BOREHOLE LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	1 of 4			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (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
DT				0.00		46.90	CONCRETE: 200mm thick	-	-	CONCRETE
				0.20		46.70	FILL: Silty CLAY: low to medium plasticity, dark brown, trace of fine to medium grained gravels	M	-	FILL
				0.40		46.50	Silty CLAY: medium to high plasticity, red brown	M > PL	-	RESIDUAL SOIL
AD/T	▽			3.00		43.90	SHALE: dark grey, very low to low strength, highly weathered.	-	-	WEATHERED ROCK
				7.10		39.80	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	2 of 4			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (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.*				
				1							
				2							
				3							
				4							
				5							
				6							
				7							
NMLC	80%	100	0	8			SHALE: dark grey, with interbedded pale grey sandstone laminate, thinly bedded.	MW		7.50-7.58: XWS 7.56: JT 15° PR RO CN 7.61-7.68: XWS 7.73-7.77: FS 7.86-8.19: XWZ 8.33: JT 70-90° PR RO Clay VN 8.89: JT 50° PR RO CN	
		100	16	9							
		100	100	9.70		37.20	SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.	FR		9.62: JT 60° PR RO Clay VN	
		100	100	10							

BOREHOLE CORE LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	3 of 4			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (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	80%			10			SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.			10.35: BP PR VR CN 10.39: BP PR VR CN 10.43: BP PR VR CN	
		100	91	11						10.87: BP PR VR CN	
		100	97	12							
		100	99	13							
				14						14.25: BP UN VR 14.55: BP 25° PR VR	
		100	100	15				FR		15.20: JT 30° PR VR CN 15.35: BP PR VR CN	
		100	100	16							
		100	93	17							
				18						18.27: JT 75-85° PR VR CN 18.33: JT PR VR CN	
				19							
				20							

BOREHOLE CORE LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	4 of 4			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (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	80%	100	100	21			SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.	FR	▼ H$_3$	20.07: BP PR VR CN	
		100	100	22					▼ H$_3$	21.06: BP PR VR CN 21.88: BP PR VR CN 22.17: BP PR VR CN	
		100	94	23					▼ H$_3$	22.58: BP PR VR CN 22.79: BP PR VR CN 22.88: BP PR VR CN	
		100	100	24		22.08			▼ H$_3$	24.53: BP PR VR CN	
				25			Terminated at 24.82m. Target Depth Reached.				
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	1 of 3			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		0.00		46.90	CONCRETE: 200mm thick	-		Well Stickup =-0.10m (RL 46.80m)
		0.20		46.70	FILL: Silty CLAY: low to medium plasticity, dark brown, trace of fine to medium grained gravels	M		
		0.40		46.50	Silty CLAY: medium to high plasticity, red brown	M > PL		
		3.00		43.90	SHALE: dark grey, very low to low strength, highly weathered.	-	Cuttings 0.10m - 9.00m	
▷		7.10		39.80	SHALE: dark grey, with interbedded pale grey sandstone laminate, thinly bedded.			
		9.70		37.20	SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.			0.10m - 18.80m PVC casing (50mm Ø)

MONITORING WELL LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	2 of 3			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		11			SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.			
		12						
		13					Sand 9.00m - 16.50m	
		14						
		15						
		16						
		17					Bentonite 16.50m - 18.00m	
		18						
		19						
		20						

MONITORING WELL LOG

BH ID: BH102M

Location	47-97 Marlborough Street, Surry Hills NSW 2010			**Started**	06 September 2025
Client	Time & Plcae			**Completed**	08 September 2025
Job No.	E26534.G04			**Logged By**	S2 **Date** 08 September 2025
Sheets	3 of 3			**Review By**	ML **Date** 23 October 2025
Drilling Contractor	STS Geotechnics Pty Limited	**Surface RL**	≈46.90 m (AHD)	**Northing**	6250708.7 (MGA 2020 Zone 56)
Plant	Christie Track Rig	**Inclination**	90°	**Easting**	332826.8 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		21			SANDSTONE: medium to coarse-grained, pale grey, exhibiting facies variations from distinctly to indistinctly cross-bedded at 0°–15°.		Sand 18.00m - 24.80m	18.80m - 24.80m PVC screen (50mm Ø)
		22						
		23						
		24						
				22.08	Terminated at 24.82m. Target Depth Reached.			
		25						
		26						
		27						
		28						
		29						
		30						

BOREHOLE LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	1 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (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	BH103M_0.20-0.30 BH103M_0.30-0.40		0.00 0.13		41.80 41.67	CONCRETE: 130mm thick	-	-	CONCRETE
		BH103M_0.50-0.95 SPT 0.50-0.95 5,6,7 N=13		0.50		41.30	FILL: Silty CLAY: medium plasticity, grey, brown, orange, with fine to medium grained sand, trace brick fragments, with fine to medium sub-angular to angular gravels	M < PL	-	FILL
		BH103M_1.50-1.95 SPT 1.50-1.95 6,11,11 N=22		1 2			Silty CLAY: medium plasticity, red mottled grey, with fine grained, angular to sub-angular gravels.	M > PL	St VSt	RESIDUAL SOIL
		BH103M_3.00-3.20 SPT 3.00-3.20 12,4/50 mm HB N=R BH103M_3.50-3.60		3.00 4		38.80	From 3.00m, medium to high plasticity, red mottled grey, very low strength, highly weathered shale gravel trace.		H	
		BH103M_4.50-4.83 SPT 4.50-4.83 10,16,3/30 mm HB N=R		4.70 5 6 7 8 9 10		37.10	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	2 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (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.*				
				5			Silty CLAY: brown, grey, mottled orange	XW		4.80-5.07: XWZ	
NMLC	90%	100	32	5.07		36.73	SHALE: grey, brown	HW		5.34-6.00: CZ 6.00-6.10: XWS 6.10-6.44: BP SN 0-5°, OP, FE 6.44-6.50: CS 6.56-6.83: FZ SN 10-20°, OP, FE	
				7						7.05-7.10: XWS 7.18-7.49: BP SN	
		100	78	7.17		34.63	SANDSTONE: fine to medium grained, brown/orange, exhibiting facies ranging from indistinctly cross-bedded to massive.	MW		7.55: JT 5° IR RO CN 7.63: JT IR VR OP 7.69-7.77: FS 7.81: JT 5° CU RO CN 7.88-7.91: IS Clay 7.95: BP 8.28: DB	
				9				FR		8.57-8.62: XWS 8.90: BP SN 8.97-9.00: XWS 9.12: BP CN 9.17: BP 9.28: BP Clay VN 9.62-9.66: XWS	
				9.73		32.07	From 9.73m, pale grey.				
				10							

BOREHOLE CORE LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	3 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (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	99	10.00		31.80	From 10.00m, distinctly cross-bedded at 5°-20°.			10.00: HB 10.26: BP CN 10.67: BP 20° 10.91: BP 20° CN 11.11: DB 11.13: DB 11.34-11.40: JT 50° CU RO CN 11.72: JT 15° IR RO OP 11.94: JT 15° SN 11.98: BP SN 12.00: HB 12.24-12.30: CS 12.34: JT 70° PR RO CN 12.46: JT 70° PR RO CN 13.00: HB 13.86: BP 14.00: HB 14.50: JT 10° CU RO OP 14.89: BP 20° 15.00: HB 15.31: JT 70° PR RO CN 15.88: BP CN 16.00: HB 16.06: BP CN 17.12: BP 17.73: JT 2° PR RO CN 17.90: BP 5° CN 18.03: DB 18.75: BP 19.00: HB 19.47: BP CN 19.87: BP CN	
				11							
				12							
				13							
				14							
				15				FR			
				16							
	95%	100	100	17							
				18							
				19							
				20							

BOREHOLE CORE LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	4 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (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	100	21			From 10.00m, distinctly cross-bedded at 5°-20°.		▼ H	19.90: BP CN 20.77: BP CN 20.90: HB 20.92: JT 5° PR RO CN 21.12: JT 10° PR RO CL	
				22					▼ H	22.00: HB 22.05: BP	
		100	100	22.85		18.95	From 22.85m to 22.95m, with shale bands		▼ H	22.70: CO 22.85: CO CN	
				22.95		18.85	From 22.95m, massive.			22.95: BP CN 23.00: HB	
				24					▼ H	23.55: BP 23.66: BP 24.00: HB 24.11: JT 7° PR RO CN	
				25				FR		24.66: BP 25.00: HB 25.07: BP 25.14: DB	
		100	100	26					▼ H	25.70: DB 26.00: HB 26.20: BP 5° CN	
				27						26.65: BP CN	
		100	100	28					▼ H	27.30-27.32: IS Clay 27.96: JT 2° PR RO CL 28.00: HB 28.08: BP 5° CN 28.13-28.15: JT 7° IR RO OP	
				29						28.65: JT 5° PR RO CN 29.00: HB	
				30							

BOREHOLE CORE LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	5 of 5			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (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%					11.64	From 22.95m, massive.	FR	H ▼	30.00: HB	
							Terminated at 30.16m. Target Depth Reached.				

MONITORING WELL LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	1 of 4			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
		0.00	41.80	CONCRETE: 130mm thick	-		Well Stickup =0.0m (RL 41.80m)
	BH103M_0.20-0.30 BH103M_0.30-0.40 BH103M_0.50-0.95 SPT 0.50-0.95 5,6,7 N=13	0.13	41.67	FILL: Silty CLAY: medium plasticity, grey, brown, orange, with fine to medium grained sand, trace brick fragments, with fine to medium sub-angular to angular gravels	M < PL		
		0.50	41.30	Silty CLAY: medium plasticity, red mottled grey, with fine grained, angular to sub-angular gravels.			
	BH103M_1.50-1.95 SPT 1.50-1.95 6,11,11 N=22	1					
		2			M > PL		
	BH103M_3.00-3.20 SPT 3.00-3.20 12,4/50 mm HB N=R BH103M_3.50-3.60	3.00	38.80	From 3.00m, medium to high plasticity, red mottled grey, very low strength, highly weathered shale gravel trace.			
		4					
	BH103M_4.50-4.83 SPT 4.50-4.83 10,16,3/30 mm HB N=R	4.70	37.10	Silty CLAY: brown, grey, mottled orange			
		5.07	36.73	SHALE: grey, brown			
		6					
		7					
		7.17	34.63	SANDSTONE: fine to medium grained, brown/ orange, exhibiting facies ranging from indistinctly cross-bedded to massive.		Sand 0.00m - 18.00m	
		8					
		9					
		9.73	32.07	From 9.73m, pale grey.			0.0m - 19.20m PVC casing (50mm Ø)
		10					

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

MONITORING WELL LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	2 of 4			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
04/09/2025 01:43 PM		10.00		31.80	From 10.00m, distinctly cross-bedded at 5°-20°.		Bentonite 18.00m - 18.50m	

MONITORING WELL LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	3 of 4			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
					From 10.00m, distinctly cross-bedded at 5°-20°.		Sand 18.50m - 25.20m	19.20m - 25.20m PVC screen (50mm Ø)
		21						
		22						
		22.85		18.95	From 22.85m to 22.95m, with shale bands			
		22.95		18.85	From 22.95m, massive.			
		24						
		25						
		26						
		27						
		28					Sand 25.20m - 30.16m	
		29						
		30						

MONITORING WELL LOG

BH ID: BH103M

Location	47 -97 Marlborough Street, Surry Hills NSW 2010			**Started**	03 September 2025
Client	Time & Place			**Completed**	04 September 2025
Job No.	E26534.G03			**Logged By**	MS **Date** 04 September 2025
Sheets	4 of 4			**Review By**	ML **Date** 10 October 2025
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈41.80 m (AHD)	**Northing**	6248582.1 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	334560.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
				11.64	From 22.95m, massive. Terminated at 30.16m. Target Depth Reached.			

