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Hydrogeological Report, including Groundwater Seepage Analysis and Dewatering Management Plan

2-4 Giffnock Avenue, Macquarie Park NSW

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1. INTRODUCTION

1.1 Overview

EI Australia (EI) was engaged by 388 LCR Development Pty Ltd ('the client') to prepare a hydrogeological report, including groundwater seepage analysis and dewatering management plan, for 2-4 Giffnock Avenue, Macquarie Park, in New South Wales (henceforth referred to as 'the site').

The site forms a section of the Macquarie Park Transport Orientated Development Accelerated Precinct, which is within the local government area of Ryde City Council (**Figure 1**, **Appendix A**). It comprises part of Lot 1 in Deposited Plan (DP) 1310550, covering an area of 12,720m^2 (**Figure 2**, **Appendix A**).

The land is designated for mixed use development, in accordance with State Significant Development Application SSD-79017211 with the New South Wales Department of Planning, Housing, and Infrastructure. It involves demolition of all existing structures, followed by the construction of three, mixed-use tower buildings, all overlying a multi-level, drained basement. As bulk excavation for the basement will intersect the local groundwater table, site dewatering shall be necessary. To facilitate the management of groundwater during and after basement construction, local hydrogeological conditions must be characterised.

This hydrogeological report subsequently includes the following:

- Determination of baseline (pre-dewatering) groundwater levels and quality (**Section 3** and **Appendix B**);
- Review of groundwater level monitoring and seepage analysis reports (**Sections 3-4**, inclusive);
- Drafting of a dewatering management plan (DMP; **Sections 4-6**, inclusive); and
- Minimal harm assessment, which considers the predicted cumulative drawdown and water quality effects from long term dewatering against the *New South Wales Aquifer Interference Policy 2012* (NSW AIP; **Section 7**).

The purpose of this DMP is to describe site-specific measures for the management of surface and groundwater during basement construction. As the facility will be a drained structure, the management of water post construction (occupational phase) must also be considered. It is assumed that all water draining into the excavation / completed basement area will be treated prior to discharge into the local municipal stormwater system.

This report is submitted in support of applications to Ryde City Council for a permit to discharge into the stormwater network and WaterNSW for a water supply works (dewatering) license. It is understood that WaterNSW may not fully assess the dewatering license application until Council issues the stormwater discharge permit. To expedite the approval process, this report is issued concurrently to both statutory authorities.

1.2 Proposed Development

Based on the supplied plans (**Appendix C**), the proposed site development involves the demolition of all existing structures, followed by the construction of three, mixed commercial / residential, tower buildings (A1: forty-nine storeys; A2: nine storeys; B: forty-one storeys), all overlying a shared (common), six-level basement facility. The tower elements shall be situated above podiums, and contain retail premises, a childcare centre and residential apartments. Recreation and road infrastructure shall comprise the site remainder.

Bulk excavation for the basement shall extent to 16.4-23.4 metres below ground level (m BGL), equating to 41.6 metres Australian Height Datum (m AHD). Locally deeper excavations may be required for footings, lift overrun pits, crane pads and service trenches.

1.3 Report Objectives

The objectives of this hydrogeological report are to:

- Describe the conceptual hydrogeological model (CHM) for the site, summarising baseline (pre-dewatering) groundwater conditions, including depth and quality;
- Establish the methodologies for dewatering and treatment during basement excavation and construction;
- Describe the water quality monitoring requirements during dewatering;
- Provide a contingency plan to minimise any environmental impact that may be caused by the proposed dewatering activities;
- Provide information on anticipated groundwater impacts, with reference to the NSW AIP, to properly inform the regulatory approval process; and
- Detail post-construction monitoring and reporting requirements for the occupational (post constriction) phase of the development.

1.4 Scope of Work

In order to achieve the stated objectives, the following scope of work is herein completed:

- A desktop study including:
  - Review of the development proposal, including the shoring/dewatering designs;
  - Review of geological, landscape and acid sulfate soil (ASS) risk maps for the area;
  - Review Ryde City Council consent and WaterNSW requirements, to determine the specific conditions placed on the development relevant to site dewatering;
  - A search of government records for registered groundwater bores within a 500 metre radius of the site, to review local groundwater usage;
  - Identification of potential sources of contamination that may impact discharge water quality, as well as the possible environmental receptors of any discharge;
  - Review of a groundwater seepage analysis (GSA), which included computer modelling for the assessment of groundwater inflow volumes, predicted drawdown effects and drawdown-induced ground settlement in response to construction dewatering; and
  - Review of analytical data obtained during a groundwater monitoring event (GME), to characterise baseline water quality.
- Presentation of a dewatering management plan, including methodology, quality monitoring and site controls; and
- Assessment of the potential harm caused by site dewatering, with reference to the *New South Wales Aquifer Interference Policy 2012*.

1.5 Regulatory Framework

The following regulatory instruments and guidelines provided the framework for this report.

Table 1-1 Regulatory Framework

NSW Regulatory Instrument	Requirements / Objectives
Contaminated Land Management Act 1997 (CLM Act)	Promotes the effective management of contaminated land in New South Wales (NSW) by setting out the roles and responsibilities of the Environment Protection Authority (EPA).
Environmental Planning and Assessment Act 1979 (EP&A Act)	Stipulates the regulations, through state environmental planning policy (SEPP), to assist the protection of human and environmental health.
Protection of the Environment Operations Act 1997 (POEO Act)	Aims to achieve the protection, restoration and enhancement of the quality of the environment.
NSW Water Management (General) Regulation 2018	Provides details relating to water access license requirements.
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.
New South Wales Aquifer Interference Policy 2012 (NSW AIP)	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.
Council Plans	Provide controls and guidelines for development in the municipality. Relevant to this site are: ▪ *Ryde Development Control Plan 2014*; and ▪ *Ryde Local Environmental Plan 2014*. **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	ANZG (2018) *Guidelines for Fresh and Marine Water Quality* ANZECC / ARMCANZ (2000) *Guidelines for Fresh and Marine Water Quality* DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination* DPIE (2022) *Minimum Requirements for Building Site Groundwater Investigations and Reporting* NHMRC (2008) *Guidelines for Managing Risks in Recreational Water*

2. SITE DESCRIPTION

2.1 Identification, Location and Zoning

Site identification details and associated information are summarised in **Table 2-1**. Site location and the proposed development are shown in **Figures 1** and **2**, in **Appendix A**.

Table 2-1 Site Identification, Location and Zoning

Information	Detail
Site Address	2-4 Giffnock Avenue, Macquarie Park NSW
Location Description	Site is located in a commercial area (forming a section of the Macquarie Park Transport Orientated Development Accelerated Precinct). Bound by Kittys Street (west), Drake Avenue (south), Lane Cove Road (east) and Giffnock Avenue / Hyundai Drive (north).
Cadastral Identification	Lot 1 in Deposited Plan 1310550
Local Government Area	Ryde City Council
Current Zoning	MU1:Mixed Use E2: Commercial Centre (*Ryde Local Environmental Plan 2014*)
Current Site Use	At the time of this report, the site was occupied by offices, warehouses and a vehicle parking area.
Location Coordinates	Northern-western corner of site (GDA2020-MGA56): ▪ Easting: 326530.669018 ▪ Northing: 6260061.215521 (*Source: http://maps.six.nsw.gov.au*))
Area	12,720m^2
Typical Soil Profile	Based on geotechnical investigation of the site (**Section 3**), the soil profile is generalised as: ▪ 0.12-0.27m thick concrete pavement layer; overlying ▪ silty sand and clayey gravel fill, with traces of plant rootlets, ironstone and sandstone gravels, clay nodules and brick fragments (maximum thickness 2.2m); overlying ▪ low to high plasticity, firm to hard, natural (residual) silty clays, with traces of ironstone gravel (0.54-5.3m thickness); grading into ▪ weathered siltstone and sandstone.

2.2 Surrounding Land Use

The site is situated within an area of commercial use, forming a section of the Macquarie Park Transport Orientated Development Accelerated Precinct. Land uses within close proximity (<250m) to the site are identified in **Table 2-2**.

Table 2-2 Surrounding Land Uses

Direction	Land Use Description
North	Giffnock Avenue and Hyundai Drive, followed by commercial properties
East	Lane Cove Road, followed by commercial properties
South	Drake Avenue, followed by commercial properties, Epping Road and residential properties
West	Kittys Street, followed by commercial properties, Epping Road and residential properties

2.3 Regional Setting

The regional setting is outlined in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Topography	The site displays a down slope to the north, with elevations varying from 58m AHD in the northern corner to 64m AHD in the southern corner.
Drainage	Assumed to be consistent with ground slope (i.e. south to the north). Stormwater expected in pits to the municipal storm water system and discharged into Shrimptons Creek (approximately 790 west of the site).
Geology	The DMR (1983) *Sydney 1:100,000 Geological Series Sheet 9130* indicates the site is underlain by Ashfield Shale (*Rwa*). Ashfield Shale consists of black to dark grey shale and laminite.
Soil Landscape	The DCCEEW (2024) *eSPADE v2.2 Portal* places the site in a Glenoire (*gn*) erosional landscape, which is characterised by undulating to rolling low hills on Wianamatta Group shales (with local relief 50-80m, slopes 5-20%, narrow ridges, hillcrests and valleys).
Acid Sulfate Soil (ASS) Risk	The site is not classified on the *Ryde LEP 2014 - Acid Sulfate Soil Map*. With reference to the *Prospect / Parramatta River Acid Sulfate Soil Risk Map* (1:25,000 scale), the subject land lies within an area having '*No Known Occurrence*'. In such cases, ASS are not known or expected to occur and "land management activities are not likely to be affected by ASS materials". Based on the site's elevation (58-64m AHD) and the mapped information, the potential for ASS on-site was considered to be very low and further related assessment was unwarranted.
Nearest Surface Water Feature	Shrimptons Creek (approximately 790m north west of the site.)
Groundwater Flow Direction	Anticipated to be northerly, at least initially, then westerly towards Shrimptons Creek.

2.4 Local Groundwater Use

An online search for groundwater bores registered with WaterNSW was conducted by EI on 28 April 2026 (https://realtimedata.waternsw.com.au/water.stm). Twelve registered bores were present within an approximate 500m radius of the site. Archived records showed that all registered bores were authorised for monitoring purposes. The bore depths ranged from 1m to 43m BGL; no standing water level data were available for any of the bores. Refer to the WaterNSW bore location map and corresponding work summaries in **Appendix D**.

It was concluded that groundwater in the vicinity of the site is not utilised for supply (beneficial domestic, irrigation or commercial) purposes, particularly since a more reliable and convenient, reticulated potable water supply is readily available.

2.5 Potential Sources of Groundwater Contamination

Potential sources of groundwater contamination were:

- Former commercial uses of the land (since the 1950s);
- Imported fill materials of unknown origin and quality, used to grade the site;
- Weathering of hazardous building materials (including asbestos-containing materials (ACM), lead-based paints and metallic surfaces), present within the fabrics of former and existing site structures;
- Potential application of pesticides around building footings;
- Leaks from vehicles in the parking areas; and
- Offsite migration from neighbouring light industrial and commercial properties.

2.6 Potential Environmental Receptors

It is proposed that during construction, groundwater seepage will be pumped through a water treatment system and discharged into the local municipal storm water system. All discharged water is expected to drain into Shrimptons Creek (approximately 790m north west of the site) and ultimately into Lane Cover River (approximately 1.3km north of the site).

Lane Cove River is considered “Not Tidally influenced” at the site location, as per Table 4.1 in *Survey of Tidal Limits and Mangrove Limits in NSW Estuaries 1996 to 2005*, published by the New South Wales Department of Natural Resources (NSW Government, 2006). Lane Cove River is considered to be a disturbed freshwater ecosystem for discharge water quality considerations.

2.7 Groundwater Dependent Ecosystems

A search of the *NSW Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023 - Schedule 4* was conducted on 13 April 2026. Shrimptons Creek was not listed as a high priority groundwater dependent ecosystem (GDE) in Table D of the plan and no other high priority GDE was listed within 500 metres of the site. This information is used in the minimal harm assessment considerations under the *New South Wales Aquifer Interference Policy 2012*, as described in **Section 7** of this report.

2.8 Soil Erosion

As the site will largely be covered by buildings and a six-level basement, erosion is not expected to pose a significant risk to the property. The following measures are considered relevant for minimising erosion in proposed landscaped areas with vegetation:

- Areas of established vegetation should be maintained. 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.

3. GROUNDWATER CONDITIONS

3.1 Previous Investigations

Information from the following investigation reports provided an understanding of the site CHM:

- EI (2025a) *Detailed Site Investigation; 2-4 Giffnock Avenue, Macquarie Park NSW* (EI Australia Pty Ltd Reference E26706.E02_Rev1, dated 24 July 2025);
- EI (2025b) *Remediation Action Plan ; 2-4 Giffnock Avenue, Macquarie Park NSW* (EI Australia Pty Ltd Reference E26706.E06_Rev0, dated 24 July 2025);
- EI (2026a) *Geotechnical Investigation; 2-4 Giffnock Avenue, Macquarie Park NSW* (EI Australia Pty Ltd Reference E26706.G03_Rev2, dated 22 April 2026); and
- EI Australia (2026b) *Preliminary Groundwater Seepage Analysis; Proposed Mixed-Use Development; 2-4 Giffnock Avenue, Macquarie Park NSW* (EI Australia Pty Ltd Reference E26706.G12, 30 April 2026).

The EI (2026b) *Preliminary Groundwater Seepage Analysis* (GSA) is attached in **Appendix E**. The GSA provides site-specific groundwater modelling, including predicted water level drawdowns, groundwater inflow and discharge volumes, and ground settlement rates at varying distances from the basement excavation. This modelling utilised groundwater level data derived from four monitoring wells (piezometers) installed on the site by EI as part of the investigation phase. The wells were identified as BH101M, BH102M, BH103M and BH105M. Refer to **Appendix F** for the monitoring well logs. Monitoring well locations are illustrated in **Figure 2**, **Appendix A**.

3.2 Conceptual Hydrogeological Model

Based on the previous investigation findings, the CHM for the site is summarised as follows:

- Subsurface soil profile:
  - Concrete (0.12-0.27m thickness); overlying
  - Heterogeneous fill layer, comprising clayey silt, gravelly silt, gravely clay, silty gravel, silty sand, clayey gravel and/or silty clay (up to 2.2m in thickness); overlying
  - Natural, residual, silty clays (extending to 7.5m BGL); grading into
  - Shale (0.7-9.0m BGL); then
  - Siltstone (6.3-11.7m BGL); and
  - Sandstone (≥9.0m BGL).
- Local groundwater is contained within a bedrock aquifer, at 51.9-53.6m AHD.
- Perched groundwater over the residual clay layer is unlikely to be extensive.
- Hydraulic conductivities were detailed in the GSA report for the various strata, with specific values of:
  - Fill: 1.0×10^{-4} m/s;
  - Residual soil: 1.0×10^{-7};
  - Class III Siltstone: 1.52×10^{-7} m/s;
  - Class II Sandstone: 1.2×10^{-7} m/s; and
  - Class V Sandstone/ Siltstone: 3.33×10^{-7} m/s.
- The groundwater in the bedrock aquifer is not utilised for supply purposes, based on the lack of registered bores within 500m of the site (**Section 2.4**).

3.3 Pre-Dewatering Groundwater Depth and Hydraulic Gradient

Based on the available investigation data, which included a GME conducted on 26 March 2026, utilising the wells BH101M, BH102M and BH103M (all located outside the proposed basement footprint; **Figure 2**), it was established that:

- Groundwater is under pressure, with levels ranging between 51.9m and 53.6m AHD (>6m BGL). Hence, local groundwater is contained within a bedrock aquifer.
- Groundwater flow was inferred to be in a northerly direction (based on groundwater contouring analysis; **Figure 3**), moving through the underlying (siltstone and sandstone) bedrock, along bedding planes, joints and fractures, resulting in characteristically low hydraulic conductivities and low well yields.

Note:
BH105M was dry at the time of the March 26 GME / level gauging.

Under the EI (2026b) GSA, a design groundwater level (DGL) of 54.92m AHD was adopted for assessment of seepage inflow and take volume. This DGL was calculated by adding a buffer of 1.0m above the highest water table, which was encountered in BH103M. The adopted buffer value was based on EI experience of groundwater level fluctuations on other sites with similar hydrogeological conditions, within the Ryde City Local Government Area.

3.4 Baseline Groundwater Quality Assessment

Sample data from the GME conducted on 26 March 2026, enabled an assessment of baseline groundwater quality. The data included in-field measurement of physiochemical parameters and laboratory analysis of representative samples from wells BH101M, BH102M and BH103M (well BH105M being dry at the time of the event).

3.4.1 Sampling, Analysis and Quality Plan

The sampling, analytical and quality plan (SAQP) for the GME included the following measures, to ensure that the data collected were representative and provided a robust basis for future management decisions:

- Industry-endorsed sampling methodology, including field screening procedures, handling, preservation and storage;
- Laboratory analysis methods accredited by NATA;
- Data quality objectives (DQO), including a summary of the objectives of the GME;
- Data quality indicators (DQI) for the field and laboratory quality control samples; leading into
- Analytical quality assurance / quality control (QA/QC); and
- Appropriate water quality assessment criteria.

3.4.2 Data Quality Assessment

Laboratory documentation relating to the GME, including the analytical reports with internal laboratory QA/QC, is attached in **Appendix G**. Data quality assessment is provided 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.

3.4.3 Groundwater Sampling Methodology

The groundwater sampling methodology adopted for the GME is described in **Table 3-1**.

Table 3-1 Summary of Groundwater Sampling Methodology

Activity/Item	Details
Fieldwork	GME conducted on 26 March 2026. It involved water level gauging, well purging, measurement of physiochemical parameters and sampling at BH101M, BH102M and BH103M. BH105M was dry at the time of the GME.
Well Depth	BH101M: total well depth 18.50m BGL, drilled depth was 30.30m BGL. BH102M: total well depth 19.00m BGL; drilled depth was 20.48m BGL. BH103M: total well depth 12.50m BGL; drilled depth was 20.21m BGL. BH105M: total well depth 6.10m BGL; drilled depth was 20.31m BGL. Monitoring well logs are presented in **Appendix F**.
Well Gauging	Monitoring wells were gauged to determine SWL prior to groundwater purging and sampling. Gauging was conducted with a water/oil interface probe to assess for the presence of light non-aqueous phase liquid (LNAPL).
Well Purging, Water Quality Measurements and Sampling	After water level gauging, wells BH101M, BH102M and BH103M were purged of stagnant groundwater and then representative samples were taken. The process was performed using a bladder pump with dedicated tubing. During the purging process, water was continuously measured for field parameters (temperature (T), electrical conductivity (EC), oxidation-reduction potential (ORP) and pH) using a *Hanna Multi Parameter 9829*, positioned within an open flow-through cell. Once water quality parameters stabilised (i.e. within ±0.2° for T, ±3% for EC, ±20mV for ORP and ±0.05 for pH), groundwater sampling was undertaken, by diverting the outlet of the sampling pump (immediately before the flow cell) to the sampling containers.
Decontamination Procedure	Sampling equipment (interface and water quality kit probes) were decontaminated by washing in a solution of potable water and detergent, and then rinsed with potable water and PFAS-free detergent. Decontamination was not required for the sampling pump, as dedicated disposable tubing was used at each well. In addition, dedicated gloves were used for the collection of each groundwater sample.
Sample Preservation	Laboratory-supplied containers were used for sample collection: ▪ One, 500mL amber glass bottle; ▪ Two, 40mL glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; ▪ One, 150mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL); ▪ One, 500mL, HDPE bottle; and ▪ Additional bottles and preservatives were used for the more detailed suite of tested parameters, as listed in **Section 3.4.4**. Samples for metals analysis were field-filtered using 0.45 µm pore-size membranes. Containers were filled to brim then capped and stored in insulated chests (containing 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 COC procedures. Sample receipt advice (SRA) was provided by the laboratory to document sample condition upon receipt.
Laboratory Analysis and QA/QC	Groundwater samples were analysed by SGS for the requested analytes as detailed on the corresponding COC form. All samples were analysed within the required holding period, as documented in the subsequent laboratory reports (**Appendix H**). QC samples comprised a blind (intra-laboratory) field duplicate, a split (inter-laboratory) field duplicate, a laboratory-prepared, trip spike water sample, a laboratory-prepared, trip blank water sample and an equipment rinsate sample.

3.4.4 Tested Parameters

The groundwater samples were analysed for either a *Baseline Suite*, or a condensed *Standard Suite.* The *Baseline Suite* included (applicable to the sample from BH103M):

- ***Physical Parameters:*** T, EC, ORP, pH, total dissolved solids (TDS), total hardness and turbidity;
- ***Major Anions:*** sulfate, chloride, carbonates, bromide, fluoride;

- ***Major Cations*:** calcium, magnesium, sodium, potassium;
- ***Ionic Balance:*** cation / anion balance (%);
- ***Dissolved Inorganics and Metals:*** aluminium, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silica, silver, strontium, uranium, vanadium and zinc;
- ***Nutrients:*** ammonia, nitrate, total nitrogen, oxidised nitrogen, total phosphorus and reactive phosphorus;
- ***Microbiological Organisms:*** Faecal coliforms, faecal *streptococci* and *Escherichia coli*;
- ***Organics:*** Volatile organic compounds (VOC; including chlorinated VOC and the monocyclic aromatic hydrocarbons benzene, toluene, ethylbenzene and xylenes (BTEX)) and semi-volatile organic compounds (SVOC; including polycyclic aromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH), organochlorine pesticides (OCP), organophosphate pesticides (OPP), polychlorinated biphenyls (PCB) and chlorinated SVOC); plus
  - Total cyanide;
  - Total phenols; and
  - Per- and poly- fluoroalkyl substances (PFAS).

The condensed *Standard Suite* included (applicable to the samples from BH101M and BH102M):

- ***Physical Parameters:*** T, EC, ORP, pH, TDS, total hardness and turbidity;
- ***Dissolved Metals:*** aluminium, arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc; and
- **Organics:** VOCs (including chlorinated VOC and BTEX), PAH, TRH, total cyanide and total phenols.

3.4.5 Water Quality Criteria

For this baseline assessment, the ANZG (2018) *95% Default Guideline Values* (DGV) for freshwater ecosystems were adopted as the water quality criteria, with the *99% Default Guideline Values* assumed for bio-accumulative toxicants (cadmium, mercury and benzo(α)pyrene). For parameters that were not addressed by the ANZG (2018) guidelines, relevant alternative criteria were adopted. The criteria are presented alongside the analytical results in the corresponding summary tables (**Tables B1** and **B2** in **Appendix B**).

3.4.6 Field-Based Water Quality Testing and Observations

Final (pre-sampling) measurements for the field water quality parameters T, EC, ORP and pH are presented in **Table 3-2**. The groundwater samples were also evaluated on the basis of odour and visual signs of contamination, with the following observations noted:

- The groundwater was pale brown / grey in colour, with low to medium turbidity.
- No hydrocarbon odour or visual evidence of contamination (petrochemical sheen / oily filming) was detected during any well purging and sampling.

The in-field data indicated that the local groundwater was acidic (pH: 4.10-5.55), fresh to brackish (i.e. low to moderate salinity; EC: 1,036-2,351 µS/cm; TDS: 750-1,200 mg/L) and relatively non-oxidising (adjusted ORP: 224-309mV). The salinity data were relevant for aquifer interference policy considerations (**Section 7**).

Table 3-2 Field Data for the GME (as determined on 26 March 2026)

Well	pH	EC (µS/cm)	Temperature (°C)	ORP (mV)
BH101M	5.55	2110	18.05	224
BH102M	4.57	1036	18.88	256
BH103M	4.10	2351	18.46	309

Note:
ORP (mV) values were adjusted to the standard hydrogen electrode by adding 205mV

3.4.7 Laboratory Analytical Results

Summaries of the laboratory analytical results are presented in **Appendix B** (**Tables B1** and **B2**). These tables include the adopted water quality criteria.

All results complied with the adopted quality criteria, except as follows:

- Dissolved aluminium at monitoring wells BH101M (200 µg/L) and BH103M (1,500µg/L);
- Dissolved cadmium at monitoring well BH103M (0.4 µg/L);
- Dissolved copper at monitoring well BH103M (87 µg/L);
- Total dissolved chromium at monitoring well BH101M (3 µg/L; though the DGV applied to dissolved Cr_{VI});
- Dissolved nickel at monitoring wells BH102M (21 µg/L) and BH103M (57 µg/L);
- Dissolved zinc at monitoring wells BH102M (55 µg/L) and BH103M (300µg/L);
- Dissolved iron at monitoring well BH103M (14,000 µg/L);
- Dissolved manganese at monitoring well BH103M (2,100 µg/L);
- Total phenols at monitoring well BH101M (430 µg/L);
- pH at all monitoring wells (field: 4.10-5.55; laboratory: 3.9-5.9); and
- Turbidity at all monitoring wells (97-150 NTU).

The dissolved metal (aluminium, cadmium, copper, chromium, nickel, zinc, iron and manganese) concentrations were considered to be representative of background (natural) conditions for long-tern urban settings with acidic groundwater, presenting low risks to local human and environmental receptors. Nevertheless, reduction of metal levels in extracted groundwater would be required during site dewatering, as would acid neutralisation and phenol and turbidity (suspended solid) reduction. The absence of TRHs in the samples indicated petroleum hydrocarbons were not an issue.

3.4.8 Water Treatment Requirements

It is understood that during basement excavation and construction, extracted groundwater will be discharged into the local municipal stormwater system. The data derived from the baseline quality assessment indicated that, prior to off-site discharge, all extracted groundwater will need to be pumped through a water treatment system. The water treatment shall need to:

- Reduce dissolved metal concentrations (including aluminium, cadmium, copper, chromium, nickel, zinc, iron and manganese);
- Reduce the phenol concentration;
- Elevate pH, to be within the range 6.5-8.0; and
- Reduce turbidity, to maintain below 50 NTU.

A potentially suitable treatment option may involve pumping tail water through a sediment settlement (baffle) tank, where the following could be implemented:

- pH correction via the addition of sodium hydroxide solution;
- Addition of flocculent/coagulant for settlement of suspended particles, which would lower turbidity;
- Adjustment of the flow rate to allow sufficient residence time for flocculation/coagulation and settlement to take place; and
- Integration of a particle filter, or granular activated carbon (GAC), to increase the efficiency of organic contaminant (phenol) adsorption.

A water treatment specialist should be engaged to advise on appropriate treatment technologies for the site groundwater. It would be appropriate to engage the water treatment specialist early, to allow sufficient time for the design of the water treatment system, prior to the start of dewatering.

A further GME will be performed before commencement of basement excavation, to verify groundwater quality and treatment requirements. Further details on pre-dewatering quality monitoring are provided in **Section 5**.

Since a drained basement is to be installed under the proposed development, the assessment and monitoring data collated by the end of the construction phase dewatering will be used to inform the treatment requirement(s) during the subsequent operational phase (on-going / long-term) dewatering. Further details on water quality monitoring and management during the operational phase are provided in **Section 7**.

4. DEWATERING METHODOLOGY

4.1 Excavation and Shoring

The proposed development includes the construction of a six-level basement, requiring bulk excavation to 16.4-23.4m BGL (equating to 41.6m AHD). Locally deeper excavations may be required for footings, lift overrun pits, crane pads and service trenches.

With reference to the EI (2026b) GSA, the shoring will comprise soldier piles with reinforced shotcrete infill panels, each wall embedded to the proposed bulk excavation level. The soldier pile wall is considered to be fully drained (i.e. permeable).

The GSA did not assess the overall stability and embedment depth of the shoring system. Once final designs are made available, the GSA should be reviewed and revised with corresponding revisions to this report, if warranted.

4.2 Estimated Groundwater Take Volume and Dewatering Duration

For the EI (2026b) GSA, groundwater seepage was estimated using *PLAXIS 2D* software (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 estimates the seepage rate of water entering the excavation through and beneath the shoring wall; therefore, providing predicted water take during basement construction dewatering.

Based on a specific set of assumptions and field test data, which included determination of the design groundwater level (**Section 3.3**), as well as the standardised and conservative, layer-specific hydraulic conductivities (**Section 3.2**), groundwater seepage through and beneath the (shored) walls during basement construction is predicted to be **4.8** megalitres (ML) for section A-A and **5.7 ML** for section B-B, resulting in a total estimated seepage volume of **10.5 ML** over a projected 365 days of construction dewatering (i.e. 28.9 m^3/day).

As the basement will be a free-draining structure, utilising sub-soil infiltration and a sump-and-pump system, the same rates of groundwater inflow will apply for the long-term, operational phase of the development.

Note:
For the EI (2026b) GSA, a design groundwater level of 54.92m AHD was adopted. This value has considered seasonal variation of 1.0m above the highest water level, which was measured at BH103M.

4.3 Water Access Licence Agreements

In accordance with the *Coastal Construction of Infrastructure Dewatering Exemption* and *New South Wales Water Management (General) Regulation 2025*, any volume of groundwater per calendar year may be extracted during the construction phase of a property development without the need for a Water Access License, at least until 30 June 2029, provided that:

- The groundwater taken is in connection with the construction (but not on-going maintenance) of buildings and infrastructure in designated coastal areas; and
- Construction must occur within the coastal water sharing plan areas (i.e. generally east of the Great Dividing Range) and meet all relevant conditions, including that all water taken is recorded and reported.

For groundwater take during the property operational (occupational) phase, a Water Access License is required where the estimated valume is more than 3 ML per year, in the absence of any relevant exemption. Given that the proposed basement will be a drained structure, and the modelled operational seepage volume is 10.5 ML per year), a Water Access License will be required for post-construction dewatering in this instance.

4.4 Dewatering Level, Drawdown-Induced Ground Settlement and Monitoring

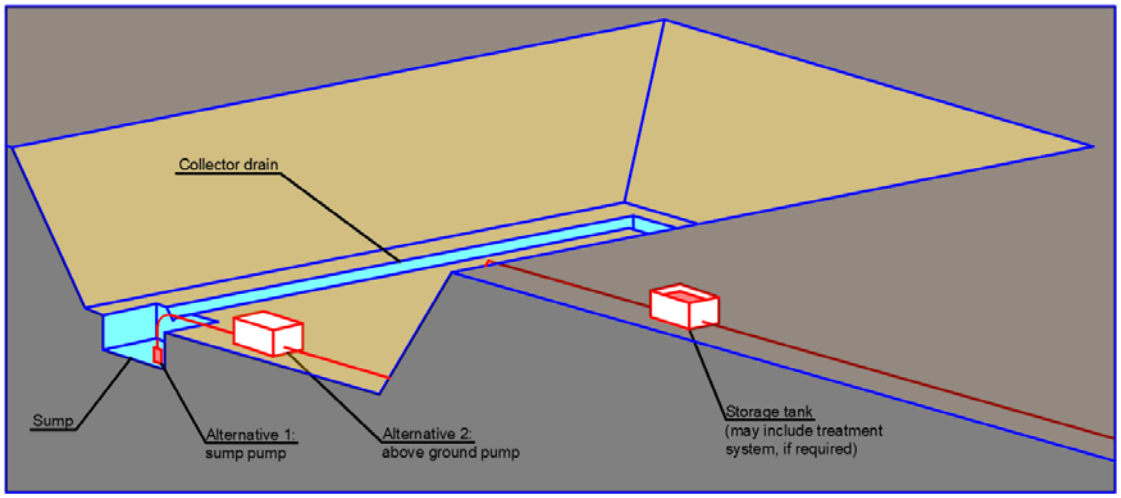
Groundwater modelling indicated the maximum drawdown at the shoring wall will be 10.7-10.8m, based on an estimated radius of drawdown influence (cone of depression) of 40m from the shoring wall (EI, 2026b). The ground outside the shoring wall is expected to experience ground settlements of 8.3 millimetres, which is considered to pose a 'negligible' risk in terms of the category of damage risk due to dewatering, as defined by Cashman and Preene (2021) *Groundwater Lowering in Construction. A Practical Guide*.

Groundwater elevations will be monitored periodically during the construction dewatering period, by measuring groundwater depth in selected monitoring wells. It is recommended that groundwater depth is gauged by electric water contact meter during each dewatering monitoring event.

4.5 Dewatering Method

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

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



4.5.1 Construction Phase Dewatering

During construction, seepage water is to be collected and treated prior to discharge to the municipal stormwater system. A collection sump is typically located at the lowest part of the excavation, from which collected waters are pumped into a storage tank for sediment settling. The preferred tank type will require capacity to accommodate the rate of groundwater seepage inflow during basement construction, which was modelled at 28.9 m^3/day (**Section 4.2**).

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

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

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

4.5.2 Operational Phase Dewatering

Due to low hydraulic conductivity of the water bearing, clay / siltstone / sandstone lithology (**Section 3.2**), a drained basement is proposed for dewatering during the operational (post-construction / long-term) phase of the development. This will involve collection of groundwater seepage in an on-site detention (OSD) tank, or equivalent, with periodic discharge to the municipal stormwater network, under consent authority approval.

It is understood that WaterNSW may consider an application for long-term, operational phase dewatering, where minimal impact considerations under the *New South Wales Aquifer Interference Policy 2012* are satisfied. An assessment against the *New South Wales Aquifer Interference Policy 2012* is undertaken in **Section 7**.

4.6 Discharge Flow and Volume Monitoring

The volume of water discharged off-site must be monitored by a calibrated flow meter (or equivalent alternative means) that is integrated with the dewatering system. Such monitoring will be implemented throughout the entire dewatering period. The flow meter will display the cumulative volume discharged, which will be documented as part of the dewatering monitoring records.

Flow and (cumulative / total) volume data will be documented by a site official, under supervision of the Site Manager. Records must be made available to the Environmental Consultant for inclusion in the monitoring reports. These records will be used to calculate the actual groundwater volume discharged from the site and will be included in the final *Dewatering Completion Report* (DCR) to be issued to Council and WaterNSW upon completion of the dewatering activities.

In regards to the off-site disposal of waters, details of the proposed discharge connection to the stormwater system must be provided, preferably in the form of drawings, suitable for Council review purposes.

For the construction phase, water level and volume monitoring will be conducted as per the methodology described in **Section 5.4**. For the operation phase, annual monitoring (reporting will be conducted as per the methodology described in **Section 7.3**.

4.7 Potential Drawdown-Induced Impacts

A review of potential adverse effects of dewatering on neighbouring properties and groundwater dependent ecosystems is summarised in **Table 4-1**. It is expected that any drawdown-induced settlement during the proposed dewatering will have negligible effects on the neighbouring properties.

Table 4-1 Assessment of Potential Dewatering Effects

Attribute	Description
Proximity of GDEs	No high priority groundwater dependent ecosystems were within a 500m radius of the site (**Section 2.7**).
Potential impacts on groundwater quality resulting from contaminant migration	No (heavy) industrial activities taking place on- and off- site. Migration of contaminants from nearby (adjacent) properties unlikely. Potential on-site contamination sources, if any, will be removed during basement excavation. Site dewatering is not expected to cause degradation of local water quality. Groundwater is not utilised for supply purposes, at least within a 500m radius of the site; hence, beneficial users not relevant.
Water supply losses by neighbouring groundwater users	No registered water supply bores within a 500m radius of the site (**Section 2.4**). With no known beneficial (domestic, irrigation, commercial) uses in the area, water supply losses by neighbouring users is considered unlikely.

Attribute	Description
Potential subsidence of neighbouring structures	Drawdown-induced ground settlement during the proposed development is predicted to be less than 8.3mm at the basement boundary, decreasing with increasing distance from the dewatering activity. Ground settlement levels <10mm are considered to pose a 'negligible' risk in terms of the category of damage risk due to dewatering, as defined by Cashman and Preene (2021). This finding is consistent with the dewatered lithology being comprised of competent bedrock.
Mounding of water up gradient of structure	As the proposed basement will be a draining structure, groundwater mounding is not a consideration.

5. WATER QUALITY MANAGEMENT

5.1 Responsibility

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

5.2 Discharge Water Quality

In accordance with statutory requirements for site dewatering operations, discharged water 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 primary receiving water body is assumed to be Shrimptons Creek, which is an urban stream discharging into the Lane Cove River approximately 1.3 kilometre to the north of the site. Both are considered slightly to moderately disturbed freshwater ecosystems. The ANZG (2018) *95% Freshwater Default Guideline Values* (*DGVs)* are therefore to be adopted as the Discharge Water Criteria (DWC), with the ANZG (2018) *99% Freshwater DGVs* applied for bio-accumulative toxicants. These will be the trigger levels for contingent actions (see **Section 6.5**) to ensure that only higher quality water is discharged to the environment.

For water quality parameters not currently addressed by the ANZG (2018) *Freshwater DGVs*, relevant alternative criteria will be adopted as the default DWC. Recreational water criteria are not considered to be relevant to the receiving water body in this instance, with the exception of *oil and grease*, for aesthetic purposes.

The adopted DWC are specified in **Table 5-1**. The listed parameters and corresponding criteria will apply for both the initial (pre-dewatering) and on-going assessment of water quality of water being discharged to the storm water system during the construction and occupational phases of the development. Note that specific analytical parameters may not be mandatory after the baseline groundwater quality assessment, in accordance with the *Routine Water Quality Monitoring Lists* in Appendix A of DPIE (2022) *Minimum Requirements for Building Site Groundwater Investigations and Reporting*.

Table 5-1 Discharge Water Criteria

Analyte	DWC (µg/L) [1]
Metals	
Aluminium (for waters with pH >6.5)	55
Antimony (Sb)	9 [3]
Arsenic [III] (As III)	24
Arsenic [V] (As V)	13
Barium (Ba)	No Relevant Criterion
Beryllium (Be)	No Relevant Criterion
Boron (B)	940
Cadmium (Cd)	0.06

Analyte	DWC (µg/L) [1]
Chromium ^{III} (Cr III)	6.7 [3]
Chromium ^{VI} (Cr VI)	1
Cobalt (Co)	1.4 [3]
Copper (Cu)	14 [2]
Iron (Fe)	280
Lead (Pb)	3.4
Lithium (Li)	No Relevant Criterion
Manganese (Mn)	1900
Mercury (total) (Hg)	0.06
Molybdenum (Mo)	34 [3]
Nickel (Ni)	11
Selenium (Se)	11
Silica (dissolved SiO_2)	No Relevant Criterion
Silver (Ag)	0.05
Strontium (Sr)	No Relevant Criterion
Uranium (U)	0.5 [3]
Vanadium (V)	6 [3]
Zinc (Zn)	80 [2]
Total Recoverable Hydrocarbons (TRH)	
Oil and grease	*No visible sheen, surface film or oil and grease* [4]
Volatile TRH (C_6 - C_9)	No Relevant Criterion
Semi-volatile to heavy TRH (C_{10} - C_{40})	No Relevant Criterion
Monocyclic Aromatic Hydrocarbons (BTEX)	
Benzene	950
Toluene	180
Ethylbenzene	80
o - xylene	350
m/p - xylene	275
Polycyclic Aromatic Hydrocarbons (PAH)	
Benzo(a)pyrene	0.1
Naphthalene	16
Microbiological Organisms	
Faecal coliforms	No Relevant Criterion
Faecal streptococci	No Relevant Criterion
Escherichia coli (E. coli)	Not detectable in 100 mL
Major Ions	
Anions: sulfate, chloride, carbonates, bromide	No Relevant Criterion

Analyte	DWC (µg/L) [1]
Anions: fluoride	1.7 mg/L
Cations: calcium, magnesium, sodium, potassium	No Relevant Criterion
Ionic balance: cation / anion balance (as a percentage)	No Relevant Criterion
Nutrients	
Ammonia	970
Nitrate (NO_3)	2600 [7]
Nitrite (NO_2)	No Relevant Criterion
Total Oxidised Nitrogen (NO_x)	40 [9]
Total Nitrogen (TN)	500 [9]
Total Phosphorus (TP)	50 [9]
Reactive Phosphorus (FRP)	20 [9]
Other	
Total Cyanide	7
Phenol	320
PFOS	0.9 [8]
PFOA	220 [8]
Physiochemical Parameters	
EC (µS/cm)	2,200 [6]
pH (pH units)	6.5 to 8.0 [5]
Turbidity (NTU)	50 [6]

Note 1 DWC are the ANZG (2018) *95% DGVs* for the protection of slightly to moderately disturbed freshwater ecosystems, with the *99% DGVs* applied for the bio-accumulative parameters *benzo(a)pyrene*, *cadmium* and *mercury*, unless otherwise indicated.

Note 2 For the metals copper and zinc, which are commonly present as regional background components in groundwater at concentrations above the ANZG (2018) 95% Freshwater DGVs, DWC are set at one order of magnitude higher than the ANZG (2018) DGV.

Note 3 The ANZG (2018) only provides freshwater criteria at an 'unknown' level (%) of species protection for *antimony, chromium III, cobalt, molybdenum, uranium* and *vanadium*; therefore, these DGVs are applied.

Note 4 NHMRC (2008) No Detectable Oil and 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) criteria, alternative pH 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* used, adopting the range for *Lowland River* settings.

Note 6 In the absence of ANZG (2018) criteria, alternative EC and turbidity criteria from ANZECC / ARMCANZ (2000) Table 3.3.3 *Upper default trigger values* used, adopting the values for *Lowland River* settings.

Note 7 ANZG (2018) freshwater 95% DGV for nitrate, assuming moderately hard water (30-150 mg/L $CaCO_3$).

Note 8 Derived from the 2025 National Environmental Management Plan for PFAS, being the criterion for 95% species protection in slightly to moderately disturbed systems.

Note 9 In the absence of ANZG (2018) criteria, alternative total oxidised nitrogen (NOx), total phosphorus (TP), reactive phosphorus (FRP) and total nitrogen (TN) 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*, adopting the values for *Lowland River* settings.

5.3 Additional Pre-Dewatering Monitoring Event

An additional GME will be undertaken prior to commencement of construction dewatering, to reassess groundwater quality (i.e. verify the baseline conditions) and confirm water treatment requirements. Laboratory analysis of groundwater samples must include the analytical parameters listed in **Section 3.4.3** and **Table 5-1**.

5.4 Discharge Water Quality Monitoring

5.4.1 Visual Monitoring

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

- The effective operation of all dewatering and treatment equipment;
- No petrochemical sheen is visible on the water surface and no detectable hydrocarbon odour is being emanating from the (treated) groundwater or sediment; and
- No green, blue or extremely clear effluent is observable, 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).

5.4.2 Sample Collection and Analysis

Periodic sample analysis must be conducted during the dewatering activities, to establish that the treatment system is functioning as intended and confirm the quality of discharge water is acceptable for release into the municipal stormwater network.

Sample collection should be undertaken by a suitably qualified environmental scientist or equivalent, with the subsequent analyses performed by a reputable environmental laboratory using NATA-registered methods. The laboratory analytical program should include the parameters listed in **Table 5-1** (**Section 5.2**; with metal speciation where applicable (e.g. chromium VI)); however, subject to continuing compliance of treated water quality with the DWC, post the trial run period (described below), the routine analyses may be reduced to those deemed of on-going concern.

