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Groundwater Impact Assessment

4-4a Flinders Street,
North Wollongong, NSW



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Groundwater Impact Assessment

4-4a Flinders Street, North Wollongong, NSW

Prepared for Urban Property group Pty Ltd

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Executive Summary

Reditus Consulting Pty Ltd (Reditus) were engaged by Urban Property Pty Ltd (the Client) to prepare a Groundwater Impact Assessment (GIA) for the State Significant Development (SSD) at 4-4a Flinders Street, North Wollongong, NSW (the site). The GIA report will include analytical groundwater modelling and prepare the appropriate documentation to support the SSDA submission for the residential and commercial development at the site. The proposed SSD includes the 270 dwellings across a high-rise commercial and residential building overlying a shared six (6) level underground basement.

The site, Lot 432 in Deposited Plan (DP) 1006372, covers approximately 2,734 m^2. The proposed development will be classified as a SSD, under application number SSD-85464245. This report addresses the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) issued on the 11th June 2025, stated requirements for housing developments to complete a GIA as part of the SSDA submission.

The primary objectives of the Groundwater Impact Assessment are to:

- Provide details on the hydrological and hydrogeological setting of the site and a summary of key environmental factors relevant to construction and ongoing management of the proposed development.
- Provide details of the proposed development layout and construction design.
- Predict preliminary dewatering extraction volumes required for the development works during construction.
- Determine the potential impacts to surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses.
- Determine the potential impacts of the dewatering activity to groundwater dependent ecosystems (GDEs), springs, water supply works and potential for subsidence impacts on nearby structures or infrastructure (through assessment against the Minimal Impact thresholds detailed under the NSW DPI (2012) Aquifer Interference Policy, WMA 2000, and the NSW DPE (2022) Groundwater Impact Assessment Criteria.
- Provide management and mitigation strategies to minimise adverse environmental impacts as a result of construction and ongoing operation of the development.
- Include an assessment of licencing considerations for the project.

The findings of this report include characterisation of the existing environment at the site, a review of the of potential impacts to the surface water and groundwater environment from the proposed development, review of relevant legislation and policy relating to the development and mitigating measures for the identified impacts. The report considers the impacts that have the potential to adversely affect the surface water and groundwater in the context of the construction phase and the operational phase of the development.

The basement excavation works will define the site boundary and extend across the site. The site ground level sits at Relative Level (RL) 4.40 mAHD and the basement footprint is approximately 2,395 m^2. The Finished floor level (FFL) of the lowest basement level is at RL-11.5 mAHD and the bulk excavation level as well as the target dewatering level is at RL -12 mAHD.

The groundwater quality was typical of highly disturbed urbanised environments which have been exposed to various land use and industrial activity. There were a number of analytes that tested above the designated water quality criteria including aluminium, cadmium, cooper, iron, lead, nickel and zinc. The groundwater exceedances are expected to be adequately managed with a successful implementation of a DMP in the future.

The groundwater impacts associated with the basement excavation have been assessed based on the inflow calculations and probable drawdown expectations during the construction phase and operational phase of the development. The assessment found that in the upper-case (less likely) scenario for drawdown during the development, impact to surrounding groundwater users, groundwater dependent ecosystems and Acid Sulfate Soils are minimal. In the most-likely scenario for drawdown during the development, the impacts will be negligible. Other potential impacts to groundwater and surface water including potential chemical spillages, increase in hardstand areas, increase in potentially contaminating activities such as vehicle movement, incorrect soil stabilisation and other construction related impacts and can be managed with appropriate mitigation measures. A summary of the impacts and mitigation measures are presented below.

RISK	POTENTIAL IMPACTS	LIKELIHOOD	MITIGATION MEASURES
Excavation, dust suppression and land clearing works	Pollute receiving waterbodies (Fairy Creek and associated water courses) with increased sediment, especially during rain events Changes to the hydrological regime.	Possible	Soil and water management plans incorporated in a Construction Environmental Management Plan (CEMP) to manage risk. Erosion and sediment control measures in accordance with Blue Book (DECC, 2008). Incorporate water quality monitoring plan into the CEMP that will constantly monitor water quality of receiving water bodies during earthworks and construction activities.
Stockpiling	Pollute the receiving water bodies with increased sediments from improper stockpiling of materials. Changes to the hydrological regime.	Possible	Soil and water management plans incorporated in a CEMP to manage risk. Erosion and sediment control measures in accordance with Blue Book (DECC, 2008).
Impervious Areas	Increase overland flow during rain events has potential to transport contaminants and sediments into surface water bodies reduce recharge into aquifers.	Possible	Provide adequate deep soil and permeable landscape areas as vegetation buffer strips. Incorporation, were possible, of permeable pavements and appropriate design of stormwater detention.
Dewatering	Impacts to surrounding GDEs and water supply bores within the vicinity of the basement construction caused by drawdown during dewatering activities	Possible	Extraction rates, drawdown and water quality monitoring requirements incorporated into a dewatering management plan (DMP). the DMP and Groundwater Works Access Licence required to be obtained for the development. Minimise depths of excavation below groundwater table during basement construction. Reduce dewatering time period during basement excavations.
Stormwater discharge	Contamination of receiving water body (assumed Fairy Creek) and associated water courses down-stream of excavation as a result of discharging water to the stormwater network during dewatering	Unlikely	Extraction rates, drawdown and water quality monitoring requirements incorporated into a dewatering management plan (DMP) All construction groundwater to be discharged during basement construction dewatering is to be appropriately treated and to comply with adopted discharge water quality criteria (DWQC)
Chemical spills	Contaminate the underlying groundwater via seepage into the ground or surface water via run-off into receiving waterbodies	Unlikely	Storage of hazardous liquids and refuelling operations to take place in bunded areas to reduce chance of spillage causing impacts Incorporate water quality monitoring plan into CEMP that will constantly monitor water quality of receiving water bodies during construction works.

1 Introduction

Reditus Consulting Pty Ltd (Reditus) were engaged by Urban Property Pty Ltd (the Client) to prepare a Groundwater Impact Assessment (GIA) for the State Significant Development (SSD) at 4-4a Flinders Street, North Wollongong, NSW (the site). The GIA report will include analytical groundwater modelling and prepare the appropriate documentation to support the SSDA submission for the residential and commercial development at the site. The proposed SSD includes the 270 dwellings across a high-rise commercial and residential building overlying a shared six (6) level underground basement. The site location is presented in **Figure 1, Appendix A** and a summary of the site identification details is provided in **Table 1-1** below.

The site is legally identified as Lot 432 in Deposited Plan (DP) 1006372 and covers an area of approximately 2,734 m^2. The proposed development will be classified as a SSD, under application number SSD-85464245. This report addresses the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) issued on the 11th June 2025, stated requirements for housing developments to complete a GIA as part of the SSDA submission.

As groundwater will be intercepted and require dewatering during construction of the basement, the proposed development is considered to be an aquifer inference activity requiring assessment and authorisation under the Water Management Act (WMA) 2000 (within a Water Sharing Plan zone, regulated by WaterNSW).

Table 1-1 Site Identification Details

ITEM	DETAIL
Street Address	4-4a Flinders St, North Wollongong, NSW, 2500
Lot and Deposited Plan	Lot 432 in DP 1006372
Local Government Area	City of Wollongong
Site Coordinates to the approximate centre of the site (GDA2020 MGA Zone 56)	Easting: 306271 Northing: 6190093
Site Area	Approximate area of 2.734 m^2
Basement Excavation Area[1]	Approximate area of 2,395 m^2
Site Location and Layout	**Figure 1 and 2, Appendix A**
Water Sharing Plan	Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023
Groundwater Source	Metropolitan Coastal Sands Groundwater Source

1.1 Objectives

The primary objectives of the Groundwater Impact Assessment is to:

- Provide details on the hydrological and hydrogeological setting of the site and a summary of key environmental factors relevant to construction and ongoing management of the proposed development.
- Provide details of the proposed development layout and construction design.
- Predict preliminary dewatering extraction volumes required for the development works during construction.

- Determine the potential impacts to surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses.
- Determine the potential impacts of the dewatering activity to groundwater dependent ecosystems (GDEs), springs, water supply works and potential for subsidence impacts on nearby structures or infrastructure (through assessment against the Minimal Impact thresholds detailed under the NSW DPI (2012) Aquifer Interference Policy, WMA 2000, and the NSW DPE (2022) Groundwater Impact Assessment Criteria.
- Provide management and mitigation strategies to minimise adverse environmental impacts as a result of construction and ongoing operation of the development.
- Include an assessment of licencing considerations for the project.

1.2 Scope of Works

To meet the objectives of the Groundwater Impact Assessment, the following scope of works was undertaken:

- A desktop site assessment, including review of previous reports where available.
- A review of relevant groundwater and surface water policy, legislation, regulations, and guidelines.
- Review of construction proposal details that may impact on surface water and groundwater receptors, such as dewatering and the proposed dewatering methodology.
- Data analysis and interpretation of slug test data using AQTESOLV to provide estimates of site specific hydraulic conductivity and appropriate aquifer parameters to be adopted for the site.
- Develop a conceptual flow model to replicate the proposed excavation activity. This was completed using a steady-state analytical groundwater flow model for best-case (less likely), most likely, and upper-case (less likely) scenarios, allowing prediction of groundwater inflow volumes and groundwater drawdown extent resulting from the proposed basement excavation and construction design:
  - Completion of analytical equations to derive groundwater extraction volumes using a range of representative aquifer parameters from published literature values and site-specific data.
  - Estimate volume of groundwater required to be removed during the dewatering process and assess the likely impacts of the dewatering activities on other groundwater users/receptors against the Minimal Impact thresholds detailed in the NSW DPE (2022) Groundwater Impact Assessment Criteria.
- Groundwater quality sampling event using low-flow sampling techniques for three (3) deep (Sample locations presented on **Figure 2** in **Appendix A**) were analysed for the following suite:
  - Alkalinity (bicarbonate, carbonate, hydroxide and total), electrical conductivity (EC), pH, redox potential (Eh), total dissolved solids (TDS), total hardness, temperature, dissolved oxygen (DO).
  - Turbidity* (NTU), total suspended solids* (TSS), total organic carbon* (TOC), sodium absorption ratio* (SAR)
  - Sulfate (SO4), chloride (Cl), carbonates (CO3), bromide (Br), fluoride (F)
  - Major Cations and Anions (including ionic balance)
  - Aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), selenium (Se), silica (dissolved SiO2), silver (Ag), strontium (Sr), uranium (U), vanadium (V), zinc (Zn)
  - Ammonia (NH3), nitrate (NO3), total nitrogen (N), oxidised nitrogen (N), total phosphorus (P), reactive phosphorus (P)
  - Benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRH), Organochlorine and organophosphorus pesticides (OC/OP), polychoral biphenyl's (PCBs), volatile organic compounds (VOCs) and poly- and per-fluoroalkyl substances (PFAS).
- Discussion of the potential impacts to surface water and groundwater associated with the proposed development and outline mitigation measures and management plans required for management of impacts.
- Preparation of a Groundwater Impact Assessment (Site Hydrogeological Report) in general accordance with the NSW DPI (January 2022) *Guidelines for Groundwater Documentation for SSD/SSI Projects - Technical guideline*; and

the NSW DPI (October 2022) *Minimum requirements for building site groundwater investigations and reporting;* and the NSW DPI (2023) *Groundwater Impact Assessment Criteria*.