BOREHOLE LOG

BH ID: BH1M

Location	61 Marlborough Street, Surry Hills NSW 2010	**Started**	27 September 2024
Client	Time & Place	**Completed**	26 September 2024
Job No.	E26534.G03	**Logged By**	DC **Date** 26 September 2024
Sheets	1 of 3	**Review By**	AC **Date** 27 October 2024

Drilling Contractor	Stratacore	**Surface RL**	≈43.00 m (AHD)	**Northing**	6248669.2322 (MGA 2020 Zone 56)
Plant	Massenza MI3	**Inclination**	90°	**Easting**	334603.6033 (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_1.50-1.95 SPT 1.50-1.95 1,5,5 N=10		0.00		43.00	CONCRETE: 200mm thick			CONCRETE
				0.20		42.80	FILL: Silty SAND: fine to medium grained, grey/orange, with brick, concrete fragments, angular to sub-angular gravels and suspected asbestos parts.	M	-	FILL
				0.70		42.30	Sandy CLAY: low to medium plasticity, orange, sand is fine to medium grained.	M < PL	St	RESIDUAL SOIL
				1.50		41.50	Silty CLAY: low to medium plasticity, orange mottled grey.			
				2.00		41.00	From 2.00m, grading into weathered bedrock.			
		BH1M_3.00-3.00 SPT 3.00-3.00 8/0 mm HB N=R		3.00		40.00	SHALE: orange, very low strength, distinctly weathered.	-	-	WEATHERED ROCK
				3.20		39.80	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH1M

Location	61 Marlborough Street, Surry Hills NSW 2010			**Started**	27 September 2024
Client	Time & Place			**Completed**	26 September 2024
Job No.	E26534.G03			**Logged By**	DC **Date** 26 September 2024
Sheets	2 of 3			**Review By**	AC **Date** 27 October 2024
Drilling Contractor	Stratacore	**Surface RL**	≈43.00 m (AHD)	**Northing**	6248669.2322 (MGA 2020 Zone 56)
Plant	Massenza MI3	**Inclination**	90°	**Easting**	334603.6033 (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	60%	81	0	4			SHALE: grey, iron-stained, laminated, interbedded with siltstone, light grey	DW		3.57-3.70: CZ 3.83-4.00: CZ 4.10-4.27: XWZ Clay	
				4.54		38.46	NO CORE: 310mm thick	-			
		100	0	4.85		38.15	SHALE: grey, iron-stained, laminated, interbedded with siltstone, light grey	DW		5.23-6.70: FZ	
		90	0	7						6.70-7.45: CZ	
				7.70		35.30	NO CORE: 200mm thick	-			
	80%	100	75	7.90		35.10	SHALE: dark grey, laminated, interbedded with sandstone, fine to medium grained, light grey.			8.65: JT 45° PR RO CN 9.40-9.63: JT 20-45° ST RO CN	
				10							

BOREHOLE CORE LOG

BH ID: BH1M

Location	61 Marlborough Street, Surry Hills NSW 2010			**Started**	27 September 2024
Client	Time & Place			**Completed**	26 September 2024
Job No.	E26534.G03			**Logged By**	DC **Date** 26 September 2024
Sheets	3 of 3			**Review By**	AC **Date** 27 October 2024
Drilling Contractor	Stratacore	**Surface RL**	≈43.00 m (AHD)	**Northing**	6248669.2322 (MGA 2020 Zone 56)
Plant	Massenza MI3	**Inclination**	90°	**Easting**	334603.6033 (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)
		100	82	11			SHALE: dark grey, laminated, interbedded with sandstone, fine to medium grained, light grey.	SW	▼ ▼	10.00: JT 60° PR RO CN 10.13-10.15: FS	
	80%			12							
				12.12		30.88	SANDSTONE: fine to medium grained, grey, thinly bedded.				
		100	97	13				FR	▼		
				14							
				15							
						27.78	Terminated at 15.22m. Target Depth Reached.				
				16							
				17							
				18							
				19							
				20							

MONITORING WELL LOG

BH ID: BH1M

Location	61 Marlborough Street, Surry Hills NSW 2010			**Started**	27 September 2024	
Client	Time & Place			**Completed**	26 September 2024	
Job No.	E26534.G03			**Logged By**	DC	**Date** 26 September 2024
Sheets	1 of 2			**Review By**	AC	**Date** 27 October 2024
Drilling Contractor	Stratacore	**Surface RL**	≈43.00 m (AHD)	**Northing**	6248669.2322 (MGA 2020 Zone 56)	
Plant	Massenza MI3	**Inclination**	90°	**Easting**	334603.6033 (MGA 2020 Zone 56)	

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	43.00	CONCRETE: 200mm thick	
		0.20	42.80	FILL: Silty SAND: fine to medium grained, grey/ orange, with brick, concrete fragments, angular to sub-angular gravels and suspected asbestos parts.	M
		0.70	42.30	Sandy CLAY: low to medium plasticity, orange, sand is fine to medium grained.	
GWNE	BH1M_1.50-1.95 SPT 1.50-1.95 1,5,5 N=10	1.50	41.50	Silty CLAY: low to medium plasticity, orange mottled grey.	M < PL
		2.00	41.00	From 2.00m, grading into weathered bedrock.	
	BH1M_3.00-3.00 SPT 3.00-3.00 8/0 mm HB N=R	3.00	40.00	SHALE: orange, very low strength, distinctly weathered.	-
		3.20	39.80	SHALE: grey, iron-stained, laminated, interbedded with siltstone, light grey	
		4.54	38.46	NO CORE: 310mm thick	
		4.85	38.15	SHALE: grey, iron-stained, laminated, interbedded with siltstone, light grey	
60%					
		7.70	35.30	NO CORE: 200mm thick	
		7.90	35.10	SHALE: dark grey, laminated, interbedded with sandstone, fine to medium grained, light grey.	
80%					

BACKFILL DETAILS

Steel Cover at Surface

Grout
0.09m - 1.00m

Bentonite
1.00m - 4.00m

Sand
4.00m - 15.22m

STANDPIPE DETAILS

Well Stickup =-0.09m
(RL 42.91m)

0.09m - 4.50m
PVC casing (50mm Ø)

4.50m - 7.50m
PVC screen (50mm Ø)

MONITORING WELL LOG

BH ID: BH1M

Location	61 Marlborough Street, Surry Hills NSW 2010			**Started**	27 September 2024
Client	Time & Place			**Completed**	26 September 2024
Job No.	E26534.G03			**Logged By**	DC **Date** 26 September 2024
Sheets	2 of 2			**Review By**	AC **Date** 27 October 2024
Drilling Contractor	Stratacore	**Surface RL**	≈43.00 m (AHD)	**Northing**	6248669.2322 (MGA 2020 Zone 56)
Plant	Massenza MI3	**Inclination**	90°	**Easting**	334603.6033 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
80%		11			SHALE: dark grey, laminated, interbedded with sandstone, fine to medium grained, light grey.			
		12						
		12.12		30.88	SANDSTONE: fine to medium grained, grey, thinly bedded.			
		13						
		14						
		15						
				27.78	Terminated at 15.22m. Target Depth Reached.			
		16						
		17						
		18						
		19						
		20						

BOREHOLE LOG

BH ID: BH2

Location	61 Marlborough Street, Surry Hills NSW 2010	**Started**	27 September 2024
Client	Time & Place	**Completed**	27 September 2024
Job No.	E26534.G03	**Logged By**	DC **Date** 27 September 2024
Sheets	1 of 1	**Review By**	AC **Date** 27 October 2024
Drilling Contractor	Stratacore	**Surface RL**	≈39.00 m (AHD)
Plant	Massenza MI3	**Inclination**	90°
Northing	6248582.5318 (MGA 2020 Zone 56)		
Easting	334560.4888 (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	▷	BH2_0.50-0.95 SPT 0.50-0.95 4,7,9 N=16		0.00 0.10 0.70 1 1.60 2 3 4.00 4.95 6 7 8 9 10		39.00 38.90 38.30 37.40 35.00 34.05 29.80	CONCRETE: 100mm thick FILL: Silty CLAY: medium plasticity, orange, with brick, concrete fragments, angular to sub-angular gravels. Silty CLAY: high plasticity, orange mottled grey, with angular to sub-angular iron stained gravels. From 1.60m, orange mottled grey. From 4.00m, grading into weathered bedrock. SHALE: orange/grey, low strength rock chips, distinctly weathered. Terminated at 9.20m. Target Depth Reached.	- M M < PL - -	- - H - -	CONCRETE FILL RESIDUAL SOIL BEDROCK
		BH2_1.50-1.95 SPT 1.50-1.95 5,15,22 N=37								
		BH2_3.00-3.45 SPT 3.00-3.45 5,15,24 N=39								
		BH2_4.50-4.95 SPT 4.50-4.95 3,16,24 N=40								
		BH2_6.00-6.00								

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

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS

DRILLING/EXCAVATION METHOD

HA	Hand Auger	**ADH**	Hollow Auger	**NQ**	Diamond Core - 47 mm
DT	Diatube Coring	**RT**	Rotary Tricone bit	**NMLC**	Diamond Core - 52 mm
NDD	Non-destructive digging	**RAB**	Rotary Air Blast	**HQ**	Diamond Core - 63 mm
AD*	Auger Drilling	**RC**	Reverse Circulation	**HMLC**	Diamond Core - 63 mm
***V**	V-Bit	**PT**	Push Tube	**EX**	Tracked Hydraulic Excavator
***T**	TC-Bit, e.g. AD/T	**WB**	Washbore	**HAND**	Excavated by Hand Methods

PENETRATION RESISTANCE

L	**Low Resistance**	Rapid penetration/ excavation possible with little effort from equipment used.
M	**Medium Resistance**	Penetration/ excavation possible at an acceptable rate with moderate effort from equipment used.
H	**High Resistance**	Penetration/ excavation is possible but at a slow rate and requires significant effort from equipment used.
R	**Refusal/Practical Refusal**	No further progress possible without risk of damage or unacceptable wear to equipment used.

These assessments are subjective and are dependent on many factors, including equipment power and weight, condition of excavation or drilling tools and experience of the operator.

WATER

Standing Water Level — **Partial water loss**

Water Seepage — **Complete Water Loss**

GWNO	GROUNDWATER NOT OBSERVED - Observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave-in of the borehole/ test pit.
GWNE	GROUNDWATER NOT ENCOUNTERED - Borehole/ test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/ test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following a 150mm seating drive
30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported, N is not reported
RW	Penetration occurred under the rod weight only, N<1
HW	Penetration occurred under the hammer and rod weight only, N<1
HB	Hammer double bouncing on anvil, N is not reported
Sampling	
DS	Disturbed Sample
ES	Sample for environmental testing
BDS	Bulk disturbed Sample
GS	Gas Sample
WS	Water Sample
U50	Thin walled tube sample - number indicates nominal sample diameter in millimetres
Testing	
FP	Field Permeability test over section noted
FVS	Field Vane Shear test expressed as uncorrected shear strength (sv= peak value, sr= residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket Penetrometer test expressed as instrument reading in kPa
WPT	Water Pressure tests
DCP	Dynamic Cone Penetrometer test
CPT	Static Cone Penetration test
CPTu	Static Cone Penetration test with pore pressure (u) measurement

GEOLOGICAL BOUNDARIES

———— = Observed Boundary (position known)

– – – – – – – – – – = Observed Boundary (position approximate)

– –?– –?– –?– – = Boundary (interpreted or inferred)

ROCK CORE RECOVERY

TCR=Total Core Recovery (%)

$$= \frac{\textit{Length of core recovered}}{\textit{Length of core run}} \times 100$$

RQD = Rock Quality Designation (%)

$$= \frac{\sum \textit{Axial lengths of core} > 100mm}{\textit{Length of core run}} \times 100$$

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT LOGS

	FILL		ORGANIC SOILS (OL, OH or Pt)		CLAY (CL, CI or CH)
	COUBLES or BOULDERS		SILT (ML or MH)		SAND (SP or SW)
	GRAVEL (GP or GW)	Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay			

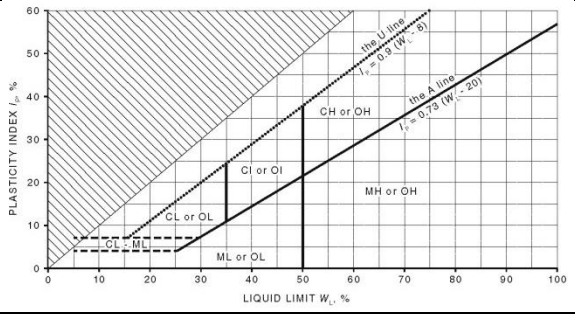
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS 1726:2017, Section 6.1 – Soil description and classification.