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

Trial-Run Period

Prior to the discharge of any extracted groundwater, a trial run will be completed as follows:

- Groundwater will be pumped into the tank;
- Samples of the (treated) groundwater will be collected and laboratory analysed for the water quality parameters of concern; and
- The water testing results will be compared against the DWC, to confirm compliance and signify extracted groundwater can be directed to the municipal stormwater network (from the approved connection point).

As a minimum, two samples of groundwater will be collected for each of two weeks during the designated trial-run period. The analytical results will be compared to DWC, to assess the performance of the water treatment system. The results of each sampling event will be recorded, to establish chemical concentration trends (if any).

Sampling for trial run purposes will cease once the target parameters in treated water stabilise (i.e. consecutive tests are within ±10%) and contaminant concentrations are within the adopted discharge criteria 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 adopted criteria.

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 (treated) groundwater (including treated water) should be retained on-site and stored in appropriate bulk containers. Alternatively, baffle tanked groundwater may be re-injected into the sub-surface of the site (away from the extraction / pumping point). No collected groundwater should be discharged until it is proven to meet the adopted DWC.

Construction Phase Period

After the Trial-Run Period, and subject to consent 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 a 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 adopted criteria. 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.

Dewatering contingency measures are detailed in **Section 6** (**Table 6-1**). They are to be implemented where treated groundwater results exceed, or are predicted to exceed, the DWC for any one monitoring event. Changes to the sampling frequency are to be determined by the appointed Dewatering Contractor / Water Treatment Specialist, in collaboration with the Environmental Consultant.

All laboratory analytical results for the water samples must be retained, to be made available upon request by Council and/or WaterNSW. The Site Manager and Dewatering Contractor / Water Treatment Specialist should seek advice from the Environmental Consultant prior to deviating from any of the above monitoring requirements, to ensure the quality of discharged groundwater is not compromised.

Operational Phase (Post Construction)

Provided that Construction Phase Monitoring shows consistent and compliant results, the monitoring frequency can be extended to annually during the operational period, until the end of Year 3, as described in **Section 7.3**.

The contingency measures detailed in **Section 6** (**Table 6-1**) are to be implemented if groundwater results exceed or are predicted (based on trending water quality results) to exceed the adopted criteria for any one monitoring event.

Any changes to the sampling frequency are to be determined by the appointed Environmental Consultant.

5.4.3 Reporting of Water Quality Results

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

- *Interim Monitoring Reports* - will be prepared upon receipt of laboratory data for each round of water quality monitoring. Each interim report will detail the sampling method and procedure, groundwater level gauging results and provide a comparison of historic and current results obtained from the site, against the adopted criteria, with corrective actions and recommendations based on the results, where required.

- *Dewatering Completion Report* - following completion of construction dewatering activities, a completion report will be prepared by the appointed Environmental Consultant. The DCR must include copies of all analytical results and interim monitoring reports issued during the dewatering period. Refer to **Section 5.6.1** for further details concerning the format and content of the DCR.
- *Annual Dewatering Monitoring Reports* - will be prepared as described in **Section 5.6.2**, upon receipt of laboratory data for each annual round of water quality monitoring during the operational phase of the development.

5.4.4 Reporting of Other Information

The Site Manager must keep records of cumulative discharge volume and periods of dewatering stoppage. Such records will be included in the DCR.

5.5 Water Treatment

5.5.1 Treatment System Design

Treatment of extracted groundwater will be required, based on the available assessment data (**Section 3**). The selection and design of the preferred water treatment system is to be made by the Dewatering Contractor / Water Treatment Specialist, in collaboration with the Environmental Consultant. Alternative and/or additional water treatment options will be implemented, if necessary, depending on which parameters are found to exceed the DWC.

The design and installation of the preferred system should consider:

- A treatment (baffle) tank with minimum capacity capable of containing the expected inflow for the basement (**Section 4.4**);
- Water filtration to reduce fine particulates;
- Automated in-line chemical dosing of buffering (e.g. sodium hydroxide / bicarbonate) solution and flocculent / coagulant, for adjustment (increase) of pH and accelerated reduction of suspended particles;
- Treatment to reduce concentrations of contaminants exceeding the DWC (baseline assessment data indicating these include dissolved metals (aluminium, cadmium, copper, chromium, nickel, zinc, iron and manganese) and phenols; **Section 3.4.7**);
- Spare retention tank(s), 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 adjusting and monitoring flow rate, to allow sufficient flocculation / coagulation time and 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 adopted quality criteria is discharged into the municipal stormwater network.

5.5.2 Treatment System Maintenance

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

- Regular cleaning and/or replacement of the particle filters within the retention tanks;
- Media changeover (e.g. replenishment of GAC), whenever breakthrough conditions are identified; and
- Regular removal of sediment from the retention tank(s) by an appropriately-licensed waste contractor.

5.6 Reporting of Dewatering Information

5.6.1 Dewatering Completion Report

In accordance with the WaterNSW *Fact Sheet: Completion Report - Construction Dewatering*, a DCR will be submitted at the completion of site dewatering. The completion report must accompany an application to WaterNSW to surrender the water supply work approval.

The DCR will document all records collated from the beginning to the end of construction dewatering. A template report form can be downloaded using the link:

https://www.waternsw.com.au/_data/assets/pdf_file/0004/167278/Completion-report-for-dewatering-work.pdf

A copy of the blank DCR form is provided in **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, for inclusion in the DCR. The Site Manager may authorise a qualified contractor/consultant to maintain the DCR on the Site Manager's behalf.

5.6.2 Operational Dewatering Annual Report

As site dewatering will occur during the occupational phase of the development, monitoring will continue, this being the responsibility of Strata Management. All flow meter logs, groundwater level data and laboratory analytical results must be maintained, with records readily available upon request by Council and/or WaterNSW.

The frequency for such monitoring is detailed in **Section 7.3**, while the scope for sample testing will be the same as per an *Interim Report* (described in Section 5.4.3). Reporting will be on an annual basis (*Annual Report - Occupational Dewatering*), with submission to Ryde City Council and WaterNSW.

6. SITE MANAGEMENT AND CONTROLS

6.1 Deviations from this Plan

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

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

6.2 Contact Details for Key Personnel

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

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

6.3 Summary of Specific Activities

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

6.4 Vibration, Noise and Odour Management

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

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

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

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

6.5 Dewatering Contingencies

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

Table 6-1 Mitigation Measures for Potential Dewatering Issues

Anticipated Problem	Corrective Action(s)
Water Quality Criteria Non-Compliance	
Discharge Water Criteria Exceedance Laboratory analytical report for any monitoring event reveals that the quality of treated discharge water does not satisfy the adopted discharge performance criteria detailed in **Table 5-1**, **Section 5.2**.	Immediate action must be taken to halt release of water into Council's stormwater system, where water quality is found not to meet the discharge criteria in **Table 5-1**. 1) Discharge to the stormwater system must be suspended to enable the following procedure to be implemented: 2) Discharge water will be redirected to a spare retention basin; 3) A water sample will be collected and sent to the laboratory for confirmation analysis for the non-compliant parameter(s) on an express (24 hour) results turn-around basis; 4) Should the analytical result for the confirmation sample show that the previously non-compliant parameter(s) is/are now meet the adopted discharge water quality performance criteria, the treated water outlet may be redirected to the stormwater system; however 5) Should the analytical result for the confirmation sample show that the discharge water quality is confirmed not to comply with the discharge criteria, then the Water Treatment

Anticipated Problem	Corrective Action(s)
	Specialist will be directed to modify the water treatment system accordingly to achieve compliant discharge water quality and a new treated water sample will be collected; 6) After laboratory confirmation that the revised treated water quality complies with the discharge criteria, the extracted groundwater may be re-directed to the stormwater discharge point; and 7) The frequency of treated discharge water quality monitoring will be returned to weekly, until such time that three consecutive compliant laboratory reports for weekly monitoring events are achieved, at which stage fortnightly monitoring may be reinstated. **Note:** It may be necessary to have collected waters removed by a licensed wastewater contractor, should retained quantities exceed the onsite capacity for temporary storage.
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 the spare retention basin, while the treatment system is adjusted to manage the observed water quality issues. It may be necessary to have collected waters removed by a licensed wastewater contractor, should retained quantities exceed the onsite 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 performance criteria non-compliances for discharge water quality	Retain extracted water onsite in spare retention basin(s) and appropriate bulk containers, until it can be removed by a licensed waste contractor. Determine an alternative discharge method, if necessary, updating the DMP accordingly.
Groundwater Take Non-Compliance	
Excessive Extraction Daily discharge rate is greater than expected and it is apparent that the projected total groundwater extraction volume will be exceeded	Advise the appointed environmental consultant who will review the reasons for the increased dewatering rate. If reduction in dewatering rate cannot be implemented, WaterNSW should be contacted to review options, which may include a combination of: ▪ 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 Settlement Risk	
Excessive Water Level Drawdown	As documented in the GSA report, dewatering will have negligible, if any, adverse impact on the neighbouring properties. The groundwater drawdown adjacent to the site cause by dewatering is considered negligible. **Note:** The client, geotechnical engineer, structural engineer and relevant stakeholders (including the property owner(s) that may be affected), should be notified and revisions to the dewatering approach for localised deeper works (e.g. localised pumping around lift pits and other deeper construction features), must be defined and implemented to manage potential settlement risk in order to safeguard neighbouring buildings/structures.
System Performance Issues	
Dewatering System Failures	Ensure that spare equipment parts (where practical) are 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.

Anticipated Problem	Corrective Action(s)
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.
Unexpected Contaminants	Contact the appointed water quality expert and assess against relevant criteria. If contaminant is found to exceed the adopted criteria, follow the corrective actions corresponding to *DWC Exceedance* above. Expand DWC accordingly.
Chemical / Fuel Spill and Leaks	Stop earthworks, notify site project 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 also seek advice from environmental consultant in regard to the additional assessment and treatment that may be required.
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.
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 volatile emissions and odours.
Impacts on 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.
Complaint Management	Notify Client, Project Managers and Environmental Consultant (if required) following complaint. Report complaint as per management procedures. Implement control measures to address reason of complaint (if possible). Notify complainant of results of remedial actions.

7. MINIMAL HARM ASSESSMENT

7.1 Consideration of NSW Aquifer Interference Policy

In accordance with the *New South Wales Water Management Act 2000*, the taking and/or disposal of water from an aquifer is defined as an aquifer interference activity. The *New South Wales Aquifer Interference Policy 2012* (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 applied for this hydrogeological report, with due regard for all hydrogeological information collected for the site, and is presented in this section.

7.1.1 Hydrogeological Model Summary

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

7.1.2 Groundwater Source Category

Under Section 3.2.1 *Aquifer Impact Assessment* of the NSW AIP, a *Highly Productive Groundwater Source* is defined as one that:

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

b) can yield water at a rate greater than 5 L/sec.

Baseline groundwater salinity was shown to be low, with EC values ranging from 1,036-2,351 µS/cm and TDS ranging from 750-1,200 mg/L (**Section 3.4**). Modelled inflow to the basement is predicted to be 0.335 litre per second (i.e. 28.9 m^3/day, **Section 4.2**), during the construction and occupational phases of the development.

The aquifer at the site therefore meets the description of a *Less Productive Groundwater Source*, as defined under Section 3.2.1 *Aquifer Impact Assessment* of the NSW AIP.

7.1.3 Minimal Impact Considerations

In accordance with the Table 1 *Minimal Impact Considerations for Aquifer Interference Activities* of the NSW AIP, *"If the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable".*

Table 1 of the NSW AIP states that for *Less Productive Groundwater Sources* in low yielding porous and fractured rock water sources that are under groundwater pressure conditions, the following 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.*

7.1.4 Impact Assessment Conclusions

The proposed dewatering to be implemented during the construction and operational phases at this site is 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 2.4**) indicates that groundwater is not relied on as a local water supply source. There are no beneficial groundwater users within the zone of drawdown influence that would experience water losses due to the dewatering activity.
- Drawdown will occur predominantly in competent bedrock, with less than 10 millimetres predicted ground settlement immediately outside the shored wall. Drawdown-induced ground settlement would therefore have negligible impact on neighbouring properties, beyond the site boundary.
- Any on-site, residual, groundwater contamination sources will be removed as part of the bulk excavation process. As there are no registered water supply bores in the vicinity of the site, adverse impacts to groundwater quality and corresponding lowering of the beneficial use category of the groundwater source are unlikely. *Level 1 minimal impact considerations* would therefore be maintained.
- There is no documented, high priority GDE within 500m of the site.
- As the basement will be designed as a draining structure, potential groundwater mounding impacts as a result of the constructed structure are unlikely.

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

7.2 Assessment Inputs

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

Table 7-1 Assessment Inputs Summary

Assessment Item	Comments
1. Estimated water take volume	As detailed in **Section 4.2**, the water take volume is estimated to be **10.5ML** for a 365 day basement construction phase.
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 (**Appendix E**).
3. Ground elevation across the site	The site downslopes towards the north, with relative elevations ranging from 64m AHD in the southern corner, to 58m AHD in the northern corner.
4. Geotechnical characterisation	Refer to GSA report in **Appendix E**.
5. Water level measurements	Groundwater levels were 51.16m AHDto 53.92m AHD (**Section 3.3**) Periodic groundwater level gauging will be conducted at monitoring wells on an annual basis during the operational phase (**Section 5.4**).
6. Required water level draw down and potential impacts	Drawdowns resulting from site dewatering are unlikely to adversely impact on ground settlement, groundwater access in existing water supply bores or lowering of beneficial use category of the groundwater source.

Assessment Item	Comments
7. Works proposed for dewatering	A drained basement, using infiltration of sub-soil seepage waters and a sump-and-pump system, will be adopted.
8. The base level of the aquifer	Fractured sandstone bedrock extends immediately below the proposed bulk excavation level (**Section 3.2**).
9. Excavation footprint dimensions	Refer to basement plan included in **Appendix C**.
10. Hydraulic conductivity of lithological units	Detailed in EI (2026b) GSA (**Appendix E**) and **Section 3.2**.
11. Anticipated duration of dewatering	Dewatering will occur both during the construction stage and throughout the operational (occupational) phase of the completed development.
12. Depth of piling embedment beneath bulk excavation	Refer to **Section 4.1**. Embedment depth will be provided with final design and detailed shoring plans.

7.3 Operational (Occupational) Phase Dewatering Management

7.3.1 Operational Phase Water Treatment

The need for water treatment during the operational phase will be dependent on water quality, as it was during construction phase dewatering. A pre-treatment water sample will be collected and laboratory analysed for the dewatering parameters listed in **Table 5-1**. Any exceedances of the DWC, will indicate the need for water treatment for the con-compliant water quality parameter. An appropriate water treatment system will be established to ensure that discharge water quality (i.e. treated water) is appropriate for stormwater discharge.

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

7.3.2 Monitoring and Reporting

The following procedure will be adhered to by strata management to ensure that the long-term dewatering system is managed appropriately:

- **Groundwater Level Monitoring**: Scheduled groundwater level monitoring is required for the first 36 months of the sump and pump operational phase, in order to characterise seasonal groundwater level fluctuations for the operational (post-construction) phase of the development. It is noted that the occupational phase of the development commences prior to the sump and pump commences operation.

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

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

- **Water Quality Monitoring**: A single, post-treatment water sample will be collected on an annual basis during the final monitoring event in each year (i.e. at 12 months and 24 months of operation). Treated water samples will be laboratory analysed for the priority discharge water quality parameters (**Table 5-1**), to confirm that DWC compliance and show that discharge water quality is not deteriorating with time. Given that the groundwater is to be treated prior to offsite discharge, the risks presented to the human health and environment for the construction phase of the development are considered low and acceptable. Groundwater assessment of water quality parameters is required at the end of the construction phase to verify concentrations, and review or amend proposed operational phase water treatment if required.
- **Annual Dewatering Monitoring Report**: A Dewatering Monitoring Report will be prepared after each 12 months of monitoring, by the appointed Environmental Consultant. 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. The monitoring report will also include an updated copy of the monitoring data form, showing all monitoring records since the start of the occupational phase. Each annual monitoring report will also include a trend analysis of the monitoring data and provide a discussion to characterise trends in groundwater quality, groundwater levels as measured in the monitoring well and water discharge volumes over time.
- **Cessation of Monitoring**: Should watering monitoring after the 36th month of occupation confirm that groundwater quality, groundwater level fluctuations at the monitoring well(s) and annual groundwater discharge volumes are stable (i.e. not statistically trending up or down), then it will be determined that equilibrium has been reached and termination of the monitoring program would be justified. If this is not the case then the dewatering program will be reviewed accordingly. The appointed Environmental Consultant will provide notification to Council to document the termination or continuation of monitoring at this stage. Should monitoring be continued, a review of monitoring frequency will be undertaken and appropriate notification to Council will be issued by the appointed Environmental Consultant.

7.3.3 Monitoring Well Replacement Protocol

Should the existing wells be damaged during the construction works, installation of new groundwater monitoring wells will be required, under the management of a qualified and appropriately experienced Environmental Consultant. Strata management should formally engage the Environmental Consultant to perform the required monitoring.

Well design should be in accordance with the guidelines specified under the NUDLC (2020) *Minimum Construction Requirements for Water Bores in Australia*. Each 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.

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

8. DEWATERING MANAGEMENT SUMMARY

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

Table 8-1 Dewatering Management Summary

Item	Requirement / Procedure
Objective of DMP	Ensure that the proposed dewatering operations do not impact on the quality of the receiving surface waters (i.e. at the point of groundwater discharge). Where necessary, groundwater will be treated to achieve an acceptable water quality prior to discharge: ▪ *See **Section 3** for groundwater conditions.* ▪ *See **Section 5.2** for the DWC.* ▪ *See **Section 5.5** for groundwater treatment options.* Provide comment on groundwater level changes that occur during dewatering: ▪ *Refer to **Appendix E** for the GSA.* ▪ *See **Sections 3** and **4** for summary of the GSA and drawdown impacts.*
Person Responsible for DMP Implementation	The Site Manager will be responsible for implementation of the DMP, ensuring appropriate treatment of extracted groundwater (with assistance from the appointed Dewatering Contractor / Water Treatment Specialist and Environmental Consultant.
Operation Policy	To ensure that all extracted water during dewatering is effectively treated prior to discharge to the municipal stormwater network.
Pre-Dewatering Assessment	Representative groundwater samples have been tested for the potential contaminants, to provide baseline data and determine the discharge water treatment / quality requirements (**Section 3.4)**.
DWC	All groundwater to be discharged is to meet (at the very least) the criteria outlined in **Table 5-1**, **Section 5.2**.
Implementation Strategy	All extracted groundwater will be monitored and treated. On-going testing to be performed, to confirm water quality meets the adopted DWC, prior to release into the stormwater network. Additional treatment / wastewater disposal to be undertaken, if the DWC values are continuously not met.
Monitoring Requirements	Refer to **Sections 4.4** and **4.6** for level and volume monitoring requirements. Sample testing (during construction) is specified in **Section 5.4**: 1. Trial-run = Sample testing prior to discharge 2. Post trial-run = Sample testing twice per week* 3. On-going = Weekly for a month, then fortnightly for a month, then monthly* ** the sampling frequency may be modified (reduced) once the target parameters in treated water stabilise (i.e. consecutive tests are within ±10%) and are within the adopted DWC for three consecutive sampling events. Should analytical results continuously exceed the DWC, the contingencies listed in **Section 6.5** must be followed.* Refer to **Section 7.3.2** for post-construction (occupational phase) monitoring requirements.
Auditing	The Environmental Consultant will undertake audits during the monitoring period (as required under the permit conditions), to ensure that all discharges comply with the criteria specified in **Section 5.2**.
Reporting	The Dewatering Contractor / Water Treatment Specialist, in collaboration with the Environmental Consultant, will keep records of all monitoring data, as well as quantities of treatment agents applied during the dewatering process. All records are to be available on-site during the construction (dewatering) phase, at least.
Corrective Actions	As specified in the contingency measures, outlined in **Section 6.5**.

9. STATEMENT OF LIMITATIONS

This hydrogeological report has been prepared for the exclusive use of 388 LCR Development Pty Ltd, whom is the only intended beneficiary of EI's work. The scope of this report is limited to that agreed with 388 LCR Development Pty Ltd.

No other party should rely on this 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 it without EI's approval.

EI has used a degree of care and skill ordinarily exercised in drafting similar reports 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 report, 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 report, please do not hesitate to contact EI.

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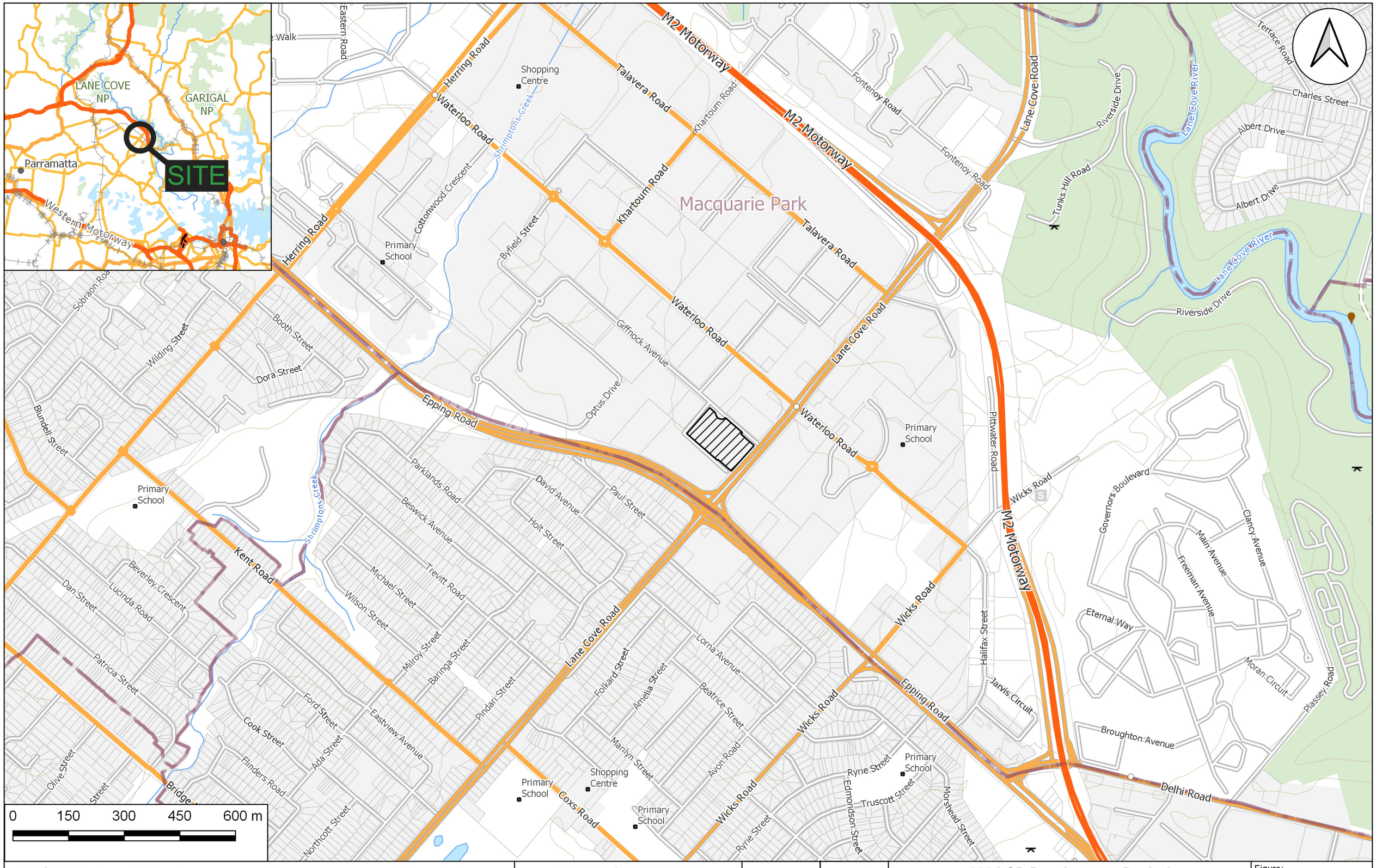
Appendix A – Figures



LEGEND **Note: All locations are approximate**

Site Location

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Practical Solutions for Built Environments
Suite 6.01, 55 Miller Street, PYRMONT 2009
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Drawn:	E.T.
Approved:	
Date:	29/04/2026

388 LCR Development Pty Ltd

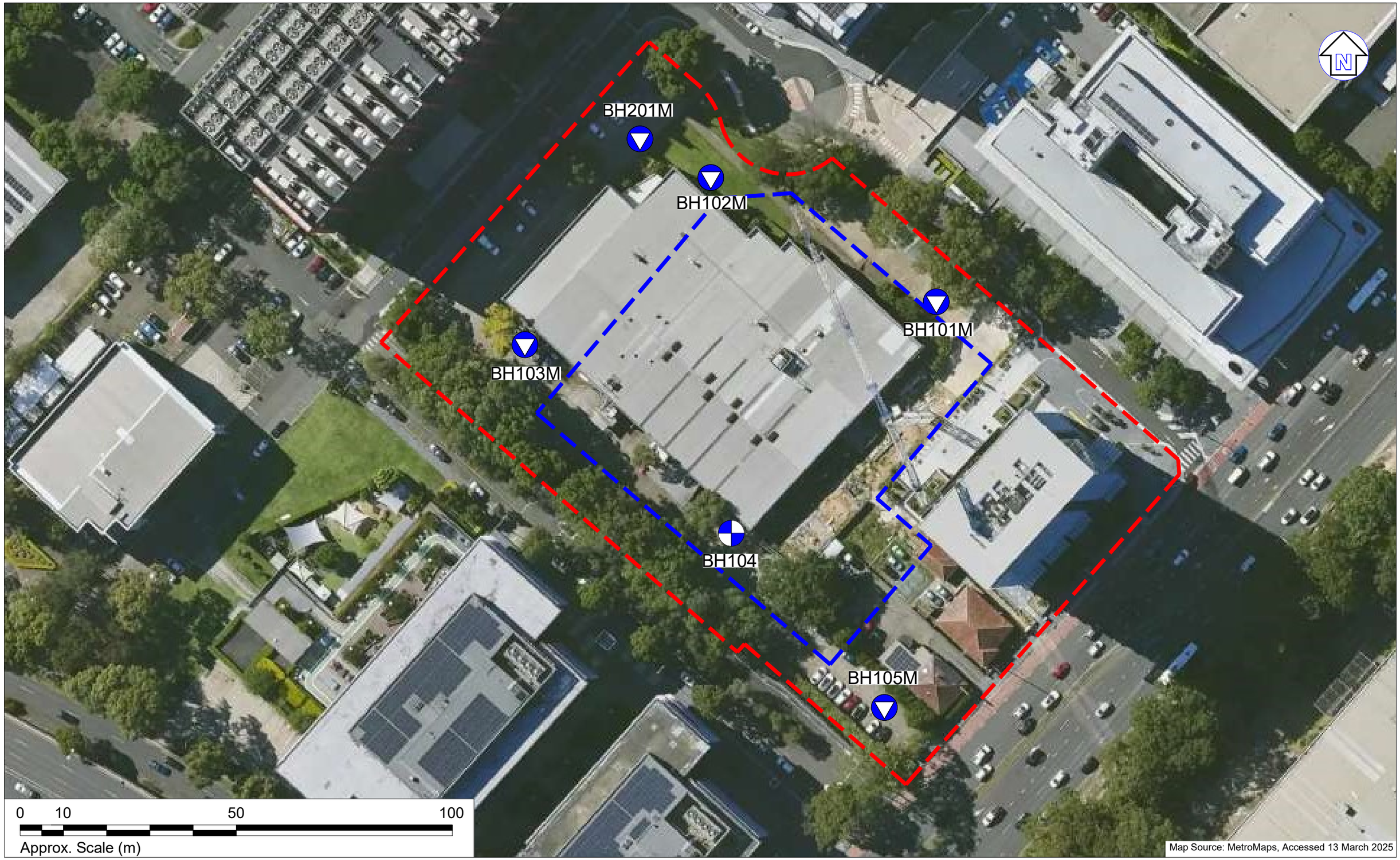
Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

2-4 Giffnock Avenue, Macquarie Park NSW

Site Locality Plan

Figure: 1

Project: E26706.E16



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole locations
- Monitoring well locations

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Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	R.L.
Approved:	K.X.
Date:	15-4-26

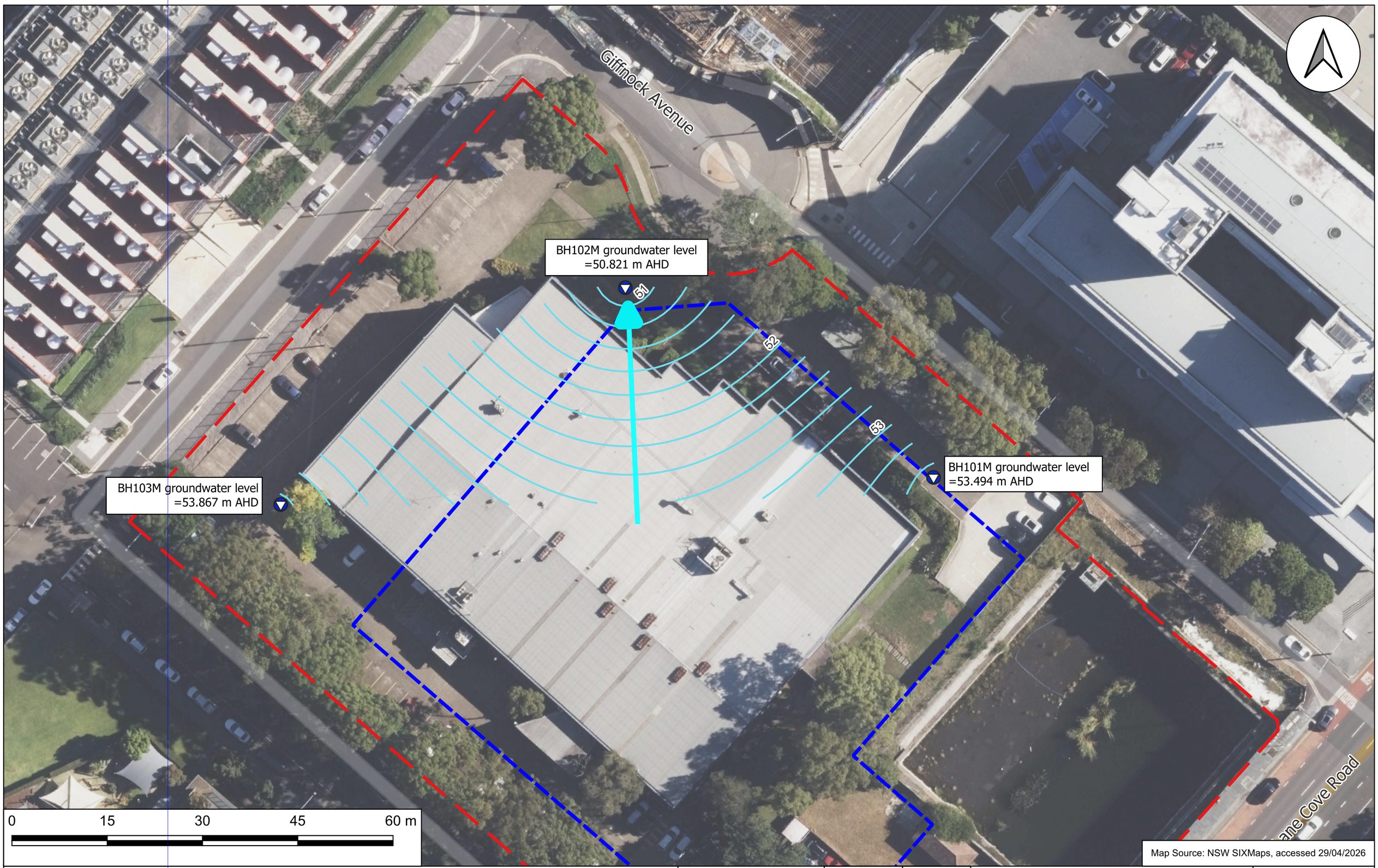
388 LCR Development Pty Ltd

Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

2-4 Griffnock Avenue, Macquarie Park NSW
Site Sampling Plan

Figure: 2

Project: E26706.E16



LEGEND Note: Areas are approximate

- Site Boundary
- Proposed Basement Boundary
- Groundwater Monitoring Well Location
- Groundwater Elevation Contour (m AHD)
- Groundwater Flow Direction

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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:	C.C
Approved:	A.I
Date:	29/04/2026

388 LCR Development Pty Ltd

Hydrogeological Report including Dewatering Management Plan and Groundwater Seepage Analysis

2-4 Giffnock Avenue, Macquarie Park NSW

Groundwater Contours and Flow Direction

Figure: 3

Project: E26706.E16

Appendix B – Tables

E26706 -Macquarie Park
(DWC - Freshwater)

Table 1 – Summary of Baseline Groundwater Quality Results: Physical Parameters

Sample ID	Date sampled	Measurements & Analyses																				Visual Assessment
		Sodium Adsorption Ratio (SAR)	Bicarbonate Alkalinity as CaCO3 (mg/L)	Carbonate Alkalinity as CaCO3 (mg/L)	Hydroxide Alkalinity as CaCO3 (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Hydroxide Alkalinity as OH (mg/L)	Bicarbonate Alkalinity as HCO3 (mg/L)	Carbonate Alkalinity as CO3 (mg/L)	Electrical Conductivity Field EC (µS/cm)	Electrical Conductivity (µS/cm)	field pH	pH	Field Redox (mV)	Eh [1] (mV)	Total Dissolved Solids (mg/L)	Total Suspended Solids (TSS) (mg/L)	Turbidity (NTU)	Hardness (mg $CaCO_3$/L)	Field Water Temperature (°C)	Dissolved Oxygen Field DO (mg/L)	Dissolved Oxygen (mg/L)	Total Organic Carbon (TOC) as NPOC (mg/L)	Field Oil & Grease (Present/Absent)
Groundwater Investigation - (EI, 2026)																								
GW-BH101M-2	26/3/2026	NA	NA	NA	NA	NA	NA	NA	NA	2110	1200	5.55	5.9	19.2	224.2	750	NA	150	150	18.05	0	NA	NA	Absent
GW-BH102M-2		NA	NA	NA	NA	NA	NA	NA	NA	1036	1100	4.57	5.7	50.7	255.7	1200	NA	100	120	18.88	0	NA	NA	Absent
GW-BH103M-2		9.9	<5	<5	<5	<5	<5	<5	<5	2351	1900	4.1	3.9	103.9	308.9	1200	93	97	170	18.46	0	8.4	1.2	Absent
Discharge Water Criteria																								
DWC - Freshwater										2200	2200	6.5 - 8.0	6.5 - 8.0					50						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

DWC are the Water quality criteria based on the ANZG, 2018 (and later amendments) 95% fresh water DGVs, or relevant default guidelines where ANZG Fresh 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).

Highlighted value does not meet the adopted criteria

No relevant criteria are currently available

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Table 2 - Summary of Baseline Groundwater Quality - Chemical Parameters

Sample ID	Sampling Date	Metals																								BTEX					VOCs	Chlorinated VOCs			
		Total As	Cd	[1] Total Cr	Cu	Pb	Hg	Ni	Zn	Al (pH>6.5)	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 - (EI, 2026)																																		
GW-BH101M-2	26/3/2026	2	<0.1	3	<1	<1	<0.1	5	16	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<1	NA	NA	NA	NA	NA
GW-BH102M-2		<1	<0.1	<1	<1	<1	<0.1	21	55	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<1	NA	NA	NA	NA	NA
GW-BH103M-2		<1	0.4	<1	87	<1	<0.1	57	300	1500	<1	85	3	31	49	14000	0.042	2100	<1	3	33	<1	25	<1	<1	<0.5	<0.5	<0.5	<0.5	<1	<10	<0.5	<0.5	<0.5	<0.3
Discharge Water Criteria																																		
DWC - Freshwater		24 (As III) 13 (As V)	0.06	6.7 (Cr III) 1 (Cr VI)	14	3.4	0.06	11	80	55	9		940	1.4	280		1900	34	11		0.05		0.5	6	950	180	80	350	275		50		1900	0.3

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 NH_3 as N	Nitrate Nitrogen NO3-N	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, 2026)																																
GW-BH101M-2	26/3/2026	NA	<40	<50	<0.5	<0.5	<0.5	NA	NA	NA	430	<4	NA	NA	NA	NA	NA	NA	NA	14	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-BH102M-2		NA	<40	700	<0.5	<0.5	<0.5	NA	NA	NA	<50	6	NA	NA	NA	NA	NA	NA	NA	11	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-BH103M-2		NA	<40	<50	<0.5	<0.5	<0.5	2	88	<2	<50	NA	<0.01	<0.01	<0.01	<0.1	600	54	2.5	2.1	41	300	6.3	-2.95	0.14	0.046	<0.005	0.047	0.44	0.49	0.07	<0.005
Discharge Water Criteria																																
DWC - Freshwater			If TPH is detected analysis for BTEX and PAH is required			0.1	16			None detectable in 100mL	320	7	0.9		220	1.7									970	2600 [2]		40		500	50	20

Notes:

All values are µg/L unless stated otherwise

NA = Not Analysed

Water quality criteria are based on the ANZG, 2018+ 95% fresh water DGVs, or relevant default guidelines where ANZG fresh 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 The ANZG 2025 95% Freshwater DGV for Nitrate is 2.6 mg/L assuming moderately hard water (30–150 mg/L $CaCO_3$) .

Highlighted value does not meet the adopted criteria

No relevant criteria are currently available

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Table 3 - QA/QC Results for Soil Samples **E266706.E16 - Macquarie Park**

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
26/03/2026	GW-BH102M-2	Primary Soil Sample	<50	130	430	150	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	21	55
26/03/2026	GW-QD2	Intra-laboratory duplicate ofGW-BH102M-2	<50	81	350	170	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	51	51
	RPD		***0.00***	***46.45***	***20.51***	***12.50***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	**83.33**	***7.55***
Inter-laboratory Duplicate																		
26/03/2026	GW-BH102M-2	Primary Soil Sample	<50	130	430	150	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	21	55
26/03/2026	GW-QT2	Inter-laboratory duplicate of GW-BH102M-2	<10	76	<100	<100	<1	<1	<1	<3	<1	<0.1	<1	<1	<1	<0.05	35	60
	RPD		***NA***	**52.43**	**137.50**	***50.00***	***NA***	***NA***	***NA***	***NA***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***NA***	***50.00***	***8.70***
Trip Blank																		
26/03/2026	TB2	Water	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
Trip Spike																		
26/03/2026	TS2	Water	-	-	-	-	[101%]	[101%]	[100%]	[99-100%]	-	-	-	-	-	-	-	-
Rinsate Blanks																		
26/03/2026	GW-R2	Equipment rinsate water	<50	<50	<100	<100	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5

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

Note: All soil results are reported in mg/kg and water results are reported in µg/L.

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

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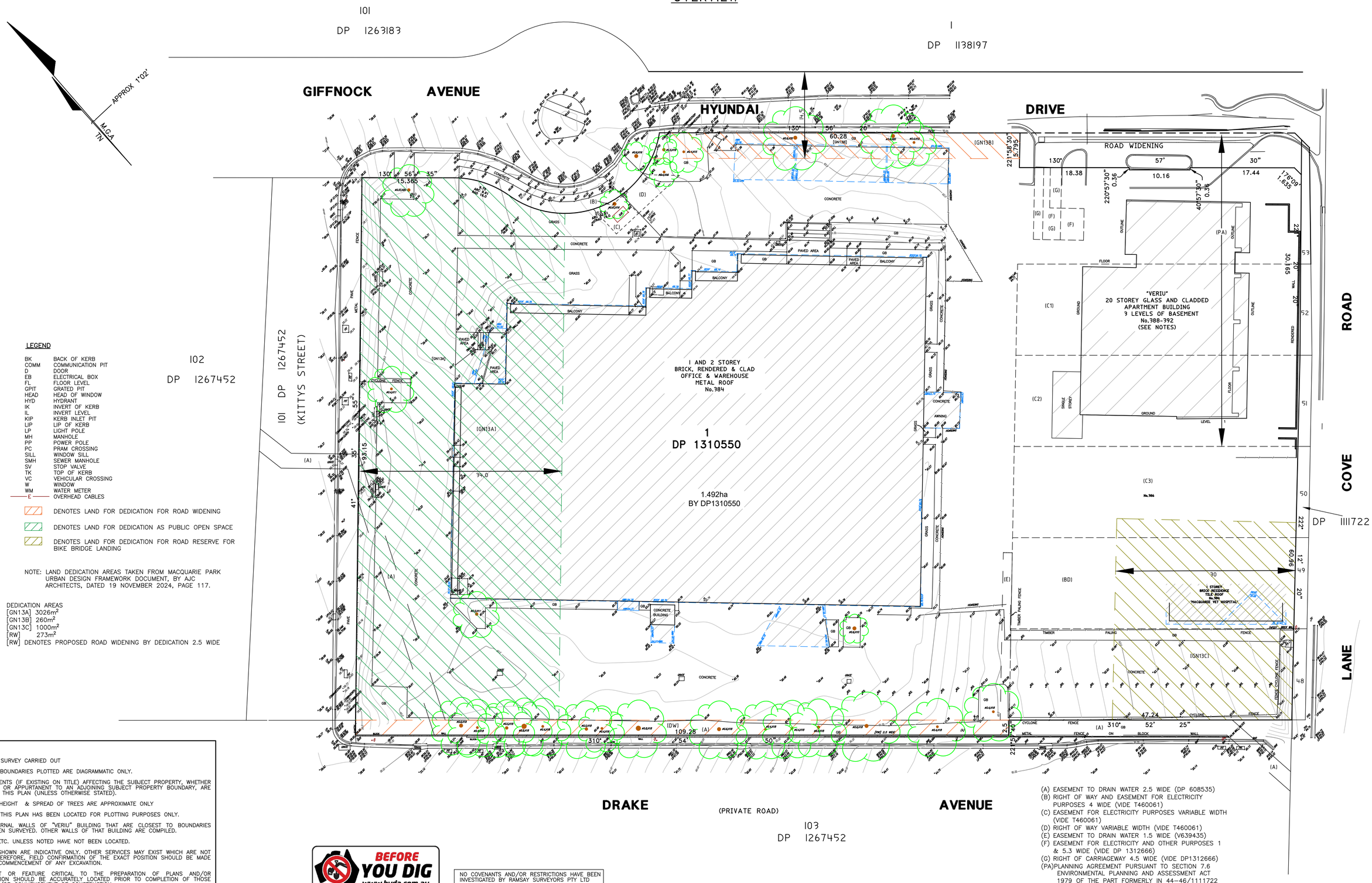
Appendix C – Site Survey and Development Plans

OVERVIEW



LEGEND

BK	BACK OF KERB
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
FL	FLOOR LEVEL
GPIT	GRATED PIT
HEAD	HEAD OF WINDOW
HYD	HYDRANT
IK	INVERT OF KERB
IL	INVERT LEVEL
KIP	KERB INLET PIT
LIP	LIP OF KERB
LP	LIGHT POLE
MH	MANHOLE
PP	POWER POLE
PC	PRAM CROSSING
SILL	WINDOW SILL
SMH	SEWER MANHOLE
SV	STOP VALVE
TK	TOP OF KERB
VC	VEHICULAR CROSSING
W	WINDOW
WM	WATER METER
E	OVERHEAD CABLES

DENOTES LAND FOR DEDICATION FOR ROAD WIDENING

DENOTES LAND FOR DEDICATION AS PUBLIC OPEN SPACE

DENOTES LAND FOR DEDICATION FOR ROAD RESERVE FOR BIKE BRIDGE LANDING

NOTE: LAND DEDICATION AREAS TAKEN FROM MACQUARIE PARK URBAN DESIGN FRAMEWORK DOCUMENT, BY AJC ARCHITECTS, DATED 19 NOVEMBER 2024, PAGE 117.