1.3 Limitations

This report is based on the Scope of Work outlined above in **Section 1.2**. Reditus prepared this report in a manner consistent with the normal level of care and expertise exercised by members of the environmental and hydrogeological assessment profession.

This report relates only to the objectives stated and does not relate to any other work undertaken for the Client (Urban Property Group Pty Ltd). It is a report based on the information reported in previous environmental and geotechnical assessments by others, and data made available to Reditus. These conditions stated in this report may change with time and space.

All conclusions regarding the property area are the professional opinions of Reditus, subject to the qualifications in the report. Whilst normal assessments of data reliability have been made, Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project. The client acknowledges that this report is for the exclusive use of the client.

All groundwater models include some degree of uncertainty in their predictions as they are, by necessity, simplifications of complex real-world systems. Whilst every effort is made to ensure that the primary model reflects the 'best case – less likely', 'most likely' case and 'upper case – less likely' understanding of site conditions, this cannot be guaranteed, and any model result presented as a single number should be viewed with a degree of caution.

Factors which significantly affect the groundwater model and impact assessment results include dewatering rate, dewatering design, dewatering period, aquifer characteristics and degree of aquifer variability (including hydraulic conductivity, specific yield/ Storativity, porosity, recharge, heterogeneity).

A suitability qualified geotechnical consultant will be required to determine the potential settlement impacts caused by the potential drawdown as a result of the proposed dewatering activities. Detailed geotechnical considerations are beyond the scope of this assessment

2 Methodology

2.1 General

The assessment of potential surface and groundwater related impacts arising from the proposal have been implemented as follows:

- Review of legislation, policies and guidelines relevant to surface water and groundwater impacts for the proposal as outlined in **Section 3**.
- Characterisation of the existing environment including: climate, topography, geology, hydrology, hydrogeology, water quality and sensitive receiving environments in order to review the potential impacts to surface and groundwater arising from the proposal.
- Analytical groundwater calculations to predict potential groundwater inflows and radius of drawdown influence at the boundaries of the basement carpark excavation pit.
- Assessment of potential surface water related impacts to satisfy the minimal impact considerations of the National Water Quality Management Strategy (NWQMS).
- Assessment of potential groundwater related impacts to satisfy the minimal impact considerations of the NSW Aquifer Interference Policy (AIP).
- Water quality assessment of surface and groundwater .
- Recommendations for monitoring and management of identified impacts and risks, including mitigation measures as appropriate.
- The specific methodologies used for these components are described in the following sections.

2.2 Proposal Setting

The site is located at the base of a shallow gully feature in a gently to moderately sloping topography, about 65 m to the north-west of Fairy Creek. Flinders Street (Princes Highway), Stafford Street and Station Street bound the site to the east, west and north respectively. The site itself, as well as the adjoining roads are relatively flat and described as urbanised land use.

2.3 Desktop Assessment

The desktop assessment undertaken in this report involved review of the proposed development in order to assess potential impacts to sensitive receiving environments (SREs), and the existing environment, including flow (quantity) and quality of surface water and groundwater during the construction and ongoing operation.

The desktop assessment included review of background information, previous reports and proposed development information including:

- Sensitive receiving environments (SREs) near the proposed development including groundwater and surface water dependant ecosystems (GDEs), Key fish habitats (KFH) and threatened aquatic species.
- Publicly available datasets to identify groundwater flow regimes, drainage lines, downstream assets and watercourses.
- Flooding assessment based on publicly available flood study reports from local council.
- Review of relevant legislation and guidelines.
- Review of the proposed basement footprint and the development at large.
- Publicly available groundwater data.

A summary of the publicly available data sources used is presented below in **Table 2-1**.

2.3.1 PUBLICLY AVAILABLE DATA SOURCES

A list of publicly available data sources used for the desktop review as part of this assessment is provided in **Table 2-1** below.

Table 2-1 Summary of publicly available data sources

DATA DESCRIPTION	SOURCE
Groundwater users including Water Access Licence (WAL) holders including stock and domestic users	WaterNSW Water Register website (https://waterregister.waternsw.com.au/water-register-frame)
Registered bore data	WaterNSW real time data website (https://realtimedata.waternsw.com.au/water.stm) Bureau of Meteorology Australian Groundwater Explorer (http://www.bom.gov.au/water/groundwater/explorer/)
Groundwater dependent ecosystem's location and data	Bureau of Meteorology Groundwater Dependent Ecosystems Atlas (http://www.bom.gov.au/water/groundwater/gde/)
Surrounding contaminated site locations	The NSW Environmental Protection Authority (EPA) list of contaminated sites (https://www.epa.nsw.gov.au/your-environment/contaminated-land/notified-and-regulated-contaminated-land/list-of-notified-sites) The NSW Environmental Protection Authority (EPA) contaminated land record website (https://app.epa.nsw.gov.au/prclmapp/searchregister.aspx) The NSW Environmental Protection Authority (EPA) Protection of the Environment Operations Act (POEO) public register website (https://app.epa.nsw.gov.au/prpoeoapp/)
Regional geology data and mapping	Wollongong 1:250,000 Geological Series Sheet SI 56-9 (Second Edition, 1966)
Key Fish Habitats (KFH) and Fish Freshwater Threatened Species	The NSW Department of Primary Industries (DPI) Fisheries NSW Spatial Data Portal (https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal)

2.4 Site Investigation

A site investigation was conducted by JK Geotechnics between 31 March 2026 and 13 April 2026 and included the following:

- Drilling and testing of three (3) deep boreholes (BH1, BH2 and BH3), at the locations shown on **Figure 2 Appendix A**, to depths of 30.00 m, 20.98 m and 21.00 m below existing surface levels. Additional wells were installed alongside the deep boreholes to measure response from the upper more weathered bedrock profile (BH2A) or the soil profile (BH1A and BH3A). Further details of well installation can be found in the Geotechnical Investigation report (JK Geotechnics, 2026).
- Groundwater gauging during and on completion of drilling. Groundwater monitoring wells were installed in all boreholes in accordance with DPE (2022). On 13 April 2026, water level data loggers were installed into all six (6) groundwater monitoring wells, with deep wells recorded at 10 minute intervals (BH1, BH2 and BH3) and shallow

wells (BH1A, BH2A, and BH3A) recorded at 5 seconds intervals. On April 22, 2026, the shallow wells were reprogramed to continue reading at 5 minute intervals.

- Sampling of three (3) monitoring bores (BH1, BH2 and BH3). Samples were collected using low-flow sampling techniques and analysed for the chemicals outlined in **Section 1.2** above. Physio-chemical parameters were also collected from the monitoring bores that were sampled.
- Selected soil samples were collected and analysed at a NATA registered analytical laboratory.
- Water pressure packer tests of the bedrock were completed progressively in BH1, BH2 and BH3, to assess the permeability of the bedrock.

3 Legislative context

3.1 NSW Legislation

3.1.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the primary legislation governing land use planning and development assessment in NSW. It provides a comprehensive legal framework for the management, development, and conservation of both natural and built environments. The Act aims to ensure that development is carried out in a sustainable manner, balancing economic growth with environmental protection.

Key components of the Act include the establishment of planning instruments such as local environmental plans (LEPs), development control plans (DCPs), and state environmental planning policies (SEPPs). These instruments guide decision-making processes and set out the rules and standards for development. The Act also outlines the procedures for development assessment, including the requirements for development applications, public participation, and the consideration of environmental impacts.

This project has been declared an SSD under the State Environmental Planning Policy (State and Regional Development) 2011 and as such, this groundwater impact assessment has been conducted.

3.1.2 PROTECTION OF THE ENVIRONMENT OPERATIONS (POEO) ACT 1997

The POEO Act 1997 and its associated schedules and regulations are directly relevant to SSDs. In particular, the Act includes requirements prohibiting the pollution of waters, preventing or minimising air and noise pollution, regarding maintenance and operation plant in a proper and efficient condition/manner, and for minimising and managing wastes.

The Act also requires notification to the NSW Environmental Protection Authority (EPA) and Council, when a pollution incident occurs that causes or threatens material harm to the environment (including discharges above the set limits to the stormwater and where any unacceptable impact to the receiving waters is identified).

3.1.3 NSW WATER QUALITY OBJECTIVES (2006)

The NSW Water Quality Objectives are the agreed environmental values and long-term goals for NSW's surface waters. They set out:

- The community's values and uses for our rivers, creeks, estuaries and lakes (i.e., healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water).
- A range of water quality indicators to help us assess whether the current condition of our waterways supports those values and uses.

Regional groundwater flow is expected to be eastwards towards Fairy Creek.

3.1.4 WOLLONGONG CITY COUNCIL/NSW DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE – DEWATERING DISCHARGE APPROVAL/PERMIT

A permit from Council is generally required for any dewatering of groundwater. As this is a state significant development, the Water Supply Works approval will be applied for through the NSW Department of Planning, Housing and Infrastructure – Planning Secretary's Environmental Assessment Requirements. Once granted, and the SSD has been determined, Council approval will be sought for discharge to the stormwater system.

Council generally requires groundwater to be discharged must be compliant with the General Terms of Approval/Controlled Activity permit issued by WaterNSW (if applicable), Landcom's 'Managing Urban Stormwater: Soils and Construction' (2004) (Blue Book), Council's Compliance and Enforcement Policy, and legislation including Protection of the Environment Operations Act 1997 and Contaminated Lands Act 1997.

All approvals, water discharges and monitoring results are to be documented and kept on site. Copies of all records shall be provided to the appropriate regulatory authority, including Council, upon request.

3.1.5 WATER ACT 1912 AND WATER MANAGEMENT ACT 2000

Dewatering for construction purposes is classified as an aquifer interference activity under the NSW Aquifer Interference Policy 2012.

WaterNSW are responsible for waters work approvals under the provisions of the Water Management Act 2000 (WMA) which includes regulation of all aquifer interference activities within Water Sharing Plan management areas. WaterNSW also are responsible for water works approvals for all groundwater extraction in areas outside Water Sharing Plan management areas, as well as State Significant Development.

While minor aquifer interference activities works are generally exempt from the full extent of the WMA 2000, an application for "Approval for Water Supply Works and/or Water Use" (previously known as a Dewatering Licence) is required, regardless of the total volume of groundwater extracted is expected to exceed <3 ML per year. A Water Access License (WAL), or written approval from WaterNSW/NRAR if no licence is required, must be obtained prior to commencement. As the anticipated groundwater take is > 3 ML/year, a WAL may be required.