PARTICLE SIZE CHARACTERISTICS

Fraction	Components	Sub Division	Size mm
Oversize	BOULDERS		>200
	COBBLES		63 to 200
Coarse grained soil	GRAVEL	Coarse	19 to 63
		Medium	6.7 to 19
		Fine	2.36 to 6.7
	SAND	Coarse	0.6 to 2.36
		Medium	0.21 to 0.6
		Fine	0.075 to 0.21
Fine grained soil	SILT		0.002 to 0.075
	CLAY		<0.002

PLASTICITY PROPERTIES



GROUP SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 65% of soil excluding oversize fraction is greater than 0.075mm	GRAVEL More than 50% of coarse fraction is >2.36mm	GW	Well graded gravel and gravel-sand mixtures, little or no fines, no dry strength.
		GP	Poorly graded gravel and gravel-sand mixtures, little or no fines, no dry strength.
		GM	Silty gravel, gravel-sand-silt mixtures, zero to medium dry strength.
		GC	Clayey gravel, gravel-sand-clay mixtures, medium to high dry strength.
	SAND More than 50% of coarse fraction is <2.36 mm	SW	Well graded sand and gravelly sand, little or no fines, no dry strength.
		SP	Poorly graded sand and gravelly sand, little or no fines, no dry strength.
		SM	Silty sand, sand-silt mixtures, zero to medium dry strength.
		SC	Clayey sand, sandy-clay mixtures, medium to high dry strength.
FINE GRAINED SOILS More than 35% of soil excluding oversized fraction is less than 0.075mm	Liquid Limit less < 50%	ML	Inorganic silts of low plasticity, very fine sands, rock flour, silty or clayey fine sands, zero to medium dry strength.
		CL, CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, medium to high dry strength.
		OL	Organic silts and organic silty clays of low plasticity, low to medium dry strength.
	Liquid Limit > than 50%	MH	Inorganic silts of high plasticity, high to very high dry strength.
		CH	Inorganic clays of high plasticity, high to very high dry strength.
		OH	Organic clays of medium to high plasticity, medium to high dry strength.
Highly Organic soil		PT	Peat muck and other highly organic soils.

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Non- cohesive and free-running.
M	Moist	Soils feel cool, darkened in colour. Soil tends to stick together.
W	Wet	Soils feel cool, darkened in colour. Soil tends to stick together, free water forms when handling.

Moisture content of cohesive soils shall be described in relation to plastic limit (PL) or liquid limit (LL) for soils with higher moisture content as follows: Moist, dry of plastic limit (w < PL); Moist, near plastic limit (w ≈ PL); Moist, wet of plastic limit (w < PL); Wet, near liquid limit (w ≈ LL), Wet, wet of liquid limit (w > LL),

CONSISTENCY

Symbol	Term	Undrained Shear Strength (kPa)	SPT "N" #
VS	Very Soft	≤ 12	≤ 2
S	Soft	>12 to ≤ 25	>2 to ≤ 4
F	Firm	>25 to ≤ 50	>4 to 8
St	Stiff	>50 to ≤ 100	>8 to 15
VSt	Very Stiff	>100 to ≤ 200	>15 to 30
H	Hard	>200	>30
Fr	Friable	-	

DENSITY

Symbol	Term	Density Index %	SPT "N" #
VL	Very Loose	≤ 15	0 to 4
L	Loose	>15 to ≤ 35	4 to 10
MD	Medium Dense	>35 to ≤ 65	10 to 30
D	Dense	>65 to ≤ 85	30 to 50
VD	Very Dense	>85	Above 50

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.
SPT correlations are not stated in AS1726:2017, and may be subject to corrections for overburden pressure, moisture content of the soil, and equipment type.

MINOR COMPONENTS

Term	Assessment Guide	Proportion by Mass
Add 'Trace'	Presence just detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: ≤ 5% Fine grained soil: ≤ 15%
Add 'With'	Presence easily detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: 5 - 12% Fine grained soil: 15 - 30%
Prefix soil name	Presence easily detectable by feel or eye in conjunction with the general properties of primary component	Coarse grained soils: >12% Fine grained soil: >30%

TERMS FOR ROCK MATERIAL STRENGTH AND WEATHERING

CLASSIFICATION AND INFERRED STRATIGRAPHY

Rock is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 2017, Section 6.2 – Rock identification, description and classification.

ROCK MATERIAL STRENGTH CLASSIFICATION

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

 # Rock Strength Test Results

▼ Point Load Strength Index, $Is_{(50)}$, Axial test (MPa)

● Point Load Strength Index, $Is_{(50)}$, Diametral test (MPa)

Relationship between rock strength test result ($Is_{(50)}$) and unconfined compressive strength (UCS) will vary with rock type and strength, and should be determined on a site-specific basis. However UCS is typically 20 x $Is_{(50)}$.

ROCK MATERIAL WEATHERING CLASSIFICATION

Symbol		Term	Field Guide
RS		Residual Soil	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
XW		Extremely Weathered	Rock is weathered to such an extent that it has soil properties - i.e. it either disintegrates or can be remoulded, in water.
DW	HW	Distinctly Weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered and Moderately Weathered, with the degree of alteration typically less for MW.
	MW		
SW		Slightly Weathered	Rock slightly discoloured but shows little or no change of strength relative to fresh rock.
FR		Fresh	Rock shows no sign of decomposition or staining.

ABBREVIATIONS AND DESCRIPTIONS FOR ROCK MATERIAL AND DEFECTS

CLASSIFICATION AND INFERRED STRATIGRAPHY
Rock is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 2017, Section 6.2 – Rock identification, description and classification.

DETAILED ROCK DEFECT SPACING

Defect Spacing

Spacing/width (mm)	Descriptor	Symbol
<20	Extremely Close	EC
20-60	Very Close	VC
60-200	Close	C
200-600	Medium	M
600-2000	Wide	W
2000-6000	Very Wide	VW

Bedding Thickness (Stratification)

Term	Spacing (mm)
Thinly laminated	<6
Laminated	6 – 20
Very thinly bedded	20 – 60
Thinly bedded	60 – 200
Medium bedded	200 – 600
Thickly bedded	600 – 2,000
Very thickly bedded	> 2,000

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT TYPES

Defect Type	Abbr.	Description
Joint	JT	Surface of a fracture or parting, formed without displacement, across which the rock has little or no tensile strength. May be closed or filled by air, water or soil or rock substance, which acts as cement.
Bedding Parting	BP	Surface of fracture or parting, across which the rock has little or no tensile strength, parallel or sub-parallel to layering/ bedding. Bedding refers to the layering or stratification of a rock, indicating orientation during deposition, resulting in planar anisotropy in the rock material.
Contact	CO	The surface between two types or ages of rock.
Sheared Surface	SSU	A near planar, curved or undulating surface which is usually smooth, polished or slickensided.
Sheared Seam/ Zone (Fault)	SS/SZ	Seam or zone with roughly parallel almost planar boundaries of rock substance cut by closely spaced (often <50 mm) parallel and usually smooth or slickensided joints or cleavage planes.
Crushed Seam/ Zone (Fault)	CS/CZ	Seam or zone composed of disoriented usually angular fragments of the host rock substance, with roughly parallel near-planar boundaries. The brecciated fragments may be of clay, silt, sand or gravel sizes or mixtures of these.
Extremely Weathered Seam/ Zone	XWS/XWZ	Seam of soil substance, often with gradational boundaries, formed by weathering of the rock material in places.
Infilled Seam	IS	Seam of soil substance, usually clay or clayey, with very distinct roughly parallel boundaries, formed by soil migrating into joint or open cavity.
Vein	VN	Distinct sheet-like body of minerals crystallised within rock through typically open-space filling or crack-seal growth.

NOTE: Defects size of <100mm SS, CS and XWS. Defects size of >100mm SZ, CZ and XWZ.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT SHAPE AND ROUGHNESS

Shape	Abbr.	Description	Roughness	Abbr.	Description
Planar	PR	Consistent orientation	Polished	POL	Shiny smooth surface
Curved	CU	Gradual change in orientation	Slickensided	SL	Grooved or striated surface, usually polished
Undulating	UN	Wavy surface	Smooth	SM	Smooth to touch. Few or no surface irregularities
Stepped	ST	One or more well defined steps	Rough	RO	Many small surface irregularities (amplitude generally <1mm). Feels like fine to coarse sandpaper
Irregular	IR	Many sharp changes in orientation	Very Rough	VR	Many large surface irregularities, amplitude generally >1mm. Feels like very coarse sandpaper

Orientation: **Vertical Boreholes –** The dip (inclination from horizontal) of the defect.
Inclined Boreholes – The inclination is measured as the acute angle to the core axis.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT COATING

Coating	Abbr.	Description
Clean	CN	No visible coating or infilling
Stain	SN	No visible coating but surfaces are discoloured by staining, often limonite (orange-brown)
Veneer	VNR	A visible coating of soil or mineral substance, usually too thin to measure (< 1 mm); may be patchy

DEFECT APERTURE

Aperture	Abbr.	Description
Closed	CL	Closed.
Open	OP	Without any infill material.
Infilled	-	Soil or rock i.e. clay, silt, talc, pyrite, quartz, etc.

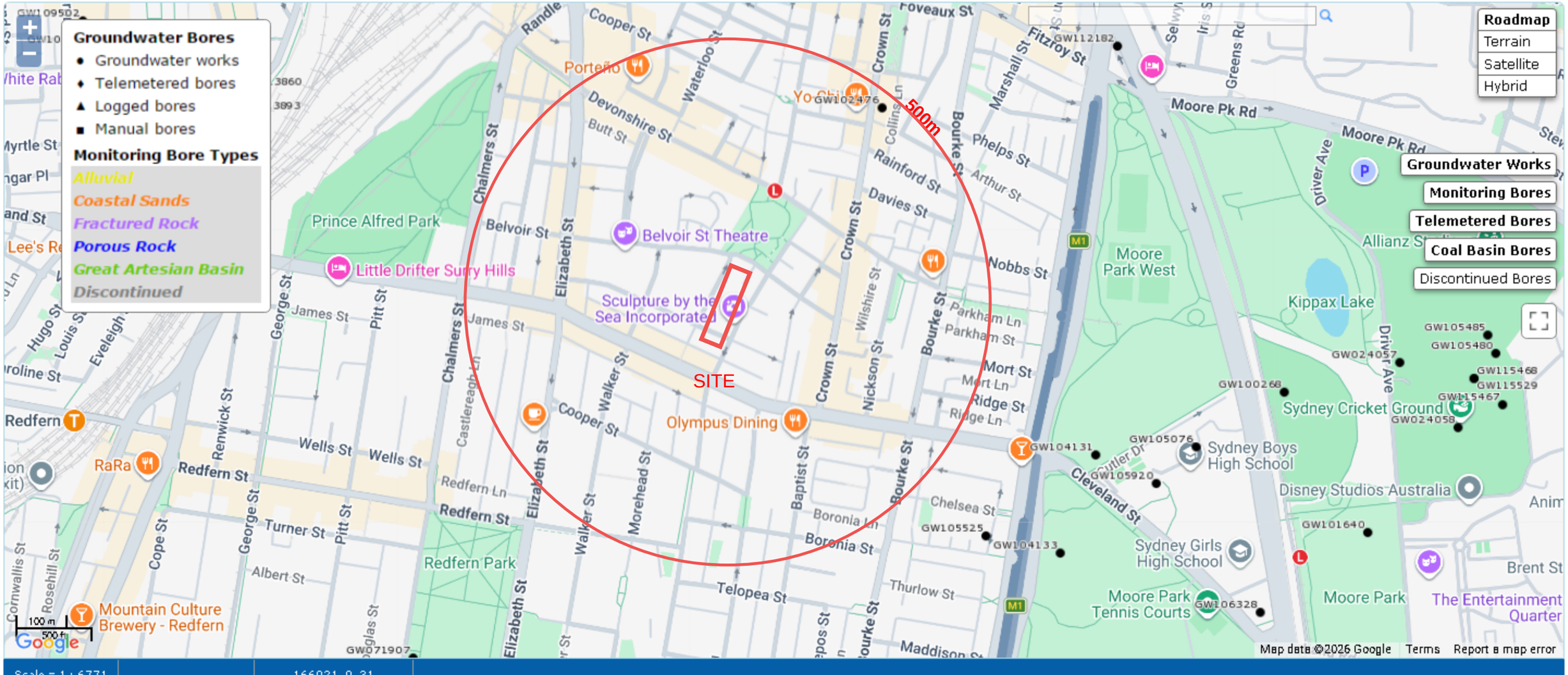
Appendix F – Water Supply Bores

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



WaterNSW
Work Summary

GW102476

Licence: 10BL157882
Licence Status: ABANDONED

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method:
Owner Type:

Commenced Date:
Completion Date: 01/01/1999
Final Depth: 4.00 m
Drilled Depth:

Contractor Name: (None)
Driller:
Assistant Driller:

Property: N/A NSW
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		UNKNOWN	
Licensed:	CUMBERLA	ALEXANDR	Whole Lot

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: 6248965.000
Easting: 334832.000
Latitude: 33°53'12.3"S
Longitude: 151°12'50.2"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

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	1	Casing	P.V.C.	0.00	0.00	50			

Remarks

01/01/1999: Form A Remarks:
CANCELLED ON LAS
BORE BACKFILLED
INFORMATION FROM AG APPLICATION ONLY

***** End of GW102476 *****

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.