DEDICATION AREAS
[GN13A] 3026m²
[GN13B] 260m²
[GN13C] 1000m²
[RW] 273m²
[RW] DENOTES PROPOSED ROAD WIDENING BY DEDICATION 2.5 WIDE

(A) EASEMENT TO DRAIN WATER 2.5 WIDE (DP 608535)
(B) RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES 4 WIDE (VIDE T460061)
(C) EASEMENT FOR ELECTRICITY PURPOSES VARIABLE WIDTH (VIDE T460061)
(D) RIGHT OF WAY VARIABLE WIDTH (VIDE T460061)
(E) EASEMENT TO DRAIN WATER 1.5 WIDE (V639435)
(F) EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 1 & 5.3 WIDE (VIDE DP 1312666)
(G) RIGHT OF CARRIAGEWAY 4.5 WIDE (VIDE DP1312666)
(PA)PLANNING AGREEMENT PURSUANT TO SECTION 7.6 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 OF THE PART FORMERLY IN 44-46/1111722

POSITIVE COVENANT VIDE DP 1312665 AFFECTS THE WHOLE OF LOT 1 IN DP1310550

NOTES:

BOUNDARY SURVEY CARRIED OUT

ADJOINING BOUNDARIES PLOTTED ARE DIAGRAMMATIC ONLY.

ALL EASEMENTS (IF EXISTING ON TITLE) AFFECTING THE SUBJECT PROPERTY, WHETHER BURDENING OR APPURTANENT TO AN ADJOINING SUBJECT PROPERTY BOUNDARY, ARE SHOWN ON THIS PLAN (UNLESS OTHERWISE STATED).

DIAMETER, HEIGHT & SPREAD OF TREES ARE APPROXIMATE ONLY

DETAIL ON THIS PLAN HAS BEEN LOCATED FOR PLOTTING PURPOSES ONLY.

ONLY EXTERNAL WALLS OF "VERIU" BUILDING THAT ARE CLOSEST TO BOUNDARIES HAVING BEEN SURVEYED. OTHER WALLS OF THAT BUILDING ARE COMPILED.

SERVICES ETC. UNLESS NOTED HAVE NOT BEEN LOCATED.

SERVICES SHOWN ARE INDICATIVE ONLY. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN. THEREFORE, FIELD CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

ANY POINT OR FEATURE CRITICAL TO THE PREPARATION OF PLANS AND/OR CONSTRUCTION SHOULD BE ACCURATELY LOCATED PRIOR TO COMPLETION OF THOSE PLANS AND/OR COMMENCEMENT OF CONSTRUCTION.

BOUNDARY DIMENSIONS AND BEARINGS FROM DP 1280568
ORIGIN OF LEVELS: BENCH MARK CUT OF KERB RL 64.2 (AHD), TAKEN FROM PLAN BY C-SIDE SURVEYORS, REF:131006-DET, REV:B, DATED 26/2/2016

CONTOUR INTERVALS ARE 0.2 MINOR AND 1.0 MAJOR

USE STATED DIMENSIONS. DO NOT SCALE.

THIS PLAN & THE INFORMATION CONTAINED HEREON REMAINS THE PROPERTY OF RAMSAY SURVEYORS PTY LTD AND MUST NOT BE COPIED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF RAMSAY SURVEYORS PTY LTD & IS NOT TO BE USED FOR ANY OTHER PURPOSE THAN FOR THAT WHICH IT HAS BEEN PREPARED THIS PLAN HAS BEEN PREPARED FOR THE SOLE USE OF THE INSTRUCTING PARTY &/OR THEIR NOMINATED CLIENT

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

NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY RAMSAY SURVEYORS PTY LTD

AMENDMENTS

DATE	DESCRIPTION
27/02/2025	ADJOINING BUILDING INFORMATION ADDED, DEDICATION AREAS REVISED & LOT INFORMATION UPDATED

L.G.A
CITY OF RYDE

LOCALITY:
MACQUARIE PARK

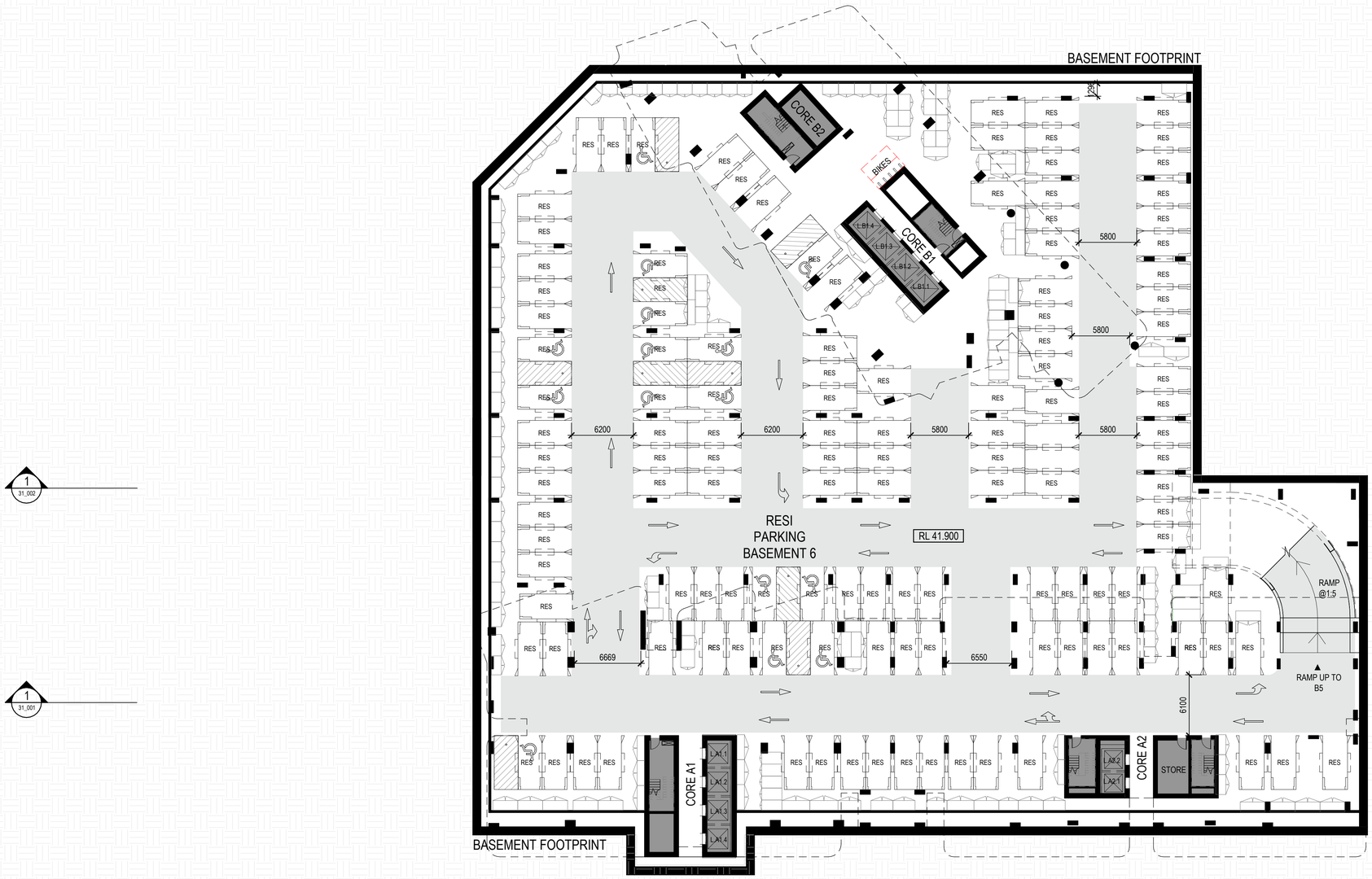
INSTRUCTED BY:
HOLDMARK PROPERTY GROUP

RE:
MACQUARIE PARK

H RAMSAY & CO. SURVEYORS EST.1962
Ramsay Surveyors Pty Limited ACN 607 389 748
"CARLINGFORD CENTRAL" SUITE 15, 241-245 PENNANT HILLS RD, CARLINGFORD NSW 2118
P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
EMAIL: surveyor@hramsay.com.au www.hramsay.com.au

PLAN SHOWING DETAIL AND LEVELS OVER LOT 1 IN DP 1310550 No.2-4 GIFFNOCK AVENUE & 384-392 LANE COVE ROAD, MACQUARIE PARK

SCALE	1:300@A1
DATUM	AHD
SURVEY	RVN
DRAWN	VR
DATE	19/11/24
OUR REF	8275
SHEET	1 OF 5 SHEETS



PARKING SCHEDULE		
	Notes	Count
VISITOR		
BASEMENT 2	VISITOR PARKING - 2400w	1
BASEMENT 2	VISITOR PARKING - 2700w	14
BASEMENT 1	VISITOR PARKING (DDA)	1
BASEMENT 1	VISITOR PARKING - 2400w	10
BASEMENT 1	VISITOR PARKING - 2700w	23
VISITOR: 49		49
RETAIL STAFF		
BASEMENT 1	RETAIL PARKING - 2500w	18
BASEMENT 1	RETAIL PARKING - DDA	1
RETAIL STAFF: 19		19
RESIDENTIAL DDA		
BASEMENT 6	RESIDENTIAL PARKING (DDA)	15
BASEMENT 5	RESIDENTIAL PARKING (DDA)	15
BASEMENT 4	RESIDENTIAL PARKING (DDA)	15
BASEMENT 3	RESIDENTIAL PARKING (DDA)	15
BASEMENT 2	RESIDENTIAL PARKING (DDA)	15
RESIDENTIAL DDA: 75		75
RESIDENTIAL		
BASEMENT 6	RESIDENTIAL PARKING	113
BASEMENT 5	RESIDENTIAL PARKING	110
BASEMENT 4	RESIDENTIAL PARKING	110
BASEMENT 3	RESIDENTIAL PARKING	110
BASEMENT 2	RESIDENTIAL PARKING	92
RESIDENTIAL: 535		535
DELIVERY / SERVICE		
BASEMENT 1	DELIVERY / SERVICE - 2500w	2
DELIVERY / SERVICE: 2		2
CHILDCARE		
BASEMENT 1	CHILDCARE PARKING - 2700w	19
BASEMENT 1	CHILDCARE PARKING DDA	1
CHILDCARE: 20		20
CAR SHARE		
BASEMENT 1	CAR SHARE - 2700w	13
CAR SHARE: 13		13
		713

[Status] SSDA ISSUE

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:06:32 AM

History

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M	FOR COORDINATION	29.09.2025
N	FOR COORDINATION	01.10.2025
O	SSDA ISSUE	03.10.2025
P	SSDA ISSUE	17.03.2026

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Formerly Scott Carver
Suite 2.02, Level 2,155 Clarence Street, Sydney NSW 2000
www.studiosc.com.au +61 2 9957 3988

[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 06

[Ref] 20240028 [Dwg No] AD-DA11_094 [Rev] P

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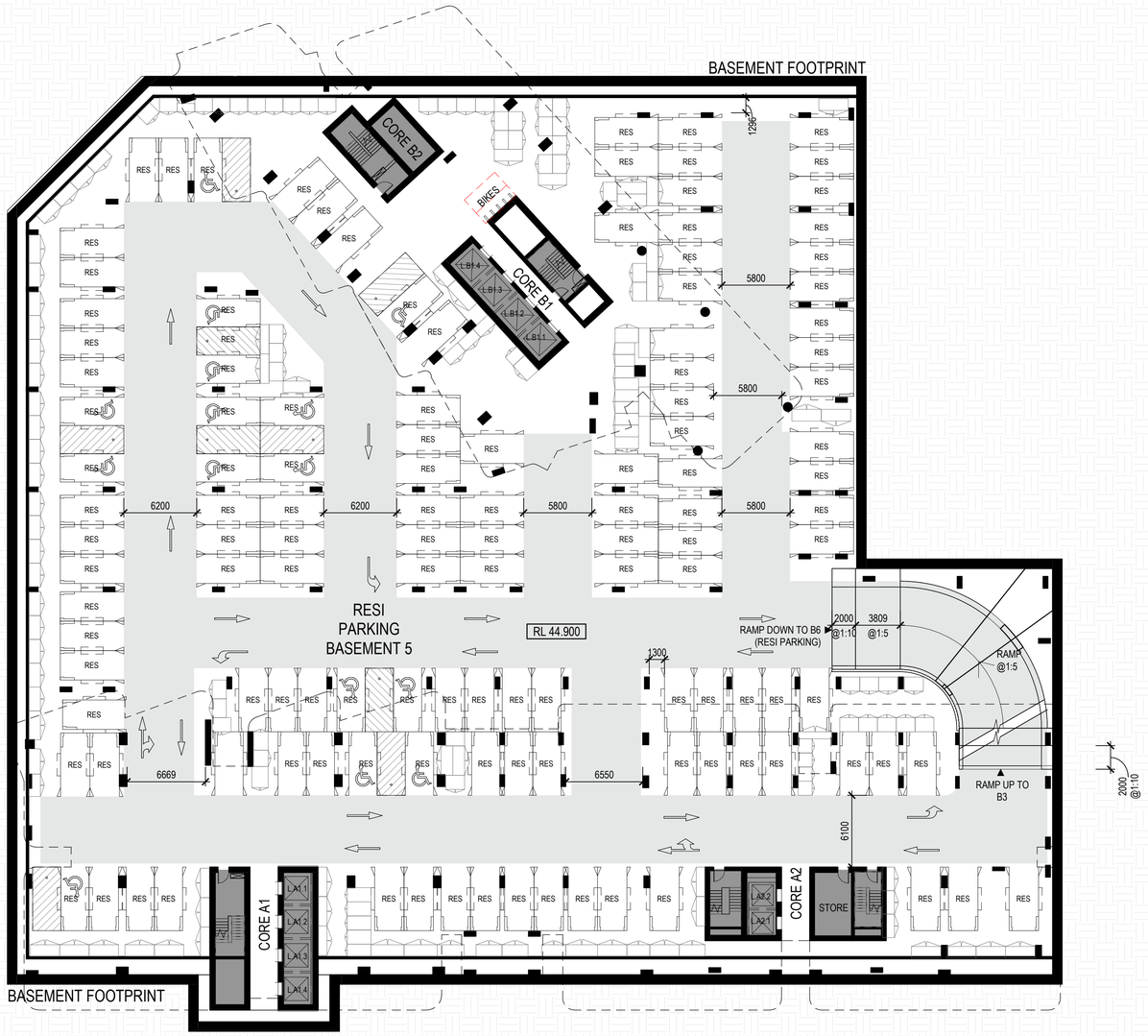
31_001



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[Project] GIFFNOCK AVE, MACQUARIE PARK

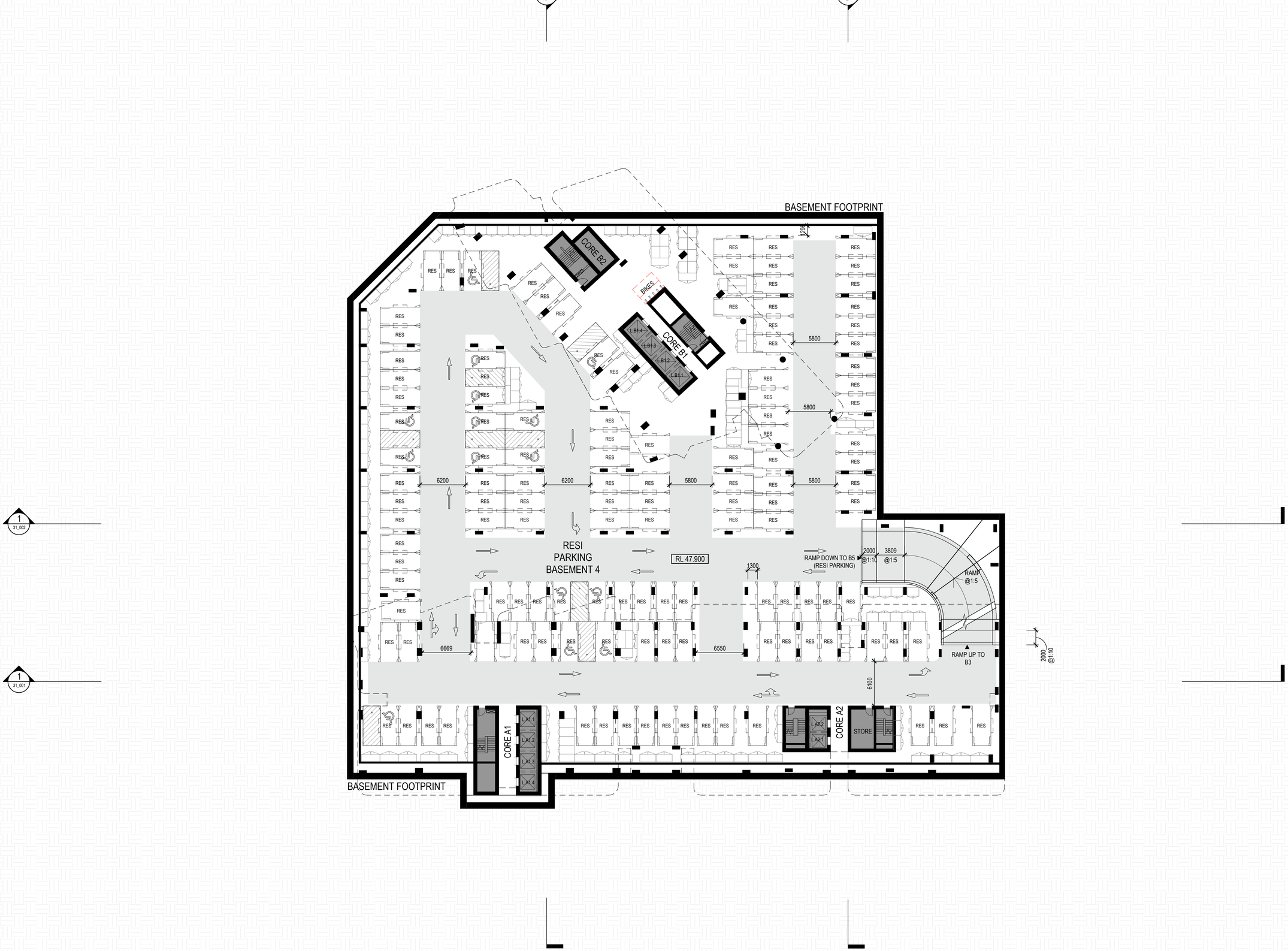
[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 05

[Ref] 20240028 [Dwg No] AD-DA11_095 [Rev] O



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N	SSDA ISSUE	03.10.2025
O	SSDA ISSUE	17.03.2026

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 04

[Ref] 20240028 [Dwg No] AD-DA11_096 [Rev] O

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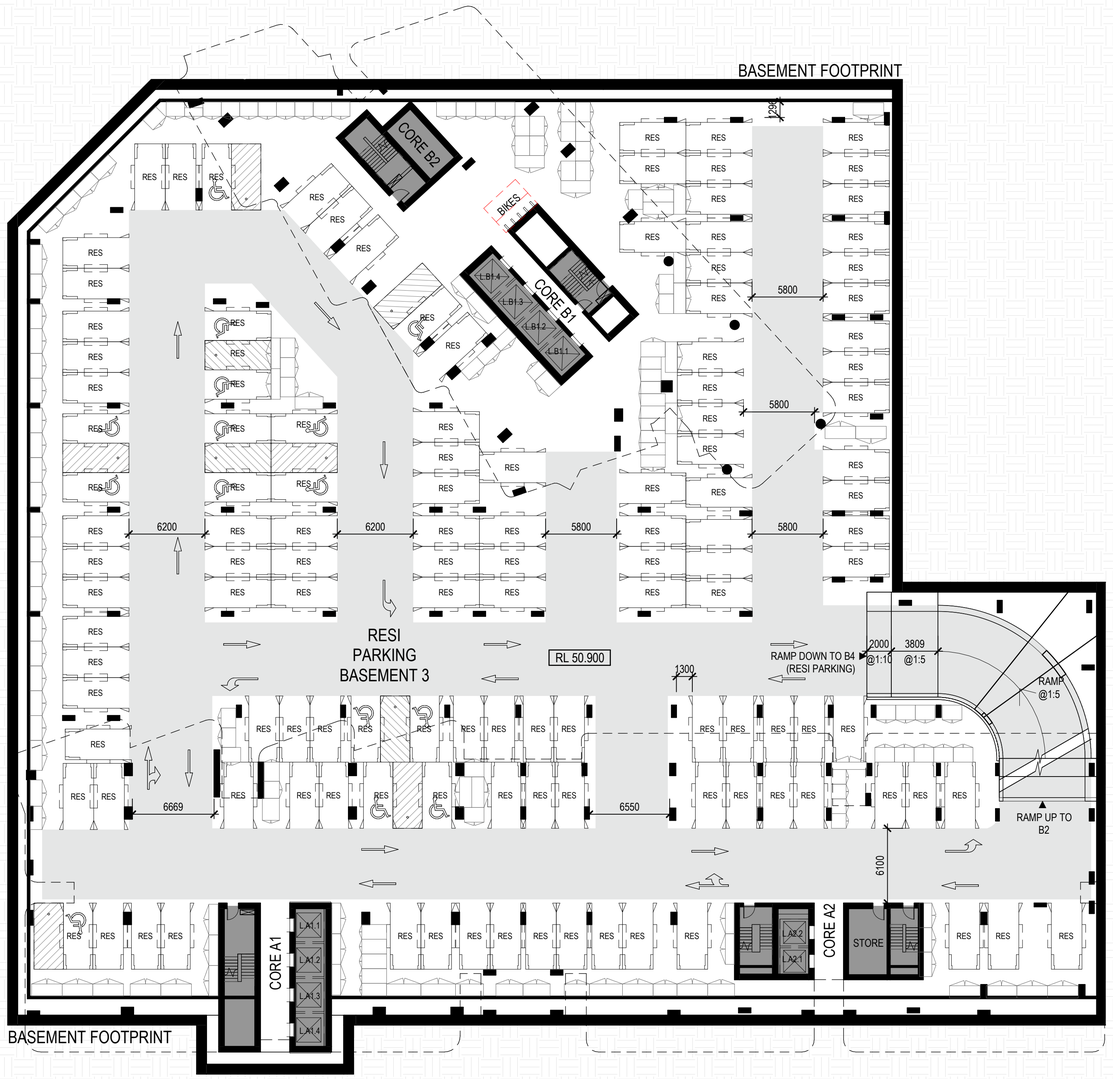

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[Status] SSDA ISSUE

[Nom. Architect] Nicholas Bandounas /8499

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M	FOR COORDINATION	01.10.2025
N	SSDA ISSUE	03.10.2025
O	SSDA ISSUE	17.03.2026

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PRINT IN COLOUR

[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 03

[Ref] 20240028 [Dwg No] AD-DA11_097 [Rev] O

[Status] SSDA ISSUE

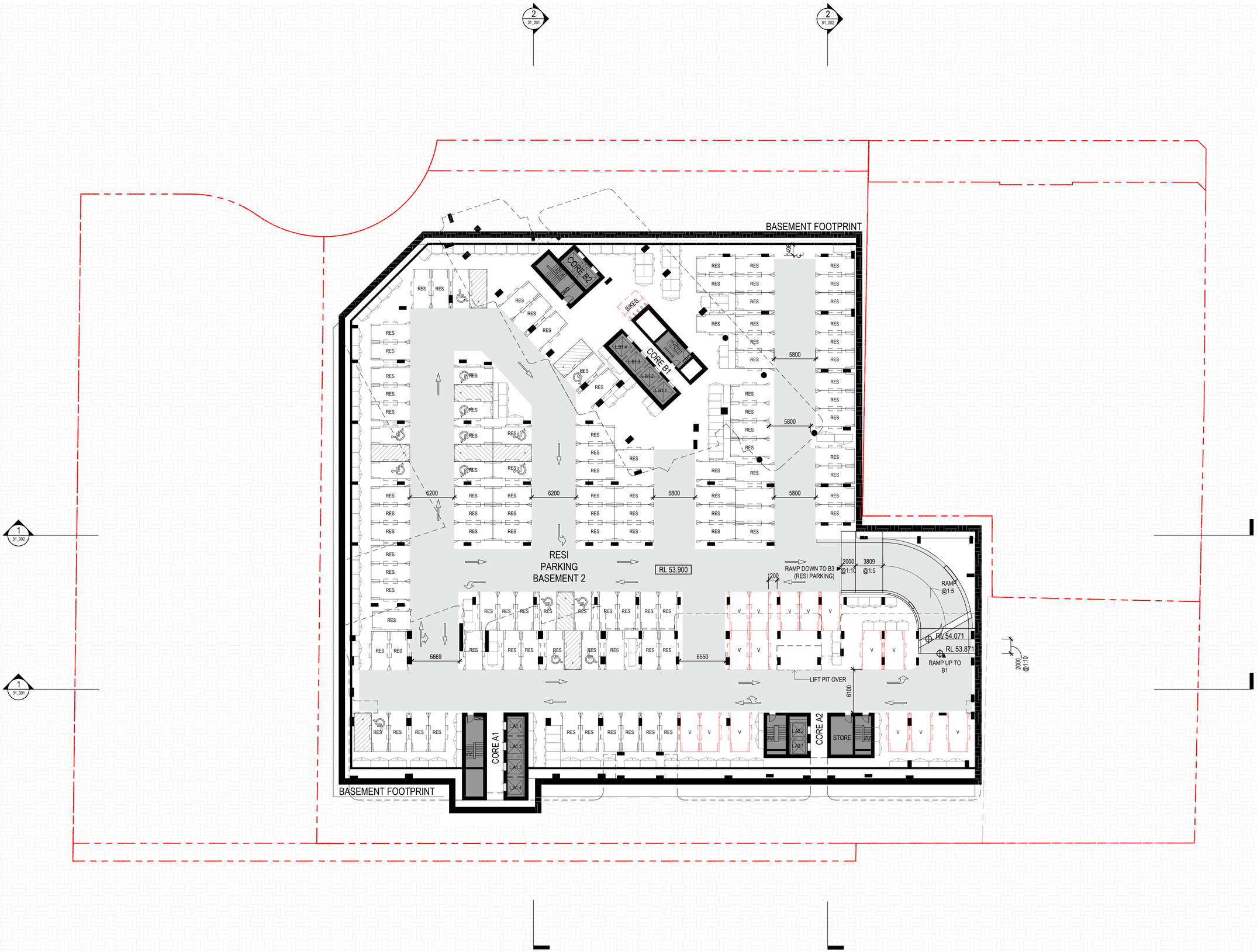
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:07:03 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
L	FOR COORDINATION	19.09.2025
M	FOR COORDINATION	29.09.2025
N	FOR COORDINATION	01.10.2025
O	SSDA ISSUE	03.10.2025
P	SSDA ISSUE	17.03.2026



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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 02

[Ref] 20240028 [Dwg No] AD-DA11_098 [Rev] P

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[Status] SSDA ISSUE

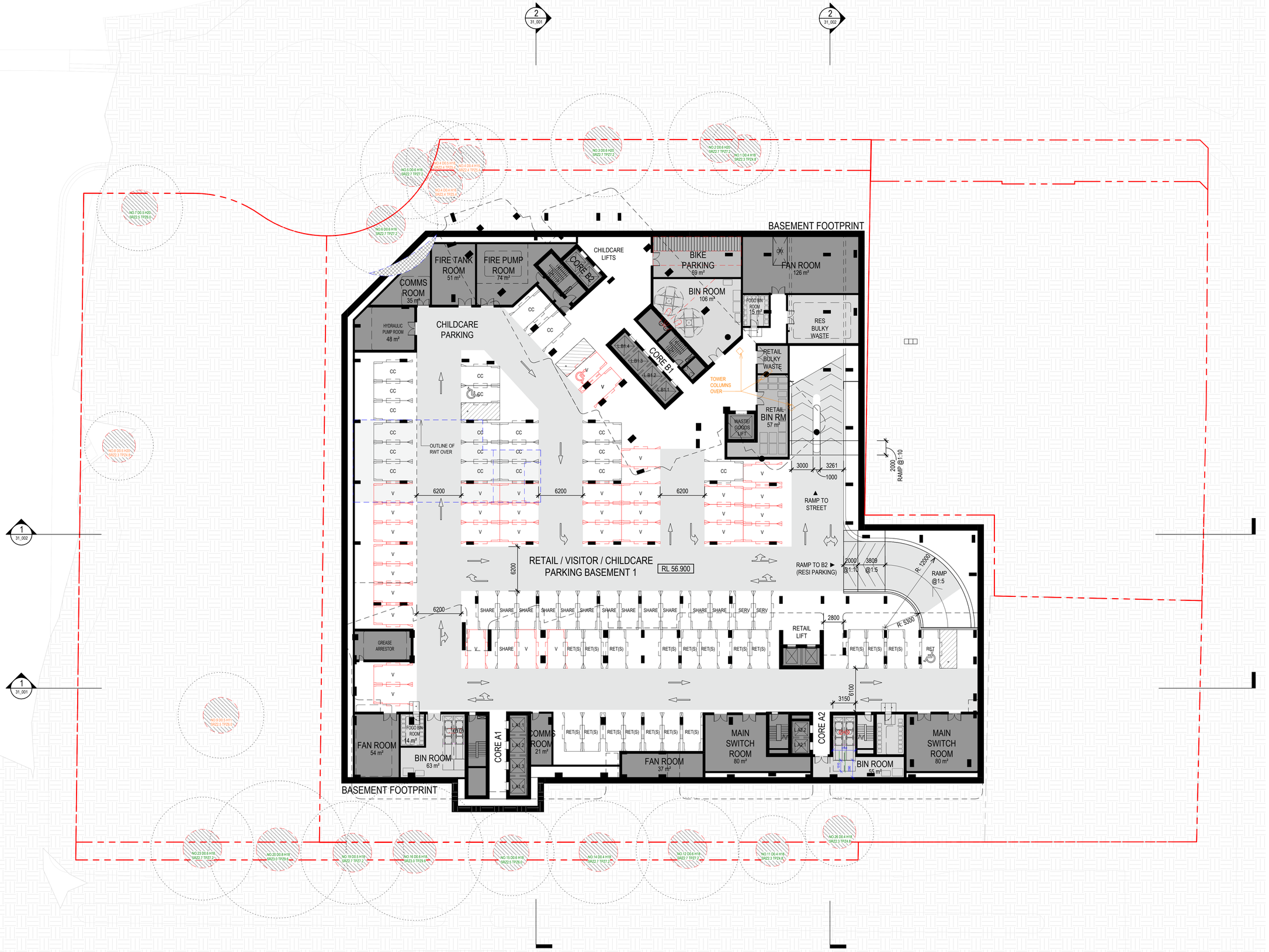
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:07:09 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
M	FOR COORDINATION	19.09.2025
N	FOR COORDINATION	29.09.2025
O	FOR COORDINATION	01.10.2025
P	SSDA ISSUE	03.10.2025
Q	SSDA ISSUE	17.03.2026



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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

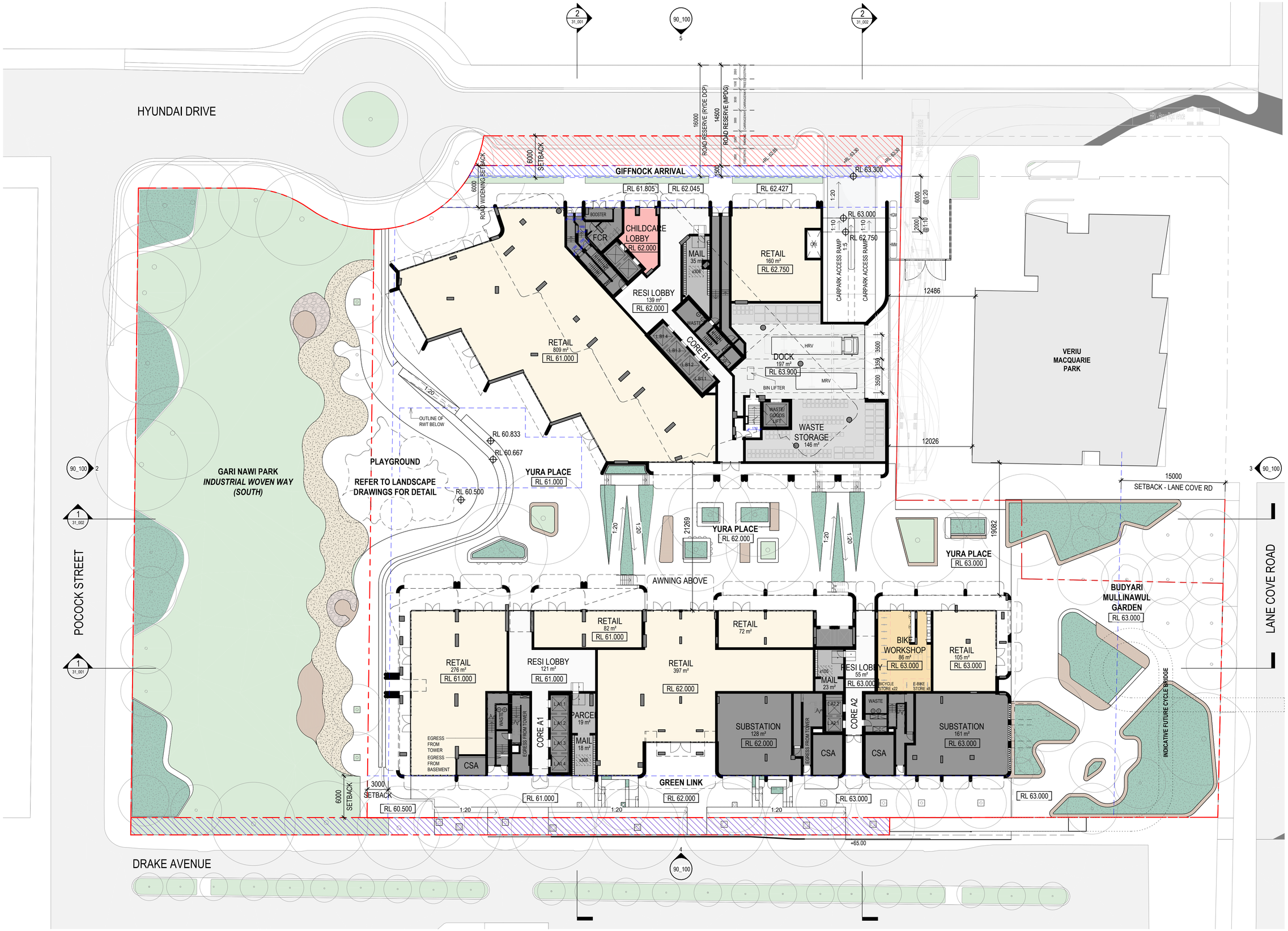
0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - BASEMENT 01

[Ref] 20240028 [Dwg No] AD-DA11_099 [Rev] Q

PRINT IN COLOUR



[Status] SSDA ISSUE

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:08:24 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
O	FOR COORDINATION	01.10.2025
P	SSDA ISSUE	03.10.2025
Q	SSDA ISSUE	08.10.2025
R	SSDA ISSUE	19.11.2025
S	SSDA ISSUE	17.03.2026

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - GROUND FLOOR

[Ref] 20240028 [Dwg No] AD-DA11_100 [Rev] S

PRINT IN COLOUR

[Status] SSDA ISSUE

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:09:43 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
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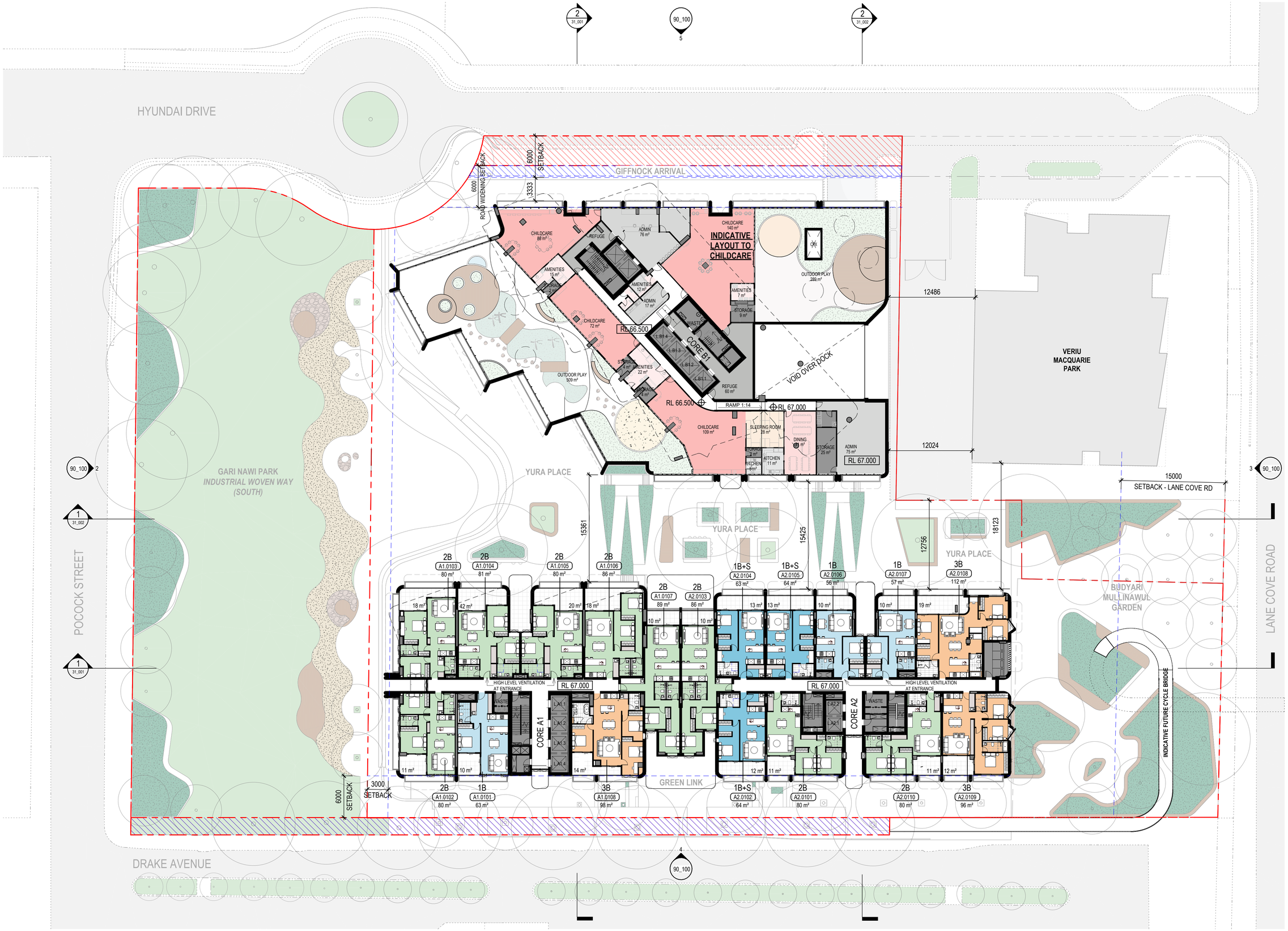
O	SSDA ISSUE	19.11.2025
P	SSDA ISSUE	20.11.2025
Q	SSDA ISSUE	17.03.2026



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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 2.5 5 7.5 10 12.5 m
Bar Scale 1:250

[Scale] 1 : 250 @ A1

GA PLAN - LEVEL 1

[Ref] 20240028 [Dwg No] AD-DA11_101 [Rev] Q

PRINT IN COLOUR

MATERIAL LEGEND

CODE	DESCRIPTION
AL-001	COLORBOND OR SIMILAR - ALUMINIUM GULLY
EC-101	BRICK LOOK/BRICK PRECAST/STAMPED PRECAST OR SIMILAR - TERRACOTTA
EC-103	PRECAST CONCRETE OR SIMILAR - TERRACOTTA
EC-104	PRECAST CONCRETE OR SIMILAR - LIGHT TERRACOTTA
EC-105	PRECAST CONCRETE OR SIMILAR - GREY
EC-106	PRECAST CONCRETE OR SIMILAR - DARK GREY
GL-101	GLAZING - TINTED
WD-001	EXTERNAL WINDOW - ALUMINIUM DARK GREY OR SIMILAR

[Status] SSDA ISSUE

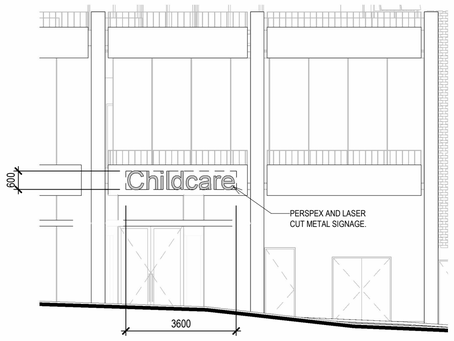
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