Further information on the aquifer interference policy and licencing requirements are available from the WaterNSW website.

Reditus note that if/once approval has been provided, an application for a "new water access licence with a zero share component" may be required to be completed and a suitable groundwater entitlement may also need to be obtained from the market to account for the groundwater take within the same groundwater source (in this case Metropolitan Region Groundwater Source 2023, under the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources (2023). This will need to be obtained within three months of granting of the Zero Access Licence.

Works or activities that intersect or interfere with groundwater systems and where take is incidental to the primary purpose of the activity, or where there is no take, are managed as aquifer interference activities. Aquifer interference activities taking 3 ML or less of groundwater per year are exempt from requiring a Water Access Licence (WAL).

3.1.6 FISHERIES MANAGEMENT ACT 1994

The *NSW Fisheries Management Act 1994* provides the legislative framework for the sustainable management and conservation of fisheries resources in New South Wales. The Act aims to balance the needs of the fishing industry with the protection of aquatic ecosystems, ensuring that resources are available for present and future generations. It sets out regulations for commercial and recreational fishing, aquaculture activities, and provisions for Aboriginal cultural fishing.

Key objectives of the FM Act include protecting key fish habitats (KFH) and the conservation of threatened species, populations and ecological communities of fish and marine vegetation. A review of DPIE KFH mapping indicated that surrounding waterways are composed of KFH, refer to **Section 4.4.2**. No threatened species have been mapped within the waterways surrounding the site.

3.2 Policies and Guidelines

3.2.1 NSW AQUIFER INTERFERENCE POLICY 2012

The purpose of the NSW Aquifer Interference Policy 2012 is to explain the role and requirements of the Minister administering the WMA in the water licensing and assessment processes for aquifer interference activities under the WMA and other relevant legislative frameworks. The NSW Aquifer Interference Policy 2012:

1. Clarifies the requirements for obtaining water licences for aquifer interference activities under NSW water legislation; and
2. Establishes and objectively defines considerations in assessing and providing advice on whether more than minimal impacts might occur to a key water-dependent asset.

The proposed development will result in aquifer interference under the NSW Aquifer Interference Policy (2012) as groundwater will be removed from at least one aquifer. Accordingly, groundwater licensing may be required.

Licencing of water taken through aquifer interference

A water licence is required under the WMA (unless an exemption applies, or water is being taken under a basic landholder right) where any act by a person carrying out an aquifer interference activity causes:

- The removal of water from a water source; or
- The movement of water from one part of an aquifer to another part of an aquifer; or

- The movement of water from one water source to another water source, such as:
  - from an aquifer to an adjacent aquifer; or
  - from an aquifer to a river/lake; or
  - from a river/lake to an aquifer.

A licence for the removal of water from a water source may be required for the development.

3.2.2 WATER SHARING PLANS (WSPS)

WSPs are being progressively developed for rivers and groundwater systems across NSW following the introduction of the Water Management Act 2000. WSPs made under the WMA are being prepared as Minister's plans under Section 50 of the Act. These plans protect the health of our rivers and groundwater while also providing water users with perpetual access licences, equitable conditions, and increased opportunities to trade water through separation of land and water.

WSPs provide a legislative basis for sharing water between the environment and consumptive purposes. Under the WMA, a plan for the sharing of water must protect each water source and its dependent ecosystems and must protect basic landholder rights.

The site is located within the following WSP:

- Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources (2023) – Metropolitan Coastal Sands Groundwater Source.

Water sharing plan for the Greater Metropolitan region groundwater sources (2023) – Metropolitan Coastal Sands Groundwater Source

The Metropolitan Coastal Sands Groundwater Source covers an area of 165.69 km^2 in the Greater Sydney region. The metropolitan sands consists of aeolian and alluvial quaternary sand deposits also the coast, extending from the Hawkesbury River in the north to Crookhaven River in the south. With a relatively high rainfall infiltration rates and relatively insoluble nature of sands, the groundwater is typically of good quality. Groundwater extraction is largely associated with shallow (<6 metre depth) domestic spear points, along with a few larger high-yielding works that draw water for recreational purposes.

There are currently 1,409 entitlement shares and approximately 30 existing licenses across the groundwater source.

The long-term average annual extraction limit (LTAAEL) is 27,206 ML/yr (2022). As of March 2022, there was approximately 701 registered bores in the Metropolitan Coastal Sands Groundwater Source with the majority, registered as monitoring bores and 239 registered as Water Supply bores.

3.2.3 NSW WATER QUALITY AND RIVER FLOW OBJECTIVES

The NSW Water Quality Objectives are the agreed environmental values and long-term goals for NSW's surface waters. They set out:

- the community's values and uses for our rivers, creeks, estuaries and lakes (i.e. healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water); and
- a range of water quality indicators to help us assess whether the current condition of our waterways supports those values and uses.

Water Quality Objectives have been agreed for Fresh and Estuarine surface waters and Marine Water Quality Objectives.

The Objectives are consistent with the agreed national framework for assessing water quality set out in the ANZECC 2000 Guidelines. These guidelines provide an agreed framework to assess water quality in terms of whether the water is suitable for a range of environmental values (including human uses). The Water Quality Objectives provide environmental values for NSW waters and the ANZECC 2000 Guidelines provide the technical guidance to assess the water quality needed to protect those values.

The River Flow Objectives are the agreed high-level goals for surface water flow management. They identify the key elements of the flow regime that protect river health and water quality for ecosystems and human uses.

3.2.4 HEALTHY RIVERS COMMISION INQUIRY

The Healthy Rivers Commission was established in 1995 (under section 23 of the Pollution Control Act 1970) by the NSW Government as one element of water reforms. The Commissioner for Healthy Rivers is to make recommendations to Government on:

- suitable objectives for water quality, flows and other goals central to achieving ecologically sustainable development in a realistic time frame.
- the known or likely views of stakeholder groups on the recommended objectives
- the economic and environmental consequences of the recommended objectives
- and strategies, instruments and changes in management practices needed to implement the recommended objectives.

The Commission does this through conducting independent public Inquiries for selected rivers. The Inquiries assist the community to consider, in detail, the options that are available in terms of river health and the use of river resources for commercial and recreational purposes.

The interim environmental objectives described on the EPA website will apply until the NSW Government either.

- adopts the longer-term objectives resulting from recommendations by the Healthy Rivers Commission, or
- approves a river management plan for the catchment through the Ministers for Land and Water Conservation and for the Environment. In this case, the environmental objectives would apply for the duration of the plan, subject to review and audit.

3.2.5 AUSTRALIAN GUIDELINES FOR URBAN STORMWATER MANAGEMENT (2000)

The Australian Guidelines for Urban Stormwater Management (2000) aim to provide a nationally consistent approach for managing urban stormwater in an ecologically sustainable manner. The approaches represent current best practice in stormwater planning and management in Australia. In particular, the guidelines will help managers to identify objectives for stormwater management (including protecting social, environmental and economic values) and to integrate management activities at the catchment, waterway, and local development level.

The tools and approaches in the guidelines assist managers to undertake integrated storm water management planning in accordance with the values and conditions of the local environment, while integrating these activities into the catchment context.

3.2.6 MANAGING URBAN STORMWATER – SOILS AND CONSTRUCTION VOLUME 1 (2004)

The Managing Urban Stormwater: Soils and Construction Volume 1 (2004) guidelines are an important element of the NSW Governments' urban stormwater program which aims to improve the health, ecology and amenity of urban streams, rivers estuaries and beaches through better management of stormwater.

The guidelines will help mitigate the impacts of land disturbance activities on soils, landforms and receiving waters by focusing on erosion and sediment control. The aims are to:

- Reduce pollution to downstream areas and receiving waters.
- Reduce land degradation.
- Raise an awareness of ecologically sustainable development (ESD) principles and their application to development.

It is expected that management of stormwater will be required for the proposed development as the construction and operational activities have the potential to generate erosion and sediment impacts to the receiving water body.

3.3 Relevant National and NSW EPA Endorsed Guidelines

Approval for the disposal of groundwater to stormwater will be regulated by Council.

The adopted water quality guidelines for discharge waters are the:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018).
- ANZECC/ARMCANZ (2000) Default Trigger Values (TVs) for Physical and Chemical Stressors (used in the absence of ANZG 2018 criteria).

- Guidelines for Managing Risks in recreational Water (NHMRC 2008) / Drinking Water Criteria (NHMRC updated 2022).

Use of the 95% protection level (for the ANZG 2018 Guidelines) is based on an assumption that the surrounding watercourses are moderately disturbed ecosystems (as receiving road and stormwater runoff from adjacent urbanised environment). In the absence of ANZG (2018) DGVs, the ANZECC (2000) trigger values (TVs) were adopted. The freshwater criterion were adopted due to the conditions of the groundwater at the site and the receiving site.

4 Existing Environment

4.1 Land Use

The proposed development area is located by Prices Highway, in a highly urbanised environment adjacent to North Wollongong station. At the time of the site walkover, the site was occupied by a car dealership. The southern portion of the site contained a two-storey rendered and aluminium panel show room and workshop building, along with concrete hard standing and brick paved driveway. The land is zoned as E3 – Productivity Support. The surrounding land use includes the following:

- North and South: Station Street and land classified as E3 productivity support
- East: Flinders Street, SP2 Infrastructure - Road
- West: SP2 Infrastructure – Railway, North Wollongong railway station.

A search of historical aerial images of the site indicate that the proposed development area has remained largely unchanged since 2015 when the extension of infrastructure on site occurred.

4.2 Climate

Based on daily rainfall data from the nearest operational Bureau of Meteorology (BoM) weather station (Station No. 068228 – Bellambi) located to the north of the site, average annual rainfall is 1148.5 mm/year between the years 1997 and 2026 (BoM, 2026). Groundwater recharge rate (i.e. the percentage of rainfall that infiltrates into the ground and replenishes the groundwater system) at the site is expected to be approximately 10% based on regional mapping of diffuse groundwater recharge (Lee, et al., 2024). Therefore, diffuse groundwater recharge during an average rainfall year is expected to be 114.85 mm/year.

A summary of the mean monthly rainfall between 1997 and 2026 is presented in **Figure 4-1** below.