Appendix G – Laboratory Documentation

Sheet __1 of _1_

Site: 61 Marlborough Street, Surry Hills

Project No: E26534

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 (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM [A] /TRH/BTEX/PAHs	HM A /TRH(including F1, F2, F3, F4)/ BTEX	BTEX	VOCs	pH/ Turbidity/ TDS /EC/ Hardness	Asbestos Quantification	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM [A] /pH / EC / Foreign Materials)	Dewatering Suite	DPE AN2 Full Suite - Mandatory and Other Parameters	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Hold	TCLP HM [B] / PAH
GW_BH101M_1	1	s,p,vc	19/09/2025	PM		X			X				X	X														
GW_BH102M_1	2	s,p,vc	19/09/2025	PM		X			X				X	X														
GW_BH103M_1	3	s,p,vc	18/09/2025	PM		X														X								
GW_BH100_QD1	4	s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QT1		s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QR1	5	s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QRB1		s,p,vc	18/09/2025	PM		X																					X	
Trip Blank	6	Lab Prepared										X																
Trip Spike	7	Lab Prepared										X																

SGS EHS Sydney COC
SE289786

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
Total Phenol

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 BB = Bulk 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): GT		Received by (SGS):	
Print	Geisiane Torres	Print	Joel M
Signature		Signature	
Date	19/09/2025	Date	19/9 @ 2:45 pm

Sampler's Comments:
CC: Ricardo Lopes and Sergio Raposeira. Please Forward GW_BH100_QT1 to Envirolab

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

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

source:Sydney_urgent_coc_250919_171905.pdf page: 1 SGS Ref: SE289786_COC

SAMPLE RECEIPT ADVICE

SE289786

CLIENT DETAILS

Contact	Geisiane Torres
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Geisiane.Torres @eiaustralia.com.au
Project	**E26534 61 Marlborough St, Surry Hills**
Order Number	**E26534**
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	Fri 19/9/2025
Report Due	Fri 26/9/2025
SGS Reference	**SE289786**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Friday 19/9/2025. Results are expected to be ready by COB Friday 26/9/2025. Please quote SGS reference SE289786 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	19/9/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.1°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

1 water sample has been placed on hold as no tests have been assigned for it. This sample will not be processed.
QT1 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

SE289786

CLIENT DETAILS

Client EI AUSTRALIA

Project E26534 61 Marlborough St, Surry Hills

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	GW_BH101M_1	-	-	-	22	-	9	78	7
002	GW_BH102M_1	-	-	-	22	-	9	78	7
003	GW_BH103M_1	167	26	13	21	9	9	77	6
004	GW_BH100_QD1	-	-	-	-	-	9	11	7
005	GW_BH100_QR1	-	-	-	-	-	9	11	7
006	Trip Blank	-	-	-	-	-	-	11	-
007	Trip Spike	-	-	-	-	-	-	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

SE289786

CLIENT DETAILS

Client EI AUSTRALIA

Project E26534 61 Marlborough St, Surry Hills

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	GW_BH101M_1	-	-	1	-	-	1	-	1	-	1
002	GW_BH102M_1	-	-	1	-	-	1	-	1	-	1
003	GW_BH103M_1	10	5	1	3	1	1	1	1	1	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

SE289786

CLIENT DETAILS

Client EI AUSTRALIA

Project E26534 61 Marlborough St, Surry Hills

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
003	GW_BH103M_1	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

SE289786

CLIENT DETAILS

Client EI AUSTRALIA

Project E26534 61 Marlborough St, Surry Hills

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	Trace Metals (Dissolved) in Water by ICPMS
001	GW_BH101M_1	1	1	8
002	GW_BH102M_1	1	1	8
003	GW_BH103M_1	1	7	21
004	GW_BH100_QD1	1	-	7
005	GW_BH100_QR1	1	-	7

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	Geisiane Torres
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	Geisiane.Torres @eiaustralia.com.au
Project	**E26534 61 Marlborough St, Surry Hills**
Order Number	**E26534**
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	**SE289786 R0**
Date Received	19/9/2025
Date Reported	14/10/2025

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: 22/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	**1.5**	**1.4**	**1.0**	**1.0**	<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	**3**	-	-
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	**30**	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	**0.6**	<0.5	**3.9**	-	-
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	**0.6**	<0.5	-	-
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	**1.4**	<0.5	-	-

VOCs in Water [AN433] Tested: 22/9/2025 (continued)

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	**3.4**	<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	**34**	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	**37**	**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	**2.6**	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	**1.3**	<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	-	-
Total VOC	µg/L	10	<10	**110**	<10	-	-

VOCs in Water [AN433] Tested: 22/9/2025 (continued)

PARAMETER	UOM	LOR	Trip Blank WATER - 19/9/2025 SE289786.006	Trip Spike WATER - 19/9/2025 SE289786.007
Benzene	µg/L	0.5	<0.5	[99%]
Toluene	µg/L	0.5	<0.5	[99%]
Ethylbenzene	µg/L	0.5	<0.5	[98%]
m/p-xylene	µg/L	1	<1	[99%]
o-xylene	µg/L	0.5	<0.5	[98%]
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Naphthalene (VOC)*	µg/L	0.5	<0.5	[96%]
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: 22/9/2025 (continued)

PARAMETER	UOM	LOR	Trip Blank WATER - 19/9/2025 SE289786.006	Trip Spike WATER - 19/9/2025 SE289786.007
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	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
TRH C6-C9	µg/L	40	<40	**230**	<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	**260**	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	**260**	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
TRH C10-C14	µg/L	50	**75**	**270**	**100**	**57**	<50
TRH C15-C28	µg/L	200	<200	**330**	**320**	<200	<200
TRH C29-C36	µg/L	200	<200	<200	**230**	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	µg/L	60	**82**	**290**	**120**	**64**	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	**81**	**290**	**120**	**64**	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	**510**	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	**690**	**670**	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Naphthalene	µg/L	0.1	<0.1	**0.3**	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	-

OC Pesticides in Water [AN420] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Alpha BHC	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
Beta BHC	µg/L	0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1
Delta BHC	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Aldrin	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1
Total OC	µg/L	1	<1
Total OC	µg/L	1	<1
Total Other OC VIC EPA	µg/L	1	<1

OP Pesticides in Water [AN420] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Azinphos-methyl	µg/L	0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
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	0.2	<0.2
Fenitrothion	µg/L	0.2	<0.2
Malathion	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2

PCBs in Water [AN420] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
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
Total Arochlors*	µg/L	5	<5

Full 8270 SVOC in Water [AN420] Tested: 21/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
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: 21/9/2025 (continued)

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
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: 21/9/2025 (continued)

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
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

pH in water [AN101] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
pH**	No unit	-	**5.4**	**5.4**	**7.5**

Conductivity and TDS by Calculation - Water [AN106] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Conductivity @ 25 C	µS/cm	2	**650**	**860**	**420**

Turbidity [AN119] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Turbidity	NTU	0.5	150	110	240

Total Dissolved Solids (TDS) in water [AN113] Tested: 23/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Dissolved Solids Dried at 175-185°C	mg/L	10	**380**	**510**	**220**

Total Phenolics in Water [AN295] Tested: 23/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Phenols	mg/L	0.05	<0.05

Anions by Ion Chromatography in Water [AN245] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Chloride	mg/L	0.05	**66**
Bromide	mg/L	0.05	**0.21**
Fluoride	mg/L	0.1	**0.38**
Sulfate, SO4	mg/L	1	**24**
Nitrate Nitrogen, NO3-N	mg/L	0.005	<0.005

Alkalinity [AN135] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Bicarbonate Alkalinity as CaCO3	mg/L	5	**93**
Bicarbonate Alkalinity as HCO3	mg/L	5	**110**
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	**93**
Carbonate Hardness as CaCO3*	mg CaCO3/L	2	**93.059166666666**
Non-Carbonate Hardness as CaCO3*	mg CaCO3/L	2	-
Negative Hardness as CaCO3*	mg CaCO3/L	-100	-

Dissolved Oxygen by Membrane Electrode [AN176] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Temperature*	°C	-	**14.2**
Dissolved Oxygen**	mg/L	0.5	**6.7**
Dissolved Oxygen (percent saturation)**	%	1	**64.7**

Total and Volatile Suspended Solids (TSS / VSS) [AN114] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Suspended Solids Dried at 103-105°C	mg/L	5	**270**

Forms of Carbon [AN190] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Organic Carbon as NPOC	mg/L	0.2	**5.9**

Ammonia Nitrogen by Discrete Analyser [AN291] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Ammonia Nitrogen, NH_3 as N	mg/L	0.01	<0.01

Calculation of Anion-Cation Balance (SAR Calc) [AN121] Tested: 26/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Sum of Ions*	mg/L	10	**278**
Anion-Cation Balance	%	-100	**0.01**
TFSS*	mg/L	10	**278**
Sodium Adsorption Ratio*	No unit	0.1	**2.6**

Nitrite in Water [AN277] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005
Total Oxidised Nitrogen, NOx-N	mg/L	0.005	<0.005

TKN Kjeldahl Digestion by Discrete Analyser [AN281/292] Tested: 23/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Kjeldahl Nitrogen	mg/L	0.05	**0.95**
Total Nitrogen (calc)	mg/L	0.05	**0.95**

Total Phosphorus by Kjeldahl Digestion DA in Water [AN279/AN293] Tested: 23/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	**0.58**

Filterable Reactive Phosphorus (FRP) [AN278] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Filterable Reactive Phosphorus as P	mg/L	0.005	**0.13**

Redox Potential (Eh) in water [AN240] Tested: 19/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Eh of Sample Relative to Standard H+ Electrode***	mV	-500	**388**
Temperature of Sample*	°C	0.1	**18.5**

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
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
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	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	<0.01
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	<0.01
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	<0.01
Sum of PFAS A	µg/L	0.01	<0.01
Sum of PFAS B	µg/L	0.01	<0.01
Sum of PFAS C	µg/L	0.01	<0.01
Sum of Positive PFAS	µg/L	0.01	<0.01

Enterococci in Water [AN705] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Date & Time Processed*	No unit	-	2025-09-22 10:05
Intestinal Enterococci*	CFU/100mL	1	**9**
Notes*	No unit	-	approximate count