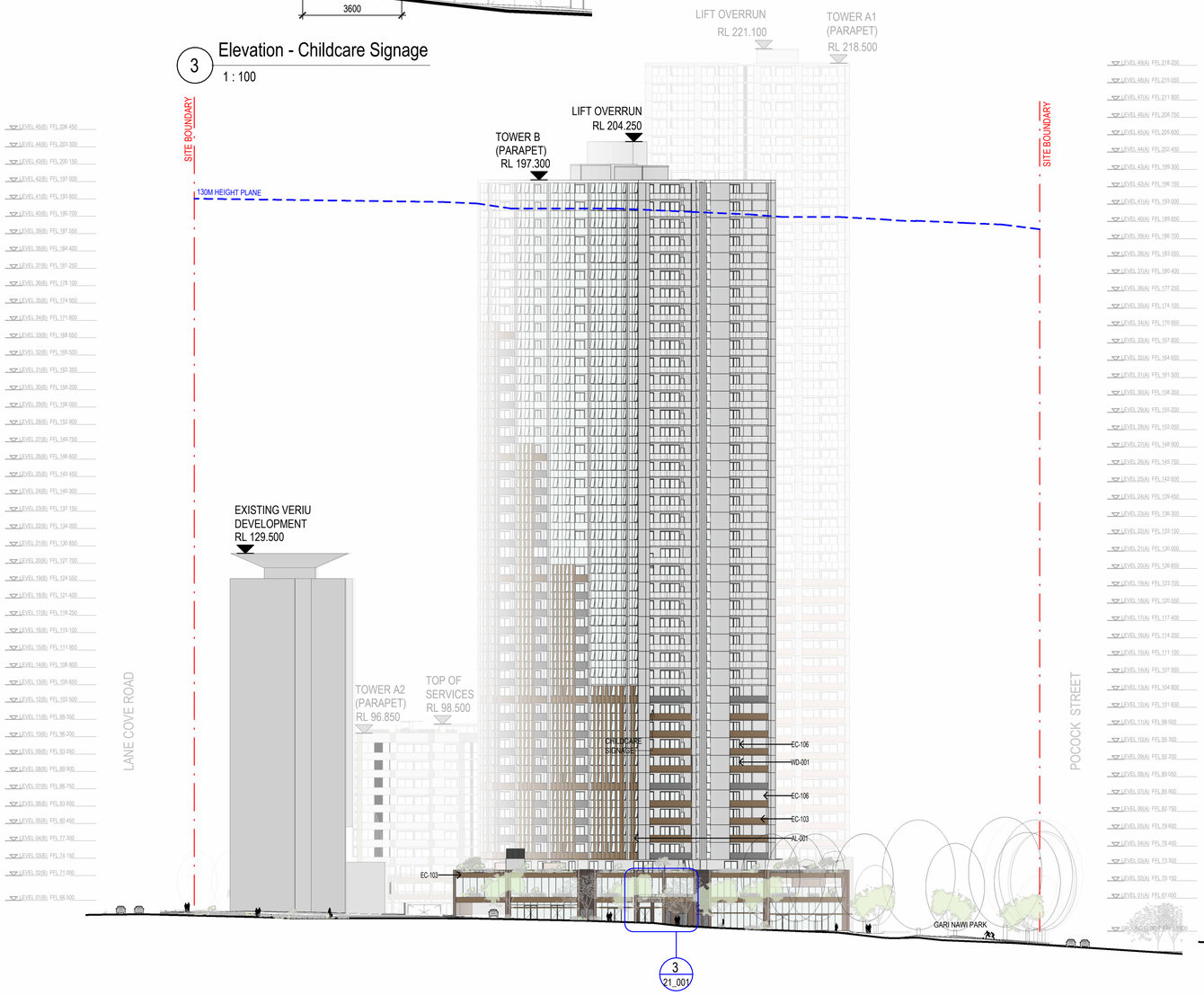
[Print Date] 17/03/2026 10:13:50 AM

History

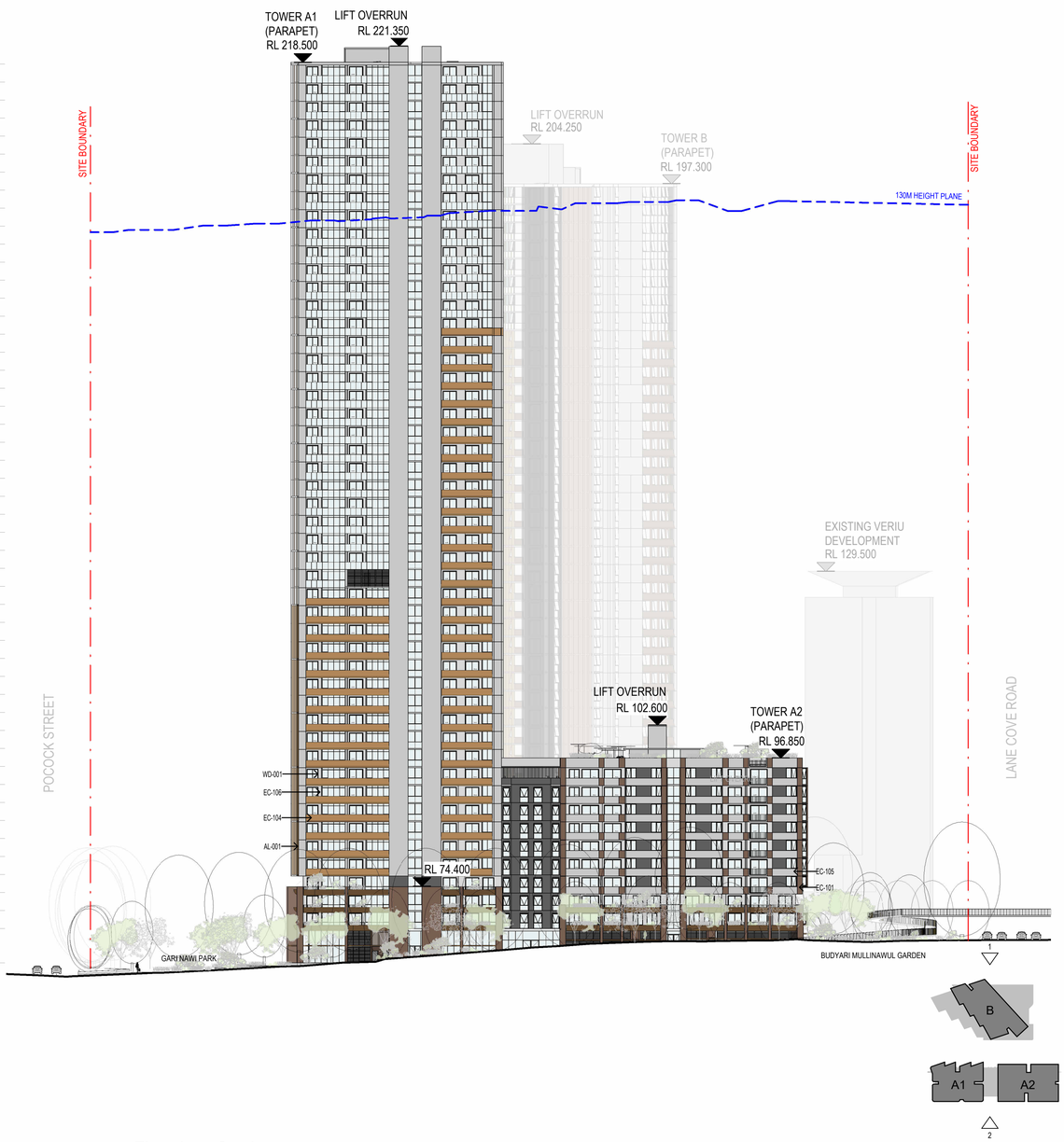
[Rev#]	[Description]	[Date]dd.mm.yy
F	FOR COORDINATION	19.09.2025
G	FOR COORDINATION	29.09.2025
H	SSDA ISSUE	03.10.2025
I	SSDA ISSUE	17.11.2025
J	SSDA ISSUE	17.03.2026



3 Elevation - Childcare Signage
1 : 100



1 Elevation - North
1 : 500



2 Elevation - South
1 : 500

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 5 10 15 20 25 m
Bar Scale 1:500

ELEVATIONS 1

[Scale] As indicated @ A1 [Ref] 20240028 [Dwg No] AD-DA21_001 [Rev] J

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MATERIAL LEGEND

CODE	DESCRIPTION
AL-001	COLORBOND OR SIMILAR - ALUMINIUM GULLY
EC-101	BRICK LOOK/BRICK PRECAST/STAMPED PRECAST OR SIMILAR - TERRACOTTA
EC-103	PRECAST CONCRETE OR SIMILAR - TERRACOTTA
EC-104	PRECAST CONCRETE OR SIMILAR - LIGHT TERRACOTTA
EC-105	PRECAST CONCRETE OR SIMILAR - GREY
EC-106	PRECAST CONCRETE OR SIMILAR - DARK GREY
GL-101	GLAZING - TINTED
WD-001	EXTERNAL WINDOW - ALUMINIUM DARK GREY OR SIMILAR

[Status] SSDA ISSUE

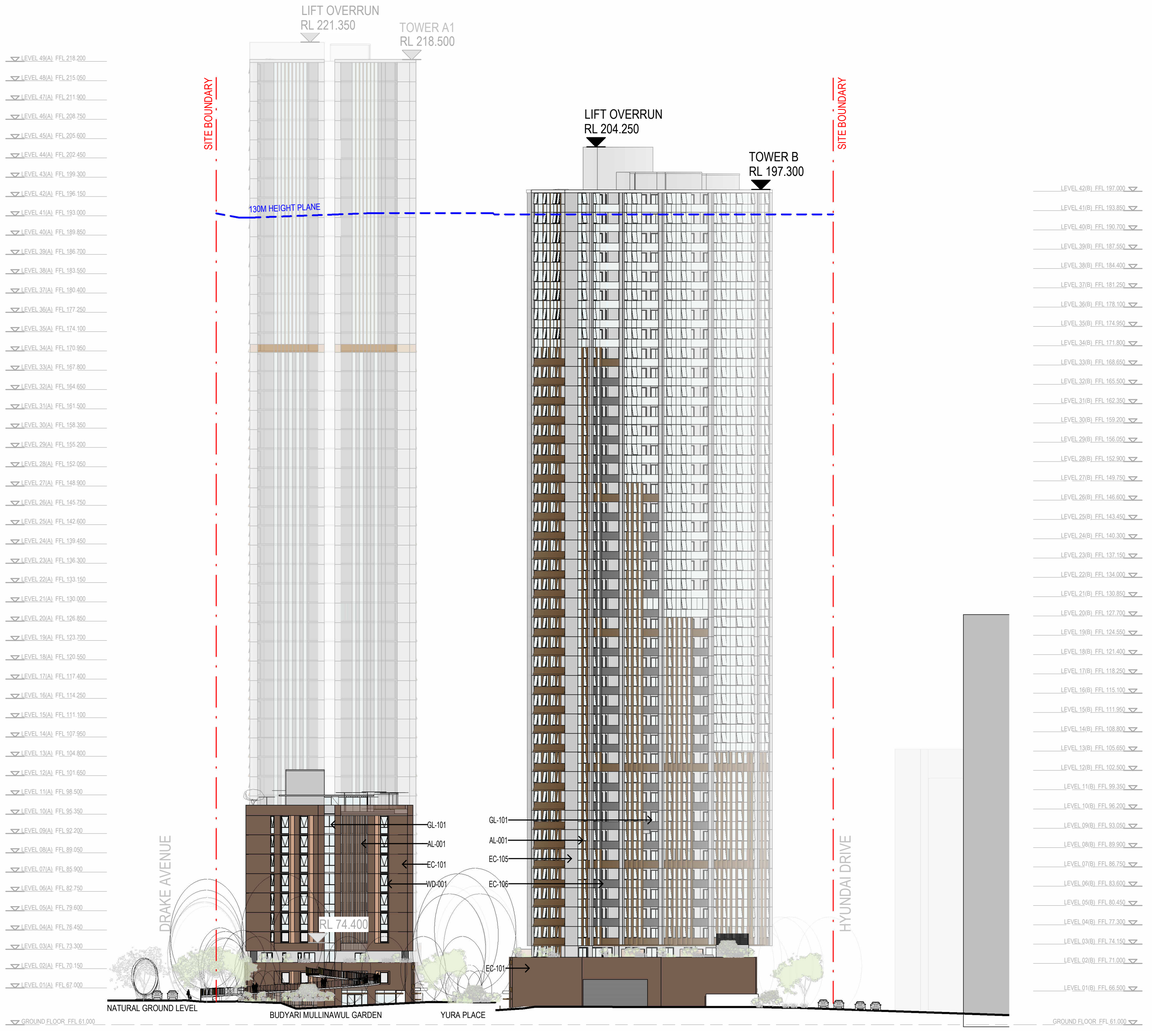
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

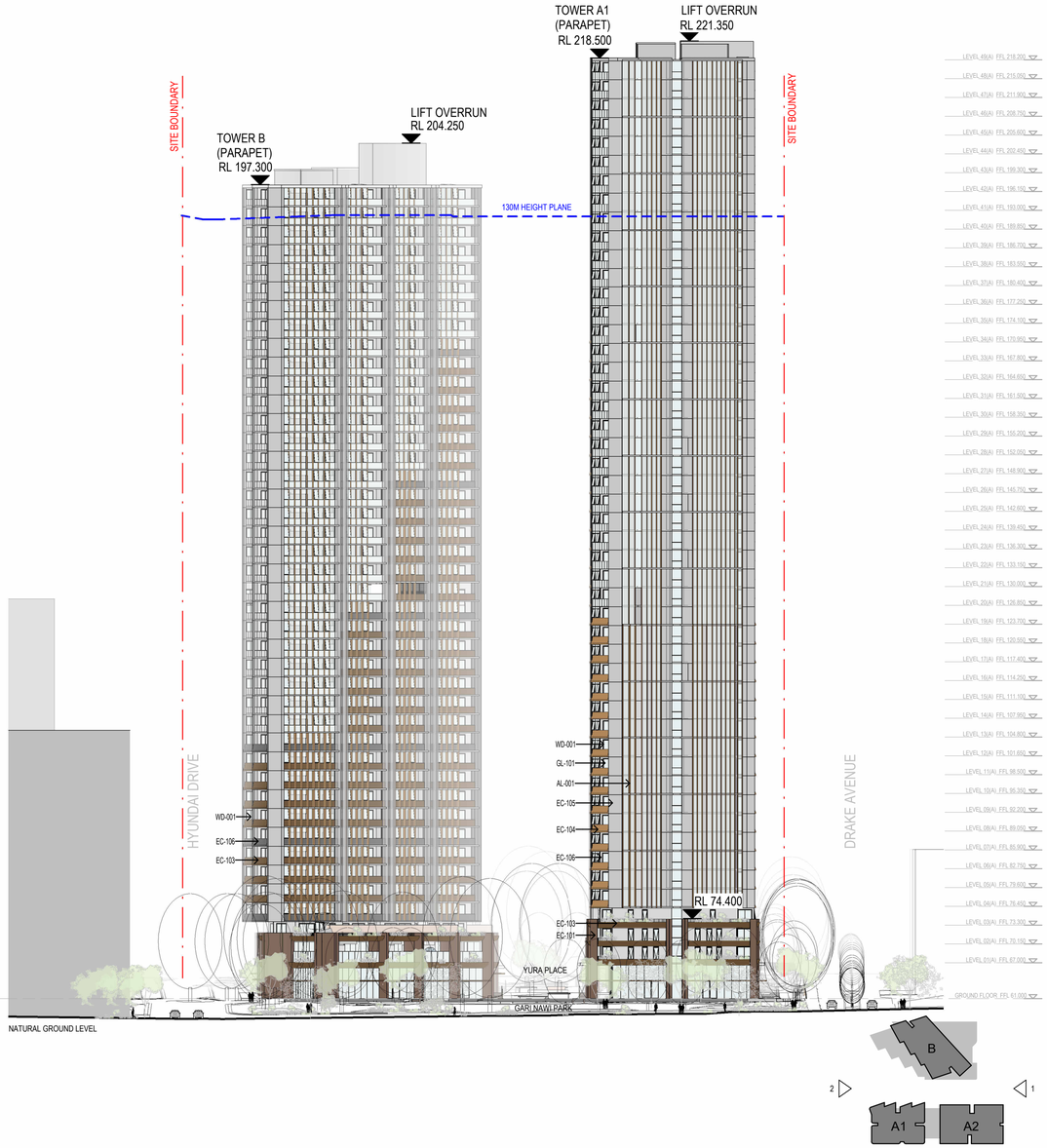
[Print Date] 17/03/2026 10:14:14 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
F	FOR COORDINATION	19.09.2025
G	FOR COORDINATION	29.09.2025
H	SSDA ISSUE	03.10.2025
I	SSDA ISSUE	17.11.2025
J	SSDA ISSUE	17.03.2026



1 Elevation - East
1 : 500



2 Elevation - West
1 : 500

Bar Scale 1:500 (0 5 10 15 20 25 m)

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

[Scale] 1 : 500 @ A1

ELEVATIONS 2

[Ref] 20240028 [Dwg No] AD-DA21_002 [Rev] J

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[Status] SSDA ISSUE

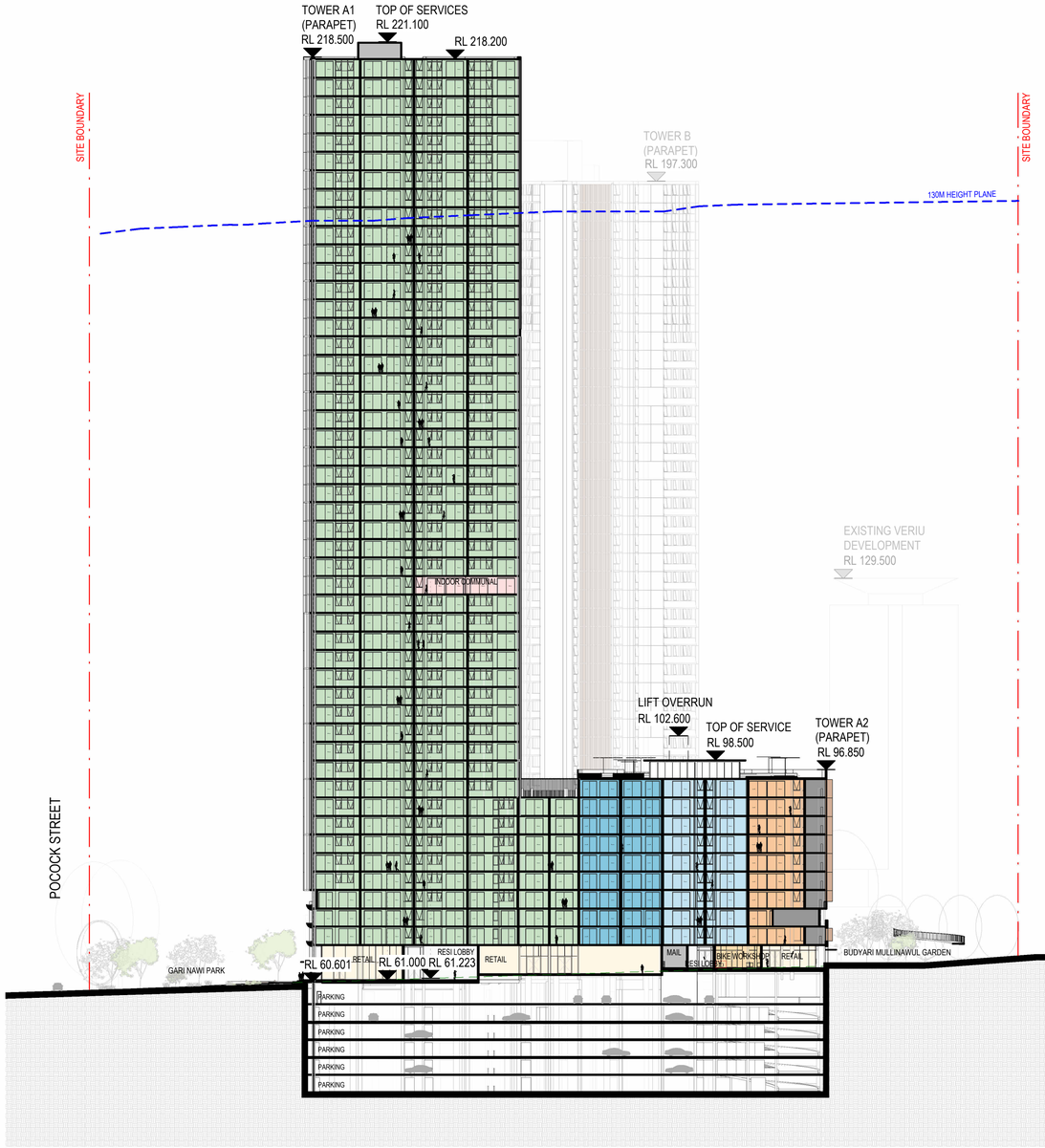
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

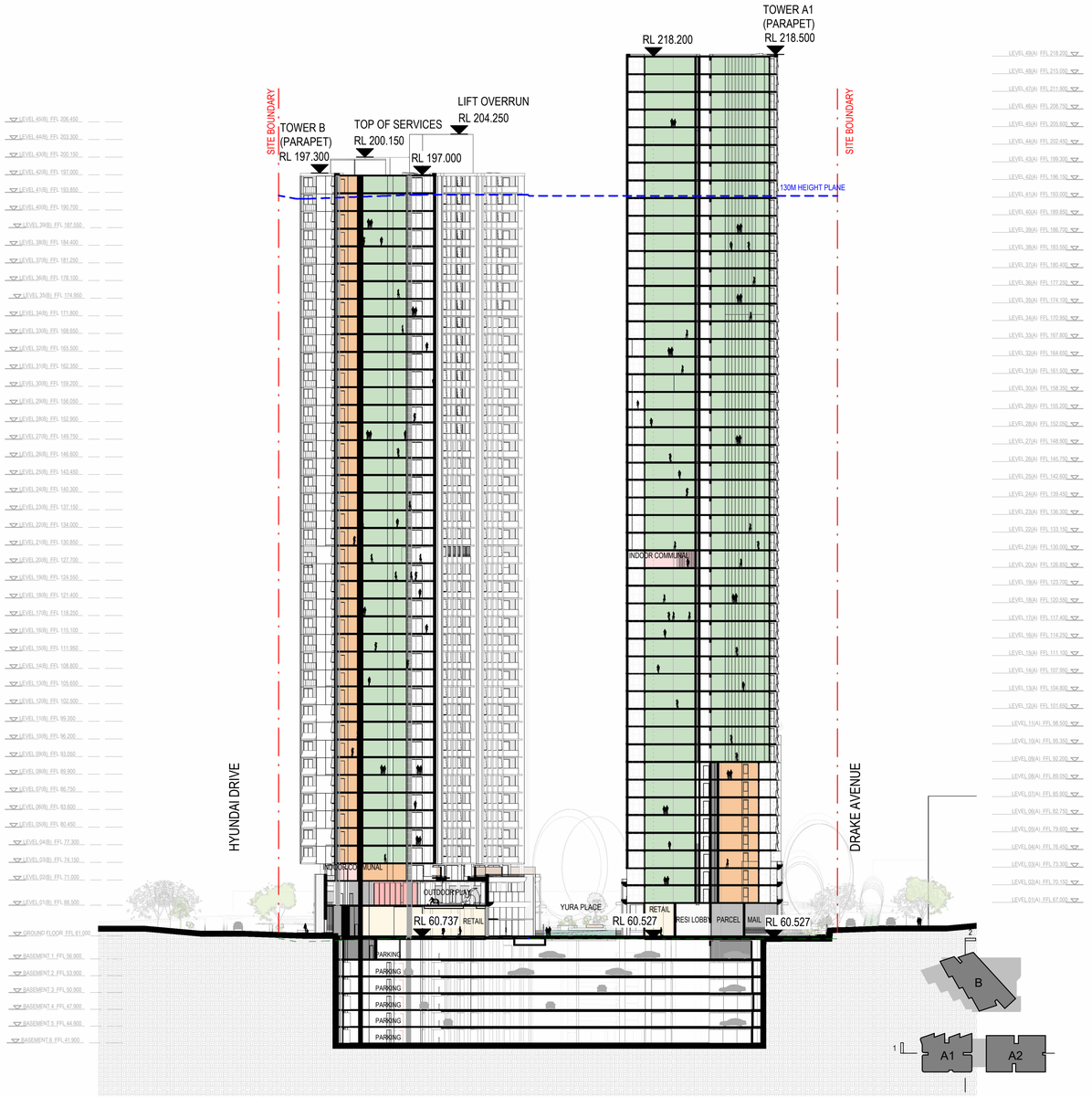
[Print Date] 17/03/2026 10:14:32 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
D	FOR COORDINATION	19.09.2025
E	FOR COORDINATION	29.09.2025
F	SSDA ISSUE	03.10.2025
G	SSDA ISSUE	17.11.2025
H	SSDA ISSUE	17.03.2026



1 Section A
1 : 500



2 Section B
1 : 500

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 5 10 15 20 25 m
Bar Scale 1:500

SECTIONS 1

[Scale] 1 : 500 @ A1

[Ref] 20240028 [Dwg No] AD-DA31_001 [Rev] H

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[Status] SSDA ISSUE

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240028-AB-DA201-R24

[Print Date] 17/03/2026 10:14:42 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
E	FOR COORDINATION	19.09.2025
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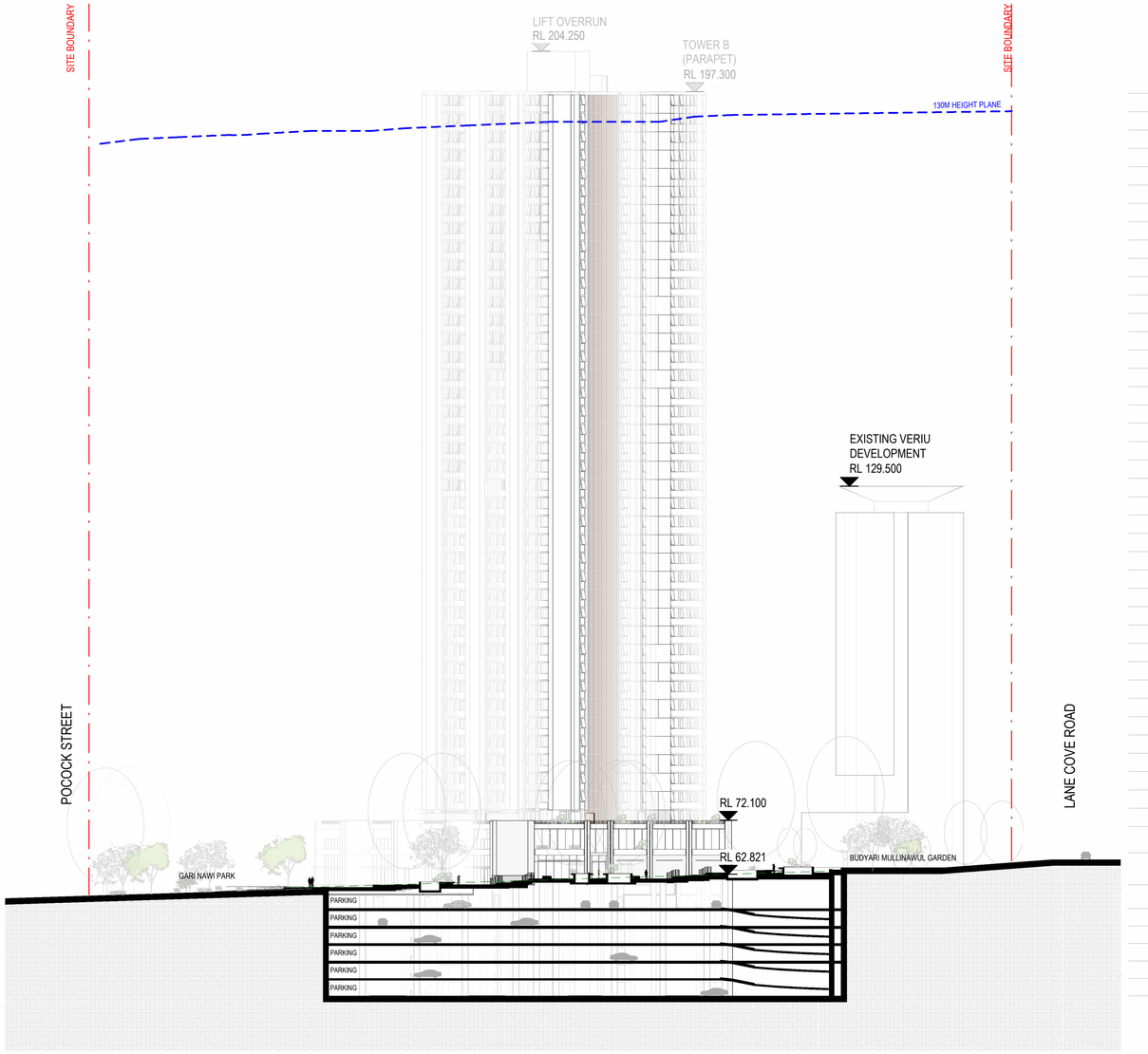
H	SSDA ISSUE	17.11.2025
I	SSDA ISSUE	17.03.2026



1 Section C
1 : 500

2 Section D
1 : 500

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[Project] GIFFNOCK AVE, MACQUARIE PARK

[Client] HOLDMARK PROPERTY GROUP

0 5 10 15 20 25 m
Bar Scale 1:500

SECTIONS 2

[Scale] 1 : 500 @ A1 [Ref] 20240028 [Dwg No] AD-DA31_002 [Rev] I

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Appendix D – WaterNSW Registered Bore Search

find a site
⊞ Real Time Data - Rivers And Streams

Daily River Reports
⊞ Daily River Reports

Dams
favourites | search | download sites
find a site
⊞ Real Time Data - Major Dams

Groundwater (Telemetered data)
favourites | search | download sites
find a site
⊞ Real Time Data - Bores

All Groundwater Site details
search | download sites | find a site
search by licence
All Groundwater Map

Meteorology
favourites | search | download sites
find a site
⊞ Real Time Data - Weather Stations

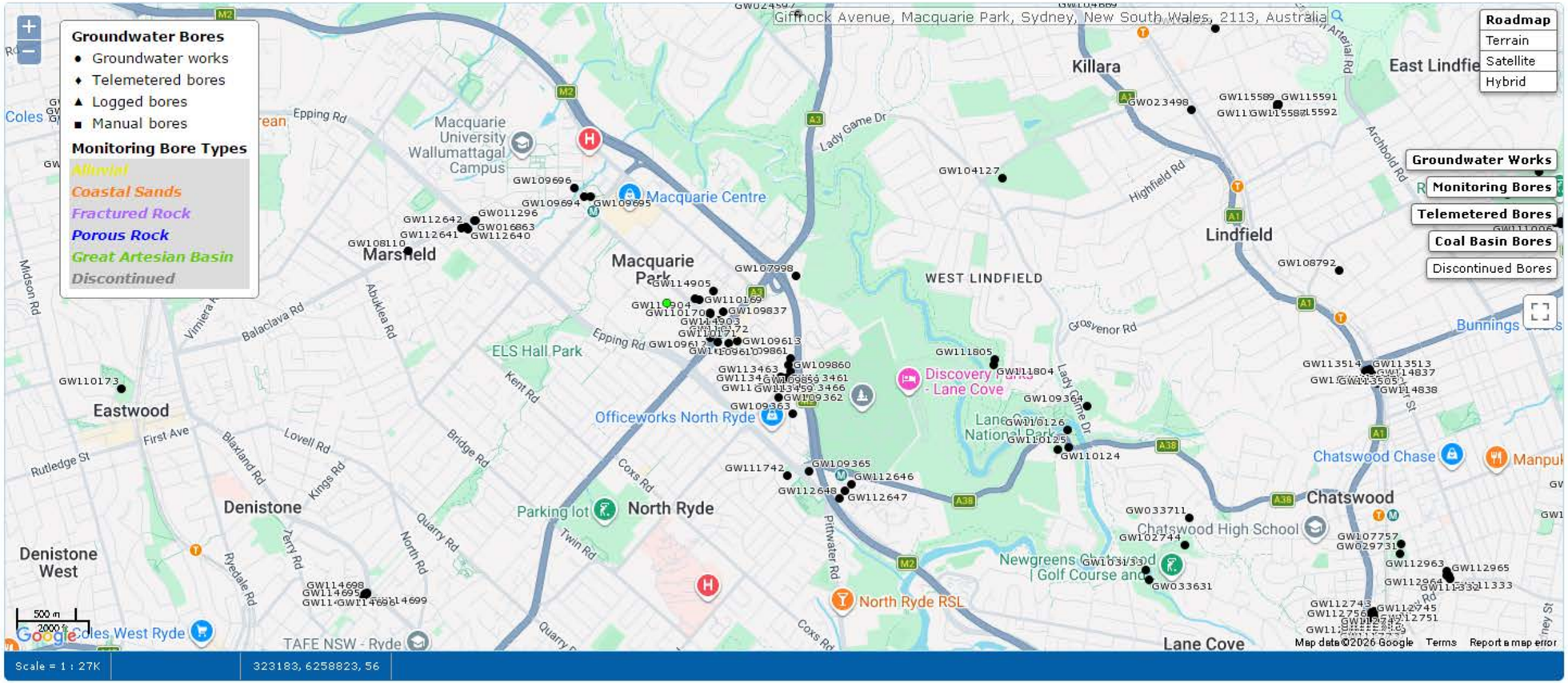
Hunter River Salinity Trading Scheme
Hunter River Salinity Trading Scheme

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



WaterNSW
Work Summary

GW109611

Licence: 10BL161773 **Licence Status:** ACTIVE

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

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

Commenced Date: **Final Depth:** 1.00 m
Completion Date: 18/12/2001 **Drilled Depth:**

Contractor Name: COFFEE PARTNERS (INTERNATIONAL) PTY LTD
Driller: Unkown Unknown
Assistant Driller:

Property: MACQUARIE PARK STATION 43 Waterloo Rd MACQUARIE PARK 2113 NSW **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	HUNTERS H	100//875114
Licensed:	CUMBERLA	HUNTERSH	Whole Lot 100//875114

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6260006.000 **Latitude:** 33°47'09.3"S
Elevation Source: Unknown **Easting:** 326694.000 **Longitude:** 151°07'41.3"E

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

***** End of GW109611 *****

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WaterNSW
Work Summary

GW109612

Licence: 10BL161773 **Licence Status:** ACTIVE

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

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

Commenced Date: **Final Depth:** 1.15 m
Completion Date: 18/12/2001 **Drilled Depth:**

Contractor Name: COFFEE PARTNERS (INTERNATIONAL) PTY LTD
Driller: Unkown Unknown
Assistant Driller:

Property: MACQUARIE PARK STATION 43 Waterloo Rd MACQUARIE PARK 2113 NSW **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	HUNTERS H	12//1104331
Licensed:	CUMBERLA	HUNTERSH	Whole Lot 100//875114

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6260043.000 **Latitude:** 33°47'08.1"S
Elevation Source: Unknown **Easting:** 326634.000 **Longitude:** 151°07'39.0"E

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

***** End of GW109612 *****

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WaterNSW
Work Summary

GW110170

Licence: 10BL161366 **Licence Status:** ACTIVE

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

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

Commenced Date: **Final Depth:** 43.00 m
Completion Date: 31/01/2000 **Drilled Depth:** 43.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Unkown Unknown
Assistant Driller:

Property: 43 WATERLOO RD MACQUARIE PARK 2113 NSW **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	HUNTERS H	102//1130630
Licensed:	CUMBERLA	HUNTERSH	Whole Lot 2//578717

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6260214.000 **Latitude:** 33°47'02.5"S
Elevation Source: Unknown **Easting:** 326633.000 **Longitude:** 151°07'39.1"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		Hole	Hole	0.00	43.00	0			Unknown

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	ASPHALTIC CONCRETE,(30mm thick)	Ash	
0.10	0.25	0.15	FILL,SANDY GRAVEL,MEDIUM GRAINED	Fill	

0.25	5.25	5.00	SILTY CLAY,RED/BROWN AND GREY,MEDIUM-HIGH PLASTICITY,IRONSTONE	Silty Clay	
5.25	6.50	1.25	SHALE,DARK GREY	Shale	
6.50	15.00	8.50	SHALE,DARK GREY	Shale	
15.00	21.20	6.20	SHALE AND SANDSTONE,SHALE DRK GREY,SANDSTONE L/GREY	Shale	
21.20	25.85	4.65	SANDSTONE L/GREY,FINE GRAINED,LAMINATED,SHALE	Sandstone	
25.85	39.50	13.65	SANDSTONE L/GREY,FINE TO MEDIUM GRAINED	Sandstone	
39.50	42.20	2.70	SANDSTONE,L/GREY,MEDIUM GRAINED	Sandstone	
42.20	43.00	0.80	SANDSTONE L/GREY,FINE TO MEDIUM GRAINED,MEDIUM BEDDED	Sandstone	

***** End of GW110170 *****

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WaterNSW
Work Summary

GW110171

Licence: 10BL161366 **Licence Status:** ACTIVE

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

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

Commenced Date: **Final Depth:** 36.10 m
Completion Date: 08/02/2000 **Drilled Depth:** 36.10 m

Contractor Name: (None)
Driller: Unkown Unknown
Assistant Driller:

Property: 43 WATERLOO RD MACQUARIE PARK 2113 NSW **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ST JOHN	1//1069715
Licensed:	CUMBERLA	HUNTERSH	Whole Lot 2//578717

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6260136.000 **Latitude:** 33°47'05.0"S
Elevation Source: Unknown **Easting:** 326609.000 **Longitude:** 151°07'38.1"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		Hole	Hole	0.00	36.10	100			Unknown

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	FILL,SANDY CLAYEY GRAVEL,BROWN,FINE TO COARSE	Fill	

1.00	2.30	1.30	SILTY CLAY,LIGHT GREY AND BROWN,HIGH PLASTICITY.	Silty Clay	
2.30	3.40	1.10	SHALE,GREY AND BROWN,FINE TO COARSE GRAINED IRONSTONE,GRAVEL BANDS	Shale	
3.40	4.65	1.25	SHALE,DARK GREY AND BROWN ,VERY LOW STRENGH	Shale	
4.65	5.75	1.10	SHALE DARK GREY AND BROWN	Shale	
5.75	6.20	0.45	CORE LOSS (5.75m-6.2m)	Coal	
6.20	8.50	2.30	SHALE DARK GREY	Shale	
8.50	9.20	0.70	CORE LOOS (8.5m-9.2m)	Coal	
9.20	10.90	1.70	SHALE DRK GREY	Shale	
10.90	12.50	1.60	CORE LOSS (10.9m-12.5m)	Coal	
12.50	13.00	0.50	SHALE DARK GREY	Shale	
13.00	15.30	2.30	SHALE DARK GREY WITH LIGHT GRAINED SANDSTONE	Shale	
15.30	18.00	2.70	SHALE AND SANDSTONE	Shale	
18.00	22.40	4.40	SANDSTONE L/GREY,FINE GRAINED	Sandstone	
22.40	35.70	13.30	SANDSTONE L/GREY,MEDIUM GRAINED	Sandstone	
35.70	36.10	0.40	SANDSTONE L/GREY,FINE GRAINED	Sandstone	

***** End of GW110171 *****

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WaterNSW
Work Summary

GW114903

Licence: 10BL605704 **Licence Status:** CANCELLED

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

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid
Owner Type: Other Govt

Commenced Date: **Final Depth:** 9.00 m
Completion Date: 29/01/2015 **Drilled Depth:** 9.00 m

Contractor Name: Terratest Pty Ltd
Driller: Patrick Tapper
Assistant Driller: Rick Walker

Property: GOVERNMENT PROPERTY 45-61 WATERLOO ROAD MACQUARIE PARK 2113 NSW,GOVERNMENT PROPERTY 45 - 61 WATERLOO ROAD MACQUARIE PARK 2113 NSW **Standing Water Level (m):**
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	HUNTERS H	102//1130630
Licensed:	CUMBERLA	HUNTERSH	Whole Lot 102//1130630

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6260220.000 **Latitude:** 33°47'02.3"S
Elevation Source: Unknown **Easting:** 326636.000 **Longitude:** 151°07'39.2"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		Hole	Hole	0.00	9.00	125			Auger - Solid Flight
1		Annulus	Bentonite/Grout	3.50	4.40				
1		Annulus	Crushed Aggregate	4.50	9.00				Graded
1	1	Casing	Pvc Class 18	0.00	9.00	60	50		Seated on Bottom, Screwed

1	1	Opening	Slots - Horizontal	4.00	9.00	60		0	Casing - Machine Slotted, PVC Class 18, Screwed

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
8.50	9.00	0.50	Unknown						

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	FILL, SANDY GRAVEL, BLACK	Fill	
0.30	2.10	1.80	CLAY AND WEATHERED SHALE,RED,ORANGE,SOFT	Clay	
2.10	9.00	6.90	SHALE, RED AND GREY,SOFT	Shale	

Remarks

29/01/2015: Form A Remarks:
Coordinates from sketch on file. L.Franchi. 11/6/15
10/08/2015: Nat Carling, 10-Aug-2015; Updated owner type & coordinate source, fixed rock type errors.

***** End of GW114903 *****

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 E – Groundwater Seepage Analysis

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30 April 2026
E26706.G12

Mr. Fayez Habib
388 LCR Development Pty Ltd
Level 42, Chifley Tower,
SYDNEY NSW 2000

Preliminary Groundwater Seepage Analysis
Proposed Mixed-Use Development
2-4 Giffnock Avenue, Macquarie Park NSW

1 INTRODUCTION

1.1 BACKGROUND

At the request of Mr. Fayez Habib on behalf of 388 LCR Development Pty Ltd (the Client), EI Australia (EI) has prepared this Preliminary Groundwater Seepage Analysis (GSA) for 2-4 Giffnock Avenue, Macquarie Park NSW (the site).

EI Australia (EI) has prepared a Geotechnical Investigation (GI) report for this site, referenced E26495.G03_Rev2, dated 22 April 2026.The following documents, supplied by the Client, were used to assist with the preparation of this GSA report:

- Architectural drawings prepared by StudioSC – Project referenced 20240028, Revision P, dated 17 March 2026; and
- Survey plan by HRamsay & Co Surveyors, reference 8275, dated 19 November 2024.

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 the proposed development involves the demolition of the existing site structures and the construction of three towers, A1, A2 and B. Towers A1 and A2 are forty-nine and nine storeys, respectively. Tower B is forty-one storeys. All towers are sharing a six-level basement. The basement level is proposed to have a Finished Floor Level (FFL) of RL 41.9 m AHD. A Bulk Excavation Level (BEL) of approximately RL 41.6 m AHD is assumed, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths from 16.4 m to 23.4 m below Existing Ground Level (BEGL) have been 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.

2 SITE MODEL

2.1 MODELLED SECTIONS

Two sections as shown below were modelled and analysed as a part of GSA, the location of the sections is shown in the attached **Figure 1**:

- **Section A-A**: running through the excavation along the east - west site boundary. This section is to consider the sloping topography which is higher on the east side and lower on the west side.
- **Section B-B**: running through the excavation along the south - north site boundary considering the average topography condition.

2.2 SUBSURFACE CONDITIONS AND PERMEABILITY

For the purposes of the groundwater seepage analysis, the subsurface conditions presented in EI's GI report have been adopted. For Section A–A, the subsurface profile is based on borehole BH105M along the eastern site boundary and the average stratigraphy was taken between BH102M and BH103M along the western site boundary. For Section B–B, the subsurface profile is based on borehole BH101M along on the northern boundary and BH104 on the southern boundary.