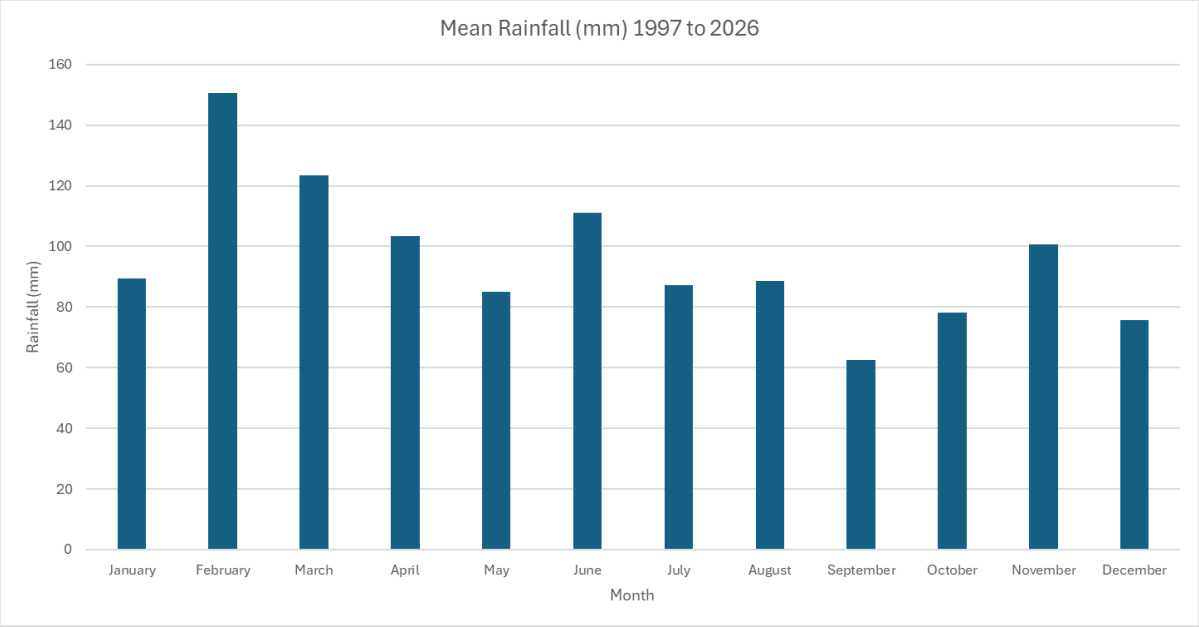


Figure 4-1. Mean Monthly Rainfall (mm) 1997 to 2026

Monthly rainfall trends from the SILO enhanced climate database (QLD DES, 2021,https://www.longpaddock.qld.gov.au/silo/) trends indicate that rainfall amounts are generally higher in the Summer and Autumn months (e.g. from January to June) and lower during Winter and Spring (e.g. July to December). Due to seasonal temperature variation, evaporation rates are typically higher in Spring and Summer. Groundwater recharge potential and overland flow is expected to be higher during months with higher rainfall amounts, and lower evaporation rates.

4.3 Topographical Setting

There has not been a detailed site survey undertaken. The topographic settings have been developed from limited borehole logs and were interpolated between spot level heights and ground contour lines shown on the supplied survey plans, of which Reditus does not have a copy of. The site is generally flat, with an elevation range between 4.52 m AHD on the west side and 4.06 mAHD on the north -east side. The site presented in **Figure 2**, **Appendix A,** and a survey for the site within the design drawings is presented in **Appendix B**.

Based on the local topography, overland flow that occurs on the site and the local stormwater system is likely to flow to the north, towards Fairy Creek.

4.4 Hydrology

4.4.1 REGIONAL DRAINAGE CATCHMENTS

North Wollongong is located within the Lake Illawarra/Port Hacking catchment area which is managed under the Wollongong Coastal Water Source. According to the City of Wollongong Council, the site is located within the Fairy and Cabbage Tree Creek Catchment. The Fairy and Cabbage Tree Creeks Catchment covers an area of approximately 21.7 km^2. It is roughly bounded by Towradgi Road in the north, Crown street in the south; the Pacific ocean in the east and the Illawarra escarpment to the west. The western portion of the catchment is characterised by very steep sloped and largely forested areas. The middle reaches of the catchment are predominately residential, while in the lower catchment the floodplain is relatively flat with a blend of residential and commercial development, as well as dedicated recreational spaces. The catchment is susceptible to major flooding, with notable events occurring in 1975, 1983 and 1998.

4.4.2 WATERWAYS

The closest waterway, Fairy Creek is located 80 m to the south-east of the site boundary. Fairy Creek is classified under the Strahler stream as 3rd order at this point, becoming a 3rd order at the confluence of Cabbage Tree Creek before flowing into the South Pacific Ocean. There is an unnamed perennial stream flowing eastwards, 270 m north of the site. Regional drainage is thought to follow topographic features which is generally eastwards towards the ocean.

Site specific water drainage is thought to be largely controlled by the stormwater management controls which funnel water towards the designated infrastructure.

A summary of the waterways are provided in **Table 4-1** below.

Table 4-1. Waterways Within Close Proximity to the Site and Determination of SRE

WATERWAY	DISTANCE FROM SITE	STRAHLER STREAM ORDER	KFH	OTHER RELEVANT FEATURES	SRE DETERMINATION
Fairy Creek	80 m south-east	Third	Yes	Fairy Creek flows eastwards through Fairy Lagoon to join the Pacific Ocean.	SRE – Moderate The Fairy Creek is determined to be a Moderate sensitive receiving environment.
Cabbage Tree Creek	640 north-east	Third	Yes	Cabbage Tree Creek flows southwards towards the site, joining Fairy Creek at the confluence, 630 m north-east of the site.	SRE – Moderate Cabbage Tree Creek is determined to be a Medium sensitive receiving environment

4.4.3 FLOODING ASSESSMENT

A flood study was conducted on the Fairy and Cabbage Tree Creek catchment (Advisian, 2020). The catchment has a history of flooding, with extensive damaged caused to private and public property located near the creeks and major channels. The study uses TUFLOW to estimate flood levels and map flood extents for various flood sizes, from common to extreme events. It aims to prove an improved understanding of potential impacts of floods on the local community, inform land-use planning, assess risks for future development, and evaluate potential flood mitigation measures.

Results of the model indicate that the flooding is concentrated in the lower reaches of the catchment, where elevations are close to sea level and around the major channels and streams where the Strahler stream classification is higher.

4.5 Hydrogeology

4.5.1 REGIONAL GEOLOGY

Based on regional geological mapping (Wollongong 1:250,000 Geological Series Sheet SI 56-9, Second Edition, 1966)), the site is underlain by quaternary alluvial deposits comprising of quartz and lithic fluvial sand, silt and clay, close to the underlying Budgong Sandstone of the Shoalhaven group. Regional geological mapping is presented in **Figure 3, Appendix A**.

4.5.2 SOIL LANDSCAPE

The soil landscape was mapped by the NSW Office of Environment and Heritage (OAH, 2020) accessed via eSPADE 2.0 on 26 May 2026. The soil landscape is described as disturbed terrain with the original soil having been removed, greatly disturbed or buried. Most of these areas have been levelled to slopes of <5%. Landfill includes soil, rock, building and waste material.

4.5.3 SITE SPECIFIC GEOLOGY

Borelogs provided by JK Geotechnics (22 May 2026) found that the site is underlain by fill material described as predominantly comprising of silty clay and to a lesser extend silty gravel to depths between 0.5 m and 1.2 m.

Alluvial clay, comprising silty clay and silty sandy clay of variable plasticity and generally firm to very stiff strength, was encountered below the fill in each borehole. Residual clay of medium to high plasticity, with high strength was encountered below the alluvial clays. Extremely weathered sandstone of hard soil strength was encountered below depths of 7.85 m below the residual clays. Below this, sandstone bedrock is encountered at depths between 3.8 m AHD and 4.5 m AHD. Cores recorded during drilling revealed geological features including incipient joints, bedding partings, clay seams, extremely weathered bands and seams. Borelogs have been provided in **Appendix C**.

4.5.4 HYDROGEOLOGY AND GROUNDWATER ELEVATIONS

The site is located within the Metropolitan Coastal Sands Groundwater Source, which is managed under the WMA 2000 through the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023. The groundwater source is typically composed of a shallow unconfined aquifer system consisting of aeolian and alluvial quaternary sand deposits. Preferential flow within the aquifer is dominated by fractures (secondary porosity).

Groundwater was measured in all groundwater monitoring wells during this assessment and during the Geotechnical Investigation (JK Geotechnics, 2026). The depth to groundwater ranged between 1.893 to 2.466 mAHD. Details of the measured standing water levels are shown in **Table 4-2** below.

Table 4-2. Groundwater Elevation Measurements

WELL ID	APPROXIMATE GROUND LEVEL (RL[1] mAHD)	DEPTH OF WELL (mAHD)	JK GEOTECHNICS GROUNDWATER ELEVATION (m AHD)	REDITUS GROUNDWATER ELEVATION (m AHD)
			13 APRIL 2026	16 APRIL 2026
BH1	4.4	-13.8	2.2	1.84
BH1A	4.4	-2.8	2.3	
BH2	4.4	-14.1	2.15	2.3
BH2A	4.4	-4.5	2.4	
BH3	4.5	-13.6	2.1	2.2
BH3A	4.5	-2.7	2.1	
		Minimum:	2.1	1.85
		Maximum:	2.4	2.3
		Mean:	2.21	2.11
		Median:	2.175	2.2

[1] RL – Relative level.

4.5.5 DATA LOGGERS

Data loggers were used by JK to monitor groundwater elevation at all monitoring well locations. The data loggers in the deep boreholes (BH1, BH2 and BH3) recorded groundwater elevation measurements every 10 minutes for a period from 13 April 2026 to 13 May 2026 (approximately 1 month). Data loggers in shallow monitoring wells (BH1A, BH2A and BH3A) were recorded at 5 second intervals from 13 April 2026 to 22 April 2026, whereafter frequency was increased to 5 minute interval readings. It is noted that groundwater elevation monitoring is continuous until the 13 July 2026 to comply with the DPE (2022) requirements.

Standing groundwater levels (SWL, mAHD), overlain with the recorded rainfall during this period (Bellambi AWS 068228) have been plotted in **Figure 4-2** below. A maximum standing water level at BH2A was noted as being 2.466 mAHD.