E. coli and Thermotolerant coliforms in Water (CFU) [AN703] Tested: 22/9/2025

PARAMETER	UOM	LOR	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Date & Time Processed*	No unit	-	2025-09-22 10:05
E. coli	CFU/100mL	1	<1
Thermotolerant Coliforms	CFU/100mL	1	<1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 24/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Chromium	µg/L	1	<1	<1	<1	<1	<1
Copper	µg/L	1	**1**	**11**	**1**	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Nickel	µg/L	1	**2**	**11**	<1	<1	<1
Zinc	µg/L	5	**5**	**78**	<5	**5**	<5
Silver	µg/L	1	-	-	<1	-	-
Aluminium	µg/L	5	**74**	**55**	**27**	-	-
Antimony	µg/L	1	-	-	<1	-	-
Barium	µg/L	1	-	-	**110**	-	-
Beryllium	µg/L	1	-	-	<1	-	-
Boron	µg/L	5	-	-	**490**	-	-
Cobalt	µg/L	1	-	-	<1	-	-
Iron	µg/L	5	-	-	**9**	-	-
Manganese	µg/L	1	-	-	**190**	-	-
Molybdenum	µg/L	1	-	-	**6**	-	-
Selenium	µg/L	1	-	-	<1	-	-
Strontium	µg/L	1	-	-	**110**	-	-
Uranium	µg/L	1	-	-	<1	-	-
Vanadium	µg/L	1	-	-	<1	-	-

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 26/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003	GW_BH100_QD1 WATER - 18/9/2025 SE289786.004	GW_BH100_QR1 WATER - 18/9/2025 SE289786.005
Mercury, Hg	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 24/9/2025

PARAMETER	UOM	LOR	GW_BH101M_1 WATER - 18/9/2025 SE289786.001	GW_BH102M_1 WATER - 18/9/2025 SE289786.002	GW_BH103M_1 WATER - 18/9/2025 SE289786.003
Total Hardness by Calculation	mg CaCO3/L	5	**89**	**130**	**75**
Sodium Adsorption Ratio	No unit	0.2	-	-	**2.6**
Sodium, Na	mg/L	0.5	-	-	**51**
Potassium, K	mg/L	0.1	-	-	**20**
Lithium, Li	mg/L	0.005	-	-	**0.015**
Silicon, Si*	mg/L	0.05	-	-	**4.5**
Soluble Silicon as Silica, SiO2*	mg/L	0.1	-	-	**9.7**

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.
AN703	A known volume of water is passed through a membrane of known pore size. The membrane is placed on a selective agar plate and incubated. The volume of sample filtered depends upon the expected count. Referenced to AS4276.5.
AN705	A known volume of water is passed through a membrane of known pore size. The membrane is placed on a selective agar plate and incubated. The volume of sample filtered depends upon the expected count. Referenced to AS/NZS4276.9 (ISO 7899-2:2000 MOD).
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

SE289786 R0

CLIENT DETAILS

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Project	**E26534 61 Marlborough St, Surry Hills**
Order Number	**E26534**
Samples	7

LABORATORY DETAILS

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SGS Reference	**SE289786 R0**
Date Received	19 Sep 2025
Date Reported	14 Oct 2025

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 and Thermotolerant coliforms in Water (CFU)	1 item
	Enterococci in Water	1 item
Duplicate	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	1 item

SAMPLE SUMMARY

Sample counts by matrix	7 Water	Type of documentation received	COC
Date documentation received	19/9/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.1°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

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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.

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Alkalinity

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361885	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	22 Sep 2025

Ammonia Nitrogen by Discrete Analyser

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361752	18 Sep 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025

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
GW_BH103M_1	SE289786.003	LB361815	18 Sep 2025	19 Sep 2025	16 Oct 2025	22 Sep 2025	16 Oct 2025	25 Sep 2025

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
GW_BH101M_1	SE289786.001	LB361753	18 Sep 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025
GW_BH102M_1	SE289786.002	LB361753	18 Sep 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025
GW_BH103M_1	SE289786.003	LB361753	18 Sep 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025

Dissolved Oxygen by Membrane Electrode

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361754	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025

E. coli and Thermotolerant coliforms in Water (CFU)

Method: ME-(AU)-[ENV]AN703

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361838	18 Sep 2025	19 Sep 2025	19 Sep 2025	22 Sep 2025†	25 Sep 2025	22 Sep 2025

Enterococci in Water

Method: ME-(AU)-[ENV]AN705

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361838	18 Sep 2025	19 Sep 2025	19 Sep 2025	22 Sep 2025†	25 Sep 2025	22 Sep 2025

Filterable Reactive Phosphorus (FRP)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361752	18 Sep 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025	16 Oct 2025	19 Sep 2025

Forms of Carbon

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361817	18 Sep 2025	19 Sep 2025	25 Sep 2025	22 Sep 2025	25 Sep 2025	23 Sep 2025

Full 8270 SVOC in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025

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
GW_BH101M_1	SE289786.001	LB361802	18 Sep 2025	19 Sep 2025	16 Oct 2025	26 Sep 2025	16 Oct 2025	26 Sep 2025
GW_BH102M_1	SE289786.002	LB361802	18 Sep 2025	19 Sep 2025	16 Oct 2025	26 Sep 2025	16 Oct 2025	26 Sep 2025
GW_BH103M_1	SE289786.003	LB361802	18 Sep 2025	19 Sep 2025	16 Oct 2025	26 Sep 2025	16 Oct 2025	26 Sep 2025
GW_BH100_QD1	SE289786.004	LB361802	18 Sep 2025	19 Sep 2025	16 Oct 2025	26 Sep 2025	16 Oct 2025	26 Sep 2025
GW_BH100_QR1	SE289786.005	LB361802	18 Sep 2025	19 Sep 2025	16 Oct 2025	26 Sep 2025	16 Oct 2025	26 Sep 2025

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
GW_BH101M_1	SE289786.001	LB362206	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	24 Sep 2025
GW_BH102M_1	SE289786.002	LB362206	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	24 Sep 2025
GW_BH103M_1	SE289786.003	LB362206	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	24 Sep 2025

HOLDING TIME SUMMARY

SE289786 R0

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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
GW_BH103M_1	SE289786.003	LB361752	18 Sep 2025	19 Sep 2025	22 Sep 2025	19 Sep 2025	22 Sep 2025	19 Sep 2025

OC Pesticides in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025

OP Pesticides in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025

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
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	25 Sep 2025

PCBs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025

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
GW_BH103M_1	SE289786.003	LB361842	18 Sep 2025	19 Sep 2025	16 Oct 2025	22 Sep 2025	20 Oct 2025	23 Sep 2025

pH in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361753	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025
GW_BH102M_1	SE289786.002	LB361753	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025
GW_BH103M_1	SE289786.003	LB361753	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025

Redox Potential (Eh) in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB361755	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025

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
GW_BH103M_1	SE289786.003	LB362010	18 Sep 2025	19 Sep 2025	16 Oct 2025	23 Sep 2025	16 Oct 2025	25 Sep 2025

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
GW_BH103M_1	SE289786.003	LB361877	18 Sep 2025	19 Sep 2025	25 Sep 2025	22 Sep 2025	29 Sep 2025	22 Sep 2025

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
GW_BH101M_1	SE289786.001	LB362093	18 Sep 2025	19 Sep 2025	25 Sep 2025	23 Sep 2025	25 Sep 2025	24 Sep 2025
GW_BH102M_1	SE289786.002	LB362093	18 Sep 2025	19 Sep 2025	25 Sep 2025	23 Sep 2025	25 Sep 2025	24 Sep 2025

HOLDING TIME SUMMARY

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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
GW_BH103M_1	SE289786.003	LB362093	18 Sep 2025	19 Sep 2025	25 Sep 2025	23 Sep 2025	25 Sep 2025	24 Sep 2025

Total Phenolics in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH103M_1	SE289786.003	LB362035	18 Sep 2025	19 Sep 2025	02 Oct 2025	23 Sep 2025	02 Oct 2025	24 Sep 2025

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
GW_BH103M_1	SE289786.003	LB362010	18 Sep 2025	19 Sep 2025	16 Oct 2025	23 Sep 2025	16 Oct 2025	24 Sep 2025

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
GW_BH101M_1	SE289786.001	LB362209	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	25 Sep 2025
GW_BH102M_1	SE289786.002	LB362209	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	25 Sep 2025
GW_BH103M_1	SE289786.003	LB362209	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	25 Sep 2025
GW_BH100_QD1	SE289786.004	LB362209	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	25 Sep 2025
GW_BH100_QR1	SE289786.005	LB362209	18 Sep 2025	19 Sep 2025	17 Mar 2026	24 Sep 2025	17 Mar 2026	25 Sep 2025

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
GW_BH101M_1	SE289786.001	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH102M_1	SE289786.002	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH103M_1	SE289786.003	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QD1	SE289786.004	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025
GW_BH100_QR1	SE289786.005	LB361771	18 Sep 2025	19 Sep 2025	25 Sep 2025	21 Sep 2025	31 Oct 2025	26 Sep 2025

Turbidity

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361734	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025
GW_BH102M_1	SE289786.002	LB361734	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025
GW_BH103M_1	SE289786.003	LB361734	18 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025	19 Sep 2025

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH102M_1	SE289786.002	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH103M_1	SE289786.003	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH100_QD1	SE289786.004	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH100_QR1	SE289786.005	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
Trip Blank	SE289786.006	LB361916	19 Sep 2025	19 Sep 2025	03 Oct 2025	22 Sep 2025	03 Oct 2025	24 Sep 2025
Trip Spike	SE289786.007	LB361916	19 Sep 2025	19 Sep 2025	03 Oct 2025	22 Sep 2025	03 Oct 2025	24 Sep 2025

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH101M_1	SE289786.001	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH102M_1	SE289786.002	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH103M_1	SE289786.003	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	25 Sep 2025
GW_BH100_QD1	SE289786.004	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
GW_BH100_QR1	SE289786.005	LB361916	18 Sep 2025	19 Sep 2025	02 Oct 2025	22 Sep 2025	02 Oct 2025	24 Sep 2025
Trip Blank	SE289786.006	LB361916	19 Sep 2025	19 Sep 2025	03 Oct 2025	22 Sep 2025	03 Oct 2025	25 Sep 2025
Trip Spike	SE289786.007	LB361916	19 Sep 2025	19 Sep 2025	03 Oct 2025	22 Sep 2025	03 Oct 2025	25 Sep 2025

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)	GW_BH103M_1	SE289786.003	%	40 - 130%	104
2-fluorobiphenyl (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	92
d14-p-terphenyl (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	114
d5-nitrobenzene (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	82
d5-phenol (Surrogate)	GW_BH103M_1	SE289786.003	%	20 - 130%	85

OC Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	72

OP Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	91
d14-p-terphenyl (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	110

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	98
	GW_BH102M_1	SE289786.002	%	40 - 130%	103
	GW_BH103M_1	SE289786.003	%	40 - 130%	91
d14-p-terphenyl (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	104
	GW_BH102M_1	SE289786.002	%	40 - 130%	109
	GW_BH103M_1	SE289786.003	%	40 - 130%	110
d5-nitrobenzene (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	100
	GW_BH102M_1	SE289786.002	%	40 - 130%	117
	GW_BH103M_1	SE289786.003	%	40 - 130%	94

PCBs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	GW_BH103M_1	SE289786.003	%	40 - 130%	72

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	94
	GW_BH102M_1	SE289786.002	%	40 - 130%	93
	GW_BH103M_1	SE289786.003	%	40 - 130%	93
	GW_BH100_QD1	SE289786.004	%	40 - 130%	93
	GW_BH100_QR1	SE289786.005	%	40 - 130%	93
	Trip Blank	SE289786.006	%	40 - 130%	92
	Trip Spike	SE289786.007	%	40 - 130%	85
d4-1,2-dichloroethane (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	74
	GW_BH102M_1	SE289786.002	%	40 - 130%	76
	GW_BH103M_1	SE289786.003	%	40 - 130%	75
	GW_BH100_QD1	SE289786.004	%	40 - 130%	76
	GW_BH100_QR1	SE289786.005	%	40 - 130%	74
	Trip Blank	SE289786.006	%	40 - 130%	79
	Trip Spike	SE289786.007	%	40 - 130%	83
d8-toluene (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	83
	GW_BH102M_1	SE289786.002	%	40 - 130%	84
	GW_BH103M_1	SE289786.003	%	40 - 130%	83
	GW_BH100_QD1	SE289786.004	%	40 - 130%	83
	GW_BH100_QR1	SE289786.005	%	40 - 130%	82
	Trip Blank	SE289786.006	%	40 - 130%	82
	Trip Spike	SE289786.007	%	40 - 130%	93