A summary of subsurface layers and the permeability values which were adopted for the assessment of groundwater take volumes are presented in **Table 1**.

Table 1 Summary of Subsurface Conditions and Adopted Design Parameters

Material[1]	Approximate RL of Top of Unit (m AHD) [2]				Assumed Permeability (m/s)	$k_{Vertical}/k_{Horizontal}$
	Section A-A		Section B-B			
	East	West	North	South		
Fill (Silty Clay/Clayey Gravel &Silty Sand) [3]	63.68	60.24	61.44	60.4	1×10^{-6}	1.0
Residual Soil (silty clay) [3]	63.18	59.04	61.28	60.25	1×10^{-7}	1.0
Class V/IV Sandstone/Siltstone [4]	59.68	54.49	60.74	59.1	3.33×10^{-7}	0.5
Class III / II Sandstone/Siltstone [5]	55.41	49.96	49.44	53.3	1.36×10^{-7}	0.3

1 For more detailed descriptions of subsurface conditions reference should be made to 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 GI using Look (2014).
4 Permeability value of the Class V and Class IV sandstone/siltstone bedrock based on the rising head tests carried out by EI in BH103M.
5 Average permeability value was adopted of the Class III/II sandstone/siltstone bedrock based on the rising head tests carried out by EI in BH101M and BH102M.

2.3 GROUNDWATER OBSERVATIONS AND RISING HEAD TESTS

EI carried out the rising head tests on 26 March 2026 within three groundwater monitoring wells (BH101M, BH102M, and BH103M). The details of the rising head tests are presented in the **Table 2**. Further to the completion of rising head tests data loggers were installed in these monitoring wells (BH101M, BH102M, and BH103M) for the long-term groundwater monitoring. At the time of this GSA, long-term groundwater data collection is in progress. No groundwater was observed in BH105M and no rising head test was undertaken accordingly.

Table 2 Monitoring Well Details and Rising Head Test Results

Monitoring Well/ Test ID	Total Well Depth (m BEGL)	Screen Length (m)	Screened Section	Date of Test	Approximate RL of Groundwater Level (m AHD)	Estimated Permeability (m/s)
BH101M	16.49	6	Class III Siltstone	26 March 2026	53.6	1.52×10^{-7}
BH102M	18.12	6	Class II Sandstone	26 March 2026	51.16	1.2×10^{-7}
BH103M	12.17	3	Class V Sandstone/Siltstone	26 March 2026	53.92	3.33×10^{-7}

The groundwater levels were measured during the rising head tests as presented in **Table 2**, based on the measured levels above, the following design groundwater levels (GWL) for each section have been adopted for this analysis:

- **Sections A-A & B-B:** A design GWL of RL 54.92 m AHD has been adopted. This value considered possible seasonal variation of 1.0 m above the highest water tables encountered in BH103M.

2.4 MAXIMUM EXTENT OF THE CONE OF DEPRSSION

Within 500 m distance from the site boundary, there is no surface water body. Therefore, 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 the cone of depression is estimated to be approximately 16 m. Hence, EI have adopted a conservative 40 m distance of influence to allow the possible effects of drawdown and settlements. 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, shoring design details for the proposed excavation shoring system have not been provided. For the purpose of this seepage analysis, the excavation is assumed to be supported by a soldier pile wall. This shoring system was modelled as fully permeable in the assessment.

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

3 GROUNDWATER TAKE ASSESSMENT

3.1 GROUNDWATER SEEPAGE VOLUMES DURING CONSTRUCTION PHASE

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

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

- The subsurface conditions were assumed to be horizontal outside the site boundaries. The permeability values presented in **Table 1** above were adopted for each unit.
- The shoring system soldier pile wall is assumed to be permeable and free to drain as mentioned in **Section 2.5**. The base of the basement excavation is also assumed to be permeable and free to drain.
- Dewatering during the construction will be undertaken within the basement retaining wall perimeter to the BEL of RL 41.6 m AHD.
- The design groundwater levels (described in **Section 2.3**) were assumed to be constant at 40 m away from the shoring wall as outline in the **Section 2.4** of this report.
- The length of shoring walls along Section A-A and Section B-B are approximately 77 m and 90 m, respectively.

The PLAXIS 2D model is presented in **Appendix A. Table 3** below provides the estimated groundwater inflow rate into the basement.

Table 3 Summary of Analysis Results

Section	Inflow per m length of perimeter wall (m^3/day)	Inflow into excavation (m^3/day)	Total Inflow during construction (ML/365 days)
Section A-A	0.172	13.266	4.842
Section B-B	0.173	15.553	5.677
		Total	**10.519 ML**

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 operational phase of the development is expected to be identical to the groundwater inflow during the construction phase i.e., approximately 10.519 ML/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 basement excavation. The predicted drawdown over the zone of influence and settlement is shown in **Table 4.**

The groundwater drawdown surrounding the excavation boundary due to the proposed dewatering is predicted up to 10.8 m, gradually decreasing to be negligible further away. This value can be adopted as a predetermined trigger levels for groundwater level monitoring during the construction. The maximum associated ground settlements outside the proposed basement footprints due to the dewatering are estimated to be approximately 8.3 mm. This level of settlement is considered to pose a 'negligible' risk in terms of the category of damage risk due to dewatering, as defined by Cashman and Preene (2021), as shown in the excerpt in **Plate 1**. It should be noted that these predicted settlement accounts **only for water drawdown** and does not consider other factors, such as shoring wall deflection, surcharge loading, and other construction-related influences.

Table 4 Predicted Groundwater Drawdown and Anticipated Ground Settlement

Section	Maximum Groundwater Drawdown (m)	Ground settlement (mm)
Section A-A	10.8	8.3
Section B-B	10.7	8.3

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

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

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

Plate 1 Excerpt from Cashman and Preene (2021)

Although the PLAXIS 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.

4 CONCLUSIONS AND COMMENTS

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

- Construction and operational phase groundwater take will be approximately **10.519** ML per year.
- 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 for the development lifetime; and

  - This assessment does not take into consideration any excavation that may be required for footings, service trenches, lift pits, or crane pads. This additional excavation, if required, is not expected to affect the retention or the dewatering system.

- The groundwater drawdown surrounding the basement boundary is predicted to be up to approximately 10.8 m, gradually decreasing to negligible further away.
- The ground settlements resulting from the predicted groundwater drawdowns outside the basement boundary are estimated to be approximately 8.3 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 388 LCR Development 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 388 LCR Development 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.

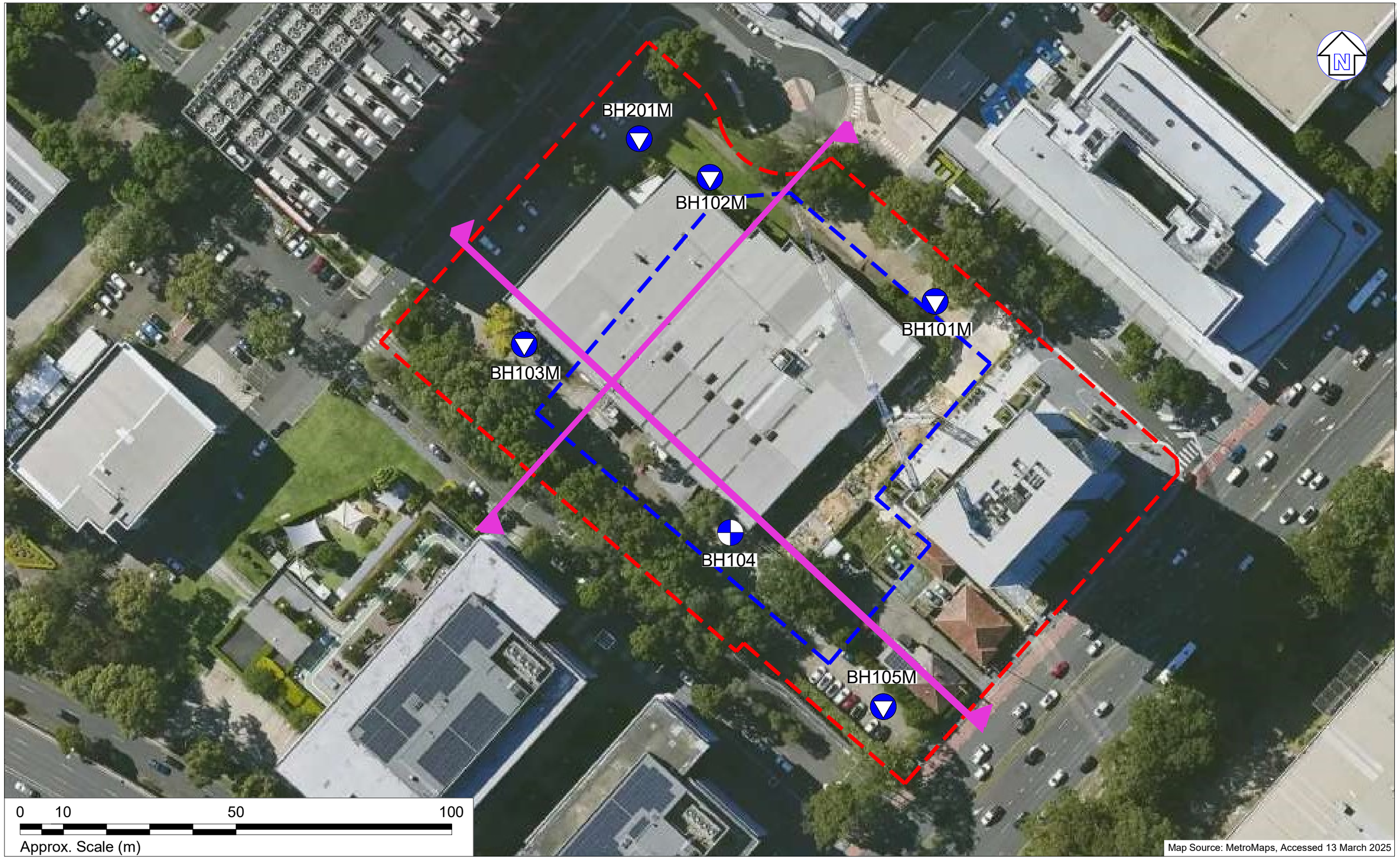
For and on behalf of
EI Australia

Author	Technical Reviewer
Salah Khalifa **Geotechnical Engineer**	**Huu Dang** **Principal Design Engineer**

Figure 1 – Analysed Section Plan
Appendix A – PLAXIS 2D Model and Results of Analysed Section
Appendix B– Rising Head Tests
Appendix C – Important Information

Figures

Figure 1 Analysed Section Plan



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole locations
- Monitoring well locations
- Analysed Section

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Drawn:	R.L.
Approved:	K.X.
Date:	15-4-26

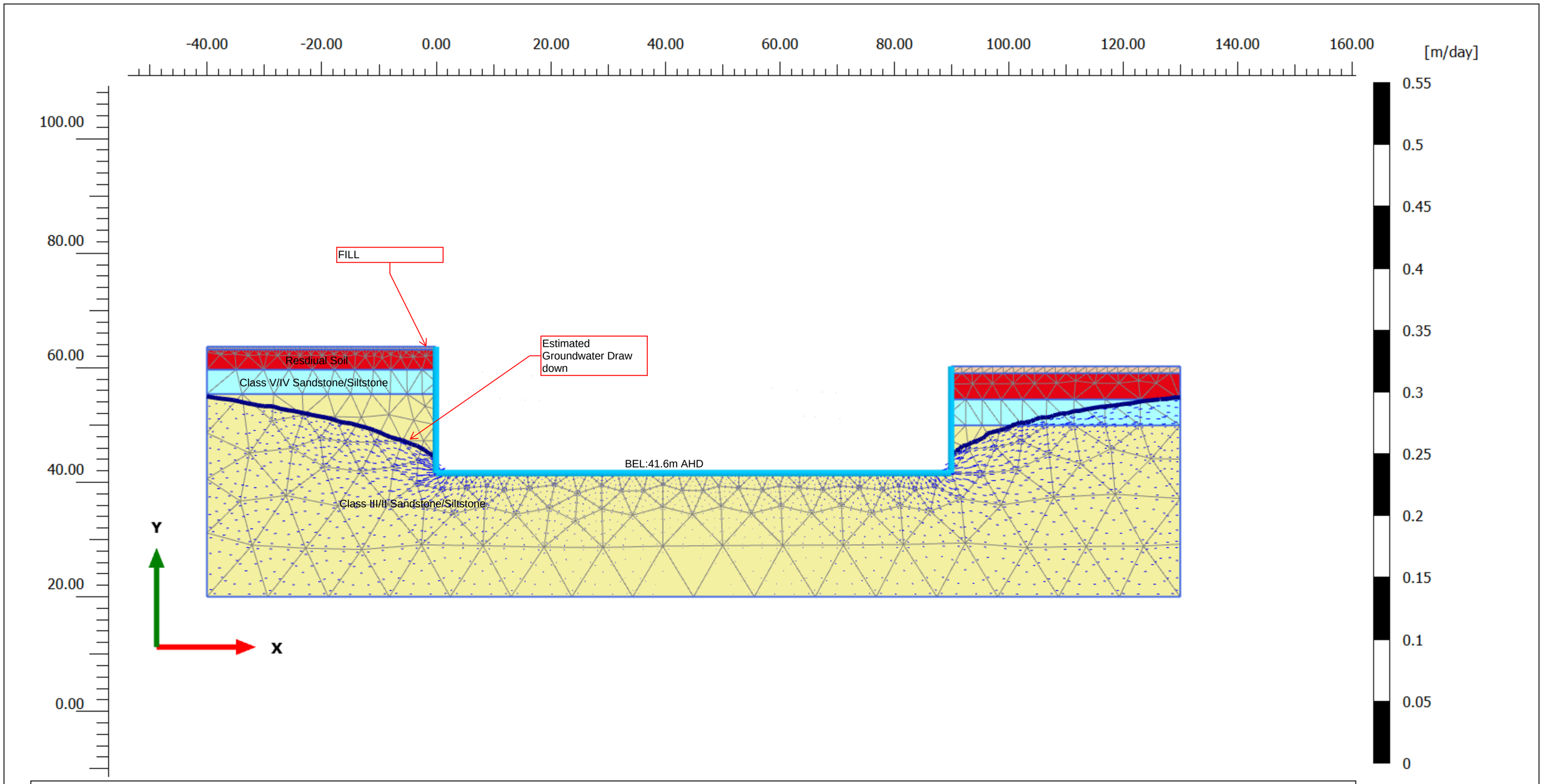
388 LCR Development Pty Ltd
Ground Seepage Analysis
2-4 Griffnock Avenue, Macquarie Park NSW

Analysed Section Layout

Figure: 1

Project: E26706.G12

Appendix A – PLAXIS 2D Model and Results



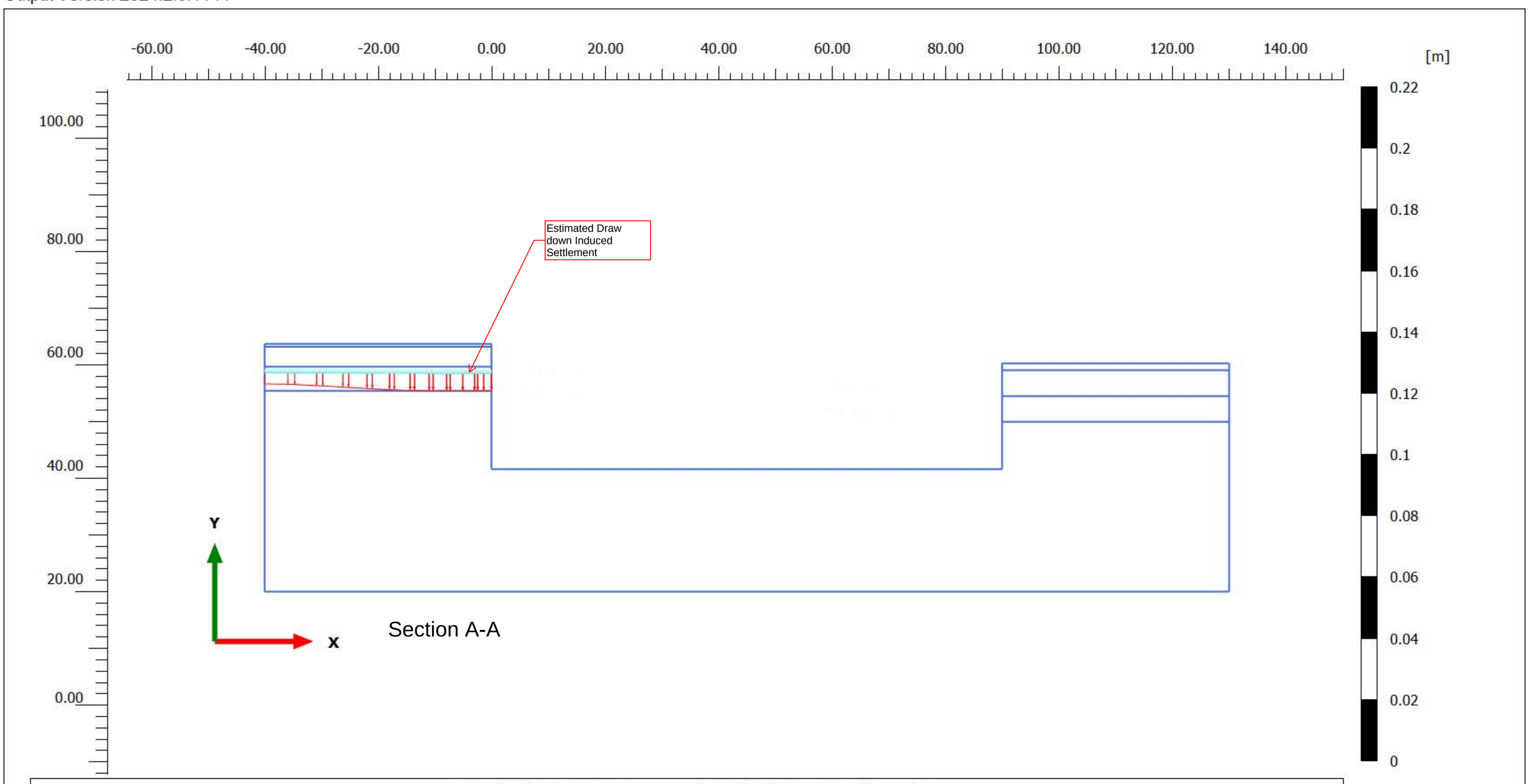
Groundwater flow |q| (scaled up 200 times)

Maximum value = 0.01861 m/day (Element 1395 at Stress point 16729)

Minimum value = $6.681*10^{-9}$ m/day (Element 106 at Stress point 1272)

PLAXIS® 2D	*Project description* E26706.G12 Section A-A		*Date* 30/04/2026
	Project filename E26706.G12 Section A-A	*Step* 12	*Company* EI Australia

Output Version 2024.2.0.1144



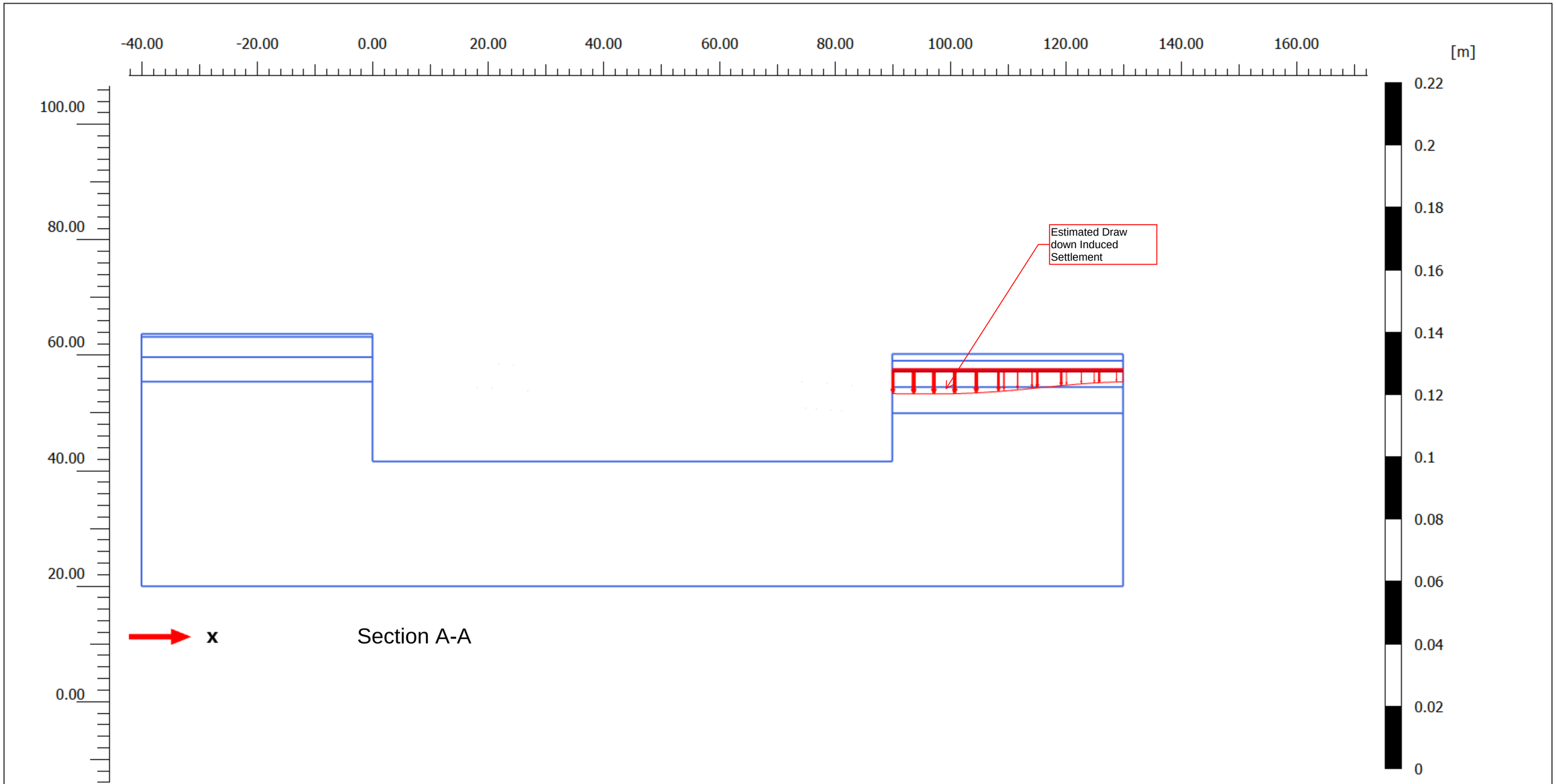
Section A-A

Total displacements u_y (scaled up 500 times)

Maximum value = $-4.452*10^{-3}$ m

Minimum value = $-6.832*10^{-3}$ m

PLAXIS® 2D	*Project description* E26706.G12 Section A-A		*Date* 30/04/2026
	Project filename E26706.G12 Section A-A	*Step* 12	*Company* EI Australia



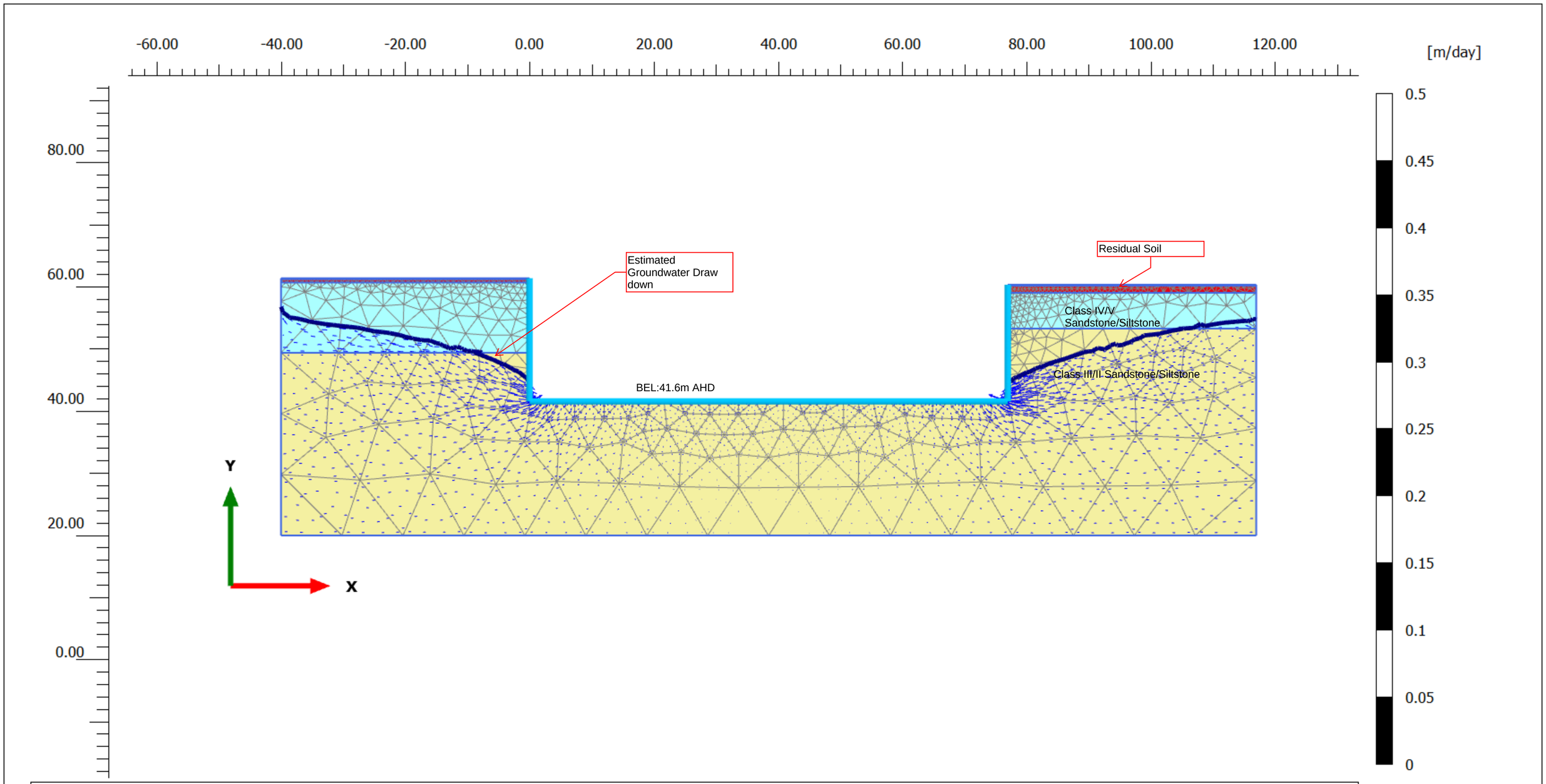
Total displacements u_y (scaled up 500 times)

Maximum value = $-4.046*10^{-3}$ m

Minimum value = $-8.205*10^{-3}$ m

PLAXIS® 2D	*Project description* E26706.G12 Section A-A			*Date* 30/04/2026
	Project filename E26706.G12 Section A-A	*Step* 12	*Company* El Australia	

Output Version 2024.2.0.1144



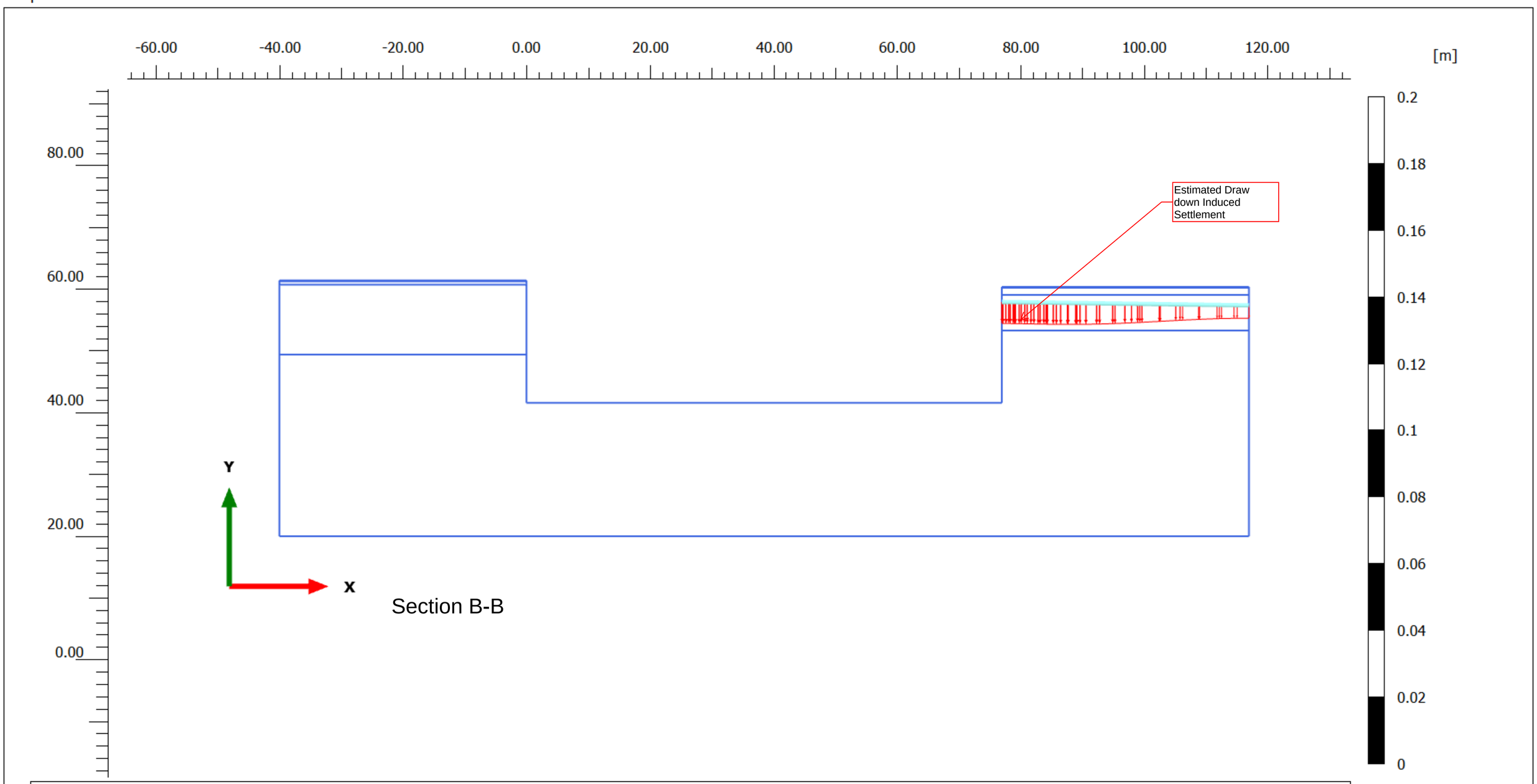
Groundwater flow |q| (scaled up 200 times)

Maximum value = 0.01936 m/day (Element 4110 at Stress point 49309)

Minimum value = $1.348*10^{-9}$ m/day (Element 776 at Stress point 9303)

PLAXIS® 2D

Project description E26706.G12 Section B-B			*Date* 30/04/2026
Project filename E26706.G12 SectionB-B	*Step* 10	*Company* El Australia	



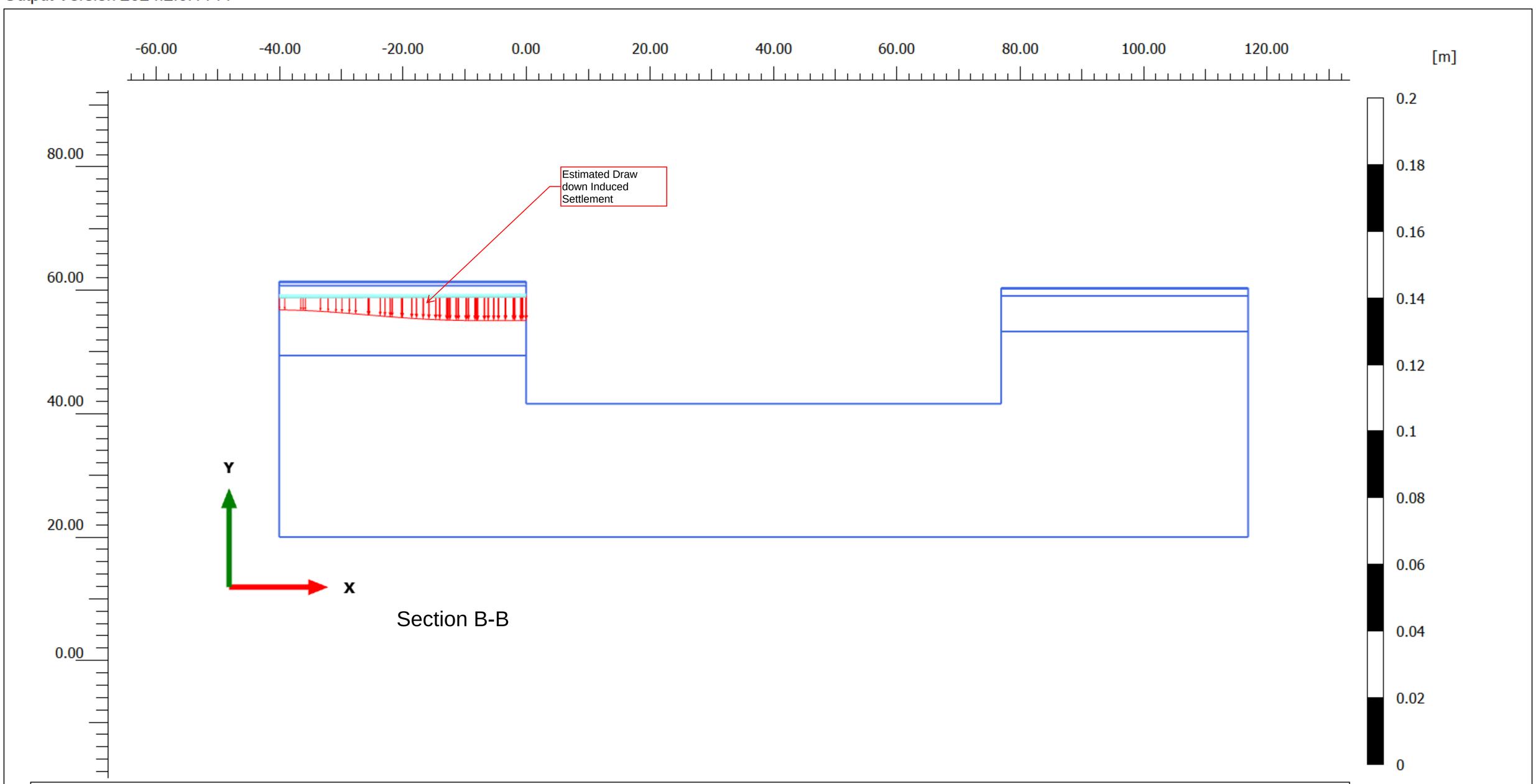
Section B-B

Total displacements u_y (scaled up 500 times)

Maximum value = $-4.216*10^{-3}$ m

Minimum value = $-6.993*10^{-3}$ m

PLAXIS® 2D	*Project description* E26706.G12 Section B-B		*Date* 30/04/2026
	Project filename E26706.G12 SectionB-B	*Step* 10	*Company* El Australia



Section B-B

Total displacements u_y (scaled up 500 times)

Maximum value = $-4.417*10^{-3}$ m

Minimum value = $-8.068*10^{-3}$ m

PLAXIS® 2D	*Project description* E26706.G12 Section B-B		*Date* 30/04/2026
	Project filename E26706.G12 SectionB-B	*Step* 10	*Company* El Australia

Appendix B – Rising Head Tests

Rising Head Permeability Test

EI Job No.	e26706		Test Date	26/03/2026
By	DJ		Location	

Borehole Detail

BH No.	BH101M
Casing Stick-up (m)	-0.08
Effective Piezo Screen Length (m)	6
Piezo Radius r (m)	0.025
Bore radius (Auger Radius) (m)	0.038
Depth of the piezometer (m BGL)	16.49
Static Water Level (m BToC)	7.84
Lag time T0 (sec)	4804.68
Calculated Permeability k	**1.52E-07**

auger radius = 0.05; core radius is 0.038

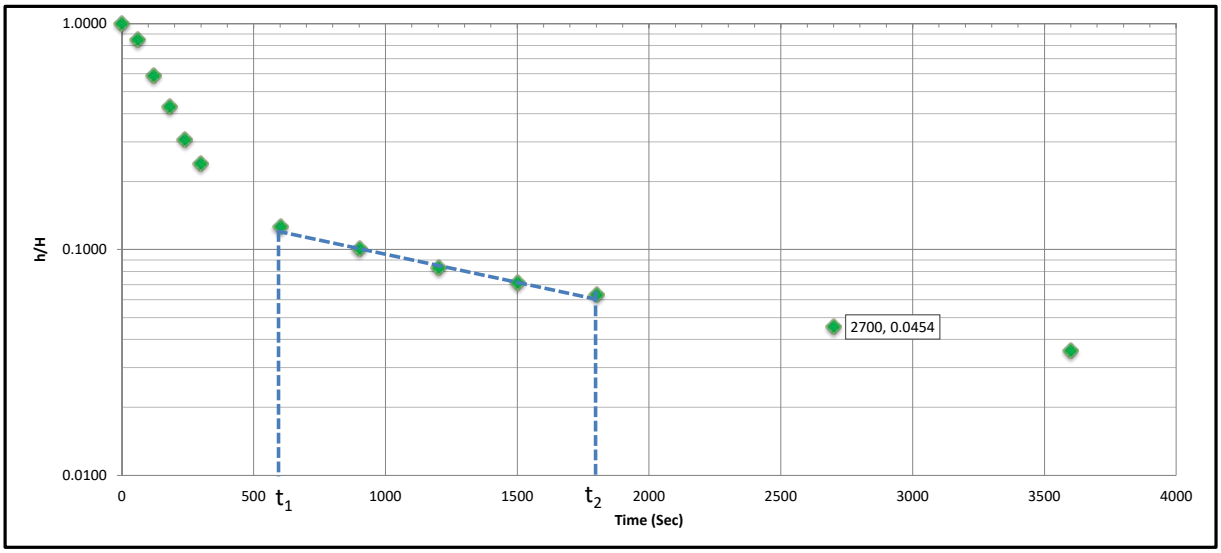
m/sec

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	0.1262
h2	0.0631

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			7.84		
0	0		12.91	5.07	1.0000
1	60		12.15	4.31	0.8501
2	120		10.83	2.99	0.5897
3	180		10.02	2.18	0.4300
4	240		9.40	1.56	0.3077
5	300		9.06	1.22	0.2406
10	600		8.48	0.64	0.1262
15	900		8.35	0.51	0.1006
20	1200		8.26	0.42	0.0828
25	1500		8.20	0.36	0.0710
30	1800		8.16	0.32	0.0631
45	2700		8.07	0.23	0.0454
60	3600		8.02	0.18	0.0355



Rising Head Permeability Test

EI Job No.	E26706		Test Date	27/03/2026
By	DJ		Location	

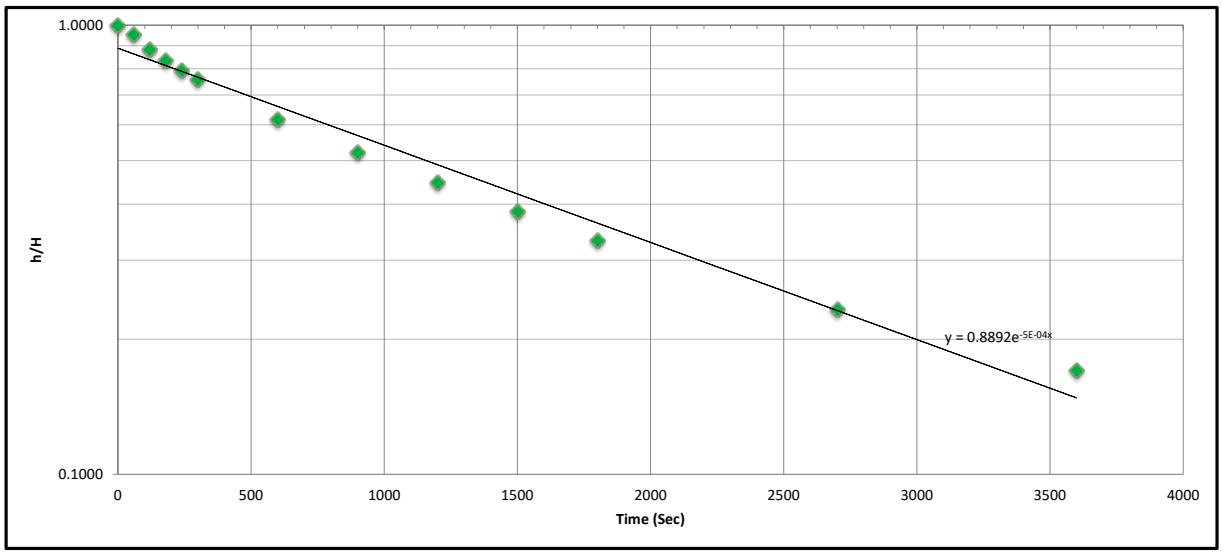
Borehole Detail

BH No.	BH102M
Casing Stick-up (m)	-0.15
Effective Piezo Screen Length (m)	6
Piezo Radius r (m)	0.025
Bore radium (Auger Radius) (m)	0.0375
Depth of the piezometer (m BGL)	18.12
Static Water Level (m BToC)	9.67
Lag time T0 (sec)	2191.76037
Calculated Permeability k	**1.2E-07** m/sec

Based on Hvorslev Method

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

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			9.67		
0	0		11.78	2.11	1.0000
1	60		11.68	2.01	0.9526
2	120		11.53	1.86	0.8815
3	180		11.43	1.76	0.8341
4	240		11.34	1.67	0.7915
5	300		11.27	1.60	0.7583
10	600		10.97	1.30	0.6161
15	900		10.77	1.10	0.5213
20	1200		10.61	0.94	0.4455
25	1500		10.48	0.81	0.3839
30	1800		10.37	0.70	0.3318
45	2700		10.16	0.49	0.2322
60	3600		10.03	0.36	0.1706