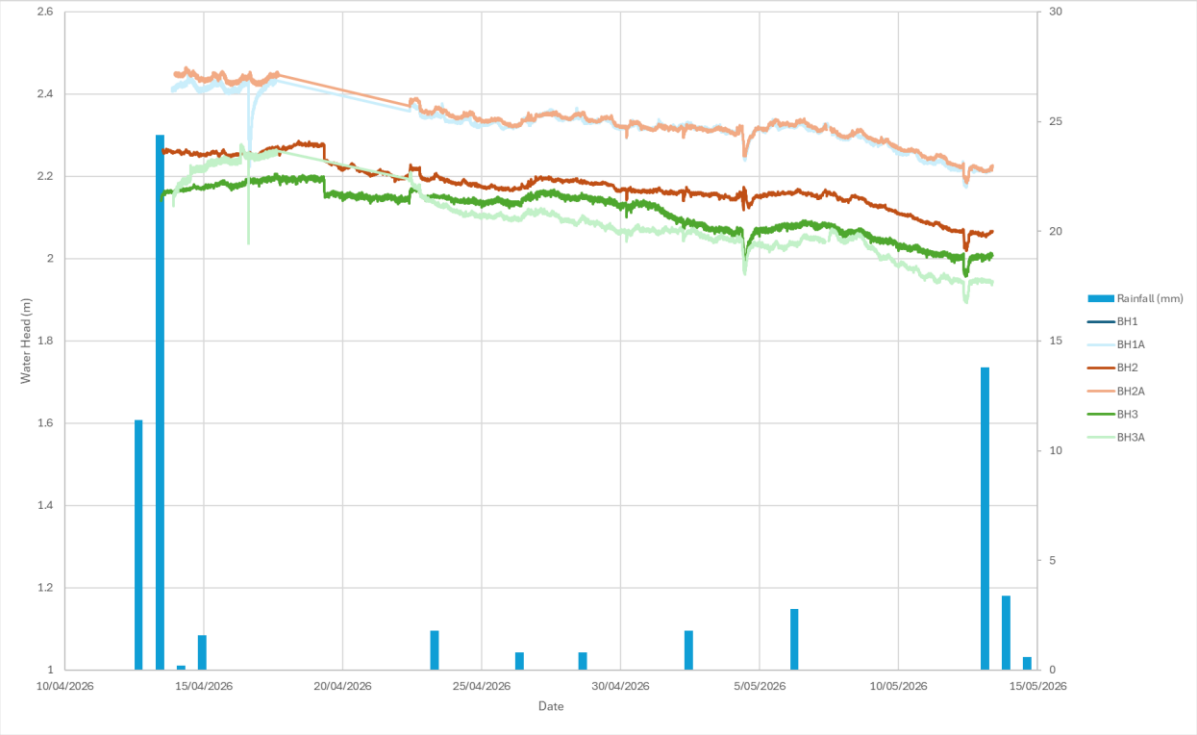


Figure 4-2 Groundwater monitoring data, at deep and shallow boreholes between April and May 2026.

4.5.6 INFERRED FLOW DIRECTION

Reditus has not conducted any site specific groundwater investigations and inferred flow direction is based on the limited data currently available.

Based on the recorded groundwater elevations, the groundwater is inferred to flow in a north-eastern direction towards Fairy Creek. This conforms to topography and expected regional flow direction towards the lagoonal area at Fairy Creek. Groundwater elevations and contours are presented in **Figure 7, Appendix A**.

4.5.7 SITE SPECIFIC HYDRAULIC CONDUCTIVITY

Site specific permeability testing was undertaken by JK during the geotechnical investigation on the 13th April 2026. Borehole rising head (i.e. pump out) infiltration testes were carried out in the shallower monitoring wells (BH1A, BH2A and BH3A). The groundwater was purged and the rate of recharge was measured using a water level data logger. From the monitored groundwater level recharge rate, and by using established seepage formulae (i.e. Hvorslev's time lag and variable head methods), the permeability was calculated. The horizontal coefficient of permeability (k_h) values of the soil and upper weathered sandstone bedrock profiles within the response zone of each standpipe are tabulated in **Table 4-3.** below.

Table 4-3. Estimates of Hydraulic Conductivity in Soil Profile

WELL ID	RESPONSE ZONE PROFILE	GROUNDWATER DEPTH RANGE WITHIN RESPONSE ZONE (M AHD)	HORIZONTAL COEFFICIENT OF PERMEABILITY KH (M/DAY)
BH1A	Soil	3.2 to -2.8	5.18×10^{-3}
BH2A	Highly weathered sandstone bedrock	-2.5 to -4.5	9.50×10^{-2}
BH3A	Soil	3.3 to -2.7	3.89×10^{-3}

The measured values indicate a low permeability soil profile in BH1A and BH3A and a moderate permeability for the upper highly weathered sandstone bedrock profile in BH2A.

Packer tests were conducted in the deep boreholes to determine the permeability in the sandstone bedrock. The results from the tests are presented in **Table 4-4** below.

Table 4-4. Estimates of Hydraulic Conductivity in Bedrock

WELL ID	WATER PRESSURE PACKER TEST NO.	PACKER TEST DEPTH RANGE (M AHD)	PERMEABILITY (M/DAY)
BH1	1	-10.14 to -16.11	1.86×10^{-1}
	2	-16.3 to -22.27	5.03×10^{-2}
BH2	1	-5.86 to -10.43	6.80×10^{-2}
	2	-10.57 to -16.55	2.21×10^{-2}
BH3	1	-4.53 to -10.33	4.51×10^{-1}
	2	-10.49 to -16.51	1.45×10^{-4}

The above estimates of hydraulic conductivity are noted to be within the range for sandstone in literature values (Fitts, C.R. 2013 Groundwater Science (2nd ed. Academic Press).

4.5.8 GROUNDWATER QUALITY

During the sampling event undertaken by Reditus on 26 May 2026, monitoring wells were sampled and physicochemical parameters were recorded. The monitoring wells were purged until stabilised physiochemical parameters were obtained. The recorded physiochemical parameters for the site were:

- pH ranged between 6.2(BH2) and 8.8 (BH1), indicating variable alkaline and acidic groundwater conditions.
- Electrical conductivity ranged between 1,600 (BH1) and 9,300 µS/cm (BH2) indicating fresh to high salinity conditions.
- Dissolved oxygen ranged between 9,300 µg/L (BH2) to 10,000 µg/L (BH31) indicating moderately oxygenated conditions.

The groundwater samples collected during this investigation from BH1, BH2 and BH3 were submitted to the NATA accredited laboratory Envirolab (primary laboratory) for analysis. Tabulated analytical results and laboratory certificates are presented in **Appendix D** and **Appendix E**, respectively. All samples were reported below the adopted criteria with the exception of:

- Aluminium at location BH2 (150 mg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (0.055 mg/L).
- Cadmium at locations BH1 (0.36 µg/L) and BH2 (0.39 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (0.2 µg/L).
- Cooper at locations BH1 (2.8 µg/L) BH2 (38 µg/L) and BH3 (2.1 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (1.4 µg/L).
- Iron at locations BH1 (690 µg/L) BH2 (40,000 µg/L) and BH3 (1,100 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (280 µg/L).
- Lead at BH (10 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (3.4 µg/L).
- Nickel at BH1 (120 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (11 µg/L).
- Zinc at location BH1 (17 µg/L) and BH2 (130 µg/L) exceeding the ANZG (2018) Freshwater 95% species protection criteria (8 µg/L).

Groundwater quality is typical of a heavily urbanised and industrialised land use which may have influence from industrial activities in the area.

Requirements for the discharge of groundwater during basement excavation dewatering generally must adhere to the following criteria:

- Concentration of suspended solids must not exceed 50 mg/L.
- The pH of the water must be between 6.5 and 8.5.
- The water must contain no visible oil or grease.
- The water must not contain any substance known to be toxic to aquatic life.

It is anticipated that treatment of the water prior to will be required and will be further discussed in the future DMP.

4.5.9 GROUNDWATER USERS AND WATER SHARING PLAN

Water Sharing Plans (WSPs) have been developed for groundwater systems in NSW to preserve water resources by establishing rules for sharing water between different types of water uses. The site is located within the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023 – Metropolitan Coastal Sands Groundwater Source*.

A search of the WaterNSW Registered Groundwater Bore Database (https://realtimedata.waternsw.com.au/water.stm) identified five (5) registered groundwater bores with a 500 m radius of the site. Review of the registered bores found that bores were for production and monitoring purposes. No standing water levels were recorded within the borelogs. Summary of the registered bores is presented in **Table 4-5** below and registered Bores and GDEs are mapped in **Figure 5, Appendix A**.

Table 4-5 Summary of Registered Bores

BORE ID	USE	DEPTH OF BORE (m)	DISTANCE/DIRECTION
GW024238	Production	6	Approx. 150m north
GW114325	Monitoring	4	Approx. 300m north
GW114326	Monitoring	4	Approx. 325m north
GW114324	Monitoring	4	Approx. 325m north-east
GW114323	Monitoring	4	Approx. 345m north-east

4.5.10 GROUNDWATER DEPENDENT ECOSYSTEMS

Groundwater dependent ecosystems (GDEs) are a diverse and important component of biological diversity. The term GDE takes into account ecosystems that use groundwater as part of their survival strategies. GDEs can potentially include wetlands, vegetation, mound springs, river base flows, cave ecosystems, playa lakes and saline discharges, springs, mangroves, river pools, billabongs and hanging swamps and near-shore marine ecosystems.

The groundwater dependence of ecosystems can range from complete to partial reliance on groundwater, such as might occur during droughts. The degree and nature of groundwater dependence will influence the extent to which they are affected by changes to the groundwater system, both in quality and quantity.

Many land and water use activities within a catchment can affect groundwater dependent ecosystem function and viability. It is important to manage these land and water use activities within a regulatory and licensing framework. Risk assessment guidelines for groundwater dependent ecosystems have been developed to operate within the regulatory and licensing framework provided by the Water Management Act 2000 and Water Sharing Plans (WSPs). The guidelines are based on an assessment of various ecological and risk factors that are important to decisions on allowing a proposed activity or development.

WSPs have been developed for groundwater systems in NSW to preserve water resources by establishing rules for sharing water between different types of water uses. The site is located within the following WSP:

- Metropolitan Coastal Sands Groundwater Source, which is managed under the WMA 2000 through the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023.

There are no high or very high priority GDE HEAVE sites located within 500 m of the site boundary. The closest high priority GDE is approximately 600 m away and associated with Fairy Creek lagoonal areas. Groundwater Dependant Ecosystems found within 1 km of the site are found on **Figure 5, Appendix A**

4.5.11 ACID SULFATE SOILS

Acid Sulfate Soils (ASS) occur predominantly on coastal land with elevations generally below 5 m AHD. These soils also occur further inland in saline seepage areas, rivers, lake beds and irrigation channels. Where present, drawdown of the local water table can expose ASS to oxidising conditions creating acidity and mobilising metals at potentially harmful concentrations.

Review of NSW Government SEED mapping indicates the site is within a Class 4 (X4) sulfate soil risk area. X4 is described as disturbed terrain with an elevation > 4 m AHD. Acid sulfate soils in a class 4 area are likely to be found beyond 2 meters below the natural ground surface. Acid Sulfate Soil mapping is presented in **Figure 4, Appendix A**.

Exposure of acid sulfates has the potential to cause a source of contamination on site that would require further treatment during the dewatering process. An Acid Sulfate Soil Investigation will need to be completed to determine the conditions of acid sulfate soils underlying the site. Soil sampling and testing by a NATA accredited laboratory is recommended. Once appropriate condition characteristics have been determined, a management and mitigation plan should be implemented.

4.6 Contaminated Sites

A search was undertaken on 27 May 2026 of the NSW EPA Contaminated Land Register and the NSW EPA List of Notified Sites under the Contaminated Land Management Act (1997). The search returned 2 locations within a 500 m radius that were listed or registered as contaminated sites. One contaminated site, located approximately 300 m to the north east was classified due to Other Petroleum activities and the other site, located approximately 260 m to the south east is classified as a Service Station.