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	94
	GW_BH102M_1	SE289786.002	%	40 - 130%	93
	GW_BH103M_1	SE289786.003	%	40 - 130%	93
	GW_BH100_QD1	SE289786.004	%	40 - 130%	93

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW_BH100_QR1	SE289786.005	%	40 - 130%	93
d4-1,2-dichloroethane (Surrogate)	GW_BH101M_1	SE289786.001	%	60 - 130%	74
	GW_BH102M_1	SE289786.002	%	60 - 130%	76
	GW_BH103M_1	SE289786.003	%	60 - 130%	75
	GW_BH100_QD1	SE289786.004	%	60 - 130%	76
	GW_BH100_QR1	SE289786.005	%	60 - 130%	74
d8-toluene (Surrogate)	GW_BH101M_1	SE289786.001	%	40 - 130%	83
	GW_BH102M_1	SE289786.002	%	40 - 130%	84
	GW_BH103M_1	SE289786.003	%	40 - 130%	83
	GW_BH100_QD1	SE289786.004	%	40 - 130%	83
	GW_BH100_QR1	SE289786.005	%	40 - 130%	82

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
LB361885.001	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
LB361752.001	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
LB361815.001	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
LB361753.001	Conductivity @ 25 C	µS/cm	2	<2

Dissolved Oxygen by Membrane Electrode

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

Sample Number	Parameter	Units	LOR	Result
LB361754.001	Dissolved Oxygen**	mg/L	0.5	<0.5

Filterable Reactive Phosphorus (FRP)

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

Sample Number	Parameter	Units	LOR	Result
LB361752.001	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
LB361817.001	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
LB361771.001	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

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

Sample Number		Parameter	Units	LOR	Result
LB361771.001	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
LB361771.001	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
LB361771.001	14-Speciated Routine	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
	Phenols	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)	%	-	120
		d5-nitrobenzene (Surrogate)	%	-	122
		2-fluorobiphenyl (Surrogate)	%	-	128
		2,4,6-Tribromophenol (Surrogate)	%	-	125
		d14-p-terphenyl (Surrogate)	%	-	128

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB361802.001	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
LB362206.001	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
LB361752.001	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
LB361771.001		Alpha BHC	µg/L	0.1	<0.1
		Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
		Beta BHC	µg/L	0.1	<0.1
		Lindane (gamma BHC)	µg/L	0.1	<0.1
		Delta BHC	µg/L	0.1	<0.1
		Heptachlor	µg/L	0.1	<0.1
		Aldrin	µg/L	0.1	<0.1
		Heptachlor epoxide	µg/L	0.1	<0.1
		Gamma Chlordane	µg/L	0.1	<0.1
		Alpha Chlordane	µg/L	0.1	<0.1
		Alpha Endosulfan	µg/L	0.1	<0.1
		p,p'-DDE	µg/L	0.1	<0.1
		Dieldrin	µg/L	0.1	<0.1
		Endrin	µg/L	0.1	<0.1
		Beta Endosulfan	µg/L	0.1	<0.1
		p,p'-DDD	µg/L	0.1	<0.1
		Endrin aldehyde	µg/L	0.1	<0.1
		Endosulfan sulphate	µg/L	0.1	<0.1
		p,p'-DDT	µg/L	0.1	<0.1
		Endrin ketone	µg/L	0.1	<0.1
		Methoxychlor	µg/L	0.1	<0.1
		Mirex	µg/L	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	104

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

OP Pesticides in Water

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

Sample Number		Parameter	Units	LOR	Result
LB361771.001		Azinphos-methyl	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		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	0.2	<0.2
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	85

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB361771.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	97
		2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	85

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result
LB361771.001	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
LB361842.001	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

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

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

Sample Number	Parameter	Units	LOR	Result
LB361842.001	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	<0.01
	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
LB361877.001	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
LB362093.001	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
LB362035.001	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
LB362010.001	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
LB362209.001	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

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

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

Sample Number	Parameter	Units	LOR	Result
LB362209.001	Zinc	µg/L	5	<5
LB362209.025	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

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB361771.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

Turbidity

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

Sample Number	Parameter	Units	LOR	Result
LB361734.001	Turbidity	NTU	0.5	<0.5

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB361916.001	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

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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
LB361916.001	Halogenated Aliphatics	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
		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 Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		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)	%	-	73
		d8-toluene (Surrogate)	%	-	80
		Bromofluorobenzene (Surrogate)	%	-	89
	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
LB361916.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	73
		d8-toluene (Surrogate)	%	-	80
		Bromofluorobenzene (Surrogate)	%	-	89

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 %
SE289835.001	LB361885.006	Bicarbonate Alkalinity as CaCO3	mg/L	5	36	38	29	4
		Carbonate Alkalinity as CaCO3	mg/L	5	<5	<5	200	0
		Total Alkalinity as CaCO3	mg/L	5	36	38	29	4

Ammonia Nitrogen by Discrete Analyser

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361752.006	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	<0.01	<0.01	177	0

Anions by Ion Chromatography in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289675.001	LB361815.024	Sulfate, SO4	mg/L	1	27	26	19	4
SE289780.002	LB361815.014	Chloride	mg/L	0.05	13000	13000	15	1

Conductivity and TDS by Calculation - Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361753.007	Conductivity @ 25 C	µS/cm	2	420	420	15	0

Filterable Reactive Phosphorus (FRP)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361752.006	Filterable Reactive Phosphorus as P	mg/L	0.005	0.13	0.13	19	1

Forms of Carbon

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289780.007	LB361817.015	Total Organic Carbon as NPOC	mg/L	0.2	9.2	11	17	15
SE289786.003	LB361817.022	Total Organic Carbon as NPOC	mg/L	0.2	5.9	5.8	18	2

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.005	LB361802.023	Mercury, Hg	µg/L	0.0001	<0.0001	<0.0001	158	0

Nitrite in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361752.006	Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005	<0.005	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.002	LB361771.023	Naphthalene	µg/L	0.1	0.3	0.3	62	16
		2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
		Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
		Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
		Fluorene	µg/L	0.1	<0.1	<0.1	200	0
		Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
		Anthracene	µg/L	0.1	<0.1	<0.1	200	0
		Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
		Pyrene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
		Chrysene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	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 %
SE289786.002	LB361771.023		Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.6	0.5	30	16
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.5	0.4	30	16
			d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	30	17

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289748.001	LB361842.024	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	10
		Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.01	0.01	200	5
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.01	0.01	200	4
		Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorotridecanoic acid (PFTrDA)	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	0
		Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorodecane sulfonic acid (PFDS)	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
		Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05	<0.05	200	0
		N-Ethylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05	<0.05	200	0
		2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05	<0.05	200	0
		2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05	<0.05	200	0
		Sum of PFOS and PFHxS	µg/L	0.01	<0.01	<0.01	200	0
		Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS A	µg/L	0.01	0.02	0.02	200	5
		Sum of PFAS B	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS C	µg/L	0.01	0.01	0.01	200	10
		Sum of Positive PFAS	µg/L	0.01	0.04	0.04	200	6
SE289773.001	LB361842.023	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	5
		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
		Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorotridecanoic acid (PFTrDA)	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

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

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289773.001	LB361842.023	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	0
		Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorodecane sulfonic acid (PFDS)	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
		Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Methylperfluoroctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Ethylperfluoroctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	200	0
		N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05	<0.05	200	0
		N-Ethylperfluorooctanesulfonamidoacetic acid	µg/L	0.05	<0.05	<0.05	200	0
		2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05	<0.05	200	0
		2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.05	<0.05	<0.05	200	0
		Sum of PFOS and PFHxS	µg/L	0.01	<0.01	<0.01	200	0
		Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS A	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS B	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS C	µg/L	0.01	0.01	<0.01	200	5
		Sum of Positive PFAS	µg/L	0.01	0.01	<0.01	200	5

pH in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361753.007	pH**	pH Units	-	7.5	7.5	16	0

Redox Potential (Eh) in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361755.003	Eh of Sample Relative to Standard H+ Electrode***	mV	-500	388	381	15	2

TKN Kjeldahl Digestion by Discrete Analyser

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289662.001	LB362010.027	Total Kjeldahl Nitrogen	mg/L	0.05	3.1	2.9	17	7
SE289765.002	LB362010.014	Total Kjeldahl Nitrogen	mg/L	0.05	1.7	1.7	18	1

Total and Volatile Suspended Solids (TSS / VSS)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361877.011	Total Suspended Solids Dried at 103-105°C	mg/L	5	270	260	17	1

Total Dissolved Solids (TDS) in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289800.001	LB362093.016	Total Dissolved Solids Dried at 175-185°C	mg/L	10	2100	2000	15	3
SE289875.002	LB362093.013	Total Dissolved Solids Dried at 175-185°C	mg/L	10	3400	3400	15	1

Total Phenolics in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289875.003	LB362035.013	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

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

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

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

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

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

Total Phosphorus by Kjeldahl Digestion DA in Water (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289662.001	LB362010.027	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.5	1.4	16	4
SE289765.002	LB362010.014	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	0.04	0.05	62	26

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289121A.016	LB362209.035	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
SE289780.002	LB362209.014	Aluminium	µg/L	5	<5	<5	200	0
		Arsenic	µg/L	1	<1	<1	143	0
		Barium	µg/L	1	32	32	18	1
		Cadmium	µg/L	0.1	0.1	0.1	91	17
		Cobalt	µg/L	1	<1	<1	157	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	8	8	28	0
		Manganese	µg/L	1	23	25	19	5
		Nickel	µg/L	1	3	3	51	4
SE289786.003	LB362209.028	Aluminium	µg/L	5	27	24	35	13
		Antimony	µg/L	1	<1	<1	200	0
		Arsenic	µg/L	1	<1	<1	200	0
		Barium	µg/L	1	110	110	16	1
		Beryllium	µg/L	1	<1	<1	200	0
		Boron	µg/L	5	490	510	16	4
		Cadmium	µg/L	0.1	<0.1	0.1	108	17
		Chromium	µg/L	1	<1	<1	200	0
		Cobalt	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	1	<1	113	7
		Iron	µg/L	5	9	7	77	29
		Lead	µg/L	1	<1	<1	162	0
		Manganese	µg/L	1	190	190	16	2
		Molybdenum	µg/L	1	6	5	33	2
		Nickel	µg/L	1	<1	<1	125	0
		Selenium	µg/L	1	<1	<1	200	0
		Silver	µg/L	1	<1	<1	200	0
		Strontium	µg/L	1	110	110	16	2
		Uranium	µg/L	1	<1	<1	200	0
		Vanadium	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	134	0

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.002	LB361771.023		TRH C10-C14	µg/L	50	270	260	49	4
			TRH C15-C28	µg/L	200	330	350	89	5
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	690	700	76	2
		TRH F Bands	TRH >C10-C16	µg/L	60	290	290	51	1
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	290	290	51	1
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	194	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

Turbidity

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289773.002	LB361734.007	Turbidity	NTU	0.5	1.6	1.5	48	9

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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.001	LB361916.023	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	200	0
		Aliphatics	Chloromethane	µg/L	5	<5	<5	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	200	0
			Bromomethane	µg/L	10	<10	<10	200	0
			Chloroethane	µg/L	5	<5	<5	200	0
			Trichlorofluoromethane	µg/L	1	<1	<1	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Iodomethane	µg/L	5	<5	<5	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	200	0
			Allyl chloride	µg/L	2	<2	<2	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Bromochloromethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	200	0
			Dibromomethane	µg/L	0.5	<0.5	<0.5	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated	Chlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatics	Bromobenzene	µg/L	0.5	<0.5	<0.5	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
		Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	1.5	1.0	71	39
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	200	0
			n-propylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	200	0
			n-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	<0.5	200	0
		Compounds	2-nitropropane	µg/L	100	<100	<100	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	<10	<10	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	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