Rising Head Permeability Test

EI Job No.	e26706		Test Date	26/03/2026
By	DJ		Location	

Borehole Detail

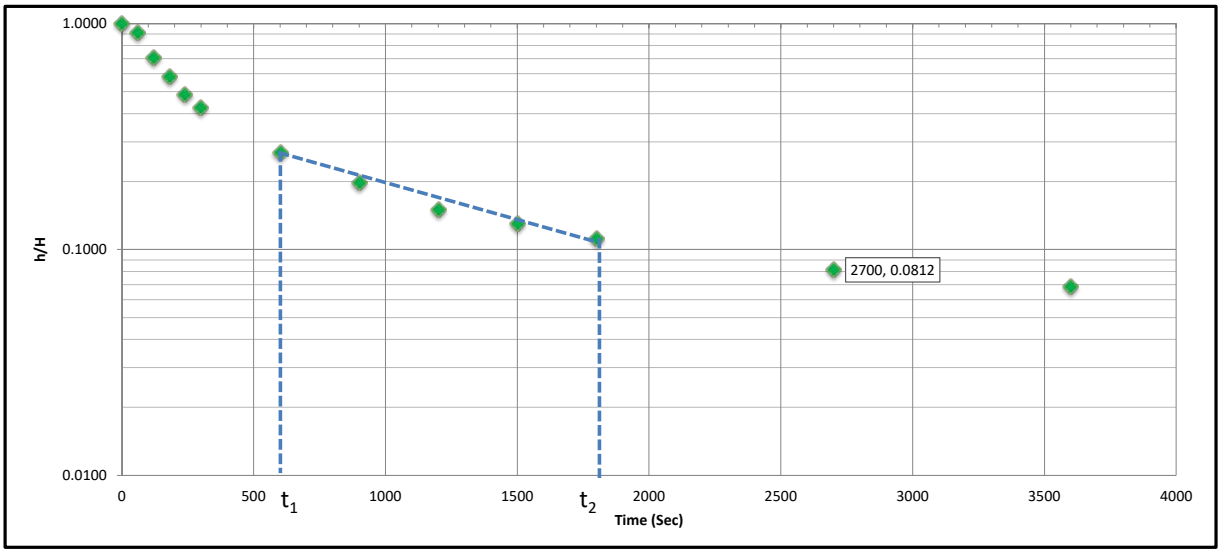
BH No.	BH103M	
Casing Stick-up (m)	-0.075	
Effective Piezo Screen Length (m)	3	
Piezo Radius r (m)	0.025	
Bore radium (Auger Radius) (m)	0.038	auger radius = 0.05; core radius is 0.038
Depth of the piezometer (m BGL)	12.17	
Static Water Level (m BToC)	5.73	
Lag time T0 (sec)	4804.68	
Calculated Permeability k	**3.33E-07**	m/sec

Based on Hvorslev Method

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

t1	600
t2	1800
h1	0.2690
h2	0.1117

Time (mins)	Time (sec)	Depth to water (ft BToC)	Depth to water (m BToC)	Change in Level (m)	h/H
Static			5.73		
0	0		9.67	3.94	1.0000
1	60		9.31	3.58	0.9086
2	120		8.52	2.79	0.7081
3	180		8.02	2.29	0.5812
4	240		7.65	1.92	0.4873
5	300		7.40	1.67	0.4239
10	600		6.79	1.06	0.2690
15	900		6.51	0.78	0.1980
20	1200		6.32	0.59	0.1497
25	1500		6.24	0.51	0.1294
30	1800		6.17	0.44	0.1117
45	2700		6.05	0.32	0.0812
60	3600		6.00	0.27	0.0685



Appendix C – 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 F – Monitoring Well and Borehole Logs

BOREHOLE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	1 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (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		61.44	CONCRETE: 160mm thick	-	-	CONCRETE
AD/T	GWNE	BH101M_0.20-0.30 BH101M_0.50-0.70 SPT 0.50-0.70 13,6/50 mm N=R		0.16		61.28	Silty CLAY: low to medium plasticity, brown, trace fine to medium grained, sub-angular to angular ironstone gravel	M < PL	H	RESIDUAL SOIL
				0.70		60.74	SILTSTONE: grey, very low strength with extremely weathered bands, distinctly weathered			WEATHERED ROCK
				1.10		60.34	From 1.10m, grey and red brown, low to medium strength, with extremely weathered bands			
				6.00		55.44	From 6.00m, grey, medium strength	-	-	
				6.30		55.14	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	2 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (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.*				
	95%	100	38	7			SILTSTONE: dark grey, thinly bedded			6.33: JT 35° PR RO CN CL 6.53: JT 35° PR RO CN OP 6.78: JT 45° PR RO CL 7.12: JT 25° PR RO CN CL 7.16: JT 20° PR RO CN CL 7.31: BP 5° PR SM Clay Infilled 7.36: JT 45° PR RO CN OP 7.50-7.82: JT 20-45° PR RO CN, Set of 6 OP 7.86: JT 20° PR RO Incipient CL 7.90: JT 20° PR RO CN OP 7.98: JT 30° CU RO CN OP 8.11: JT 45° PR RO CN OP 8.20: JT 30° PR RO CN OP 8.39: JT 30° PR RO CN OP 8.42: JT 25° PR RO CN OP 8.55: JT 25° PR RO CN OP 9.06: JT 40° PR RO OP Clay VN 9.55-9.85: JT 85° CU RO Set of 2 Clay VN	

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	3 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
NMLC	95%	100	28	10.50	50.94	SILTSTONE: dark grey, thinly bedded From 10.50m, with interbedded, fine grained pale grey sandstone bands, thinly bedded	FR	VL 0-1 L 0-3 M 1 H 3 VH 10 EH	10.07-10.15: XWS 10.20: JT 40° PR RO Clay VN 10.27-10.33: XWS 10.43: JT 50° PR RO CN CN 10.57: JT 30° PR RO CN OP 10.90: JT 20° PR Incipient CL 10.95: JT 25° IR RO CN OP 11.30-11.35: CS 11.63: JT 45° PR RO OP Clay VN 11.82: JT 15° PR RO CN OP 11.92: JT 35° PR RO CN OP	30 100 300 1000 3000
		100	63	13					13.13-13.16: CS 13.27-13.32: JT 15° PR RO Set of 2 Clay VN 13.47: BP 15° PR SM Clay Infilled 13.51: JT 35° PR Incipient CL 13.70: JT 90° PR RO Clay VN 13.72-13.75: CS 13.95: JT 10° ST Incipient CL	
		100	68	16					14.57-14.63: XWS 14.71: JT 50° PR RO CN OP 15.01: JT 45° PR RO Clay VN 15.09-15.20: XWZ 15.09: BP 10° PR SM Clay Infilled 15.24: JT 45° PR RO CN OP 15.29-15.34: XWS 15.37-15.53: XWZ 15.42-15.48: XWS 15.57-15.62: CS 15.81: JT 20° PR RO CN OP 16.58-16.62: CS	
		100	96	18.00	43.44	SANDSTONE: fine to medium grained grey, with interbedded dark grey siltstone bands,medium bedded			18.02-18.05: XWS	
				19.00	42.44	SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded				

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	4 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (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
	95%	100	100	21			SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded				
				22							
				23						23.19: BP 5° PR RO Clay VN	
				24							
				24.30		37.14	From 24.30m, thickly bedded				
		100	100	25						25.54: BP 5° PR SM Clay Infilled	
				26							
				27							
		100	100	28							
				29							
				30							

BOREHOLE CORE LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	5 of 5			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

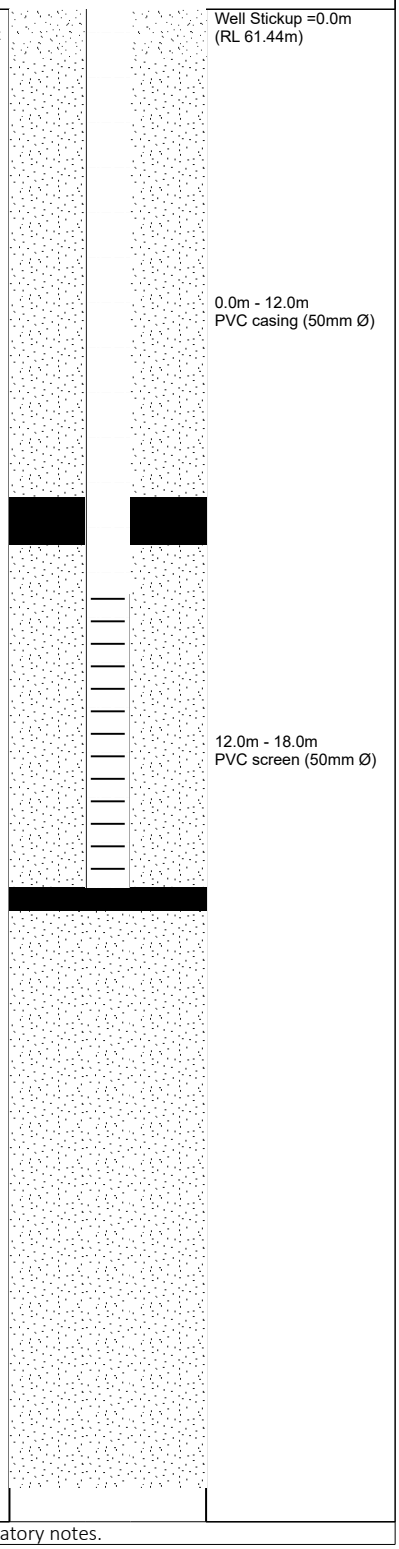
METHOD	95% Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral VL 0-1 L 0-3 M 1 H 3 VH 10 EH	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING 30 100 300 1000 3000
						31.37	Terminated at 30.07m. Target Depth Reached.				
				31							
				32							
				33							
				34							
				35							
				36							
				37							
				38							
				39							
				40							

MONITORING WELL LOG

BH ID: BH101M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	26 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	26 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 26 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈61.44 m (AHD)	**Northing**	6260014.4530 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326565.1747 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH101M_0.20-0.30 BH101M_0.50-0.70 SPT 0.50-0.70 13,6/50 mm N=R	0.00	61.44	CONCRETE: 160mm thick	M < PL
		0.16	61.28	Silty CLAY: low to medium plasticity, brown, trace fine to medium grained, sub-angular to angular ironstone gravel	
		0.70	60.74		
		1.10	60.34	SILTSTONE: grey, very low strength with extremely weathered bands, distinctly weathered From 1.10m, grey and red brown, low to medium strength, with extremely weathered bands	-
		6.00	55.44	From 6.00m, grey, medium strength	
		6.30	55.14	SILTSTONE: dark grey, thinly bedded	
95%		10.50	50.94	From 10.50m, with interbedded, fine grained pale grey sandstone bands, thinly bedded	
		18.00	43.44	SANDSTONE: fine to medium grained grey, with interbedded dark grey siltstone bands,medium bedded	
		19.00	42.44	SANDSTONE: fine to medium grained, with dark grey laminate, with occasional siltstone clusts and carbonaceous lenses, thinly to medium bedded	
		24.30	37.14	From 24.30m, thickly bedded	
		30	31.37	Terminated at 30.07m. Target Depth Reached.	



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

BOREHOLE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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	BH102M_0.10-0.20		0.00		60.83	FILL: Silty SAND: dark grey, trace rootlets and clay nodules	D	-	FILL
				0.20		60.63	Silty CLAY: medium to high plasticity, brown, trace fine to medium grained, sub-angular ironstone gravel	M > PL	F	RESIDUAL SOIL
		BH102M_0.50-0.95 SPT 0.50-0.95 1,3,4 N=7		1						
		BH102M_1.50-1.95 SPT 1.50-1.95 3,9,12 N=21		2				M ≈ PL	VSt	
		BH102M_3.00-3.45 SPT 3.00-3.45 6,9,11 N=20		3.00		57.83	From 3.00m, grey mottled brown, grading into weathered rock			
				4.00		56.83	SILTSTONE: grey and red brown, low to medium strength, distinctly weathered			WEATHERED ROCK
				7.50		53.33	From 7.50m, grey, medium to high strength.			
				8.00		52.83	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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.*				
	95%	100	38	8			SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded		▼ (M) ▼ (H)	8.03: JT 15° CU RO CN OP 8.06-9.00: FS 8.14: JT 50° PR RO OP Clay VN 8.26: JT 50° PR RO CN OP 8.33: BP 5° PR RO Clay VN 8.36: JT PR RO Shale fragments,OP Infilled 8.43: JT 35° PR RO Infilled 8.53: JT 15° PR RO CN OP 8.67: BP 5° PR RO Infilled 9.50: JT 50° PR RO CN OP 9.91: BP 5° PR SM Infilled	

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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	75	11			SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded			10.63: JT 50° PR RO CN OP 10.75-10.77: FS 10.87: JT 85° PR RO CN OP 11.20: JT 60° PR RO CN OP	
				11.70		49.13	SANDSTONE: fine to medium grained, grey with interbedded dark grey siltstone bands, medium bedded			11.71-11.74: XWS	
				12						12.14: BP 5° CU SM Rock fragments Infilled 12.70: JT 85° PR RO CN OP	
				13						13.40-13.57: XWZ	
				14						14.03: JT 50° PR RO CN OP 14.26: JT 85° IR RO CN OP 14.34: JT 60° PR RO Clay VN 14.54-14.61: XWS	
		100	82	15				FR		14.93-14.96: XWS 15.02-15.04: XWS 15.16: BP 10° PR RO Clay VN 15.34: BP 5° PR SM Clay Infilled 15.45: BP 5° PR RO Clay VN	
				16		44.83				15.97: JT 80° PR RO CN OP	
				16.00			SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded				
	30%	100	96	17						17.35: BP 10° PR RO Clay VN	
				18						17.96-17.98: XWS 18.10: BP 5° PR RO Clay Infilled 18.14-18.16: XWS 18.22: JT 70° PR Incipient CL 18.30-18.32: XWS	
				19						18.75: JT 10° PR RO OP OP 18.80: JT 15° CU RO OP CN 18.91-18.94: FS 18.95: BP 10° PR RO Clay VN 19.04: JT 15° ST RO CN OP 19.62: BP 15° PR SM Clay Infilled	
				20							

BOREHOLE CORE LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025		
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025		
Job No.	E26706.G03			**Logged By**	SK	**Date**	27 March 2025
Sheets	4 of 4			**Review By**	OV	**Date**	16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)		
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (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)
	30%						SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded		H ▼		
						40.35	Terminated at 20.48m. Target Depth Reached.				
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH102M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	27 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 27 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.83 m (AHD)	**Northing**	6260077.9768 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326514.7314 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
GWNE	BH102M_0.10-0.20 BH102M_0.50-0.95 SPT 0.50-0.95 1,3,4 N=7 BH102M_1.50-1.95 SPT 1.50-1.95 3,9,12 N=21 BH102M_3.00-3.45 SPT 3.00-3.45 6,9,11 N=20	0.00	60.83	FILL: Silty SAND: dark grey, trace rootlets and clay nodules	D
		0.20	60.63	Silty CLAY: medium to high plasticity, brown, trace fine to medium grained, sub-angular ironstone gravel	M > PL
		3.00	57.83	From 3.00m, grey mottled brown, grading into weathered rock	M ≈ PL
		4.00	56.83	SILTSTONE: grey and red brown, low to medium strength, distinctly weathered	
		7.50	53.33	From 7.50m, grey, medium to high strength.	
95%		8.00	52.83	SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded	
		11.70	49.13	SANDSTONE: fine to medium grained, grey with interbedded dark grey siltstone bands, medium bedded	
30%		16.00	44.83	SILTSTONE: dark grey, with interbedded pale grey fine grained sandstone bands, thinly to medium bedded	
		20.48	40.35	Terminated at 20.48m. Target Depth Reached.	

BACKFILL DETAILS

- Grout 0.00m - 0.50m
- Sand 0.50m - 10.00m
- Bentonite 10.00m - 12.00m
- Sand 12.00m - 18.05m
- Bentonite 18.05m - 19.00m
- Sand 19.00m - 20.45m

STANDPIPE DETAILS

- Well Stickup =0.0m (RL 60.83m)
- 0.0m - 15.05m PVC casing (50mm Ø)
- 15.05m - 18.05m PVC screen (50mm Ø)

BOREHOLE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (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		59.65	CONCRETE: 180mm thick	-	-	CONCRETE
		BH103M_0.20-0.30		0.18		59.47	FILL: Clayey GRAVEL: fine to medium grained, igneous, with silt	M		FILL
		BH103M_0.50-0.95 SPT 0.50-0.95 3,5,4 N=9		0.50		59.15	FILL: Silty CLAY: low to medium plasticity, brown, red brown and grey, trace fine to medium grained ironstone and sandstone gravels.	M ≈ PL	-	
		BH103M_1.50-1.95 SPT 1.50-1.95 3,5,4 N=9		1						
				2		57.45				
				2.20			Silty CLAY: low to medium plasticity, Orange brown			RESIDUAL SOIL
		BH103M_3.00-3.45 SPT 3.00-3.45 4,7,6 N=13		3					St	
				4						
		BH103M_4.50-4.95 SPT 4.50-4.95 3,4,12 N=16		4.50		55.15	From 4.50m, medium to high plasticity, grey mottled brown, grading into weathered rock	M < PL		
AD/T	GWNE			5						
		BH103M_6.00-6.45 SPT 6.00-6.45 4,9,14 N=23		6					VSt	
				7						
				7.50		52.15	SILTSTONE: grey, low strength, distinctly weathered	-	-	WEATHERED ROCK
				8						
				9		50.65	SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.			
				9.00						
				10						

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

BOREHOLE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (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			11			SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.	-	-	
				11.50		48.15	From 11.50m, grey and brown, medium strength.			
				11.81		47.84	*Log continued on next page.*			
				12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						

BOREHOLE CORE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (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)
				10			*Log continued from previous page.*				
				11							
NMLC	95%	100	98	12			SANDSTONE: fine to medium grained with interbedded dark grey siltstonebands, thinly to medium bedded			12.61: BP 5° PR RO Clay VN 12.75: BP 5° PR SM Clay Infilled	
				13						13.01-13.03: CS 13.24: JT 45° PR Incipient CL	
				14						13.84-13.86: XWS 14.04: JT 45° PR SM Clay Infilled	
		100	100	15				FR		14.85-14.87: XWS	
				15.30		44.35	SANDSTONE: fine to medium grained grey,massive, very thickly bedded				
	50%			16							
				17						16.77: JT 50° PR RO CN OP 17.43: JT 60° PR RO CN OP	
				17.70		41.95	NO CORE: 300mm thick	---			
	5%	88	88	18		41.65	SANDSTONE: fine to medium grained, grey, very thickly bedded			18.47: JT 45° PR RO CN OP	
				19				FR		18.91: JT 15° PR SM Clay Infilled	
				19.80		39.85	From 19.80m, fine to medium grained, with dark grey laminate, thickly bedded. SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded				
				20							

BOREHOLE CORE LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025		
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025		
Job No.	E26706.G03			**Logged By**	SK	**Date**	28 March 2025
Sheets	4 of 4			**Review By**	OV	**Date**	16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)		
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (MGA 2020 Zone 56)		

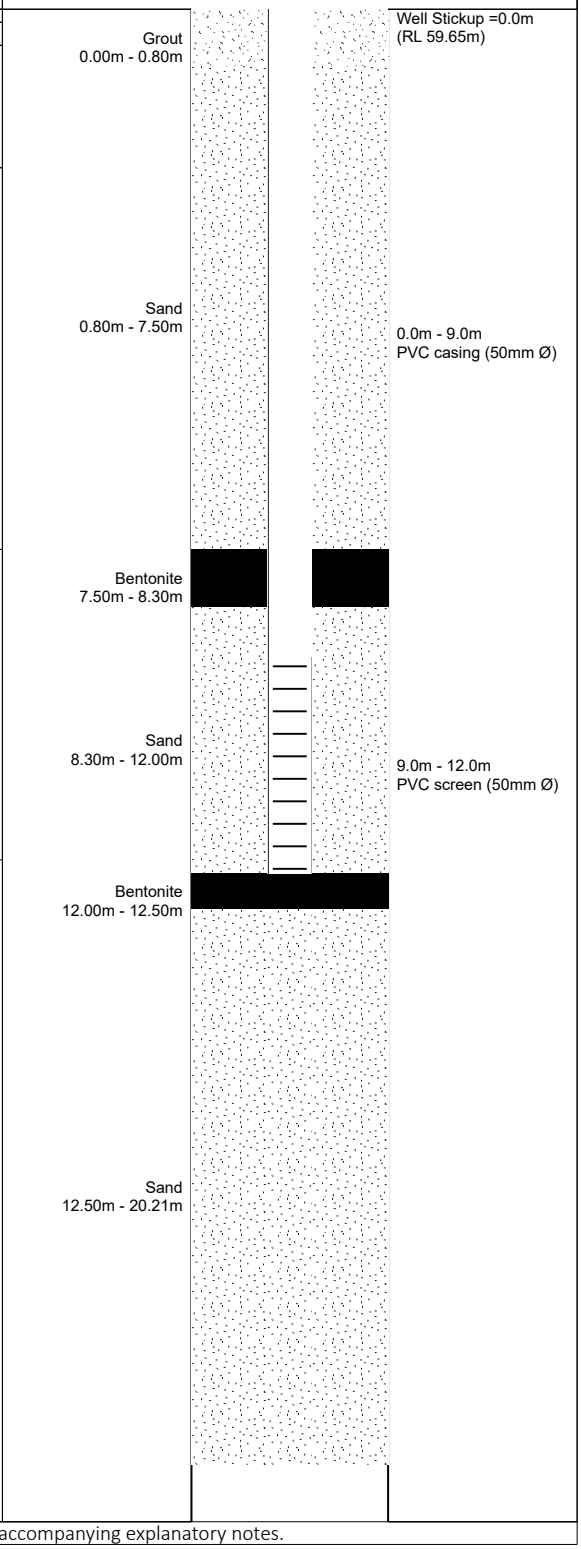
METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral (VL 0-1, L 0-3, M 1, H 3, VH 10, EH)	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING (30, 100, 300, 1000, 3000)
	5%			20 19.80		39.44	SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded Terminated at 20.21m. Target Depth Reached.		▼ (H)		
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

MONITORING WELL LOG

BH ID: BH103M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	27 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	28 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 28 March 2025
Sheets	1 of 1			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈59.65 m (AHD)	**Northing**	6260005.8543 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326460.2255 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH103M_0.20-0.30	0.00	59.65	CONCRETE: 180mm thick	-
	BH103M_0.50-0.95 SPT 0.50-0.95 3,5,4 N=9	0.18	59.47	FILL: Clayey GRAVEL: fine to medium grained, igneous, with silt	M
	BH103M_1.50-1.95 SPT 1.50-1.95 3,5,4 N=9	0.50	59.15	FILL: Silty CLAY: low to medium plasticity, brown, red brown and grey, trace fine to medium grained ironstone and sandstone gravels.	M ≈ PL
	BH103M_3.00-3.45 SPT 3.00-3.45 4,7,6 N=13	2.20	57.45	Silty CLAY: low to medium plasticity, Orange brown	
	BH103M_4.50-4.95 SPT 4.50-4.95 3,4,12 N=16	4.50	55.15	From 4.50m, medium to high plasticity, grey mottled brown, grading into weathered rock	M < PL
GWNE	BH103M_6.00-6.45 SPT 6.00-6.45 4,9,14 N=23	7.50	52.15	SILTSTONE: grey, low strength, distinctly weathered	
28/4/2025 2:30 PM		9.00	50.65	SANDSTONE: fine to medium grained, grey,red brown and brown, low strength distinctly weathered.	-
		11.50	48.15	From 11.50m, grey and brown, medium strength.	
95%		11.81	47.84	SANDSTONE: fine to medium grained with interbedded dark grey siltstonebands, thinly to medium bedded	
		15.30	44.35	SANDSTONE: fine to medium grained grey,massive, very thickly bedded	
50%		17.70	41.95	NO CORE: 300mm thick	
5%		18.00	41.65	SANDSTONE: fine to medium grained, grey, very thickly bedded	
		19.80	39.85	From 19.80m, fine to medium grained, with dark grey laminate, thickly bedded.	
		20.00	39.44	SANDSTONE: fine to medium grained, grey with dark grey laminate, thickly bedded	
		21		Terminated at 20.21m. Target Depth Reached.	



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

BOREHOLE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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		60.40	CONCRETE: 150mm thick	-	-	CONCRETE
AD/T	GWNE	BH104M_0.20-0.30 BH104M_0.50-0.95 SPT 0.50-0.95 10,19,25 N=44 BH104M_1.50-1.65 SPT 1.50-1.65 11/150 mm HB N=R		0.15		60.25	Silty CLAY: medium to high plasticity, grey and red brown trace fine to medium grained ironstone	M < PL	H	RESIDUAL SOIL
				1.30		59.10	SILTSTONE: grey and red brown, very low strength with extremely weathered bands, distinctly weathered			WEATHERED ROCK
				1.80		58.60	From 1.80m, medium strength			
				5.40		55.00	From 5.40m, grey, medium to high strength	-	-	
				7.10		53.30	*Log continued on next page.*			

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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							
	95%	100	65	8			SILTSTONE: dark grey with interbedded, fine grained pale grey sandstone thinly laminated		▼ ▼	7.45: JT 50° PR RO CL CN 8.13: JT 20° PR SM Clay Infilled 8.37: JT 25° PR RO CN,CL 8.44: JT 35° PR RO CN CL 8.53: JT ST RO CN CL 8.89-8.92: XWS 8.98-9.02: CS 9.16: JT 85° CU SM Clay Infilled 9.25-9.31: CS 9.41: JT 90° PR RO CN CL	
				9							
				9.40		51.00	SANDSTONE: fine to medium grained, grey with dark grey laminate, thinly to medium bedded.		▼	9.64: JT 20° CU RO CN CL 9.79-9.92: XWZ	
				10							

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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	11			SANDSTONE: fine to medium grained, grey with dark grey laminate, thinly to medium bedded.			10.41-10.44: XWS	
				12						12.53: JT 50° PR RO CN CL	
				12.90		47.50	SANDSTONE: fine to medium grained, grey,massive, with occassional siltstone clusts, very thickly bedded			12.94: JT 90° PR RO CN OP	
		100	95	14							
				15				FR		14.97: JT 15° PR RO CN OP 15.11: JT 20° PR RO Clay,CL Infilled 15.23-15.27: XWS	
				15.20		45.20	From 15.20m, with carbonaceous lenses			15.59: BP 5° PR SM Clay Infilled	
		100	100	16							
				17							
				18						18.67: BP 5° PR RO Clay VN	
				19						19.07-19.09: CS	
				20							

BOREHOLE CORE LOG

BH ID: BH104

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	31 March 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 31 March 2025
Sheets	4 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈60.40 m (AHD)	**Northing**	6259975.3612 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326486.5774 (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
	95%	100	100	21		39.46	From 15.20m, with carbonaceous lenses Terminated at 20.94m. Target Depth Reached.		M ▼		
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

BOREHOLE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	1 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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
D T				0.00		63.68	CONCRETE: 120mm thick	-	-	CONCRETE
				0.12		63.56	FILL: Silty SAND: fine to coarse grained, dark brown, trace fine to medium ironstone, sandstone and igneous gravels a d concrete and brick fragments.	D - -	-	FILL
		BH105M_0.50-0.95 SPT 0.50-0.95 5,6,8 N=14		0.50		63.18	Silty CLAY: medium to high plasticity, grey mottled brown.			RESIDUAL SOIL
		BH105M_1.50-1.95 SPT 1.50-1.95 4,12,13 N=25		1 2				M < PL	St - VSt	
		BH105M_3.00-3.45 SPT 3.00-3.45 8,21,20 N=41		3.00		60.68	From 3.00m, grey,grading into weathered rock		H	
AD/T	GWNE			4.00		59.68	SHALE: grey, low strength, distinctly weathered			WEATHERED ROCK
				5.00		58.68	From 5.00m, grey, low to medium strength			
				6.00		57.68	From 6.00m, grey and brown, medium to high strength	-	-	
				7 8						
				8.27		55.41	*Log continued on next page.*			
				9 10						

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	2 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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							
				8							
	95%	100	77	9			SILTSTONE: dark grey, thinly bedded		▼ ▼	8.51: JT 20° PR RO CN OP 8.52: JT 40° PR Incipient CL 8.64: JT 90° UN RO CN OP 8.73: JT 85° CU RO CN OP 9.09: JT 20° PR RO CL 9.83: JT 50° PR RO CL Clay VN	
				10							

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	3 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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	64	10.23		53.45	SILTSTONE: dark grey, thinly bedded				
							SILTSTONE: dark grey, with interbedded fine grained, grey sandstone bands, thinly laminated			10.13: JT 50° PR RO CL Clay VN 10.19: JT 45° PR RO CN CL 10.21: BP 5° PR SM Clay Infilled 10.36: JT 85° UN RO CN CL	
				11						11.31: JT 50° PR RO OP Clay VN 11.44: JT 15° CU RO CL Clay VN	
										11.72-11.73: XWS 11.86-11.88: XWS	
				12						12.07: BP 5° PR SM Clay Infilled 12.16-12.18: CS 12.30: JT 90° PR RO OP Clay VN 12.39-12.50: CZ	
				12.53		51.15	SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded			12.78-12.83: XWS	
				13						13.30: JT 20° PR SM Clay Infilled	
				14						13.82: BP 5° PR SM Clay Infilled 13.87: JT 90° PR RO CN CL 13.90-13.93: CS 13.98: JT 25° PR RO CN OP 14.12: JT 90° PR RO CN OP 14.18: JT 50° PR RO CN CL 14.45-14.47: XWS 14.57-14.60: CS	
				15				FR		15.20-15.23: CS	
		100	100	16						16.72-16.75: XWS	
	40%			17							
		100	100	18							
				19						18.89: BP 10° PR RO Clay VN	
				20							

BOREHOLE CORE LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	31 March 2025
Client	388 LCR Development Pty Ltd			**Completed**	01 April 2025
Job No.	E26706.G03			**Logged By**	SK **Date** 01 April 2025
Sheets	4 of 4			**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)	**Northing**	6259949.0868 (MGA 2020 Zone 56)
Plant	Hanjin D&B 8-D	**Inclination**	90°	**Easting**	326547.8750 (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)
	40%					43.37	SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded Terminated at 20.31m. Target Depth Reached.		▼		

MONITORING WELL LOG

BH ID: BH105M

Location	2-4 Giffnock Avenue, Macquire Park NSW	**Started**	31 March 2025
Client	388 LCR Development Pty Ltd	**Completed**	01 April 2025
Job No.	E26706.G03	**Logged By**	SK **Date** 01 April 2025
Sheets	1 of 1	**Review By**	OV **Date** 16 May 2025
Drilling Contractor	Geosense Drilling Engineers Pty Ltd	**Surface RL**	≈63.68 m (AHD)
Plant	Hanjin D&B 8-D	**Inclination**	90°

Northing 6259949.0868 (MGA 2020 Zone 56)

Easting 326547.8750 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
		0.00	63.68	CONCRETE: 120mm thick	-
		0.12	63.56	FILL: Silty SAND: fine to coarse grained, dark brown, trace fine to medium ironstone, sandstone and igneous gravels a d concrete and brick fragments.	D - -
		0.50	63.18	Silty CLAY: medium to high plasticity, grey mottled brown.	
	BH105M_0.50-0.95 SPT 0.50-0.95 5,6,8 N=14				
	BH105M_1.50-1.95 SPT 1.50-1.95 4,12,13 N=25				M < PL
	BH105M_3.00-3.45 SPT 3.00-3.45 8,21,20 N=41	3.00	60.68	From 3.00m, grey,grading into weathered rock	
GWNE		4.00	59.68	SHALE: grey, low strength, distinctly weathered	
		5.00	58.68	From 5.00m, grey, low to medium strength	
		6.00	57.68	From 6.00m, grey and brown, medium to high strength	-
		8.27	55.41	SILTSTONE: dark grey, thinly bedded	
95%		10.23	53.45	SILTSTONE: dark grey, with interbedded fine grained, grey sandstone bands, thinly laminated	
		12.53	51.15	SANDSTONE: fine to medium grained, grey with dark grey laminate and occasional carbonaceous lenses, medium to thickly bedded	
40%		20.31	43.37	Terminated at 20.31m. Target Depth Reached.	

BACKFILL DETAILS

Grout
0.00m - 0.30m

Bentonite
0.30m - 0.65m

Sand
0.65m - 4.00m

Bentonite
4.00m - 6.10m

Sand
6.10m - 20.31m

STANDPIPE DETAILS

Well Stickup =0.0m
(RL 63.68m)
0.0m - 1.0m
PVC casing (50mm Ø)

1.0m - 4.0m
PVC screen (50mm Ø)

BOREHOLE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW	**Started**	09 April 2026
Client	388 LCR Development Pty Ltd	**Completed**	11 April 2026
Job No.	E26706.G03	**Logged By**	LL **Date** 11 April 2026
Sheets	1 of 6	**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)
Plant	Comacchio Geo 205	**Inclination**	90°
Northing	6260062.0 (MGA 2020 Zone 56)		
Easting	326483.5 (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
DT		BH201M_0.20-0.30		0.00		60.00	CONCRETE: 190mm thick	-	-	CONCRETE
AD/T	GWNE	BH201M_0.5-0.95 SPT 0.50-0.95 2,2,3 N=5		0.19		59.81	FILL: Silty CLAY: medium plasticity, dark brown / grey, trace occasional coarse sand and angular fine gravel	-	-	FILL
		BH201M_1.20-1.30		1						
		BH201M_1.50-1.95 SPT 1.50-1.95 3,5,9 N=14		1.20		58.80	From 1.20m, dark grey, sandy caly			
				1.50		58.50	Silty CLAY: medium plasticity, dark brown / red		St	RESIDUAL SOIL
		BH201M_2.50-2.60		2						
		BH201M_3.00-3.45 SPT 3.00-3.45 3,16,15 N=31		2.50		57.50	From 2.50m, with ironstone bands	M < PL	H	
		BH201M_3.80-3.90		3						
		BH201M_4.50-4.95 SPT 4.50-4.95 12,24,30 N=54		4						
				4.50		55.50	SILTSTONE: pale grey / red, extremely weathered, with ironstone bands.	-	-	WEATHERED ROCK
		BH201M_6.00-6.45 SPT 6.00-6.45 10,17,24 N=41		5						
		BH201M_7.00-7.10		6						
		BH201M_7.50-7.56 SPT 7.50-7.56 9/60 mm HB N=R		7		53.00	SHALE: dark grey, very low tolow strength, extremely weathered to distinctly weathered	-	-	BEDROCK
				7.00						
				7.86		52.14	*Log continued on next page.*			
				8						
				9						
				10						

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	2 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
				0			*Log continued from previous page.*				
NMLC	95% Water	100	63	8			SILTSTONE: dark grey / grey, with iron staining, with interbedded fine grained pale grey sandstone bands, thinly to medium bedded	DW - HW		8.06-8.16: JT 0-5° UN SM Set 4, 10 - 30 mm sp. VN 8.20-8.21: IS Si CL; 10mm 8.23-8.39: XWZ 160mm 8.41-8.56: JT 0-5° UN SM Set 7, 5 - 40mm sp. VN 8.67: DB 8.81-8.81: JT 0-5° PR SM VN 8.84-8.90: JT 70° UN RO VN 8.92: DB 8.99: DB 9.00-9.02: XWS 20mm 9.06-9.60: JT 0-10° UN SM Set 9, 40 - 110mm sp. VN 9.76-10.15: JT 0-5° PR SM Set 5, 50 - 170mm sp. VN	
				9.06		50.94	From 9.06m, sandstone; fine grained, grey	FR			
				9.60		50.40	From 9.60m, laminite; thinly bedded sandstone, grey				
				10							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	3 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50) ▼ - Axial ▽ - Diametral	DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING
NMLC	95% Water	100	77	11					10.84-10.88: FS 50mm 10.98-11.21: JT 0-15° UN SM Set 5, 10 - 100mm sp. VN 11.21-11.24: CS 30mm 11.25-11.51: JT 0-15° UN SM Set 4, 10 - 140mm sp. VN 11.52-11.53: JT 0-45° ST SM VN 11.67-11.90: BP 0-5° PR SM Set 3, 60 - 170mm sp. VN 11.76-11.88: JT 0-15° UN SM Set 2 VN 12.00: HB	
				11.24	48.76	From 11.24m, sandstone; fine grained, grey, thinly laminated siltstone				
				12					12.23-12.42: JT 0-15° SM Set 4, 30 - 130mm sp. VN 12.42-12.51: JT 70° UN RO VN 12.51-12.54: XWS Si CL; 30mm 12.56-12.62: XWS 60mm	
				12.61	47.39	SANDSTONE: fine grained, grey, with trace iron staining, with laminite, medium bedding				
				13					12.98-13.00: HB 13.00-13.12: JT 45-90° CL	
		100	68	13.56	46.44	From 13.56m, laminite; thinly bedded, grey / dark grey			13.35-13.35: JT 0-15° UN RO VN 13.38-13.42: XWS Si CL; 13.44-13.57: JT 45-60° UN RO CN 13.57-13.61: JT 60° PR SM CN 13.61-13.69: BP 0-15° UN SM Set 3, 40m. sp. CN 13.81-13.83: XWZ Si CL 13.93: JT 0-15° UN SM CN 14.05: DB 14.24-14.31: BP 0-15° UN SM Set 2 VN 14.36: DB 14.58-14.89: BP 0-20° UN SM Set 9, 10 - 110mm sp. CN	
				14						
				15			FR		14.96-15.00: FS 15.03: BP 0-15° UN SM CN 15.05-15.10: JT 60° UN RO CN 15.15-15.23: FS 15.32-15.88: BP 0-15° PR SM Set 9, 10 - 180mm sp. CN 15.39: JT 0-15° CL	
				16					16.08: BP 0-5° UN SM CN 16.11-16.13: JT 0-5° UN SM Set 2 Clay VN 16.13-16.20: JT -70° UN SM CN 16.21-16.26: CS 16.31-16.41: JT -60° UN SM CN 16.46-16.54: XWS Si CL / crushed sandstone 16.76-16.96: BP 0-5° PR SM Set 4, 50 - 90mm sp. CN 17.00: HB 17.15-17.51: JT 10-30° UN RO Set 4, 100 - 190mm sp. CN 17.52-17.53: XWS 17.66-17.67: IS Si CL 17.71-18.04: BP 0-15° UN SM Set 5, 30 - 150mm sp. CN 18.10: BP 0-5° PR SM Clay VN 18.16-18.82: BP 0-15° UN SM Set 6, 40 - 240 mm sp. CN	
	85% Water			16.54	43.46	From 16.54m, fine to medium grained, pale grey				
		100	88	17.52	42.48	From 17.52m, laminite; thinly bedded, dark grey				
				17.85	42.15	From 17.85m, sandstone; pale grey, medium bedded, with siltstone				
				18.50	41.50	From 18.50m, sandstone; pale grey				
				19					19.00: HB 19.03-19.05: CS 19.14-19.17: DB 19.46: JT 0-15° UN SM CN	
				20						

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	4 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	85% Water	100	100	21			From 18.50m, sandstone; pale grey	FR		20.00: HB 20.70: BP 0-5° PR SM CN 21.00: HB 21.85-21.95: BP 0-5° PR SM Set 2 CN 22.00: HB 22.27: BP 0-15° UN SM CN 22.80: JT 0-30° UN RO CN 23.00: HB 23.74: JT 0-15° UN RO CN 24.00: DB 24.89: BP 15° UN RO VN 25.00: DB 25.14: BP 0-15° UN RO CN 26.00: HB 26.40-26.79: BP 0-15° UN RO Set 4, 80 - 160mm sp. CN 26.85: JT 0-30° UN RO CN 27.00: HB 27.04-27.74: JT 0-15° UN SM Set 2 CN 27.96-27.97: IS Si CL 28.00: HB 28.18: JT 0-5° PR SM CN 28.31-28.34: JT 0-5° UN SM CN 28.48-28.49: IS 28.79: BP 0-15° PR SM VN 29.00: HB 29.80: JT 0-5° PR SM CN	
		100	100	22							
		100	100	23							
		100	97	24							
		100	82	25							
				26							
				27							
				28							
				29							
				30							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	5 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (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	85% Water	100	95	31			From 18.50m, sandstone; pale grey	FR		30.00: HB 30.11: BP 0-15° UN SM CN 30.92-31.05: JT 60° UN RO CN 31.06-31.27: JT -60° UN RO CN 31.30-31.51: JT 45-90° UN CL	
				32						32.00: HB 32.85: BP 0-30° UN RO VN	
				33						33.00: HB 33.11: JT 0-15° UN RO CN	
				34						34.00: HB 34.32: JT 0-15° UN RO CN	
		100	100	35						35.82: BP 0-5° PR RO CN	
				36						36.00: HB 36.69: HB	
				37						37.15: BP 0-5° PR RO CN	
		100	100	38						38.00: HB	
				39						38.88: BP -15° PR RO CN 39.00-39.03: HB 39.22: BP 0-5° PR RO CN 39.62: DB RO 39.89: BP 0-15° PR RO CN	
				40							

BOREHOLE CORE LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	6 of 6			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (MGA 2020 Zone 56)

METHOD	85% Water 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							From 18.50m, sandstone; pale grey			40.00: HB	
						19.61	Terminated at 40.39m. Target Depth Reached.				
							Terminated at 40.39m. Target Depth Reached.				
				41							
				42							
				43							
				44							
				45							
				46							
				47							
				48							
				49							
				50							

MONITORING WELL LOG

BH ID: BH201M

Location	2-4 Giffnock Avenue, Macquire Park NSW			**Started**	09 April 2026
Client	388 LCR Development Pty Ltd			**Completed**	11 April 2026
Job No.	E26706.G03			**Logged By**	LL **Date** 11 April 2026
Sheets	1 of 1			**Review By**	KX **Date** 22 April 2026
Drilling Contractor	Geosense Drilling Engineers	**Surface RL**	≈60.00 m (AHD)	**Northing**	6260062.0 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	**Inclination**	90°	**Easting**	326483.5 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	RL (m AHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION
	BH201M_0.20-0.30 BH201M_0.5-0.95 SPT 0.50-0.95 2,2,3 N=5 BH201M_1.20-1.30 BH201M_1.50-1.95 SPT 1.50-1.95 3,5,9 N=14 BH201M_2.50-2.60 BH201M_3.00-3.45 SPT 3.00-3.45 3,16,15 N=31 BH201M_3.80-3.90 BH201M_4.50-4.95 SPT 4.50-4.95 12,24,30 N=54 BH201M_6.00-6.45 SPT 6.00-6.45 10,17,24 N=41 BH201M_7.00-7.10 BH201M_7.50-7.56 SPT 7.50-7.56 9/60 mm HB N=R	0.00 0.19 1.20 1.50 2.50 4.50 7.00 7.86 9.06 9.60 11.24 12.61 13.56 16.54 17.52 17.85 18.50	60.00 59.81 58.80 58.50 57.68 55.50 53.00 52.14 50.94 50.40 48.76 47.39 46.44 43.46 42.48 42.15 41.50 19.61	CONCRETE: 190mm thick FILL: Silty CLAY: medium plasticity, dark brown / grey, trace occasional coarse sand and angular fine gravel From 1.20m, dark grey, sandy caly Silty CLAY: medium plasticity, dark brown / red From 2.50m, with ironstone bands SILTSTONE: pale grey / red, extremely weathered, with ironstone bands. SHALE: dark grey, very low tolow strength, extremely weathered to distinctly weathered SILTSTONE: dark grey / grey, with iron staining, with interbedded fine grained pale grey sandstone bands, thinly to medium bedded From 9.06m, sandstone; fine grained, grey From 9.60m, laminite; thinly bedded sandstone, grey From 11.24m, sandstone; fine grained, grey, thinly laminated siltstone SANDSTONE: fine grained, grey, with trace iron staining, with laminite, medium bedding From 13.56m, laminite; thinly bedded, grey / dark grey From 16.54m, fine to medium grained, pale grey From 17.52m, laminite; thinly bedded, dark grey From 17.85m, sandstone; pale grey, medium bedded, with siltstone From 18.50m, sandstone; pale grey Terminated at 40.39m. Target Depth Reached. Terminated at 40.39m. Target Depth Reached.	- M < PL - -