A search was undertaken on 27 May 2026 of Environmental Protection Notices and Licences under the NSW EPA Protection of the Environment Operations Act (1997). The search did not identify any notices or licences within the site boundary. Four contaminated sites are found within a 500 m radius of the site boundary that are not managed under the CLM Act. The contaminated sites within a 500 m radius are shown in **Figure 6, Appendix A**.

5 The Proposal

5.1 Development Details

The most recent relevant development plans are provided as **Appendix B**, and include drawings for basement levels 01-05.

It is understood that the proposed redevelopment of the site will include 270 dwellings across a high-rise commercial and residential building overlying a shared five (5) level underground basement. The mixed use development will comprise of ground-floor retail space, co-living housing and associated amenities, landscaping and public domain works and augmentation of utilities. The proposed development basement is to be constructed preferentially as a drained basement design.

The proposed works are a State Significant Development and are noted under application number SSD-85464245 issued on 11th June 2025. The SSD is currently being prepared in accordance with the Department of Planning's Secretary's Environmental Assessment Requirements (SEARs).

The proposed basement footprint at the site is presented in **Figure 2, Appendix A**.

The finished floor level (FFL) for the lowest basement floor is Reduced Level (RL) -11.5 mAHD. The bulk excavation level (BEL) expected to be approximately RL -12 mAHD. It is assumed at detailed design stage that the basement will be proposed to be constructed as a 'Drained Basement'.

A summary of the proposed basement excavation parameters is provided in **Table 5-1** below.

Table 5-1 Summary of Proposed Excavation Parameters

ITEM	DESCRIPTIONS
Basement Excavation Footprint Area (m^2) [1]	Approximately 2,395 m^2
Site Surface Elevation	Approximately 4.40 mAHD
Basement Finished Floor Level (FFL)	Lower Basement (05) Level: -11.5 RL mAHD
Bulk Excavation Level (BEL)	-12 m AHD

[1] Determined from the outline of the entire basement carpark.

6 Groundwater Impact Assessment

6.1 Dewatering

Based on the groundwater data sourced from this assessment, the highest groundwater elevation was at RL 2.4 mAHD at BH2 which was located on the western boundary of the proposed basement footprint (highest ground level). The FFL for the basement car park is proposed to be RL -11.50 mAHD. The assumed BEL for the site is taken at 0.5 m below the proposed FFL and therefore, the basement excavation will intercept the groundwater. As such, dewatering will be required during the construction phase of the basement, and ongoing operation, as it is assumed at the design stage that the development includes a 'drained' basement. An analytical model has been conducted to assess the potential impacts of dewatering during the construction phase and operation phase of the site. Should the basement design change to a tanked basement, then impacts to groundwater as a result of dewatering during the operational phase are removed.

6.1.1 ANALYTICAL MODEL

Summary of Geology and Hydrogeology

Based on the borehole logs completed by JK Geotechnics on 7 April 2026 (**Appendix C**), the generalised subsurface profile at the site is comprised of a thin layer of anthropogenic material, namely concentre, fill material described as silty clay, clay and sandstone.

Based on the maximum standing water level of 2.4 mAHD in the western portion of the basement excavation area and the basement Bulk Excavation Levels (BELs) of RL -12 mAHD, there is likely to be 14.4 m of groundwater which will be encountered and require dewatering during development works at the site (i.e., proposed drained basement).

As a condition of approval it is anticipated that a DMP and associated Groundwater Works Approval Licence will need to be obtain prior to performing aquifer interference activities.

Conceptual Flow Model:

A conceptual model is a description of the site, site works, and groundwater systems presented both as text and graphically. This description can then be approximated using an analytical solution to allow prediction of groundwater behaviour.

The groundwater drawdown estimate comprises two key components to be considered:

- **a)** The component of groundwater present within the aquifer matrix, which will be removed as part of the excavation process (pore water).
- **b)** The component of inflow into the excavation from the surrounding aquifer (walls and base) during the dewatering activity.

The conceptual flow models developed for this assessment are "steady state" models – a snapshot in time representing average conditions. This snapshot was completed based on conservative assumptions of the excavation depth, which estimate the greatest groundwater inflow. Note that a more detailed analysis can be provided through a three-dimensional flow model (beyond the scope of the current assessment).

Conceptually, the drained basement design will not limit any groundwater inflow into the excavation void and is assumed to be in direct connection with the surrounding Fractured Sandstone Unconfined Aquifer.

To estimate the groundwater extracted present within the aquifer matrix, which will be removed as part of the excavation process, the porosity of the matrix is multiplied by the saturated excavation volume. The saturated excavation volume was calculated by determining the difference between the conservative standing groundwater level and the BEL, multiplied by the approximate excavation area for the basement.

To estimate the groundwater inflow volumes, Reditus used the Marinelli and Niccoli (2000)[1] steady-state analytical solution. This solution provides a convenient means for estimating groundwater inflows into excavations and is considered applicable to use as a conservative assessment for the proposed drained basement design.

[1] Marinelli, F, and Niccoli, W.L. (2000) Simple analytical equations for estimating ground water inflow to a mine pit: Groundwater, v. 38, no.2, p. 311-314

The analytical method of Marinelli and Niccoli (2000) requires a simplification of the hydrogeological environment and was used to provide a broad range of potential drawdown and groundwater inflow. The equations calculate groundwater inflow from the aquifer based on the conceptual model.

The conceptual flow model was approximated by analytical models, which are divided into two zones separated by a conceptual no-flow boundary where horizontal flow will occur level with the excavation base:

- **Zone 1** – exists above the base of the excavation and represents lateral flow to the excavation via the surrounding walls and drainage layer.
- **Zone 2** – extends from the bottom of the excavation downward and considers vertical upward groundwater inflow through the excavation base into the void and drainage layer.

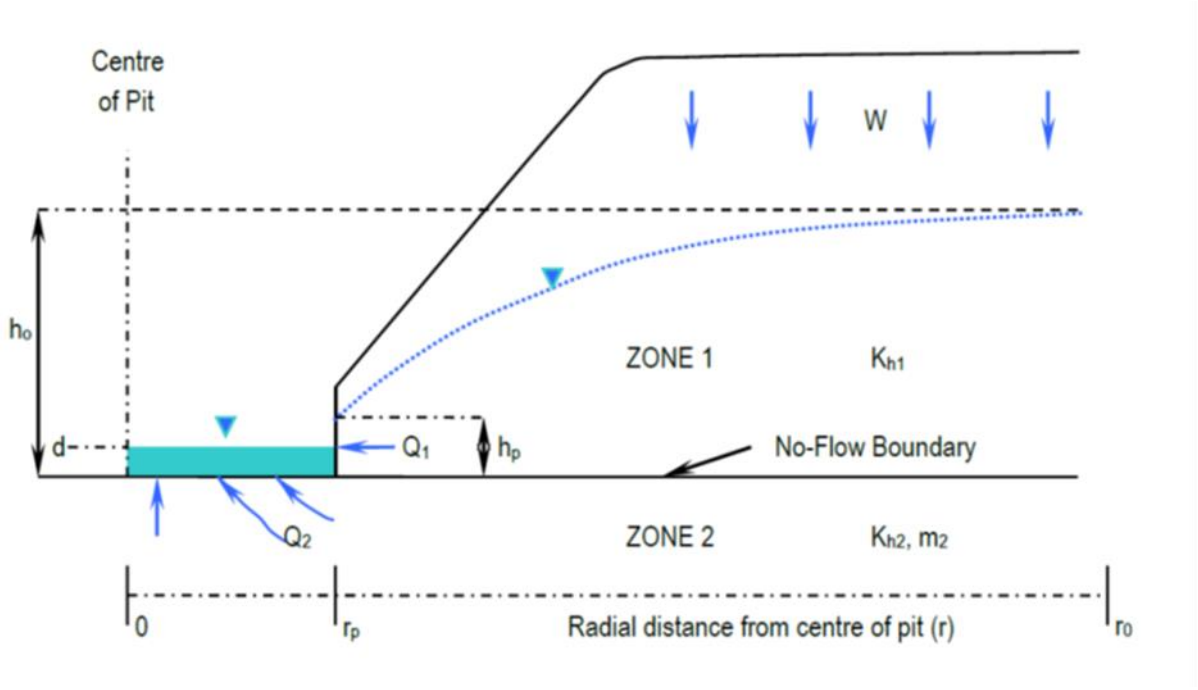


Figure 6-1. Conceptual Model of the Analytical Solution

The analytical solution for Zone 1 considered steady state, unconfined, horizontal radial flow, with uniformly distributed recharge at the water table. This represents the volume of water laterally flowing into the excavation through the excavation walls.

The analytical solution for Zone 2 is based on steady-state flow to one side of a circular disk sink of constant and uniform drawdown. The circular disk sink represents the volume of water needing to be removed to dewater the site to the target dewatering level of RL -12 mAHD.

For the development of the conceptual flow model for the proposed excavation, the circular disk sink was assumed to encompass the approximate area of the excavation footprint. The total excavation is approximated as a single large well and as such the circular disk sink was assigned a radius of based on the footprint of the proposed excavation.

An average annual rainfall of 1,211 mm of rain was registered at the nearest weather station (Station No. 068228 – Bellambi) over the period of 1997 to 2026. These statistics have been used as the average annual rainfall for inflow calculations. These statistics from the Australian Government Bureau of Meteorology (BoM) have been used as the average annual rainfall for inflow calculations. This converted to an assumed average daily rainfall of 0.00332 m/day.

- A review of Hydrogeology map of Australia (Geoscience Australia) indicates the aquifer type beneath the site are **fractured or fissured, extensive aquifers of low to moderate productivity.**

Summary of Aquifer Parameters

The hydraulic conductivity of the porous rock will be restricted by the connectivity and extent of the bedding layers and joints or faults, as well as the degree of connection to the drainage layer.

Site specific test data of the porous sandstone has provided an estimate of the hydraulic conductivity (summarised in **Table 6-1Table 6-2** below), which has been used to predict groundwater inflow volumes. These values are presented

as representative averages over the area of the site, and localised natural variation up to an order of magnitude is to be expected in parts of the site.

Table 6-1. Summary of Hydraulic Conductivity Values

		HYDRAULIC CONDUCTIVITY (M/DAY)
Weathered sandstone	Minimum	1.45×10^{-4}
	Maximum	4.51×10^{-1}
	Average	3.12×10^{-2}
	Median	5.91×10^{-2}

Site specific porosity values were not measured. As such, representative porosity values were adopted from literature sources. Given groundwater storage of the aquifer is likely confined to secondary porosity features (fractures), a porosity value 1% was assumed for the fractured sandstone unit. An anisotropy ratio of 0.1 was applied, which assumes 10% more inflow of water comes through the horizontal walls compared to vertically.

Model Scenarios

All groundwater models include some degree of uncertainty in their predictions as they are, by necessity, simplifications of complex real-world systems. Whilst every effort is made to ensure that the primary model reflects the best-case, most-likely case and upper-case (less likely) understanding of site conditions, this cannot be guaranteed, and any model result presented as a single number should be viewed with a degree of caution.