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.001	LB361916.023	Oxygenated Compounds	Vinyl acetate*	µg/L	10	<10	<10	200	0
			MEK (2-butanone)	µg/L	10	<10	<10	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	200	0
			2-hexanone (MBK)	µg/L	5	<5	<5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Sulphonated	Carbon disulfide	µg/L	2	<2	<2	153	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.4	7.4	30	0
			d8-toluene (Surrogate)	µg/L	-	8.3	5.9	30	33 ①
			Bromofluorobenzene (Surrogate)	µg/L	-	9.4	9.3	30	1
		Totals	Total BTEX	µg/L	3	<3	<3	200	0
			Total VOC	µg/L	10	<10	<10	200	0
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	0.6	0.7	103	13
			Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	<0.5	200	0
SE289786.003	LB361916.024	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	200	0
			Chloromethane	µg/L	5	<5	<5	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	200	0
			Bromomethane	µg/L	10	<10	<10	200	0
			Chloroethane	µg/L	5	<5	<5	200	0
			Trichlorofluoromethane	µg/L	1	<1	<1	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Iodomethane	µg/L	5	<5	<5	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	200	0
			Allyl chloride	µg/L	2	<2	<2	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	200	0
			Bromochloromethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	200	0
			Dibromomethane	µg/L	0.5	<0.5	<0.5	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	200	0
		Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			Bromobenzene	µg/L	0.5	<0.5	<0.5	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	<0.5	200	0
			1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	200	0
		Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	1.0	0.9	83	13
			Ethylbenzene	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

VOCs in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.003	LB361916.024	Monocyclic	m/p-xylene	µg/L	1	<1	<1	200	0
		Aromatic	Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	200	0
			n-propylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	0.5	<0.5	192	2
			sec-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	200	0
			n-butylbenzene	µg/L	0.5	<0.5	<0.5	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	<0.5	200	0
		Compounds	2-nitropropane	µg/L	100	<100	<100	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	<10	<10	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	µg/L	0.5	<0.5	<0.5	200	0
			Vinyl acetate*	µg/L	10	<10	<10	200	0
			MEK (2-butanone)	µg/L	10	<10	<10	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	200	0
			2-hexanone (MBK)	µg/L	5	<5	<5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Sulphonated	Carbon disulfide	µg/L	2	3	4	85	18
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	7.2	30	4
			d8-toluene (Surrogate)	µg/L	-	8.3	8.2	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	9.4	30	1
		Totals	Total BTEX	µg/L	3	<3	<3	200	0
			Total VOC	µg/L	10	<10	10	131	4
		Trihalomethan	Chloroform (THM)	µg/L	0.5	3.9	5.0	41	26
		es	Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	<0.5	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE289786.001	LB361916.023		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	-	7.4	7.4	30	0
			d8-toluene (Surrogate)	µg/L	-	8.3	5.9	30	33 ①
			Bromofluorobenzene (Surrogate)	µg/L	-	9.4	9.3	30	1
		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
SE289786.003	LB361916.024		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	-	7.5	7.2	30	4
			d8-toluene (Surrogate)	µg/L	-	8.3	8.2	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	9.4	30	1
		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 %
LB361752.002	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	2.5	2.5	80 - 120	101

Anions by Ion Chromatography in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361815.002	Fluoride	mg/L	0.1	2.0	2	80 - 120	100
	Chloride	mg/L	0.05	18	20	80 - 120	92
	Bromide	mg/L	0.05	2.0	2	80 - 120	99
	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.0	2	80 - 120	98
	Sulfate, SO4	mg/L	1	18	20	80 - 120	91

Conductivity and TDS by Calculation - Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361753.002	Conductivity @ 25 C	µS/cm	2	990	1015	85 - 115	98

Filterable Reactive Phosphorus (FRP)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361752.002	Filterable Reactive Phosphorus as P	mg/L	0.005	0.10	0.1	80 - 120	103

Forms of Carbon

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361817.002	Total Organic Carbon as NPOC	mg/L	0.2	17	20	80 - 120	87

Full 8270 SVOC in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002	01-PAHs	Acenaphthene	µg/L	0.1	48	40	60 - 140	120
		Acenaphthylene	µg/L	0.1	46	40	60 - 140	114
		Anthracene	µg/L	0.1	49	40	60 - 140	121
		Benzo(a)pyrene	µg/L	0.1	51	40	60 - 140	126
		Fluoranthene	µg/L	0.1	45	40	60 - 140	113
		Naphthalene	µg/L	0.1	46	40	60 - 140	114
		Phenanthrene	µg/L	0.1	46	40	60 - 140	114
		Pyrene	µg/L	0.1	44	40	60 - 140	111
	02-OCs	Aldrin	µg/L	0.1	4.0	4	60 - 140	99
		Delta-BHC	µg/L	0.1	4.8	4	60 - 140	120
		p,p-DDT	µg/L	0.1	3.4	4	60 - 140	85
		Dieldrin	µg/L	0.1	4.9	4	60 - 140	123
		Endrin	µg/L	0.1	3.3	4	60 - 140	84
		Heptachlor	µg/L	0.1	3.2	4	60 - 140	80
	03-OPs	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.4	8	60 - 140	105
		Diazinon (Dimpylate)	µg/L	0.5	9.9	8	60 - 140	124
		Dichlorvos	µg/L	0.5	9.9	8	60 - 140	124
		Ethion	µg/L	0.2	6.9	8	60 - 140	86
	05-SVCH (Cl	Hexachlorobenzene (HCB)	µg/L	0.1	5.2	4	60 - 140	130
	Benzenes,	Hexachlorobutadiene	µg/L	0.5	5.3	4	60 - 140	132
		Hexachloroethane	µg/L	0.5	4.8	4	60 - 140	119
		Pentachlorobenzene	µg/L	0.5	5.1	4	60 - 140	128
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	5.4	4	60 - 140	135
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	10	<10	8	60 - 140	103
		Butyl benzyl phthalate	µg/L	1	6	8	60 - 140	81
		Di-n-butyl phthalate	µg/L	10	<10	8	60 - 140	100
		Diethyl phthalate	µg/L	5	9	8	60 - 140	108
		Dimethyl phthalate	µg/L	1	7	8	60 - 140	93
		Di-n-octyl phthalate	µg/L	1	7	8	60 - 140	83
	09-Nitrosamine	N-nitroso-di-n-propylamine (NDPA)	µg/L	1	33	32	60 - 140	104
	10-Nitroaromat	Pentachloronitrobenzene (quintozene)	µg/L	1	3	4	60 - 140	86

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 %
LB361771.002	14-Speciated	2,4-dichlorophenol	µg/L	0.5	46	40	60 - 140	114
	Routine	Phenol	µg/L	0.5	44	40	60 - 140	110
		2,4,6-trichlorophenol	µg/L	0.5	53	40	60 - 140	132
		Pentachlorophenol	µg/L	0.5	53	40	60 - 140	132
	Surrogates	d5-phenol (Surrogate)	µg/L	-	2.6	2	40 - 130	128
		d5-nitrobenzene (Surrogate)	µg/L	-	0.62	0.5	40 - 130	124
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.65	0.5	40 - 130	130
		2,4,6-Tribromophenol (Surrogate)	µg/L	-	6.4	5	40 - 130	127
		d14-p-terphenyl (Surrogate)	µg/L	-	0.61	0.5	40 - 130	122

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB362206.002	Lithium, Li	mg/L	0.005	0.093	0.1	80 - 120	93
	Potassium, K	mg/L	0.1	55	55	80 - 120	100
	Silicon, Si*	mg/L	0.05	0.22	0.25	80 - 120	88
	Sodium, Na	mg/L	0.5	51	50.5	80 - 120	102

Nitrite in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361752.002	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.10	0.1	80 - 120	102

OC Pesticides in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	111
		Heptachlor	µg/L	0.1	0.2	0.2	60 - 140	114
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	108
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	107
		Endrin	µg/L	0.1	0.2	0.2	60 - 140	97
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	97
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.14	0.15	40 - 130	94

OP Pesticides in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	9.6	8	60 - 140	120
		Diazinon (Dimpylate)	µg/L	0.5	9.8	8	60 - 140	122
		Dichlorvos	µg/L	0.5	6.4	8	60 - 140	80
		Ethion	µg/L	0.2	9.6	8	60 - 140	119
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.40	0.5	40 - 130	81
		d14-p-terphenyl (Surrogate)	µg/L	-	0.44	0.5	40 - 130	87

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002		Naphthalene	µg/L	0.1	40	40	60 - 140	101
		Acenaphthylene	µg/L	0.1	42	40	60 - 140	104
		Acenaphthene	µg/L	0.1	43	40	60 - 140	107
		Phenanthrene	µg/L	0.1	45	40	60 - 140	113
		Anthracene	µg/L	0.1	43	40	60 - 140	108
		Fluoranthene	µg/L	0.1	45	40	60 - 140	112
		Pyrene	µg/L	0.1	47	40	60 - 140	118
		Benzo(a)pyrene	µg/L	0.1	51	40	60 - 140	128
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	89
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	81
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	87

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002	Arochlor 1260	µg/L	1	<1	0.4	60 - 140	104

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 %
LB361842.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.20	0.2	40 - 160	99
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.18	0.2	40 - 160	89
	Perfluorononanoic acid (PFNA)	µg/L	0.01	0.21	0.2	40 - 160	104
	Perfluorodecanoic acid (PFDA)	µg/L	0.01	0.21	0.2	40 - 160	107
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	0.16	0.2	40 - 160	80
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	0.14	0.2	40 - 160	71
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.17	0.2	40 - 160	84
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	0.16	0.2	40 - 160	81

pH in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361753.003	pH**	No unit	-	7.4	7.415	98 - 102	100

Redox Potential (Eh) in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361755.001	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 %
LB361877.002	Total Suspended Solids Dried at 103-105°C	mg/L	5	98	100	80 - 120	98

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB362035.002	Total Phenols	mg/L	0.05	0.19	0.2	80 - 120	97

Total Phosphorus by Kjeldahl Digestion DA in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB362010.002	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.1	1	80 - 120	110

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB362209.002	Aluminium	µg/L	5	20	20	80 - 120	101
	Antimony	µg/L	1	19	20	80 - 120	97
	Arsenic	µg/L	1	20	20	80 - 120	98
	Barium	µg/L	1	20	20	80 - 120	99
	Beryllium	µg/L	1	20	20	80 - 120	98
	Boron	µg/L	5	20	20	80 - 120	99
	Cadmium	µg/L	0.1	20	20	80 - 120	102
	Chromium	µg/L	1	21	20	80 - 120	103
	Cobalt	µg/L	1	21	20	80 - 120	104
	Copper	µg/L	1	21	20	80 - 120	106
	Iron	µg/L	5	20	20	80 - 120	100
	Lead	µg/L	1	20	20	80 - 120	101
	Manganese	µg/L	1	20	20	80 - 120	102
	Molybdenum	µg/L	1	20	20	80 - 120	99
	Nickel	µg/L	1	21	20	80 - 120	105
	Selenium	µg/L	1	19	20	80 - 120	97
	Silver	µg/L	1	16	20	80 - 120	81
	Strontium	µg/L	1	21	20	80 - 120	105
	Uranium	µg/L	1	22	20	80 - 120	108
	Vanadium	µg/L	1	20	20	80 - 120	102
	Zinc	µg/L	5	20	20	80 - 120	102
LB362209.026	Aluminium	µg/L	5	20	20	80 - 120	102
	Antimony	µg/L	1	19	20	80 - 120	97