BACKFILL DETAILS

Grout
0.20m - 14.00m

Bentonite
14.00m - 14.50m

Sand
14.50m - 21.50m

Bentonite
21.50m - 22.00m

Sand
22.00m - 40.39m

STANDPIPE DETAILS

Well Stickup =-0.20m
(RL 59.80m)

0.20m - 15.0m
PVC casing (50mm Ø)

15.0m - 21.0m
PVC screen (50mm Ø)

Appendix G – Laboratory Documentation for the GME

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

CERTIFICATE OF ANALYSIS 405489

Client Details

Client	EI Australia
Attention	Matthew Chee
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E26706, 2-4 Giffnock Avenue Macquarie Park**
Number of Samples	1 Water
Date samples received	27/03/2026
Date completed instructions received	30/03/2026

Analysis Details

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

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	07/04/2026
Date of Issue	02/04/2026

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Results Approved By
Larry Ye, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		405489-1
Your Reference	UNITS	GW-QT2
Type of sample		Water
Date Sampled		26/03/2026
Date extracted	-	01/04/2026
Date analysed	-	02/04/2026
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	106
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	91

svTRH (C10-C40) in Water		
Our Reference		405489-1
Your Reference	UNITS	GW-QT2
Type of sample		Water
Date Sampled		26/03/2026
Date extracted	-	31/03/2026
Date analysed	-	01/04/2026
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	110
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	110
TRH >C_{10} - C_{16}	µg/L	76
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	76
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	80
Surrogate o-Terphenyl	%	81

HM in water - dissolved		
Our Reference		405489-1
Your Reference	UNITS	GW-QT2
Type of sample		Water
Date Sampled		26/03/2026
Date prepared	-	01/04/2026
Date analysed	-	01/04/2026
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	35
Zinc-Dissolved	µg/L	60

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-W4	[NT]
Date extracted	-			01/04/2026	[NT]	[NT]	[NT]	[NT]	01/04/2026	[NT]
Date analysed	-			02/04/2026	[NT]	[NT]	[NT]	[NT]	02/04/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	90	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			31/03/2026	[NT]	[NT]	[NT]	[NT]	31/03/2026	[NT]
Date analysed	-			31/03/2026	[NT]	[NT]	[NT]	[NT]	31/03/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[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]	87	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	89	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			01/04/2026	[NT]	[NT]	[NT]	[NT]	01/04/2026	[NT]
Date analysed	-			01/04/2026	[NT]	[NT]	[NT]	[NT]	01/04/2026	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[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]	92	[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]	109	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	110	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[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 can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

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

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

Dissolved Metals: no filtered, preserved sample was received, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

Sheet 1 of 1

Site: 2-4 Giffnock Avenue Macquarie Park

Project No: E26706

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
GW-BH101M-2		S/P/VC	26/3/26	pm		X		
GW-BH102M-2		↓	↓	↓		↓		
GW-BH103M-2		↓	↓	↓		↓		
GW-QD2		↓	↓	↓		↓		
GW-R2		↓	↓	↓		↓		
GW-RB2		↓	↓	↓		↓		
TB2		VC	↓	↓		↓		
TS2		VC	↓	↓		↓		

Analysis

HM [A] /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM [A] /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	PFAS	pH / Turbidity/ TDS/ EC/ Hardness	OP Pesticides	OC Pesticides	PCBs	Phenols	DPE AN2 Full Suite - Mandatory and Other Parameters	Cyanide	Dewatering Suite	HOLD
												X	
										X			
												X	
	X												
	X												
													X
		X											
		X											

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

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

Job No: 405409
Date Received: 27/3/26
Time Received: 1715
Received By: VT
Temp: Cool/Ambient
Cooling: Ice/Icepack 10°C
Security: Intact/Broken/None

Comments

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

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

LABORATORY TURNAROUND

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

Container Type:
J = solvent washed, acid rinsed, 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):	Received by (SGS): ELS SYD
Print: Matthew Cha	Print: VT
Signature:	Signature: K Thompson
Date: 26/3/26	Date: 27/3/26 1715

Sampler's Comments:
CC Andrew Ibrahim
Filter metals using 0.45um filter from unpreserved container
Forward (1) GW-QT2 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

Sheet 1 of 1

Site:	Project No:
2-4 Giffnock Avenue, Macquarie Park NSW	E26706

Laboratory: **Envirolab Services**
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: SOIL	WATER	0.45 µm field filtered	OTHER	Analysis: HM ^ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	PAHs	HM ^ /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	Excavated Natural Material (ENM) Suite	Dewatering Suite	pH / pH peroxide	sPOCAS	Chromium Reducible Sulfur (CrS)	PFAS	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Sulphate / Chloride	HOLD		TCLP HM [B] / PAH
GW-QT2		S/P/VC	26/03/2026	PM		X					X																

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

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 - Envirolab

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

Sampler's Name (EI):		Received by (Envirolab):	
Print	Matthew Chee	*Print*	
Signature:		*Signature*	
Date	30/03/2026	*Date*	

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

Report with EI Waste Classification Table ☐

Sampler's Comments:
CC. Andrew Ibrahim, Please field filter for metals from non-preserved bottle using 0.45 um filter

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH

LABORATORY TURNAROUND

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

405489 COC 30/03/2026 13:33.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Matthew Chee
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	matthew.chee@eiaustralia.com.au
Project	**E26706 2-4 Giffnoch Ave. Macquarie Park**
Order Number	**E26706**
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	**SE299532 R0**
Date Received	26/3/2026
Date Reported	8/4/2026

COMMENTS

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

SE299532.003 E. coli. The Limit of Reporting (LOR) has been raised due to sample matrix.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Dong LIANG
Metals/Inorganics Team Leader

Gemma MOON
Organic Chemist

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Laboratory Manager

Ying Ying ZHANG
Laboratory Technician

VOCs in Water [AN433] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-	<5	-	-
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	-	-
Acetone (2-propanone)	µg/L	10	-	-	<10	-	-
Iodomethane	µg/L	5	-	-	<5	-	-
1,1-dichloroethene	µg/L	0.5	-	-	<0.5	-	-
Acrylonitrile	µg/L	0.5	-	-	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-	<5	-	-
Allyl chloride	µg/L	2	-	-	<2.0	-	-
Carbon disulfide	µg/L	2	-	-	<2.0	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	0.5	-	-	<0.5	-	-
1,1-dichloroethane	µg/L	0.5	-	-	<0.5	-	-
Vinyl acetate*	µg/L	10	-	-	<10	-	-
MEK (2-butanone)	µg/L	10	-	-	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-	<0.5	-	-
Bromochloromethane	µg/L	0.5	-	-	<0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-	<0.5	-	-
2,2-dichloropropane	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	-	-
1,2-dichloropropane	µg/L	0.5	-	-	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-	<0.5	-	-
2-nitropropane	µg/L	100	-	-	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-	<0.5	-	-
trans-1,3-dichloropropene	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	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-	<0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-	<5	-	-
1,2-dibromoethane (EDB)	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	-	-
Chlorobenzene	µg/L	0.5	-	-	<0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-	<0.5	-	-
Styrene (Vinyl benzene)	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	-	-
Isopropylbenzene (Cumene)	µg/L	0.5	-	-	<0.5	-	-

VOCs in Water [AN433] Tested: 30/3/2026 (continued)

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
Bromobenzene	µg/L	0.5	-	-	<0.5	-	-
n-propylbenzene	µg/L	0.5	-	-	<0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-	<0.5	-	-
4-chlorotoluene	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	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-	<0.5	-	-
n-butylbenzene	µg/L	0.5	-	-	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-	<0.5	-	-
Total VOC	µg/L	10	-	-	<10	-	-
Total Halogenated Hydrocarbons	µg/L	10	-	-	<10	-	-
Total Chlorinated Hydrocarbons VIC EPA	µg/L	0.5	-	-	<0.5	-	-
Total MAH	µg/L	0.5	-	-	<0.5	-	-
Total Chlorinated Hydrocarbons	µg/L	10	-	-	<10	-	-
Total Other Chlorinated Hydrocarbons VIC EPA	µg/L	0.5	-	-	<0.5	-	-
Total THM	µg/L	2	-	-	<2	-	-
Total MAH VIC EPA (BTEX+Styrene)	µg/L	0.5	-	-	<0.5	-	-

VOCs in Water [AN433] Tested: 30/3/2026 (continued)

PARAMETER	UOM	LOR	TB2 WATER - 26/3/2026 SE299532.006	TS2 WATER - 26/3/2026 SE299532.007
Benzene	µg/L	0.5	<0.5	[101%]
Toluene	µg/L	0.5	<0.5	[101%]
Ethylbenzene	µg/L	0.5	<0.5	[100%]
m/p-xylene	µg/L	1	<1	[99%]
o-xylene	µg/L	0.5	<0.5	[100%]
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Naphthalene (VOC)*	µg/L	0.5	<0.5	[93%]
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: 30/3/2026 (continued)

PARAMETER	UOM	LOR	TB2 WATER - 26/3/2026 SE299532.006	TS2 WATER - 26/3/2026 SE299532.007
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	-	-
Total Halogenated Hydrocarbons	µg/L	10	-	-
Total Chlorinated Hydrocarbons VIC EPA	µg/L	0.5	-	-
Total MAH	µg/L	0.5	-	-
Total Chlorinated Hydrocarbons	µg/L	10	-	-
Total Other Chlorinated Hydrocarbons VIC EPA	µg/L	0.5	-	-
Total THM	µg/L	2	-	-
Total MAH VIC EPA (BTEX+Styrene)	µg/L	0.5	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
TRH C10-C14	µg/L	50	<50	**55**	<50	<50	<50
TRH C15-C28	µg/L	100	<100	**330**	<100	**240**	<100
TRH C29-C36	µg/L	100	<100	**250**	<100	**230**	<100
Total TRH (C10-C36)	µg/L	50	<50	**630**	<50	**470**	<50
TRH >C10-C16	µg/L	50	<50	**130**	<50	**81**	<50
TRH >C10-C16 - Naphthalene (F2)	µg/L	50	<50	**130**	<50	**81**	<50
TRH >C16-C34 (F3)	µg/L	100	<100	**430**	<100	**350**	<100
TRH >C34-C40 (F4)	µg/L	100	<100	**150**	<100	**170**	<100
Total TRH (>C10-C40)	µg/L	50	<50	**700**	<50	**600**	<50

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5
2-methylnaphthalene	µg/L	0.5	<0.5	<0.5	<0.5
1-methylnaphthalene	µg/L	0.5	<0.5	<0.5	<0.5
Acenaphthylene	µg/L	0.5	<0.5	<0.5	<0.5
Acenaphthene	µg/L	0.5	<0.5	<0.5	<0.5
Fluorene	µg/L	0.5	<0.5	<0.5	<0.5
Phenanthrene	µg/L	0.5	<0.5	<0.5	<0.5
Anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Chrysene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(b&j)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5	<0.5	<0.5
Dibenzo(ah)anthracene	µg/L	0.5	<0.5	<0.5	<0.5
Benzo(ghi)perylene	µg/L	0.5	<0.5	<0.5	<0.5
Total PAH	µg/L	0.5	<0.5	<0.5	<0.5

OP Pesticides in Water [AN420] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Azinphos-methyl	µg/L	0.5	<0.5
Bromophos Ethyl	µg/L	0.5	<0.5
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Dichlorvos	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Ethion	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.5	<0.5
Malathion	µg/L	0.5	<0.5
Methidathion	µg/L	0.5	<0.5
Parathion-ethyl (Parathion)	µg/L	0.5	<0.5
Total OP Pesticides	µg/L	0.5	<0.5

OC Pesticides in Water [AN420] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Alpha BHC	µg/L	0.2	<0.2
Hexachlorobenzene (HCB)	µg/L	0.2	<0.2
Beta BHC	µg/L	0.2	<0.2
Lindane (gamma BHC)	µg/L	0.2	<0.2
Delta BHC	µg/L	0.2	<0.2
Heptachlor	µg/L	0.2	<0.2
Aldrin	µg/L	0.2	<0.2
Heptachlor epoxide	µg/L	0.2	<0.2
Gamma Chlordane	µg/L	0.2	<0.2
Alpha Chlordane	µg/L	0.2	<0.2
Chlordane (alpha + gamma chlordane)	µg/L	0.2	<0.2
Alpha Endosulfan	µg/L	0.2	<0.2
p,p'-DDE	µg/L	0.2	<0.2
Dieldrin	µg/L	0.2	<0.2
Endrin	µg/L	0.2	<0.2
Beta Endosulfan	µg/L	0.2	<0.2
p,p'-DDD	µg/L	0.2	<0.2
Endrin aldehyde	µg/L	0.2	<0.2
Endosulfan sulphate	µg/L	0.2	<0.2
p,p'-DDT	µg/L	0.2	<0.2
Endrin ketone	µg/L	0.2	<0.2
Methoxychlor	µg/L	0.2	<0.2
Mirex	µg/L	0.2	<0.2
Total Aldrin and Dieldrin	µg/L	0.2	<0.2
Total p,p' DDE/DDT/DDD	µg/L	0.2	<0.2
Total OC Pesticides	µg/L	0.2	<0.2
Total OCP VIC EPA IWRG621	µg/L	0.2	<0.2
Total Other OCP VIC EPA IWRG621	µg/L	0.2	<0.2

PCBs in Water [AN420] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
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 PCBs	µg/L	5	<5

Full 8270 SVOC in Water [AN420] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
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: 30/3/2026 (continued)

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
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: 30/3/2026 (continued)

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
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: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
pH**	pH Units	0.1	**5.9**	**5.7**	**3.9**
Temperature of test*	°C	-	-	-	-

Conductivity and TDS by Calculation - Water [AN106] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Conductivity @ 25 C	µS/cm	2	**1200**	**1100**	**1900**

Total Dissolved Solids (TDS) in water [AN113] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Dissolved Solids Dried at 175-185°C	mg/L	10	**750**	**1200**	**1200**

Turbidity [AN119] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Turbidity	NTU	0.5	150	100	97

Total Phenolics in Water [AN295] Tested: 1/4/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Phenols	mg/L	0.05	**0.43**	<0.05	<0.05

Anions by Ion Chromatography in Water [AN245] Tested: 31/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Chloride	mg/L	0.05	**600**
Bromide	mg/L	0.05	**2.5**
Fluoride	mg/L	0.1	<0.10
Sulfate, SO4	mg/L	1	**54**
Nitrate Nitrogen, NO3-N	mg/L	0.005	**0.046**

Alkalinity [AN135] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Bicarbonate Alkalinity as CaCO3	mg/L	5	<5
Bicarbonate Alkalinity as HCO3	mg/L	5	<5
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	<5
Carbonate Hardness as CaCO3*	mg CaCO3/L	2	<2
Non-Carbonate Hardness as CaCO3*	mg CaCO3/L	2	172.1015191
Negative Hardness as CaCO3*	mg CaCO3/L	-100	-

Dissolved Oxygen by Membrane Electrode [AN176] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Temperature*	°C	-	**17.1**
Dissolved Oxygen**	mg/L	0.5	**8.4**
Dissolved Oxygen (percent saturation)**	%	1	**86.5**

Total and Volatile Suspended Solids (TSS / VSS) [AN114] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Suspended Solids Dried at 103-105°C	mg/L	5	**93**

Forms of Carbon [AN190] Tested: 31/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Organic Carbon as NPOC	mg/L	0.2	**1.2**

Ammonia Nitrogen by Discrete Analyser [AN291] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Ammonia Nitrogen, NH_3 as N	mg/L	0.01	**0.14**

Calculation of Anion-Cation Balance (SAR Calc) [AN121] Tested: 1/4/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Sum of Ions*	mg/L	10	**1010**
Anion-Cation Balance	%	-100	**-2.95**
TFSS*	mg/L	10	**1010**
Sodium Adsorption Ratio*	No unit	0.1	**9.9**

Nitrite in Water [AN277] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005
Total Oxidised Nitrogen, NOx-N	mg/L	0.005	**0.047**

TKN Kjeldahl Digestion by Discrete Analyser [AN281/292] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Kjeldahl Nitrogen	mg/L	0.05	**0.44**
Total Nitrogen (calc)	mg/L	0.05	**0.49**

Total Phosphorus by Kjeldahl Digestion DA in Water [AN279/AN293] Tested: 30/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	**0.07**

Filterable Reactive Phosphorus (FRP) [AN278] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005

Redox Potential (Eh) in water [AN240] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Eh of Sample Relative to Standard H+ Electrode***	mV	-500	**460**
Temperature of Sample*	°C	0.1	**19.5**

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	**0.02**
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	**0.02**
Sum of Positive PFAS	µg/L	0.01	**0.02**

Total Cyanide in water by Discrete Analyser [AN077/AN287] Tested: 1/4/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002
Total Cyanide	mg/L	0.004	<0.004	**0.006**

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Calcium, Ca	mg/L	0.2	14	11	2.1
Magnesium, Mg	mg/L	0.1	29	24	41
Total Hardness by Calculation	mg CaCO3/L	1	150	120	170
Sodium Adsorption Ratio	No unit	0.2	-	-	9.9
Sodium, Na	mg/L	0.5	-	-	300
Potassium, K	mg/L	0.1	-	-	6.3
Lithium, Li	mg/L	0.005	-	-	0.042
Silicon, Si*	mg/L	0.05	-	-	16
Soluble Silicon as Silica, SiO2*	mg/L	0.1	-	-	33

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 1/4/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
Arsenic	µg/L	1	**2**	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	**0.4**	<0.1	<0.1
Chromium	µg/L	1	**3**	<1	<1	<1	<1
Copper	µg/L	1	<1	<1	**87**	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Nickel	µg/L	1	**5**	**21**	**57**	**51**	<1
Zinc	µg/L	5	**16**	**55**	**300**	**51**	<5
Silver	µg/L	1	-	-	<1	-	-
Aluminium	µg/L	5	**200**	**21**	**1500**	**19**	<5
Antimony	µg/L	1	-	-	<1	-	-
Barium	µg/L	1	-	-	**85**	-	-
Beryllium	µg/L	1	-	-	**3**	-	-
Boron	µg/L	5	-	-	**31**	-	-
Cobalt	µg/L	1	-	-	**49**	-	-
Iron	µg/L	5	-	-	**14000**	-	-
Manganese	µg/L	1	-	-	**2100**	-	-
Molybdenum	µg/L	1	-	-	<1	-	-
Selenium	µg/L	1	-	-	**3**	-	-
Strontium	µg/L	1	-	-	**25**	-	-
Uranium	µg/L	1	-	-	<1	-	-
Vanadium	µg/L	1	-	-	<1	-	-

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 27/3/2026

PARAMETER	UOM	LOR	GW-BH101M-2 WATER - 26/3/2026 SE299532.001	GW-BH102M-2 WATER - 26/3/2026 SE299532.002	GW-BH103M-2 WATER - 26/3/2026 SE299532.003	GW-QD2 WATER - 26/3/2026 SE299532.004	GW-R2 WATER - 26/3/2026 SE299532.005
Mercury, Hg	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

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

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Date & Time Processed*	No unit	-	2026-03-26 20:16
E. coli	MPN/100mL	1	<2↑
Faecal Coliforms	MPN/100mL	1	**2**

Enterococci in Water [AN750] Tested: As stated below

PARAMETER	UOM	LOR	GW-BH103M-2 WATER - 26/3/2026 SE299532.003
Date & Time Processed*	No unit	-	2026-03-26 20:16
Enterococci*	MPN/100mL	1	**88**

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN077	Hydrogen cyanide is liberated from an acidified sample by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
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.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by DA.
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).
AN735	The Colilert matrix contains two nutrient indicators, ONPG (ortho-nitro-phenyl B-d- galactopyranoside) and MUG (4-methyl-umbelliferyl B-d-glucruonide). As coliforms grow, they use B-galactosidase to metabolise ONPG which causes yellow colouration of the matrix via the nitro-phenyl. E.coli possesses an additional enzyme, B-glucuronidase, which it uses to metabolise MUG and display florescence (caused by the 4 methyl-umbelliferyl). Incubation at 37°C.
AN735	Non target organisms are suppressed by a combination of high salts, detergents etc. present within the matrix . Faecal coliforms are thermotolerant, thus they can be enumerated by testing at 44.5°C.
AN750	A method for the simultaneous detection, enumeration and confirmation of Enterococci from waters using Defined Substrate Technology (DST) - Enterolert Test Kit.
Calculation	Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L. If TDS is >500mg/L free or total carbon dioxide cannot be reported . APHA4500CO2 D.

FOOTNOTES

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

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

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

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

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

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

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

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

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

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

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

STATEMENT OF QA/QC PERFORMANCE

SE299532 R0

CLIENT DETAILS

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Telephone	61 2 95160722
Facsimile	(Not specified)
Email	matthew.chee@eiaustralia.com.au
Project	**E26706 2-4 Giffnoch Ave. Macquarie Park**
Order Number	**E26706**
Samples	7

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE299532 R0**
Date Received	26 Mar 2026
Date Reported	08 Apr 2026

COMMENTS

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

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

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

SAMPLE SUMMARY

Type of documentation received	COC	Date documentation received	26/3/2026
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13.5°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.

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

Alkalinity

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382923	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026

Ammonia Nitrogen by Discrete Analyser

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382783	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026

Anions by Ion Chromatography in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH102M-2	SE299532.002	LB382676	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB383030	26 Mar 2026	26 Mar 2026	23 Apr 2026	31 Mar 2026	23 Apr 2026	01 Apr 2026

Conductivity and TDS by Calculation - Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382706	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-BH102M-2	SE299532.002	LB382706	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-BH103M-2	SE299532.003	LB382706	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026

Dissolved Oxygen by Membrane Electrode

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382722	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382737	26 Mar 2026	26 Mar 2026	27 Mar 2026	26 Mar 2026	29 Mar 2026	26 Mar 2026

Enterococci in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382737	26 Mar 2026	26 Mar 2026	27 Mar 2026	26 Mar 2026	29 Mar 2026	26 Mar 2026

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-2	SE299532.003	LB382783	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026

Forms of Carbon

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH102M-2	SE299532.002	LB382678	26 Mar 2026	26 Mar 2026	02 Apr 2026	27 Mar 2026	02 Apr 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB383031	26 Mar 2026	26 Mar 2026	02 Apr 2026	31 Mar 2026	02 Apr 2026	01 Apr 2026

Full 8270 SVOC in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382672	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-BH102M-2	SE299532.002	LB382672	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-BH103M-2	SE299532.003	LB382672	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-QD2	SE299532.004	LB382672	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026
GW-R2	SE299532.005	LB382672	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	27 Mar 2026

Metals in Water (Dissolved) by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382697	26 Mar 2026	26 Mar 2026	22 Sep 2026	27 Mar 2026	22 Sep 2026	27 Mar 2026
GW-BH102M-2	SE299532.002	LB382697	26 Mar 2026	26 Mar 2026	22 Sep 2026	27 Mar 2026	22 Sep 2026	27 Mar 2026
GW-BH103M-2	SE299532.003	LB382697	26 Mar 2026	26 Mar 2026	22 Sep 2026	27 Mar 2026	22 Sep 2026	27 Mar 2026

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.

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-2	SE299532.003	LB382783	26 Mar 2026	26 Mar 2026	30 Mar 2026	27 Mar 2026	30 Mar 2026	27 Mar 2026

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-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

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-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

PCBs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382791	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	24 Apr 2026	30 Mar 2026

pH in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382705	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026
GW-BH102M-2	SE299532.002	LB382705	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026
GW-BH103M-2	SE299532.003	LB382705	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026

Redox Potential (Eh) in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382720	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026

TKN Kjeldahl Digestion by Discrete Analyser

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH102M-2	SE299532.002	LB382684	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB382873	26 Mar 2026	26 Mar 2026	23 Apr 2026	30 Mar 2026	23 Apr 2026	01 Apr 2026

Total and Volatile Suspended Solids (TSS / VSS)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH103M-2	SE299532.003	LB382704	26 Mar 2026	26 Mar 2026	02 Apr 2026	27 Mar 2026	03 Apr 2026	27 Mar 2026

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB383226	26 Mar 2026	26 Mar 2026	09 Apr 2026	01 Apr 2026	09 Apr 2026	01 Apr 2026
GW-BH102M-2	SE299532.002	LB383226	26 Mar 2026	26 Mar 2026	09 Apr 2026	01 Apr 2026	09 Apr 2026	01 Apr 2026

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.

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

Total Dissolved Solids (TDS) in water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382726	26 Mar 2026	26 Mar 2026	02 Apr 2026	27 Mar 2026	02 Apr 2026	30 Mar 2026
GW-BH102M-2	SE299532.002	LB382726	26 Mar 2026	26 Mar 2026	02 Apr 2026	27 Mar 2026	02 Apr 2026	30 Mar 2026
GW-BH103M-2	SE299532.003	LB382917	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	02 Apr 2026	31 Mar 2026

Total Phenolics in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB383223	26 Mar 2026	26 Mar 2026	09 Apr 2026	01 Apr 2026	09 Apr 2026	01 Apr 2026
GW-BH102M-2	SE299532.002	LB383223	26 Mar 2026	26 Mar 2026	09 Apr 2026	01 Apr 2026	09 Apr 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB383223	26 Mar 2026	26 Mar 2026	09 Apr 2026	01 Apr 2026	09 Apr 2026	01 Apr 2026

Total Phosphorus by Kjeldahl Digestion DA in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH102M-2	SE299532.002	LB382684	26 Mar 2026	26 Mar 2026	23 Apr 2026	27 Mar 2026	23 Apr 2026	31 Mar 2026
GW-BH103M-2	SE299532.003	LB382873	26 Mar 2026	26 Mar 2026	23 Apr 2026	30 Mar 2026	23 Apr 2026	31 Mar 2026

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB383233	26 Mar 2026	26 Mar 2026	22 Sep 2026	01 Apr 2026	22 Sep 2026	01 Apr 2026
GW-BH102M-2	SE299532.002	LB383233	26 Mar 2026	26 Mar 2026	22 Sep 2026	01 Apr 2026	22 Sep 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB383233	26 Mar 2026	26 Mar 2026	22 Sep 2026	01 Apr 2026	22 Sep 2026	01 Apr 2026
GW-QD2	SE299532.004	LB383233	26 Mar 2026	26 Mar 2026	22 Sep 2026	01 Apr 2026	22 Sep 2026	01 Apr 2026
GW-R2	SE299532.005	LB383233	26 Mar 2026	26 Mar 2026	22 Sep 2026	01 Apr 2026	22 Sep 2026	01 Apr 2026

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH102M-2	SE299532.002	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-BH103M-2	SE299532.003	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-QD2	SE299532.004	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026
GW-R2	SE299532.005	LB382826	26 Mar 2026	26 Mar 2026	02 Apr 2026	30 Mar 2026	09 May 2026	02 Apr 2026

Turbidity

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382721	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026
GW-BH102M-2	SE299532.002	LB382721	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026
GW-BH103M-2	SE299532.003	LB382721	26 Mar 2026	26 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026	27 Mar 2026

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-BH102M-2	SE299532.002	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-BH103M-2	SE299532.003	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-QD2	SE299532.004	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-R2	SE299532.005	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
TB2	SE299532.006	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
TS2	SE299532.007	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW-BH101M-2	SE299532.001	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-BH102M-2	SE299532.002	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	01 Apr 2026
GW-BH103M-2	SE299532.003	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-QD2	SE299532.004	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
GW-R2	SE299532.005	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	31 Mar 2026
TB2	SE299532.006	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	01 Apr 2026
TS2	SE299532.007	LB382871	26 Mar 2026	26 Mar 2026	09 Apr 2026	30 Mar 2026	09 Apr 2026	01 Apr 2026

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

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

Full 8270 SVOC in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	91
2-fluorobiphenyl (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	78
d14-p-terphenyl (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	98
d5-nitrobenzene (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	94
d5-phenol (Surrogate)	GW-BH103M-2	SE299532.003	%	20 - 130%	70

OC Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	78

OP Pesticides in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	70
d14-p-terphenyl (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	83
d5-nitrobenzene (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	78

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	75
	GW-BH102M-2	SE299532.002	%	40 - 130%	87
	GW-BH103M-2	SE299532.003	%	40 - 130%	70
d14-p-terphenyl (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	86
	GW-BH102M-2	SE299532.002	%	40 - 130%	89
	GW-BH103M-2	SE299532.003	%	40 - 130%	83
d5-nitrobenzene (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	84
	GW-BH102M-2	SE299532.002	%	40 - 130%	91
	GW-BH103M-2	SE299532.003	%	40 - 130%	79

PCBs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	GW-BH103M-2	SE299532.003	%	40 - 130%	78

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	73
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 300%	87
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 300%	105
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 300%	130
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	70
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	108
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	101
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	95
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	5 - 150%	117
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	108
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	35 - 150%	83
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	89
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	30 - 150%	83
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	90
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	20 - 150%	69
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	40 - 150%	103
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	41
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	30 - 170%	62
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	44
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	20 - 150%	65
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	55
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	GW-BH103M-2	SE299532.003	%	10 - 150%	47

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units

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

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VOCs in Water (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	104
	GW-BH102M-2	SE299532.002	%	40 - 130%	104
	GW-BH103M-2	SE299532.003	%	40 - 130%	104
	GW-QD2	SE299532.004	%	40 - 130%	104
	GW-R2	SE299532.005	%	40 - 130%	104
	TB2	SE299532.006	%	40 - 130%	106
	TS2	SE299532.007	%	40 - 130%	101
d4-1,2-dichloroethane (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	95
	GW-BH102M-2	SE299532.002	%	40 - 130%	94
	GW-BH103M-2	SE299532.003	%	40 - 130%	94
	GW-QD2	SE299532.004	%	40 - 130%	97
	GW-R2	SE299532.005	%	40 - 130%	93
	TB2	SE299532.006	%	40 - 130%	98
	TS2	SE299532.007	%	40 - 130%	103
d8-toluene (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	91
	GW-BH102M-2	SE299532.002	%	40 - 130%	87
	GW-BH103M-2	SE299532.003	%	40 - 130%	91
	GW-QD2	SE299532.004	%	40 - 130%	92
	GW-R2	SE299532.005	%	40 - 130%	85
	TB2	SE299532.006	%	40 - 130%	83
	TS2	SE299532.007	%	40 - 130%	105

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	104
	GW-BH102M-2	SE299532.002	%	40 - 130%	104
	GW-BH103M-2	SE299532.003	%	40 - 130%	104
	GW-QD2	SE299532.004	%	40 - 130%	104
	GW-R2	SE299532.005	%	40 - 130%	104
d4-1,2-dichloroethane (Surrogate)	GW-BH101M-2	SE299532.001	%	60 - 130%	95
	GW-BH102M-2	SE299532.002	%	60 - 130%	94
	GW-BH103M-2	SE299532.003	%	60 - 130%	94
	GW-QD2	SE299532.004	%	60 - 130%	97
	GW-R2	SE299532.005	%	60 - 130%	93
d8-toluene (Surrogate)	GW-BH101M-2	SE299532.001	%	40 - 130%	91
	GW-BH102M-2	SE299532.002	%	40 - 130%	87
	GW-BH103M-2	SE299532.003	%	40 - 130%	91
	GW-QD2	SE299532.004	%	40 - 130%	92
	GW-R2	SE299532.005	%	40 - 130%	85

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

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

Alkalinity

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

Sample Number	Parameter	Units	LOR	Result
LB382923.001	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
LB382783.001	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
LB383030.001	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
LB382706.001	Conductivity @ 25 C	µS/cm	2	<2

Dissolved Oxygen by Membrane Electrode

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

Sample Number	Parameter	Units	LOR	Result
LB382722.001	Dissolved Oxygen**	mg/L	0.5	<0.5

Filterable Reactive Phosphorus (FRP)

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

Sample Number	Parameter	Units	LOR	Result
LB382783.001	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
LB383031.001	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
LB382826.001	01-PAHs	Acenaphthene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Benzo(b&j&k)fluoranthene	µg/L	0.2	<0.2
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		Naphthalene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		2-acetylaminofluorene	µg/L	0.5	<0.5
		7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5
		3-methylcholanthrene	µg/L	0.5	<0.5
	02-OCs	Aldrin	µg/L	0.1	<0.1
		Alpha-BHC	µg/L	0.1	<0.1

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

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

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

Sample Number		Parameter	Units	LOR	Result
LB382826.001	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
LB382826.001	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
LB382826.001	14-Speciated Routine Phenols	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
		2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
		2,6-dichlorophenol	µg/L	0.5	<0.5
		2,4,5-trichlorophenol	µg/L	0.5	<0.5
		4-chloro-3-methylphenol	µg/L	2	<2
		2-chlorophenol	µg/L	0.5	<0.5
		2,4-dichlorophenol	µg/L	0.5	<0.5
		2,4-dimethylphenol	µg/L	0.5	<0.5
		2-nitrophenol	µg/L	0.5	<0.5
		Phenol	µg/L	0.5	<0.5
		2,4,6-trichlorophenol	µg/L	0.5	<0.5
		Pentachlorophenol	µg/L	0.5	<0.5
		4-nitrophenol	µg/L	1	<1
	Surrogates	d5-phenol (Surrogate)	%	-	88
		d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	110
		2,4,6-Tribromophenol (Surrogate)	%	-	110
		d14-p-terphenyl (Surrogate)	%	-	122

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB382672.001	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
LB382697.001	Calcium, Ca	mg/L	0.2	<0.2
	Magnesium, Mg	mg/L	0.1	<0.1
	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
LB382783.001	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
LB382826.001	Alpha BHC	µg/L	0.2	<0.2
	Hexachlorobenzene (HCB)	µg/L	0.2	<0.2
	Beta BHC	µg/L	0.2	<0.2
	Lindane (gamma BHC)	µg/L	0.2	<0.2
	Delta BHC	µg/L	0.2	<0.2
	Heptachlor	µg/L	0.2	<0.2
	Aldrin	µg/L	0.2	<0.2
	Heptachlor epoxide	µg/L	0.2	<0.2
	Gamma Chlordane	µg/L	0.2	<0.2
	Alpha Chlordane	µg/L	0.2	<0.2
	Chlordane (alpha + gamma chlordane)	µg/L	0.2	<0.2
	Alpha Endosulfan	µg/L	0.2	<0.2
	p,p'-DDE	µg/L	0.2	<0.2
	Dieldrin	µg/L	0.2	<0.2
	Endrin	µg/L	0.2	<0.2
	Beta Endosulfan	µg/L	0.2	<0.2
	p,p'-DDD	µg/L	0.2	<0.2
	Endrin aldehyde	µg/L	0.2	<0.2
	Endosulfan sulphate	µg/L	0.2	<0.2
	p,p'-DDT	µg/L	0.2	<0.2
	Endrin ketone	µg/L	0.2	<0.2
	Methoxychlor	µg/L	0.2	<0.2

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

OC Pesticides in Water (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB382826.001	Mirex	µg/L	0.2	<0.2

OP Pesticides in Water

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

Sample Number	Parameter	Units	LOR	Result
LB382826.001	Azinphos-methyl	µg/L	0.5	<0.5
	Bromophos Ethyl	µg/L	0.5	<0.5
	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	<0.5
	Diazinon (Dimpylate)	µg/L	0.5	<0.5
	Dichlorvos	µg/L	0.5	<0.5
	Dimethoate	µg/L	0.5	<0.5
	Ethion	µg/L	0.5	<0.5
	Fenitrothion	µg/L	0.5	<0.5
	Malathion	µg/L	0.5	<0.5
	Methidathion	µg/L	0.5	<0.5
	Parathion-ethyl (Parathion)	µg/L	0.5	<0.5

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB382826.001	Naphthalene	µg/L	0.5	<0.5
	2-methylnaphthalene	µg/L	0.5	<0.5
	1-methylnaphthalene	µg/L	0.5	<0.5
	Acenaphthylene	µg/L	0.5	<0.5
	Acenaphthene	µg/L	0.5	<0.5
	Fluorene	µg/L	0.5	<0.5
	Phenanthrene	µg/L	0.5	<0.5
	Anthracene	µg/L	0.5	<0.5
	Fluoranthene	µg/L	0.5	<0.5
	Pyrene	µg/L	0.5	<0.5
	Benzo(a)anthracene	µg/L	0.5	<0.5
	Chrysene	µg/L	0.5	<0.5
	Benzo(b&j)fluoranthene	µg/L	0.5	<0.5
	Benzo(k)fluoranthene	µg/L	0.5	<0.5
	Benzo(b&j&k)fluoranthene	µg/L	0.5	<0.5
	Benzo(a)pyrene	µg/L	0.5	<0.5
	Indeno(1,2,3-cd)pyrene	µg/L	0.5	<0.5
	Dibenzo(ah)anthracene	µg/L	0.5	<0.5
	Benzo(ghi)perylene	µg/L	0.5	<0.5

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result
LB382826.001	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
LB382791.001	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

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

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

Sample Number	Parameter	Units	LOR	Result
LB382791.001	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 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
LB382704.001	Total Suspended Solids Dried at 103-105°C	mg/L	5	<5

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB383226.001	Total Cyanide	mg/L	0.004	<0.004

Total Dissolved Solids (TDS) in water

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

Sample Number	Parameter	Units	LOR	Result
LB382726.001	Total Dissolved Solids Dried at 175-185°C	mg/L	10	<10
LB382917.001	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
LB383223.001	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
LB382873.001	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
LB383233.001	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

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

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

Sample Number		Parameter	Units	LOR	Result
LB383233.001		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
LB382826.001		TRH C10-C14	µg/L	50	<50
		TRH C15-C28	µg/L	100	<100
		TRH C29-C36	µg/L	100	<100
	TRH F Bands	TRH >C10-C16	µg/L	50	<50
		TRH >C16-C34 (F3)	µg/L	100	<100
		TRH >C34-C40 (F4)	µg/L	100	<100

Turbidity

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

Sample Number	Parameter	Units	LOR	Result
LB382721.001	Turbidity	NTU	0.5	<0.5

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB382871.001	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	<2.0
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		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

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.