Factors which affect the dewatering rate, groundwater take and extent of drawdown within the steady state model include dewatering rate, dewatering design, dewatering period, aquifer characteristics and degree of aquifer variability (including hydraulic conductivity, specific yield/Storativity, porosity, recharge, heterogeneity).

It is considered impractical to determine these factors by pumping tests and further analytical assessment, based on the relatively small scale of the development and the likely relatively low risk of impact to groundwater in the shallow water bearing zone in the top of the low yielding porous aquifer.

Typical representative values were used in the model. Assessment of the range of typical values and their effects on the model predictions were made to allow sound management decisions using **Best Case (Less Likely)**, **Most Likely, and Upper-Case (Less Likely)** scenarios.

Table 6-2. Analytical Model Scenarios

SCENARIO	DESCRIPTION
Best Case – Less Likely	An order of magnitude lower than the mean hydraulic conductivity used for both Zone 1 and Zone 2: • 1.45 x 10^{-4} m/day (horizontal hydraulic conductivity) • 1.45 x 10^{-5} m/day (vertical hydraulic conductivity based on an Anisotropy Ratio of 0.1 which assumes vertical flow is 10% of horizontal flow) The lowest of the SWLs of the manually recorded data from all wells was used to determine an initial groundwater level of 2.1 RL mAHD.
Most Likely	Mean hydraulic conductivity used for both Zone 1 and Zone 2: • 3.12 x 10^{-2} m/day (horizontal hydraulic conductivity) • 3.12 x 10^{-3} m/day (vertical hydraulic conductivity based on an Anisotropy Ratio of 0.1 which assumes vertical flow is 10% of horizontal flow). The average of the SWLs of the manually recorded data from all wells was used to determine an initial groundwater level of 2.21 RL mAHD.
Upper Case – Less Likely	An order of magnitude greater than the mean hydraulic conductivity used for both Zone 1 and Zone 2: • 4.51 x 10^{-1} m/day (horizontal hydraulic conductivity) • 4.51 x 10^{-2} m/day (vertical hydraulic conductivity based on an Anisotropy Ratio of 0.1 which assumes vertical flow is 10% of horizontal flow). The maximum SWL of the manually recorded data from all wells was used to determine an initial groundwater level at 2.4 RL mAHD.

6.1.2 ANALYTICAL MODEL EQUATIONS

Groundwater Take Volume within the excavation matrix.

The following equation was utilised to estimate the groundwater volume present in the aquifer matrix directly removed through excavation:

$$V = \emptyset \times m \quad (1)$$

$$m = (H_0 - BEL) \times A \quad (2)$$

where:

V = groundwater volume present in the aquifer matrix directly removed through excavation (m3).

ϕ = matrix porosity

m = volume of saturated aquifer matrix to be excavated

H_0 = initial water table elevation (RLm)

BEL = basement excavation level (RLm)

A = area of excavation

Groundwater Inflow Take Volume

The steady state inflow rate into the disk sink is given by the following equations[2]:

Zone 1:

$$Q_1 = W\pi\left(r_o^2 - r_p^2\right) \tag{3}$$

$$h_o = \sqrt{h_p^2 + \frac{W}{K_{h1}}\left[r_0^2 ln\left(\frac{r_o}{r_p}\right) - \frac{\left(r_0^2 - r_p^2\right)}{2}\right]} \tag{4}$$

Zone 2:

$$Q_2 = 4r_p\left(\frac{K_{h2}}{m_2}\right)(h_0 - d) \tag{5}$$

$$m_2 = \sqrt{\frac{K_{h2}}{K_{v2}}} \tag{6}$$

where:

Q = groundwater flux (m^3/day)

K_{h1} = horizontal hydraulic conductivity (m/day) at Zone 1

K_{h2} = horizontal hydraulic conductivity (m/day) at Zone 2

K_{v2} = vertical hydraulic conductivity (m/day) at Zone 2

m_2 = vertical hydraulic conductivity anisotropy parameter

d = depth of water (above target dewatering level) within final excavation (m) (*assumed to be 0 at final excavation depth*)

r_p = radius from centre of excavation (circular disk sink) (m)

r_o = drawdown radius from centre of excavation (iterative calculation)

h_0 = initial saturated thickness above base of excavation (m)

h_p = saturated thickness above the base of excavation at the excavation wall (rp), which is assumed 0 m

W = rainfall recharge rate (assumed % of the mean daily rainfall)

Groundwater Drawdown extent

The following equations were used to calculate the groundwater drawdown resulting from the groundwater take into the excavation[2]:

$$H_{1(r)} = H_0 - h_0 + \sqrt{h_p^2 + \frac{W}{K_{h1}}\left[r_o^2 \ln\left(\frac{r}{r_p}\right) - \frac{\left(r^2 - r_p^2\right)}{2}\right]} \tag{7}$$

where:

$H_{1(r)}$ = hydraulic head elevation (m) at a radial distance (r) from excavation centre

H_0 = initial groundwater elevation (mRL)

h_0 = initial saturated thickness above base of excavation (m)

r = radial distance from excavation centre (m)

z = vertical depth below the excavation bottom (assumed to be 0 m)

W = rainfall recharge rate (assumed % of the mean daily rainfall)

K_{h1} = horizontal hydraulic conductivity (m/day) at Zone 1

6.1.3 MODEL ASSUMPTIONS AND INPUT PARAMETERS

Assumptions

The analytical solution was based on the following assumptions, after Marinelli and Niccoli (2000):

- Steady state, unconfined, horizontal radial flow, with uniformly distributed recharge at the water table.
- The excavation walls are approximated as a circular cylinder.
- Groundwater flow is horizontal. The Dupuit-Forchheimer approximation (McWhorter and Sunada 1977) is used to account for changes in saturated thickness due to depression of the water table.
- The static (pre-excavation) water table is approximately horizontal.
- Uniform distributed recharge occurs across the site as a result of surface infiltration. All recharge within the radius of influence (cone of depression) of the pit assumed to be captured by the excavation. A 10% recharge rate due to surface water infiltration through the deep soil zones around the perimeter of the basement excavation.
- Groundwater flow toward the pit is axially symmetric.
- Hydraulic head is initially uniform (hydrostatic) throughout Zone 2. Initial head is equal to the elevation of the initial water table in Zone 1.
- The disk sink has a constant hydraulic head equal to the elevation of the “pit lake water surface”. If the pit is completely dewatered, the disk sink head is equal to the elevation of the pit bottom – in this case the target dewatering level.
- Flow to the disk sink is three dimensional and axially symmetric.
- Materials within Zone 2 are anisotropic, and the principal coordinate directions for hydraulic conductivity are horizontal and vertical. It has been assumed that horizontal permeability is greater than vertical permeability by a factor of 10.

Parameters

The parameters used to estimate the groundwater removal (excavation and inflow) within the analytical solution for the basement carpark and lower basement at the site are provided in **Table 6-3** below.

Table 6-3. Groundwater Inflow Analytical Model Input Parameters

PARAMETER	UNIT	BEST CASE – LESS LIKELY	MOST LIKELY	UPPER CASE – LESS LIKELY
Excavation Matrix Storage				
Effective Porosity (ϕ)	-	0.01%	0.01%	0.01%
Bulk Excavation Level (BEL)	RL mAHD	-12	-12	-12
Excavation Area	m^2	2,395	2,395	2,395
Zone 1				
r_p	m	27.61	27.61	27.61
r_o	m	36.50	132.12	367.20
W	m/day	3.32×10^{-4} (10% of average annual rainfall)	3.32×10^{-4} (10% of average annual rainfall)	3.32×10^{-4} (10% of average annual rainfall)
h_0*	m	14.1	14.21	14.4
h_p**	m	0	0	0
K_{h1}	m/day	1.45×10^{-4}	3.12×10^{-2}	4.51×10^{-1}
Zone 2				
K_{h2}	m/day	1.45×10^{-4}	3.12×10^{-2}	4.51×10^{-1}
K_{v2}	m/day	1.45×10^{-5}	3.12×10^{-3}	4.51×10^{-2}
d	RL m	0	0	0

6.1.4 SUMMARY OF ANALYTICAL MODEL RESULTS

Estimate of Groundwater Matrix Volume Removed within excavations.

The groundwater matrix removal was estimated using equation 1 and equation 2, with predictions provided in **Table 6-4** below.

Table 6-4. Prediction of Groundwater Volume Removed within the Excavation Matrix

DEWATERING AREA	GROUNDWATER VOLUME REMOVED FROM MATRIX (ML)		
	BEST CASE (LESS LIKELY)	MOST LIKELY	UPPER CASE (LESS LIKELY)
Basement carpark	3.377	**3.403**	3.449

Prediction of Groundwater inflow

The annual groundwater inflow was estimated using equation 3, 4, 5 & 6, with predictions provided in **Table 6-5** below, assuming a 12-month dewatering program and continued dewatering during the site operation phase.

Table 6-5. Prediction of Annual Groundwater Inflows

DEWATERING AREA	GROUNDWATER INFLOW (ML) – ZONE 1 & ZONE 2		
	BEST CASE (LESS LIKELY)	MOST LIKELY	UPPER CASE (LESS LIKELY)
Basement carpark	0.2	**12.0**	133.8

Summary of 'Most Likely' total predicted groundwater take.

Based on the initial 12-months of dewatering for the basement carpark (including both the initial matrix storage removed via excavation over the first ~6 months, and the groundwater inflow over the 12-month period) the following total groundwater extraction volumes for the proposed basement carpark was predicted and is presented in **Table 6-6** below.

Table 6-6. 'Most Likely' Predicted Groundwater Take

DEWATERING AREA	PREDICTED MATRIX TAKE (ML)	PREDICTED ANNUAL GROUNDWATER INFLOW TAKE (ML/YR)	TOTAL GROUNDWATER TAKE DURING CONSTRUCTION (ML)
Basement carpark	3.403	12.0	**15.403**

Table 6-7. Summary of Predicted Groundwater Take During and Post Construction

PERIOD	PREDICTED GROUNDWATER TAKE
Maximum Potential Annual Take During Construction (includes groundwater inflows and matrix removals for the basement over a 12-month period)	**15.403 ML**
Post Construction – Long Term Groundwater Inflow (Steady-state groundwater inflows from permanent/ongoing Drained Basement Design)	**12.0 ML/year**

6.1.5 PREDICTION OF DRAWDOWN DISTANCE

As part of the dewatering assessment, the extent of groundwater drawdown was estimated at regular distance intervals from the edge of the circular disk sinks (approximate excavation edge) Drawdown reaches 0 m at the following radial distance from the edge of the approximate excavation edge:

- Best Case (Less Likely): 9 m
- Most Likely: 104 m
- Upper Case (Less Likely): 286 m

The estimated drawdown at distance from the excavation/basement walls have been provided in **Graph 1** below. It is noted that drawdown will equilibrate back to pre-construction conditions following construction if design is changed to a tanked basement.