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 %
LB362209.026	Arsenic	µg/L	1	19	20	80 - 120	97
	Barium	µg/L	1	20	20	80 - 120	100
	Beryllium	µg/L	1	19	20	80 - 120	95
	Boron	µg/L	5	19	20	80 - 120	97
	Cadmium	µg/L	0.1	20	20	80 - 120	100
	Chromium	µg/L	1	20	20	80 - 120	102
	Cobalt	µg/L	1	21	20	80 - 120	104
	Copper	µg/L	1	21	20	80 - 120	105
	Iron	µg/L	5	20	20	80 - 120	99
	Lead	µg/L	1	20	20	80 - 120	100
	Manganese	µg/L	1	20	20	80 - 120	99
	Molybdenum	µg/L	1	19	20	80 - 120	97
	Nickel	µg/L	1	20	20	80 - 120	102
	Selenium	µg/L	1	20	20	80 - 120	100
	Silver	µg/L	1	16	20	80 - 120	82
	Strontium	µg/L	1	21	20	80 - 120	107
	Uranium	µg/L	1	21	20	80 - 120	105
	Vanadium	µg/L	1	21	20	80 - 120	103
	Zinc	µg/L	5	20	20	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361771.002		TRH C10-C14	µg/L	50	800	1000	60 - 140	80
	TRH F Bands	TRH >C10-C16	µg/L	60	800	1000	60 - 140	80

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361916.002	Halogenated	1,1-dichloroethene	µg/L	0.5	40	45.45	60 - 140	88
	Aliphatics	1,2-dichloroethane	µg/L	0.5	43	45.45	60 - 140	95
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	41	45.45	60 - 140	90
	Halogenated	Chlorobenzene	µg/L	0.5	34	45.45	60 - 140	74
	Monocyclic	Benzene	µg/L	0.5	20	25	60 - 140	78
	Aromatic	Toluene	µg/L	0.5	21	25	60 - 140	83
		Ethylbenzene	µg/L	0.5	20	25	60 - 140	80
		m/p-xylene	µg/L	1	43	50	60 - 140	86
		o-xylene	µg/L	0.5	22	25	60 - 140	89
	Trihalomethan	Chloroform (THM)	µg/L	0.5	53	45.45	60 - 140	118

Volatile Petroleum Hydrocarbons in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB361916.002	TRH C6-C10	µg/L	50	350	400	60 - 140	89
	TRH C6-C9	µg/L	40	350	350	60 - 140	99

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%
SE289651.001	LB361815.025	Chloride	mg/L	0.05	34	17	20	86
		Nitrate Nitrogen, NO3-N	mg/L	0.005	2.0	0.030	2	98
		Sulfate, SO4	mg/L	1	21	2.5	20	93

Forms of Carbon

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE289745.001	LB361817.005	Total Organic Carbon as NPOC	mg/L	0.2	47	3.5	50	88

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE289121A.016	LB361802.004	Mercury, Hg	mg/L	0.0001	0.0021	<0.0001	0.008	109

TKN Kjeldahl Digestion by Discrete Analyser

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE289786.003	LB362010.028	Total Kjeldahl Nitrogen	mg/L	0.05	3.4	0.95	2.5	98

Total Phenolics in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE289879.001	LB362035.004	Total Phenols	mg/L	0.05	0.25	0.07	0.2	94

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%
SE289786.003	LB362010.028	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.6	0.58	1	101

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE289707.001	LB362209.004	Aluminium	µg/L	5	34	12	20	108
		Antimony	µg/L	1	20	<1	20	99
		Boron	µg/L	5	30	12	20	92
		Cadmium	µg/L	0.1	21	<0.1	20	104
		Chromium	µg/L	1	21	<1	20	105
		Copper	µg/L	1	79	58	20	103
		Iron	µg/L	5	33	13	20	101
		Lead	µg/L	1	21	<1	20	104
		Manganese	µg/L	1	24	3	20	104
		Nickel	µg/L	1	22	<1	20	105
		Zinc	µg/L	5	25	<5	20	102
SE289786.005	LB362209.030	Arsenic	µg/L	1	20	<1	20	98
		Cadmium	µg/L	0.1	20	<0.1	20	101
		Chromium	µg/L	1	21	<1	20	103
		Copper	µg/L	1	21	<1	20	105
		Lead	µg/L	1	21	<1	20	103
		Nickel	µg/L	1	20	<1	20	103
		Zinc	µg/L	5	21	<5	20	103

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE289829.024	LB361916.026	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	-	-

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.

VOCs in Water (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE289829.024	LB361916.026	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	45.45	126
			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	45.45	125
			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	45.45	138
			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	-	-
			Hexachlorobutadiene	µg/L	0.5	<0.5	-	-
		Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5	45.45	88
			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	25	113
			Toluene	µg/L	0.5	<0.5	25	121
			Ethylbenzene	µg/L	0.5	<0.5	25	114
			m/p-xylene	µg/L	1	<1	50	120
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	-	-
			o-xylene	µg/L	0.5	<0.5	25	121
			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	-	-
			2-nitropropane	µg/L	100	<100	-	-
		Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10	-	-
			MtBE (Methyl-tert-butyl ether)	µg/L	0.5	43	-	-
			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	Naphthalene (VOC)*	µg/L	0.5	<0.5	-	-

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.

VOCs in Water (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE289829.024	LB361916.026	Sulphonated	Carbon disulfide	µg/L	2	<2	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	-	83
			d8-toluene (Surrogate)	µg/L	-	8.2	-	95
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	-	94
		Totals	Total BTEX	µg/L	3	<3	-	-
			Total VOC	µg/L	10	43	-	-
		Trihalometha	Chloroform (THM)	µg/L	0.5	<0.5	45.45	139
		nes	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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE289786.005	LB361916.025		TRH C6-C10	µg/L	50	<50	400	94
			TRH C6-C9	µg/L	40	<40	350	99
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.4	-	83
			d8-toluene (Surrogate)	µg/L	-	8.2	-	95
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	-	87
		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: 61 Marlborough Street, Surry Hills

Project No: E26534

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 (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM ^ /TRH/BTEX/PAHs	HM A /TRH(including F1, F2, F3, F4)/ BTEX	BTEX	VOCs	pH/ Turbidity/ TDS /EC/ Hardness	Asbestos Quantification	Excavated Natural Material (ENM) Suite	ENM Suite - Stockpile discrete (TRH/BTEX/PAHs)	ENM Suite - Stockpile composite (HM ^ /pH / EC / Foreign Materials)	Dewatering Suite	DPE AN2 Full Suite - Mandatory and Other Parameters	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	Hold	TCLP HM B / PAH
GW_BH101M_1		s,p,vc	19/09/2025	PM		X			X				X	X														
GW_BH102M_1		s,p,vc	19/09/2025	PM		X			X				X	X														
GW_BH103M_1		s,p,vc	18/09/2025	PM		X														X								
GW_BH100_QD1		s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QT1		s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QR1		s,p,vc	18/09/2025	PM		X					X																	
GW_BH100_QRB1		s,p,vc	18/09/2025	PM		X																					X	
Trip Blank		Lab Prepared										X																
Trip Spike		Lab Prepared										X																

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
Total Phenol

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 BB = Bulk 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): GT	Received by (SGS):
Print Geisiane Torres	*Print*
Signature	*Signature*
Date 19/09/2025	*Date*

Sampler's Comments:
CC: Ricardo Lopes and Sergio Raposeira. Please Forward GW_BH100_QT1 to Envirolab

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

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC June 2021 FORM v.5 - SGS

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

Job No: 341332
Date Received: 22/9/25
Time Received: 1740
Received By: RH
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

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

SAMPLE RECEIPT ADVICE

Client Details

Client	EI Australia
Attention	Sergio Raposeira

Sample Login Details

Your reference	E26534 61 Marlborough Street, Surry Hills
Envirolab Reference	391332
Date Sample Received	22/09/2025
Date Instructions Received	22/09/2025
Date Results Expected to be Reported	29/09/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	HM in water - dissolved
GW_BH100_QT1	✓	✓	✓

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.

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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 391332

Client Details

Client	EI Australia
Attention	Sergio Raposeira
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E26534 61 Marlborough Street, Surry Hills**
Number of Samples	1 Water
Date samples received	22/09/2025
Date completed instructions received	22/09/2025

Analysis Details

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

Samples were analysed as received from the client 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.

Report Details

Date results requested by	29/09/2025
Date of Issue	29/09/2025

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

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

Results Approved By
Dragana Tomas, Senior Chemist
Tabitha Roberts, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		391332-1
Your Reference	UNITS	GW_BH100_QT 1
Date Sampled		18/09/2025
Type of sample		Water
Date extracted	-	23/09/2025
Date analysed	-	23/09/2025
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	13
TRH C_6 - C_{10} less BTEX (F1)	µg/L	13
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	%	107
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	92

svTRH (C10-C40) in Water		
Our Reference	UNITS	391332-1
Your Reference		GW_BH100_QT 1
Date Sampled		18/09/2025
Type of sample		Water
Date extracted	-	23/09/2025
Date analysed	-	24/09/2025
TRH C_{10} - C_{14}	µg/L	82
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	80
TRH >C_{10} - C_{16}	µg/L	91
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	91
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	90
Surrogate o-Terphenyl	%	90

HM in water - dissolved		
Our Reference		391332-1
Your Reference	UNITS	GW_BH100_QT 1
Date Sampled		18/09/2025
Type of sample		Water
Date prepared	-	23/09/2025
Date analysed	-	23/09/2025
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	5

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-W1	[NT]
Date extracted	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
Date analysed	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	97	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate Toluene-d8	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	91	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
Date analysed	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	104	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
Date analysed	-			23/09/2025	[NT]	[NT]	[NT]	[NT]	23/09/2025	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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 are available for most tests upon request.

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

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.

Appendix H – QA/QC Assessment

H1.1 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 H-1**.

Table H-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 water 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.	One rinsate sample was collected during the groundwater investigation on 20 March 2025. 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.	One trip spike sample was collected during the investigation. All BTEXN concentrations were reported below laboratory PQLs for all primary and duplicate samples, indicating that satisfactory sample transport and handling conditions were achieved.
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.	One trip spike sample was collected during the investigation. All BTEXN concentrations were reported below laboratory PQLs for all primary and duplicate samples, indicating that satisfactory sample transport and handling conditions were achieved.

Task	Description	Project
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.	The required sampling density of 1 per 20 duplicated primary samples was achieved and sufficient for the investigation. Laboratory duplicates prepared and analysed. Non-conformance was reported for metal concentrations (Chromium, Copper, Nickel and Zinc) for both intra/inter-laboratory groundwater duplicates This is likely due to the heterogeneous nature of groundwater. Non-conformance was considered with negligible effects on data use for interpretative purposes. Field QC samples and calculated RPD values are presented the table at the end of this appendix. Copies of laboratory reports are included in **Appendix G**.
<u>Laboratory QA/QC</u>		
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 G.**
	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 G.**
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.	Laboratory sample extraction and analysis dates were outside the suggested criteria for forms of Carbon, Nitrite in water, TRH Silica Gel and VOCs in water.
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

Task	Description	Project
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 duplicates 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.
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.

H1.2 Calculation of Relative Percentage Difference (RPD)

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.

H2.1 Field QA/QC

Field QC Samples

The field (intra- / inter- laboratory) duplicate samples collected during the investigation are summarised in **Table I-2**. Inter-laboratory duplicates were analysed by the secondary laboratory, Envirolab.

Table H-2 Field QC Sampling Program

Matrix	Primary QA Sample	Duplicate (Primary Lab)	Triplicate (Secondary Lab)	Total Duplicates
Groundwater	BH4M	GW_QD1	GW_QT1	2

H2.2 Field QC Summary

Review of the field data quality indicators is presented in **Table H-3** below.

Table H-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
Comparability – The	Same sampling method used on each occasion/location	Yes

QA Component	Data Quality Indicator(s)	Conformance
	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

H2.3 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.

H2.4 Laboratory QA/QC

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.

Laboratory QC Summary

Review of the laboratory data quality indicators is presented in **Table H-4** below.

Table H-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
	Sample holding times complied with	Yes
Comparability The confidence (expressed qualitatively) that data may be considered to be	Sample analytical methods used (including clean-up)	Yes
	Sample PQLs (justify/ quantify if different)	Yes
	Same laboratories (justify/ quantify if different)	Yes

DQI	Item	Conformance
equivalent for each sampling and analytical event	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	Yes
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

H2.5 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.

H2.6 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 in **Section 3.4.1** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the investigation were accurate, precise and representative of the site condition. It was therefore considered that the data were sufficiently precise and accurate and that the results could be used for interpretative purposes.

Appendix I – DCR and Works Surrender Form

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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