VOCs in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB382871.001	Halogenated Aromatics	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	<2.0
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	94
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	99
	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
LB382871.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	94
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	99

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 %
SE299500.010	LB382923.013	Bicarbonate Alkalinity as CaCO3	mg/L	5	7	8	82	14
		Carbonate Alkalinity as CaCO3	mg/L	5	<5	<5	200	0
		Total Alkalinity as CaCO3	mg/L	5	7	8	82	14
SE299587.001	LB382923.024	Bicarbonate Alkalinity as CaCO3	mg/L	5	81	87	21	7
		Carbonate Alkalinity as CaCO3	mg/L	5	9	<5	103	54
		Total Alkalinity as CaCO3	mg/L	5	90	90	21	0

Ammonia Nitrogen by Discrete Analyser

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299570.001	LB382783.014	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	0.11	0.11	24	1
SE299587.001	LB382783.023	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	0.10	0.10	25	3

Anions by Ion Chromatography in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299568.001	LB383030.014	Nitrate Nitrogen, NO3-N	mg/L	0.005	0.55	0.52	16	4
SE299611.003	LB383030.025	Sulfate, SO4	mg/L	1	61	59	17	3

Conductivity and TDS by Calculation - Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB382706.010	Conductivity @ 25 C	µS/cm	2	1900	1900	15	1

Filterable Reactive Phosphorus (FRP)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299570.001	LB382783.014	Filterable Reactive Phosphorus as P	mg/L	0.005	<0.005	<0.005	200	0

Forms of Carbon

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299570.005	LB383031.011	Total Organic Carbon as NPOC	mg/L	0.2	1.6	1.6	27	2

Mercury (dissolved) in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB382672.014	Mercury, Hg	µg/L	0.0001	<0.0001	0.0001	97	36
SE299547.017	LB382672.018	Mercury, Hg	µg/L	0.0001	<0.0001	<0.0001	182	27

Metals in Water (Dissolved) by ICPOES

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299500.010	LB382697.014	Calcium, Ca	mg/L	0.2	3.8	3.8	20	0
		Magnesium, Mg	mg/L	0.1	1.4	1.4	22	0
		Potassium, K	mg/L	0.1	1.1	1.1	24	0
		Sodium, Na	mg/L	0.5	8.6	8.5	21	1
SE299532.003	LB382697.022	Calcium, Ca	mg/L	0.2	2.1	2.0	25	2
		Lithium, Li	mg/L	0.005	0.042	0.041	27	1
		Magnesium, Mg	mg/L	0.1	41	40	15	1
		Potassium, K	mg/L	0.1	6.3	6.2	17	2
		Silicon, Si*	mg/L	0.05	16	16	15	1
		Sodium, Na	mg/L	0.5	300	290	15	1

Nitrite in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299570.001	LB382783.014	Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005	<0.005	200	0
SE299587.001	LB382783.023	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.009	0.009	72	4

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 — **Method: ME-(AU)-[ENV]AN404**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299384.001	LB382791.004	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05	200	0
		Perfluoropentanoic acid (PFPeA)	µg/L	0.01	0.07	0.07	200	2
		Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.05	0.05	200	3
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.03	0.02	200	3
		Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.08	0.08	200	1
		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	0.08	0.08	200	1
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	0.08	0.08	200	1
		Sum of PFAS A	µg/L	0.01	0.16	0.16	200	2
		Sum of PFAS B	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFAS C	µg/L	0.01	0.07	0.07	200	2
		Sum of Positive PFAS	µg/L	0.01	0.23	0.23	200	1
		(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	113	112	200	1
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	78	76	200	2
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	95	95	200	1
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	94	95	200	1
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	90	92	200	2
		(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	92	92	200	0
		(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	94	87	200	8
		(13C7-PFUdA) Isotopically Labelled Internal Recovery	%	-	89	82	200	9
		(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	81	75	200	8
		(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	69	62	200	11
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	97	98	200	2
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	96	96	200	1
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	90	85	200	6
		(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	77	74	200	4
		(D3-N-MeFOSAA) Isotopically Labelled Internal	%	-	54	57	200	6
		(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	67	68	200	2
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	94	107	200	13
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	81	102	200	22
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	106	126	200	17
		(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	58	55	200	5
		(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	48	48	200	2
		(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	44	46	200	5
		(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	42	43	200	3
SE299502.006	LB382791.015	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05	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 %
SE299502.006	LB382791.015	Perfluoropentanoic acid (PFPeA)	µg/L	0.01	0.03	0.03	200	3
		Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.03	0.03	200	2
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.02	0.03	200	15
		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	0.04	0.04	200	1
		Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01	200	0
		Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.05	0.06	200	16
		Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01	<0.01	200	0
		1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2	µg/L	0.01	<0.01	<0.01	200	0
		Sum of PFOS and PFHxS	µg/L	0.01	0.09	0.10	200	9
		Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	0.12	0.13	200	10
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	0.08	0.09	200	15
		(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	113	111	200	1
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	70	71	200	1
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	91	94	200	3
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	109	108	200	1
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	89	86	200	4
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	100	108	200	7
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	96	100	200	4
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	91	78	200	15
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	73	77	200	6
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	91	96	200	5
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	81	89	200	9

pH in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB382705.011	pH**	pH Units	0.1	3.9	3.8	18	1

Redox Potential (Eh) in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB382720.006	Eh of Sample Relative to Standard H+ Electrode***	mV	-500	460	465	15	1

TKN Kjeldahl Digestion by Discrete Analyser

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299552.006	LB382873.014	Total Kjeldahl Nitrogen	mg/L	0.05	0.95	0.91	20	4
SE299570.003	LB382873.027	Total Kjeldahl Nitrogen	mg/L	0.05	6.9	7.6	16	10

Total and Volatile Suspended Solids (TSS / VSS)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299495.001	LB382704.013	Total Suspended Solids Dried at 103-105°C	mg/L	5	10	9	68	11

Total Dissolved Solids (TDS) in water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299516.001	LB382726.013	Total Dissolved Solids Dried at 175-185°C	mg/L	10	580	570	17	1
SE299532.002	LB382726.024	Total Dissolved Solids Dried at 175-185°C	mg/L	10	1200	1200	16	1
SE299585.007	LB382917.013	Total Dissolved Solids Dried at 175-185°C	mg/L	10	72	74	29	3
SE299611.003	LB382917.024	Total Dissolved Solids Dried at 175-185°C	mg/L	10	310	320	18	2

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 Phenolics in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB383223.014	Total Phenols	mg/L	0.05	<0.05	<0.05	200	0
SE299752.001	LB383223.033	Total Phenols	mg/L	0.05	<0.05	<0.05	200	0

Total Phosphorus by Kjeldahl Digestion DA in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299552.006	LB382873.014	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	0.05	0.05	54	9
SE299570.003	LB382873.027	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	0.20	0.25	24	23

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299531.001	LB383233.014	Lead	µg/L	1	<1	<1	200	0

Turbidity

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299532.003	LB382721.015	Turbidity	NTU	0.5	97	98	16	2

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299531.006	LB382871.024	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	1.3	1.4	66	9
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	9.5	30	5
			d8-toluene (Surrogate)	µg/L	-	9.6	8.7	30	10
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	8.9	30	4
		Totals	Total BTEX	µg/L	3	<3	<3	200	0
SE299532.004	LB382871.025	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	9.4	30	3
			d8-toluene (Surrogate)	µg/L	-	9.2	8.6	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	10.4	9.1	30	13
		Totals	Total BTEX	µg/L	3	<3	<3	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE299531.006	LB382871.024		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	-	9.9	9.5	30	5
			d8-toluene (Surrogate)	µg/L	-	9.6	8.7	30	10
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	8.9	30	4
		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
SE299532.004	LB382871.025		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.7	9.4	30	3
			d8-toluene (Surrogate)	µg/L	-	9.2	8.6	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	10.4	9.1	30	13
		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 %
LB382783.002	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	2.5	2.5	80 - 120	99

Anions by Ion Chromatography in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383030.002	Fluoride	mg/L	0.1	2.1	2	80 - 120	104
	Chloride	mg/L	0.05	19	20	80 - 120	97
	Bromide	mg/L	0.05	1.9	2	80 - 120	95
	Nitrate Nitrogen, NO3-N	mg/L	0.005	2.2	2	80 - 120	108
	Sulfate, SO4	mg/L	1	20	20	80 - 120	100

Conductivity and TDS by Calculation - Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382706.002	Conductivity @ 25 C	µS/cm	2	1000	1015	85 - 115	100

Filterable Reactive Phosphorus (FRP)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382783.002	Filterable Reactive Phosphorus as P	mg/L	0.005	0.097	0.1	80 - 120	97

Forms of Carbon

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383031.002	Total Organic Carbon as NPOC	mg/L	0.2	20	20	80 - 120	99

Full 8270 SVOC in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002	01-PAHs	Acenaphthene	µg/L	0.1	43	40	60 - 140	107
		Acenaphthylene	µg/L	0.1	44	40	60 - 140	109
		Anthracene	µg/L	0.1	48	40	60 - 140	120
		Benzo(a)pyrene	µg/L	0.1	47	40	60 - 140	119
		Fluoranthene	µg/L	0.1	42	40	60 - 140	104
		Naphthalene	µg/L	0.1	42	40	60 - 140	104
		Phenanthrene	µg/L	0.1	44	40	60 - 140	110
		Pyrene	µg/L	0.1	41	40	60 - 140	103
	02-OCs	Aldrin	µg/L	0.1	3.4	4	60 - 140	85
		Delta-BHC	µg/L	0.1	4.0	4	60 - 140	100
		p,p-DDT	µg/L	0.1	4.1	4	60 - 140	103
		Dieldrin	µg/L	0.1	4.3	4	60 - 140	109
		Endrin	µg/L	0.1	3.2	4	60 - 140	80
		Heptachlor	µg/L	0.1	3.0	4	60 - 140	76
	03-OPs	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	9.2	8	60 - 140	115
		Diazinon (Dimpylate)	µg/L	0.5	10	8	60 - 140	129
		Dichlorvos	µg/L	0.5	11	8	60 - 140	137
		Ethion	µg/L	0.2	10	8	60 - 140	128
	05-SVCH (Cl Benzenes,	Hexachlorobenzene (HCB)	µg/L	0.1	3.9	4	60 - 140	99
		Hexachlorobutadiene	µg/L	0.5	4.1	4	60 - 140	103
		Hexachloroethane	µg/L	0.5	4.0	4	60 - 140	101
		Pentachlorobenzene	µg/L	0.5	4.0	4	60 - 140	99
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	4.3	4	60 - 140	109
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	10	<10	8	60 - 140	112
		Butyl benzyl phthalate	µg/L	1	7	8	60 - 140	93
		Di-n-butyl phthalate	µg/L	10	<10	8	60 - 140	93
		Diethyl phthalate	µg/L	5	8	8	60 - 140	102
		Dimethyl phthalate	µg/L	1	7	8	60 - 140	88
		Di-n-octyl phthalate	µg/L	1	9	8	60 - 140	116
	09-Nitrosamine	N-nitroso-di-n-propylamine (NDPA)	µg/L	1	41	32	60 - 140	130
	10-Nitroaromat	Pentachloronitrobenzene (quintozene)	µg/L	1	5	4	60 - 140	121

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 %
LB382826.002	14-Speciated	2,4-dichlorophenol	µg/L	0.5	46	40	60 - 140	114
	Routine	Phenol	µg/L	0.5	50	40	60 - 140	124
		2,4,6-trichlorophenol	µg/L	0.5	53	40	60 - 140	134
		Pentachlorophenol	µg/L	0.5	49	40	60 - 140	123
	Surrogates	d5-phenol (Surrogate)	µg/L	-	2.4	2	40 - 130	118
		d5-nitrobenzene (Surrogate)	µg/L	-	0.64	0.5	40 - 130	128
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.53	0.5	40 - 130	106
		2,4,6-Tribromophenol (Surrogate)	µg/L	-	5.3	5	40 - 130	106
		d14-p-terphenyl (Surrogate)	µg/L	-	0.51	0.5	40 - 130	102

Metals in Water (Dissolved) by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382697.002	Calcium, Ca	mg/L	0.2	52	50.5	80 - 120	104
	Lithium, Li	mg/L	0.005	0.093	0.1	80 - 120	93
	Magnesium, Mg	mg/L	0.1	47	50.5	80 - 120	93
	Potassium, K	mg/L	0.1	47	55	80 - 120	85
	Silicon, Si*	mg/L	0.05	0.23	0.25	80 - 120	94
	Sodium, Na	mg/L	0.5	47	50.5	80 - 120	93

Nitrite in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382783.002	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.10	0.1	80 - 120	100

OC Pesticides in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002	Lindane (gamma BHC)	µg/L	0.2	9.8	10	60 - 140	98
	Heptachlor	µg/L	0.2	8.8	10	60 - 140	88
	Aldrin	µg/L	0.2	10	10	60 - 140	104
	Dieldrin	µg/L	0.2	11	10	60 - 140	113
	Endrin	µg/L	0.2	10	10	60 - 140	102
	p,p'-DDT	µg/L	0.2	11	10	60 - 140	112

OP Pesticides in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.5	11	10	60 - 140	109
		Diazinon (Dimpylate)	µg/L	0.5	13	10	60 - 140	125
		Dichlorvos	µg/L	0.5	11	10	60 - 140	112
		Ethion	µg/L	0.5	13	10	60 - 140	125
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.41	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	µg/L	-	0.48	0.5	40 - 130	96
		d5-nitrobenzene (Surrogate)	µg/L	-	0.47	0.5	40 - 130	94

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002		Naphthalene	µg/L	0.5	22	20	60 - 140	108
		Acenaphthylene	µg/L	0.5	22	20	60 - 140	111
		Acenaphthene	µg/L	0.5	23	20	60 - 140	113
		Phenanthrene	µg/L	0.5	24	20	60 - 140	122
		Anthracene	µg/L	0.5	24	20	60 - 140	120
		Fluoranthene	µg/L	0.5	24	20	60 - 140	119
		Pyrene	µg/L	0.5	25	20	60 - 140	124
		Benzo(a)pyrene	µg/L	0.5	23	20	60 - 140	116
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.47	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.41	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	µg/L	-	0.48	0.5	40 - 130	96

PCBs in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002	Arochlor 1260	µg/L	1	11	10	60 - 140	112

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382791.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.24	0.2	40 - 160	118
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.21	0.2	40 - 160	107
	Perfluorononanoic acid (PFNA)	µg/L	0.01	0.23	0.2	40 - 160	115
	Perfluorodecanoic acid (PFDA)	µg/L	0.01	0.25	0.2	40 - 160	125
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	0.22	0.2	40 - 160	110
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	0.13	0.2	40 - 160	66
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.17	0.2	40 - 160	83
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.01	0.20	0.2	40 - 160	98

pH in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382705.003	pH**	pH Units	0.1	7.5	7.415	98 - 102	101

Redox Potential (Eh) in water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382720.001	Eh of Sample Relative to Standard H+ Electrode***	mV	-500	436	428	90 - 110	102

Total and Volatile Suspended Solids (TSS / VSS)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382704.002	Total Suspended Solids Dried at 103-105°C	mg/L	5	100	100	80 - 120	102

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383226.002	Total Cyanide	mg/L	0.004	0.026	0.025	80 - 120	105

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383223.002	Total Phenols	mg/L	0.05	0.20	0.2	80 - 120	102

Total Phosphorus by Kjeldahl Digestion DA in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382873.002	Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	1.1	1	80 - 120	106

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383233.002	Aluminium	µg/L	5	23	20	80 - 120	115
	Antimony	µg/L	1	23	20	80 - 120	113
	Arsenic	µg/L	1	20	20	80 - 120	99
	Barium	µg/L	1	21	20	80 - 120	105
	Beryllium	µg/L	1	20	20	80 - 120	102
	Boron	µg/L	5	22	20	80 - 120	110
	Cadmium	µg/L	0.1	20	20	80 - 120	102
	Chromium	µg/L	1	22	20	80 - 120	108
	Cobalt	µg/L	1	22	20	80 - 120	111
	Copper	µg/L	1	22	20	80 - 120	112
	Iron	µg/L	5	21	20	80 - 120	107
	Lead	µg/L	1	21	20	80 - 120	106
	Manganese	µg/L	1	21	20	80 - 120	106
	Molybdenum	µg/L	1	21	20	80 - 120	106
	Nickel	µg/L	1	22	20	80 - 120	108
	Selenium	µg/L	1	22	20	80 - 120	108
	Silver	µg/L	1	17	20	80 - 120	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.

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB383233.002	Strontium	µg/L	1	21	20	80 - 120	105
	Uranium	µg/L	1	22	20	80 - 120	110
	Vanadium	µg/L	1	21	20	80 - 120	107
	Zinc	µg/L	5	22	20	80 - 120	111

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382826.002		TRH C10-C14	µg/L	50	810	1000	60 - 140	81
	TRH F Bands	TRH >C10-C16	µg/L	50	810	1000	60 - 140	81

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382871.002	Halogenated	1,1-dichloroethene	µg/L	0.5	45	45.45	60 - 140	100
	Aliphatics	1,2-dichloroethane	µg/L	0.5	46	45.45	60 - 140	101
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	47	45.45	60 - 140	103
	Halogenated	Chlorobenzene	µg/L	0.5	36	45.45	60 - 140	80
	Monocyclic	Benzene	µg/L	0.5	30	25	60 - 140	121
	Aromatic	Toluene	µg/L	0.5	31	25	60 - 140	122
		Ethylbenzene	µg/L	0.5	28	25	60 - 140	113
		m/p-xylene	µg/L	1	54	50	60 - 140	107
		o-xylene	µg/L	0.5	28	25	60 - 140	113
	Trihalomethan	Chloroform (THM)	µg/L	0.5	53	45.45	60 - 140	116

Volatile Petroleum Hydrocarbons in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB382871.002	TRH C6-C10	µg/L	50	450	400	60 - 140	114
	TRH C6-C9	µg/L	40	420	350	60 - 140	119

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.

Ammonia Nitrogen by Discrete Analyser

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299586.001	LB382783.025	Ammonia Nitrogen, NH_3 as N	mg/L	0.01	3.6	1.2	2.5	93

Anions by Ion Chromatography in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299587.001	LB383030.004	Nitrate Nitrogen, NO3-N	mg/L	0.005	3.8	1.7	2	106

Filterable Reactive Phosphorus (FRP)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299532.003	LB382783.025	Filterable Reactive Phosphorus as P	mg/L	0.005	0.10	<0.005	0.1	102

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299522.001	LB382672.004	Mercury, Hg	mg/L	0.0001	0.0023	0.0001	0.008	109

Metals in Water (Dissolved) by ICPOES

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299500.001	LB382697.004	Calcium, Ca	mg/L	0.2	59	5.0	50.5	107
		Magnesium, Mg	mg/L	0.1	49	1.6	50.5	94
		Potassium, K	mg/L	0.1	52	1.6	55	92
		Sodium, Na	mg/L	0.5	62	10	50.5	103

Nitrite in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299532.003	LB382783.025	Nitrite Nitrogen, NO2 as N	mg/L	0.005	0.088	<0.005	0.1	87

Total Cyanide in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299753.001	LB383226.012	Total Cyanide	mg/L	0.004	0.026	0.000805	0.025	103

Total Phenolics in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299502.001	LB383223.004	Total Phenols	mg/L	0.05	0.20	<0.05	0.2	102

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299469.001	LB383233.004	Arsenic	µg/L	1	29	6	20	113
		Boron	µg/L	5	150	130	20	103
		Cadmium	µg/L	0.1	21	<0.1	20	107
		Chromium	µg/L	1	23	2	20	103
		Cobalt	µg/L	1	26	5	20	104
		Copper	µg/L	1	29	9	20	101
		Lead	µg/L	1	23	3	20	101
		Molybdenum	µg/L	1	190	170	20	97
		Nickel	µg/L	1	31	12	20	97
		Selenium	µg/L	1	23	1	20	111
		Zinc	µg/L	5	60	38	20	110

VOCs in Water

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

VOCs in Water (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299495.001	LB382871.023	Monocyclic	Benzene	µg/L	0.5	33	<0.5	25	133
		Aromatic	Toluene	µg/L	0.5	33	<0.5	25	133
			Ethylbenzene	µg/L	0.5	30	<0.5	25	118
			m/p-xylene	µg/L	1	58	<1	50	117
			o-xylene	µg/L	0.5	30	<0.5	25	121
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	10.0	-	102
			d8-toluene (Surrogate)	µg/L	-	9.2	9.5	-	92
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	9.2	-	93
		Totals	Total BTEX	µg/L	3	180	<3	-	-

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE299495.001	LB382871.023		TRH C6-C10	µg/L	50	450	<50	400	112
			TRH C6-C9	µg/L	40	400	<40	350	113
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.2	10.0	-	102
			d8-toluene (Surrogate)	µg/L	-	9.2	9.5	-	92
			Bromofluorobenzene (Surrogate)	µg/L	-	9.3	9.2	-	93
		VPH F	Benzene (F0)	µg/L	0.5		<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	270	<50	-	-

MATRIX SPIKE DUPLICATES

SE299532 R0

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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SGS EHS Sydney COC

SE299532

Sheet 1 of 1

Site:	Project No:
2-4 Giffnoch Avenue Macquarie Park	E26706

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
GW-BH101M-2	1	S/P/VC	26/3/26	pm		X		
GW-BH102M-2	2	↓	↓	↓		↓		
GW-BH103M-2	3	↓	↓	↓		↓		
GW-QD2	4	↓	↓	↓		↓		
GW-R2	5	↓	↓	↓		↓		
GW-RB2		↓	↓	↓		↓		
TB2	6	VC	↓	↓		↓		
TS2	7	VC	↓	↓		↓		

Analysis

HM A /TRH (including F1, F2, F3, F4)/ BTEX/PAHs	HM A /TRH (including F1, F2, F3, F4)/BTEX	BTEX	VOCs	PFAS	pH / Turbidity/ TDS/ EC/ Hardness	OP Pesticides	OC Pesticides	PCBs	Phenols	DPE AN2 Full Suite - Mandatory and Other Parameters	Cyanide	Dewatering Suite	HOLD
										X		X	
										X		X	
										X		X	
	X												
	X												
													X
		X											
		X											

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

n-27/3

Comments

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

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

LABORATORY TURNAROUND

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

Container Type:
J = solvent washed, acid rinsed, 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

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

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

Sampler's Name (EI):	Received by (SGS):
Print: Matthew Chia	Print:
Signature:	Signature:
Date: 26/3/26	Date: 26/03/26 2:40

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

Report with EI Waste Classification Table ☐

Sampler's Comments:
CC Andrew Ibrahim
Filter metals using 0.45µm filter from unpreserved container
Forward GW-QT2 to Envirolab.

source: [Untitled].pdf page: 1 SGS Ref: SE299532_COC

Luong, Thi Song Van (Alexandria)

From: Matthew Chee - ElAustralia <matthew.chee@eiaustralia.com.au>
Sent: Friday, 27 March 2026 9:31 AM
To: Yin, Emily (Alexandria); Andrew Ibrahim - ElAustralia
Cc: AU.SampleReceipt.Sydney, AU (Sydney)
Subject: [EXTERNAL] Re: SE299532 - E26706

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Emily
Yes please test GW-BH103M-2 for full DPIE suite and GW-BH102M-2 and GW-BH101M-2 for dewatering

Thank you

From: Yin, Emily (Alexandria) <Emily.Yin@sgs.com>
Sent: Thursday, March 26, 2026 7:11:05 pm
To: Matthew Chee - ElAustralia <matthew.chee@eiaustralia.com.au>; Andrew Ibrahim - ElAustralia <andrew.ibrahim@eiaustralia.com.au>
Cc: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Subject: SE299532 - E26706

ATTENTION: This email originated from outside your organization and might have suspicious subject or content. PLEASE DO NOT CLICK ANY LINKS AND\OR OPEN ANY ATTACHMENTS UNLESS YOU CAN CONFIRM THE SENDER.

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear All,

Should the analysis be swapped for GW-BH102M-2 and GW-BH103M-2 or analysis.

Please refer 2nd page of attachment.

Please advise as soon as possible.

Thank You.

Regards,

Emily Yin

SAMPLE RECEIPT ADVICE

SE299532

CLIENT DETAILS

Contact	Matthew Chee
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	matthew.chee@eiaustralia.com.au
Project	**E26706 2-4 Giffnoch Ave. Macquarie Park**
Order Number	**E26706**
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	Thu 26/3/2026
Report Due	Thu 2/4/2026
SGS Reference	**SE299532**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Thursday 26/3/2026. Results are expected to be ready by COB Thursday 2/4/2026. Please quote SGS reference SE299532 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Type of documentation received	COC	Date documentation received	26/3/2026
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	13.5°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.
GW-QT2 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

SE299532

CLIENT DETAILS

Client EI AUSTRALIA

Project E26706 2-4 Giffnoch Ave. Macquarie Park

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-2	-	-	-	23	-	9	11	7
002	GW-BH102M-2	-	-	-	23	-	9	11	6
003	GW-BH103M-2	167	29	15	23	9	9	84	7
004	GW-QD2	-	-	-	-	-	9	11	7
005	GW-R2	-	-	-	-	-	9	11	7
006	TB2	-	-	-	-	-	-	11	-
007	TS2	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE299532

CLIENT DETAILS

Client EI AUSTRALIA

Project E26706 2-4 Giffnoch Ave. Macquarie Park

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-2	-	-	1	-	-	2	-	1	1	1
002	GW-BH102M-2	-	-	1	-	-	2	-	1	1	1
003	GW-BH103M-2	10	5	1	3	1	2	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

SE299532

CLIENT DETAILS

Client EI AUSTRALIA

Project E26706 2-4 Giffnoch Ave. Macquarie Park

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-2	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

SE299532

CLIENT DETAILS

Client EI AUSTRALIA

Project E26706 2-4 Giffnoch Ave. Macquarie Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	Total Cyanide in water by Discrete Analyser	Trace Metals (Dissolved) in Water by ICPMS
001	GW-BH101M-2	1	3	1	8
002	GW-BH102M-2	1	3	1	8
003	GW-BH103M-2	1	9	-	21
004	GW-QD2	1	-	-	8
005	GW-R2	1	-	-	8

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

Appendix H – QA/QC Assessment for the GME

Data Quality Objectives

The data quality objectives of the GME are defined in **Table H-1**. In accordance with the NEPC (2013) *Schedule B2 Guideline on Site Characterisation* and the USEPA (2006) *Data Quality Assessment*, the seven step process was applied, so that the appropriate levels of data quantity and quality needed for the specific requirements of the GME could be achieved.

Table H-1 Summary of GME Data Quality Objectives

DQO Step	Details
1. State the Problem Summarise the problem that will require environmental data.	This GME was required to characterise the baseline groundwater conditions of the site, and inform the design of a treatment system for the water to be extracted during the dewatering period.
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made.	What is the quality of local groundwater? What parameters will require monitoring and/or treatment during dewatering?
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision.	Inputs to the decision making process included: • The proposed development and land use; • Review of the previous investigations; • National and EPA guidelines; • Observations during groundwater sampling; and • Laboratory analytical results for the groundwater samples.
4. Define the Boundaries of the Study Specify the spatial and temporal aspects of the media that the data must represent to support decision.	Lateral – The site boundaries. Vertical – Groundwater table. Temporal – The results are valid for the day samples were collected and remain so as long as no changes occur in regards to site use, and contamination (if present) does not migrate onto the site from off-site sources.
5. Develop a Decision Rule Make a single statement that describes a logical basis for the GME.	The decision rule for the GME was: If the concentration of a COPC in the groundwater exceeded the adopted criteria, then determine the need to treat the water extracted during the dewatering works.
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data.	Specific limits for this GME were in accordance with National and EPA guidance, appropriate indicators of data quality and standard procedures for field sampling and handling. Concentrations for the COPCs that were below criteria indicated no treatment of extracted water needed. Concentrations for the COPCs that exceeded the adopted criteria indicated treatment of extracted water during dewatering would be prudent.
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for the GME and satisfy the DQOs.	In order to identify the most resource-effective sampling and analysis design and satisfy the DQOs: • Four groundwater monitoring wells were gauged and sampled to assess groundwater quality at the site. • Laboratory analysis of three samples for COPCs. • A review of the results was undertaken.

Data Quality Indicators

The DQIs applied for the GME are defined in **Table H-2**.

Table H-2 Data Quality Indicators

QA/QC Component	Data Quality Indicator(s)
Precision A quantitative measure of the variability (or reproducibility) of data	Data precision was assessed by reviewing the performance of a blind field duplicate sample, through calculation of relative percentage differences (RPD). Data precision was deemed acceptable if RPDs were less than 30%. RPDs that exceeded this range were considered acceptable where: • Results were less than 10 times the limits of reporting (LOR); • Results were less than 20 times the LOR and the RPD was <50%; or • Heterogeneous materials or volatile compounds were encountered.
Accuracy A quantitative measure of the closeness of reported data to the "true" value	Data accuracy was assessed through the analysis of: • A split (inter-laboratory) field duplicate; • Method blanks; • Matrix spikes; and • Laboratory control samples.
Representativeness The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory were representative of conditions encountered in the field, the following measures were taken: • Blank samples run in parallel with field samples, to confirm there were no unacceptable instances of laboratory artefacts; • Review of RPD values for field and laboratory duplicates to provide an indication that the samples were generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; • The appropriateness of sample collection methodologies, including handling, storage, and preservation, was assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
Completeness A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the GME were evaluated as complete upon confirmation that: • Standard operating procedures (SOPs) for sampling protocols were adhered to; and • Copies of all chain of custody (COC) documentation were included and found to be properly completed. It could therefore be considered whether the proportion of "useable data" was sufficient for the purposes of the GME.
Comparability The confidence (expressed qualitatively) that data were equivalent for each sampling and analytical event	Issues of comparability were reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards. In addition, the data were collected by experienced samplers and NATA-accredited laboratory methodologies were employed.

Quality Assurance / Quality Control Program

A summary of the QA/QC program completed for the GME is presented in **Table H-3**.

Table H-3 Summary of Project the GME QA/QC Program

Task	Description	Conformance / Comments
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 containers provided by the laboratory.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Equipment Decontamination	Sampling equipment to be decontaminated after the collection of each soil sample by washing with phosphate-free detergent and potable water, followed by a final distilled water rinse. One rinsate blank would be collected and analysed for the primary contaminants. All results should be non-detect.	Yes Sampling equipment (interface and water quality kit probes) decontaminated by washing in a solution of potable water and detergent, and then rinsed with potable water and PFAS-free detergent. Decontamination was not required for the sampling pump, as dedicated disposable tubing was used at each well. In addition, dedicated gloves were used for the collection of each groundwater sample.
Transport	Samples were 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 Blank	Trip blank sample prepared and analysed by the primary laboratory for BTEX. Analytical results should be below the laboratory LOR.	One laboratory-prepared trip blank sample was analysed for BTEX. All results were below the laboratory LOR, indicating that sample handling during transport did not adversely impact on sample integrity in regards to VOCs.
Trip Spike	Trip spike sample prepared and analysed by the primary laboratory for BTEX. Analytical results (recoveries) to be 70-130%.	One laboratory-prepared trip spike sample was analysed for BTEX, the results of which were reported within the DQI. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.
Duplicates	Field duplicates at a rate of 1 in 20 primary samples (as per NEPM). DQI is 30-50% RPD, as stated by AS4482.1-2005. RPDs that exceed this range may be considered acceptable where: ▪ Results are <10 times the LOR; ▪ Results are <20 times the LOR and the RPD is less than 50%; or ▪ Heterogeneous materials or volatile compounds are encountered.	One blind (intra-laboratory) field duplicate was analysed by SGS. One split (inter-laboratory) field duplicate was analysed by Envirolab Services Pty Ltd (**Table B3**, **Appendix B**). Required frequency was achieved. All results were reported within the DQI, with exception of metals (nickel; intra-laboratory duplicate) and TRH (F1 and F3; inter-laboratory duplicate). These non-conformances had negligible effects on the overall quality of the data.

Task	Description	Conformance / Comments
Laboratory QA/QC		
Laboratory Analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.	Yes SGS - primary laboratory Laboratory QA/QC analyses are included in the analytical reports (**Appendix G**).
	Appropriate detection limits were used for the analyses to be undertaken.	Yes LORs for all tested parameters are included in the analytical reports (**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.	Yes Assessment of holding times was undertaken by the laboratory.
Method Blanks	The method blank contains the reagents used to prepare the sample for analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis. The DQI is no detectable contamination.	Yes Assessment of method blanks was undertaken by the laboratory.
Duplicates	Laboratory duplicates are field samples from a given batch, selected at random (a frequency of 1 per 10 samples), that are analysed a number of times, to assess the precision of the analytical method.	Yes Assessment of laboratory duplicates was undertaken by the laboratory.
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.	Yes Assessment of laboratory control standards was undertaken by the laboratory.
Matrix Spikes	Matrix spikes are field samples to which a predetermined amount of analyte is added. Recovery of the addition should be 70-130%.	Yes Assessment of matrix spikes was undertaken by the laboratory.
Surrogates	Surrogates provide a means of checking no significant analyte loss. Recoveries should be 70-130%.	Yes Assessment of surrogate spikes was undertaken by the laboratory.
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.	Yes Further assessment of the GME QA/QC is presented in the following sections.

Field QA/QC Review

A summary of the field QA/QC is presented in **Table H-4**.

Table H-4 Field QA/QC

QA Component	Item	Conformance
Precision Measure of the variability (or reproducibility) of data	SOPs appropriate and complied with Intra-laboratory duplicate	Yes
Accuracy Quantitative measure of the closeness of reported data to the true values.	SOPs appropriate and complied with Inter-laboratory duplicate Calibration of instruments against known standards	Yes
Representativeness Confidence the data are representative of each media present on the site	Appropriate media sampled according to SAQP Each media identified in SAQP sampled	Yes
Completeness Percentage of useable data from sampling episode (set)	Each critical location sampled SAQP appropriate and complied with Appropriate number of field duplicate samples taken Experienced sampler Field documentation correct	Yes
Comparability Confidence that data are equivalent for each sampling and analytical event	Same sampling method used on each occasion Experienced sampler Same type of samples collected (filtered, size)	Yes

Conclusion for the Field QA/QC

All field work, including equipment decontamination and sample preservation and transport, was conducted in accordance with the SAQP and SOPs, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQI were met, or if not, the minor non-conformances had negligible effects on the data use for interpretative purposes.

All samples, including field QC samples, were transported to the primary and secondary laboratories under chilled 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. Copies of these were included in **Appendix G**. EI considered the field QA/QC program carried out during the GME to be appropriate.

Laboratory QA/QC Review

A summary of the laboratory QA/QC is presented in **Table H-5**.

Conclusion for the Laboratory QA/QC

The contracted laboratory (SGS) was 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 DQI 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 the GME to be appropriate.

Table H-5 Laboratory QA/QC

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 LORs	Yes
	Sample documentation complete	Yes
	Compliance with sample holding times	Partial [1]
Comparability The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Sample analytical methods used (including clean-up)	Yes
	Sample LORs (justify/ quantify if different)	Yes
	Same laboratories (justify/ quantify if different)	Yes
	Same units (justify/ quantify if different)	Yes
Representativeness Confidence that data are representative of each media	All key samples analysed according to SAQP in the proposal	Yes
Precision A quantitative measure of the variability (or reproducibility) of data	Analysis of laboratory duplicates	Yes
	Analysis of field duplicates	Yes
	Analysis of laboratory-prepared volatile trip spikes	Yes
Accuracy A quantitative measure of the closeness of reported data to the true value	Analysis of field blanks	Yes
	Analysis of rinsate blanks	Yes
	Analysis of method blanks	Yes
	Analysis of matrix spikes	Yes
	Analysis of surrogate	Yes
	Analysis of laboratory control samples	Yes

Note 1: Some analyses completed after the specified holding time; however, as the samples were stored under refrigerated conditions, this was not likely to alter the overall findings of the assessment.

Overall Project QA/QC Assessment

The project DQOs specified in **Section 3.4.4**, **Table 3-2** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the GME were accurate, precise and representative of the (final) site conditions. It was therefore considered that the data were reliable and that the results could be used for DMP interpretative purposes.

Appendix I – Template for Dewatering Completion Report

Clear form Print

Application to surrender a water supply work approval

Please refer to the accompanying guide to the Application to surrender a water supply work approval under *Section 108 of the Water Management Act 2000 (WMA)*.

What you need to do

Before filling in this form, applicants are advised to read the guide for an application to surrender a water supply work approval, which has step-by-step instructions on each section.

Please complete the form with a black/blue ink pen and use BLOCK letters. You can also type directly in this form. Once completed, please print and sign the form.

Submit your application form

- by post to **WaterNSW, PO Box 398, Parramatta NSW 2124**, or
- email a scanned copy to Customer.Helpdesk@waternsw.com.au

If there is not enough space in the form, please attach additional pages to the back of the form.

WaterNSW customers are encouraged to book a phone appointment with us to discuss your water licensing enquiries. Visit waternsw.com.au/licensing

Section A: Water supply work approval to be surrendered

Complete this section with the details of the water supply work approval to be surrendered and the date of surrender (must be the date the application is submitted or a future date). An example of a type of work can be a bore, dam or a pump.

A1 Water supply work approval number	A2 Date to be surrendered
A3 Type of work to be surrendered	
A4 Reason for surrender	

Section B: Water supply work approval holder/s details

List ALL holders of the water supply work approval that is to be surrendered and all holders must sign the declaration (Section F). See the guide for further information. If there are more than four holders, photocopy/print additional copies of Section B complete it and attach it to this form. Please note that applications submitted via email must include the email addresses of all listed applicants.

Holder

B1 Title (Mr, Mrs, Ms)	B2 Surname	
B3 Given name(s)		
B4 Company/corporation name *(if applicable)*		
B5 ACN *(if applicable)*	B6 ABN *(if you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN and a copy of your certificate of incorporation)*	
B7 Position held *(if applicable)*		
B8 Name of company representative *(if applicable)*		
B9 Postal address		
B10 Suburb	B11 State	B12 Postcode
B13 Phone	B14 Mobile phone	
B15 Email		

Additional holder (if applicable)

B16 Title (Mr, Mrs, Ms)	B17 Surname	
B18 Given name(s)		
B19 Company/corporation name *(if applicable)*		
B20 ACN *(if applicable)*	B21 ABN *(if you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN and a copy of your certificate of incorporation)*	
B22 Position held *(if applicable)*		
B23 Name of company representative *(if applicable)*		
B24 Postal address		
B25 Suburb	B26 State	B27 Postcode
B28 Phone	B29 Mobile phone	
B30 Email		

Additional holder (if applicable)

B31 Title (Mr, Mrs, Ms)	B32 Surname	
B33 Given name(s)		
B34 Company/corporation name *(if applicable)*		
B35 ACN *(if applicable)*	B36 ABN *(if you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN and a copy of your certificate of incorporation)*	
B37 Position held *(if applicable)*		
B38 Name of company representative *(if applicable)*		
B39 Postal address		
B40 Suburb	B41 State	B42 Postcode
B43 Phone	B44 Mobile phone	
B45 Email		

Section C: Nominated contact person

Note: If there is only one holder, you do not need to complete this section. If there are multiple holders and this section has not been completed, WaterNSW will assume the first holder listed on the form is the nominated contact person.

If a third party is acting on behalf of the water supply work approval holders and they are to be considered the nominated contact, their details must be provided below.

C1 Title (Mr, Mrs, Ms)	C2 Surname	
C3 Given name(s)		
C4 Company/corporation name *(if applicable)*		
C5 ACN *(if applicable)*	C6 ABN *(if you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN and a copy of your certificate of incorporation)*	
C7 Position held *(if applicable)*		
C8 Name of company representative *(if applicable)*		
C9 Postal address		
C10 Suburb	C11 State	C12 Postcode
C13 Phone	C14 Mobile phone	
C15 Email		

Listing a nominated contact person assists us in processing your application where there are multiple holders. We may need to contact the nominated contact person to discuss the details contained in your application. In addition, any request for additional information about your application will be sent to the nominated contact person. Any information provided by the nominated contact person will be relied upon by WaterNSW in considering this application. A delay in responding to any such request may result in your application being further delayed or refused.

The rights and liabilities arising in relation to this application is shared by all applicants and not limited to the nominated contact person. Any changes to any details of an application for a surrender (except for minor changes to contact details of an applicant) or withdrawal of the application must be in writing and signed and dated by all holders. Further, the Notice of decision issued in relation to your application will be sent to all applicants.

Section D: Nominated water access licence

Provide details below of any water access licences attached to this water supply work approval. If there is a nominated water access licence and you wish to continue to take water using this water access licence another water supply work will need to be nominated. To nominate a new water supply work approval use this form.

Nominated water access licence

D1 Nominated water access licence number

Section E: Decommission of water supply works

To surrender a water supply work approval the work/s must be unable to be used to take water unless it is exempt. For further information on exemptions, visit waternsw.com.au/approvals and scroll down to the section on exceptions. Refer to the guide for surrender an approval for information on the action to be taken for decommissioning different types of works.

For bores

All constructed bores have been approved for decommissioning (where required under the Water Sharing Plan (WSP), or relevant information provided. All bores are to be decommissioned in line with the minimum construction requirement for water bores in Australia.

Note: A Bore Construction Report (previously known as a 'Form A') is to be lodged for all decommissioned bores. I/We, the applicant/s, understand and acknowledge that.

Please tick which is applicable.

- ☐ Bore has not been constructed
- ☐ Bore unable to be located on property and statutory declaration provided
- ☐ Bore has been constructed and decommissioned in line with the requirements outlined in the guide to the application and a Bore construction report (Form A) has been submitted by the Driller

Other works

For all other constructed water supply work approvals **including pumps, pipes and dam**, the work has been decommissioned unless exempt. Please tick which is applicable.

- ☐ Work/s have not been constructed
- ☐ Constructed work/s have been decommissioned
- ☐ Constructed works are exempt from requiring an approval

What specific exemption are you claiming? (Please provide justification for the works in their current shape/form/capacity or advise of any proposed modifications).

Section F: Declaration of application

- Each applicant should sign Section F.
- If there are more than two applicants, photocopy/print multiple copies of the entire form after Sections A to E have been completed (before anyone signs Section F).

Section F must be fully completed and signed by each holder of the water supply work approval that is being surrendered. If it is not fully completed, WaterNSW will return the application to the applicant/s as an invalid application. Please refer to the accompanying guide for surrendering a water supply work approval.

If there are multiple holders, please ensure that you retain signed copies of the completed application form for your records. It is an offence, under section 344 of the *Water Management Act 2000*, to make a statement that you know to be false or misleading in, or in connection with, this application. I/We, the undersigned applicants, acknowledge and agree:

1. that I/we apply to surrender the water supply work approval as described in this application and all works included on the approval have been decommissioned unless exempt.
2. that this application will be determined in accordance with the *Water Management Act 2000* and any associated regulations or guidelines as in force from time to time, and that no right or entitlement shall arise pending determination of this application.
3. that the authorised contact person (where applicable) has my permission to act for and on my behalf in relation to any aspect of this application unless otherwise notified by us, and that WaterNSW will rely on information provided by the authorised contact person in its consideration of this application.
4. that the authorised contact person (where applicable) has my permission to act for and on my behalf in relation to any aspect of this application unless otherwise notified by us, and that WaterNSW will rely on information provided by the authorised contact person in its consideration of this application.
5. that all information contained in this application is accurate, true and complete in every detail and that the State will rely on such information.
6. that I/we have read and understood the information contained in the WaterNSW privacy statement (below).
7. that by entering a mobile phone number and/or email address, you consent to WaterNSW communicating with you electronically in relation to this application. Unless you indicate otherwise, all correspondence will be sent via email or SMS.
8. that WaterNSW may collect, use, and disclose my personal information as outlined in the WaterNSW privacy statement (below) and I consent to WaterNSW collecting, using and disclosing my personal information in accordance with the WaterNSW privacy statement.
9. that I/we consent to WaterNSW sharing my personal information with NSW Government agencies or State-Owned Corporations from time to time.
10. that the State does not provide any legal, financial, or technical advice in connection with this application and that any such advice, if required, is to be obtained independently.
11. that details about any approval arising out of this application will be recorded in the publicly available Water Register pursuant to the *Water Management Act 2000*.

12. that if this application is incomplete, it will not be accepted; and that more information may be requested if it is considered that it would be relevant to the consideration of this application.

I/We, the undersigned, apply for an approval described above for the nature and purpose specified in the application. I/We state that the information provided for the purpose of this application is accurate and true.

For applications made by individuals:

Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date

For applications made by a corporation:

Executed for and on behalf of the applicant in accordance with section 127 of the *Corporations Act 2001 (Cth)* (if a company) or by its duly authorised officer (for other types of corporations):

Name of corporation			
ACN *(if applicable)*	ABN (*If you do not hold an ACN and are an organisation incorporated in NSW you must provide an ABN.)*		
Position of signatory *(Tick the appropriate box)*	☐ company director	☐ sole director	
	☐ duly authorised officer	☐ company secretary	
Name of signatory	Signature	Date	
Position of signatory *(Tick the appropriate box)*	☐ company director	☐ sole director	
	☐ duly authorised officer	☐ company secretary	
Name of signatory	Signature	Date	

Privacy statement

The personal information you provide on this form will be used and protected in accordance with WaterNSW Privacy policy. It is being collected by WaterNSW and will be used for purposes related to assessing and processing your application, or in connection with the operation of any approval granted, or for research-related purposes such as customer surveys. It may be used from time to time to contact you about services WaterNSW provides.

WaterNSW will not disclose your personal information to anybody else unless authorised by law. The provision of this information is voluntary. However, if you choose not to provide the requested information, we will not be able to process your application. You have the right to request access to, and correct details of, your personal information held by WaterNSW. Further information regarding privacy can be obtained from our website at waternsw.com.au

If an approval is granted, the *Water Management Act 2000* requires that various details relating to the approval are to be recorded in the Register of Water Approvals kept by the Minister. Information recorded in the register is publicly available.

Offences and penalties

It is an offence, under section 344 of the *Water Management Act 2000*, to make a statement that you know to be false or misleading in, or in connection with, this application.

A corporation found guilty of an offence against section 344 is liable to a penalty not exceeding $2.002 million. An individual found guilty of an offence against section 344 is liable to a penalty not exceeding $500,500. An access licence or approval may be suspended or cancelled under the *Water Management Act 2000* in certain circumstances. These include if the holder of the licence or approval is convicted of an offence under that Act.

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.

How to use this form

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	
Date received (Office use only)	

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 number		
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 below)	☐ 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.Helpesk@waternsw.com.au
In the subject line: Dewatering completion report - Approval (Approval reference number)
or

WaterNSW
PO Box 398
Parramatta NSW 2124

Where to get help

Further information is available at:
waternsw.com.au/dewatering | 1300 662 077 | 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 **applicants' 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).