Graph 1. Extent of Drawdown from Basement/Excavation Wall – Basement carpark

It is the professional experience of Reditus that the groundwater levels in porous rock can vary naturally by several metres or more during prolonged periods of dry or wet weather. Accordingly, a temporary drop in the water table of 1 m or less is considered unlikely to result in off-site geotechnical settlement impacts, particularly within rock.

There is potential that drawdown outside the site may be sufficient to induce settlement in overlying buildings unless an appropriate DMP is implemented. A suitability qualified geotechnical consultant will be required to determine the potential settlement impacts caused by the potential drawdown as a result of the proposed dewatering activities. Detailed geotechnical considerations are beyond the scope of this assessment.

6.2 Aquifer Interference Policy

The Aquifer Interference Policy includes a set of minimal impact considerations for assessing the impacts of all aquifer interference activities, including those regulated under the WMA 2000, the Water Act 1912 and those decided under other legislation. The NSW DPE (2022) Groundwater Impact Assessment Criteria provides a framework for the Minimal Impact threshold criteria.

Aquifer interference approvals are not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source, or its dependent ecosystems, as a consequence of its being interfered with in the course of the activities to which the approval relates.

Whilst aquifer interference approvals are not required to be granted, the minimal harm test under the WMA is not activated for the assessment of impacts. Therefore, this Policy establishes and objectively defines minimal impact considerations as they relate to water-dependent assets and these considerations will be used as the basis for providing advice to the Minister.

All NSW groundwater sources have been categorised as being either highly productive or less productive, based on the general character of the water source meeting or not meeting the criteria of 1500 mg/L total dissolved solids and a bore yield rate of greater than 5 L/s. This categorisation applies to a whole groundwater source as it is defined in a water sharing plan, not to the specific groundwater conditions at a particular location. The minimal impact considerations for the highly productive groundwater sources are different to those for the less productive groundwater sources.

Thresholds for minimal impact considerations have been developed for each groundwater source in NSW. Within the WMA, Table 1 – Minimal Impact Considerations for Aquifer Interference Activities are categorised into type of groundwater sources and are presented in **Table 6-8** below. The thresholds relate to impacts on groundwater table and pressure, and to groundwater and surface water quality.

Table 6-8. Highly and Less Productive Groundwater Source Types

HIGHLY PRODUCTIVE	LESS PRODUCTIVE

• Alluvial
• **Coastal Sands**
• Porous Rock
  – Great Artesian Basin - Eastern Recharge and Southern Recharge.
  – Great Artesian Basin – Surat, Warrego and Central
  – other porous rock
• Fractured Rock
	• Alluvial
	• Porous Rock
	• Fractured Rock

The proposed development is considered to be located in a 'Highly Productive' groundwater source as yields are less than 5 L/s and total dissolved solids are likely <1,500 mg/L. An assessment of the 'Minimal Impact Considerations' is provided in **Table 6-9** below.

Table 6-9. Minimal Impact Considerations under the Aquifer Interference Policy (2012) & NSW Department of Planning and Environment (2022) *Groundwater Impact Assessment Criteria*

AQUIFER GROUNDWATER SOURCE	*METROPOLITAN COASTAL SANDS GROUNDWATER SOURCE*
CATEGORY	Coastal Sands – Highly productive
IMPACT ASSESSMENT CRITERIA	**Water table:** Less than or equal to a 10% cumulative variation in the water table, allowing for typical climatic 'post water sharing plan' variations, 40 m from any: High priority GDE or high priority culturally significant site listed in the schedule of the relevant water sharing plan. OR A maximum 2m water table decline cumulatively at any water supply work. **Water pressure:** A cumulative pressure head decline of not more than a 2m decline, at any water supply work. **Water quality:** Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity.
ASSESSMENT RESULTS	**Water table:** There are no areas of high priority groundwater dependent ecosystems (GDE HEAVE) or high priority culturally significant sites within 500 m of the site boundary. The expected project related drawdown, cumulative, at any water supply work is <2 m. There is one (1) registered groundwater supply bore within a 1 km radius (150 m) of the site. A drawdown a drawdown of 0 m was calculated at a maximum distance of 104 m from the edge of the excavation. From the modelling it is expected that there will be 0 m of drawdown at the closest registered water supply work bore. **Water pressure:** The expected decline in groundwater elevation due to the project would be <2 m at any water supply work. **Water quality:** In the upper-case (less likely) scenario the project is not expected to change groundwater quality beyond 10 m from the activity as groundwater inflows will be captured, treated and discharged.

6.3 Construction Phase

Assessment of surface water and groundwater potential impacts, associated risks during construction works and mitigation measures is presented in **Table 6-10** below.

Table 6-10. Potential Construction Risks and Mitigation Measures

RISK	IMPACT TYPE	POTENTIAL IMPACTS	MITIGATION MEASURES
Construction activities that disturb soils from excavation, dust suppression and land clearing works	Surface water	Pollute receiving waterbodies (local stormwater network and Fairy Creek) with increased sediment mobilisation, especially during rain events	Soil and water management plans incorporated in a Construction Environmental Management Plan (CEMP) to manage risk. Erosion and sediment control measures in accordance with Blue Book (DECC, 2008).
Stockpiling of soils and sandstone during basement construction works	Surface water	Pollute the receiving water bodies with increased sediments from improper stockpiling and containment of materials	
Chemical spills	Surface water and groundwater	Contaminate surface water via run-off into receiving waterbodies or underlying groundwater via seepage into the ground	Storage of hazardous liquids and refuelling operations to take place in bunded areas to reduce chance of spillage causing impacts
Intercepting and dewatering of groundwater during basement construction	Groundwater	Impacts to potential surrounding GDEs, and water supply bores within the vicinity of the basement construction caused by drawdown during dewatering activities	Minimise groundwater ingress during dewatering activities (such as grout injection into water bearing fractures). Minimise depths of excavation below groundwater table during basement construction.
Discharge of groundwater during construction dewatering	Surface water	Contamination of receiving water body (stormwater network and Brisbane Water) and associated water courses down-stream of the groundwater discharge point	All water to be discharged during basement construction dewatering to comply with adopted discharge water quality criteria (DWQC) and Council requirements (if necessary))
Construction of access tracks which can reduce rainwater infiltration and increase runoff into waterbodies	Surface water	Increase run-off during rain events has potential to transport contaminants and sediments into surface water bodies	Minimise area to be repurposed as access tracks where possible.
Impacts on GDEs and local registered bores	Groundwater and surface water	Impact to local high priority GDEs and groundwater users from drawdown impact of basement excavation	Impacts to GDEs and local groundwater users as a result of construction activities have not been identified in the numerical modelling and impact assessment.

6.3.1 DEWATERING

Dewatering will be required during the construction of the basement carpark. A review of the analytical modelling results against the NSW DPE (2022) *Groundwater Impact Assessment Criteria,* NSW DPI (2012) AIP and WMA 200, presented in **Table 6-9** above, found the following impact assessment results:

- Expected project related drawdown, cumulative, at any water supply work is <2 m.
- No high priority GDEs or high priority culturally significant sites within a 500 m of the project.
- In the upper-case (less likely) scenario the project is not expected to change groundwater quality beyond 2 m from the activity as groundwater inflows will be captured and discharged.
- There are registered groundwater supply bores within a 1 km radius of the site, but drawdown expected be <2 m, and within the bounds of the assessment criteria.

As such, dewatering activities are considered to be of **Minimal Impact** to the water table, water pressure and water quality.

Impacts from dewatering and construction activities may result in minor or negligible changes to nearby surface water streams. Fairy Creek, located to the south-east of the site is not within the calculated radius of influence from dewatering activities. Therefore, any impacts are considered unlikely and negligible given the relatively low drawdown predicted at those distances.

6.3.2 POLLUTANTS AND CHEMICAL CONTAMINATION

Construction phase works have the potential to impact groundwater through increased pollutant generation activities that may infiltrate into the aquifer below the site. Potential pollutant generation may include:

- Leaching of heavy metals from construction materials.
- Chemical spillages including hydrocarbons from fluids associated with construction machinery. To reduce the potential for material leaching and chemical spills during construction a site specific Construction Environmental Monitoring Plan (CEMP) should be developed for the project prior to construction works commencing.

6.3.3 IMPERVIOUS AREAS

The proposed development will increase the impervious areas during the construction phase through compaction of soils from plant movement, and as a result of on-going operation through an increase in hardstand areas, particularly in the footprint of the proposed basement carpark. The changes to infiltration and recharge rates during the construction phase of the proposed development may fluctuate, with initial demolition of hard standing areas increasing recharge. As hard standing areas increase, direct recharge will decrease and ultimately overland flow will be directed towards the stormwater drainage channels. This may cause a reduction in infiltration and recharge into the aquifer below the site. This is thought to be similar to the current state of the land use at the site of the proposed development.

6.4 Operational Phase Impacts

Assessment of surface water and groundwater potential impacts and associated risks during the operation phase of the development as well as the mitigation measures is presented in below.

Table 6-11. Operational Phase Impacts, Risks and Mitigation Measures

RISK	IMPACT TYPE	POTENTIAL IMPACTS	MITIGATION MEASURES
Increase in hardstand areas across the site	Surface water and groundwater	Increase the potential pollution generation and surface water runoff Decrease in groundwater recharge	Limit hardstand to areas that it is required.
Increase vehicle movement and parking	Groundwater	Fuel and oil spillages potentially contaminating the underlying groundwater via seepage into the ground	Basement hardstand likely to prevent any potential seepage into the ground
Soils stabilised incorrectly and failed revegetation leading to loose soils across site	Surface water	Soils and sediments become mobile and pollute local stormwater network and receiving surface water bodies	Ensure soils are stabilised and revegetation is effective by implementing revegetation management measures and soil erosion management plans Soil management including revegetation and soil compaction will form part of the CEMP
Discharge of groundwater during operational phase dewatering	Surface water and groundwater	Contamination of stormwater network and receiving surface water bodies	All water to be discharged during operational phase dewatering to comply with adopted discharge water quality criteria (DWQC) to be outlined within the future/updated site DMP.
Impacts on GDEs and local registered bores	Surface water and groundwater	Impact to GDEs and groundwater users from drawdown impact of basement excavation	Impacts to GDEs and local groundwater users as a result of construction activities have not been identified in the numerical modelling and impact assessment.

6.4.1 DEWATERING

Annual dewatering rates are presented in **Table 6-5**, and dewatering impacts have been assessed for effects to the water table, water quality and other groundwater users in the area (**Table 6-9**). Results of the modelling and assessment conclude minimal impacts from ongoing dewatering are considered.

Based on the most likely scenario for estimated drawdown, the construction phase of dewatering for the proposed drained basement is unlikely to impact any of the local registered bores. It should be noted that ongoing monitoring will be occurring during construction to monitor the real-time drawdown, and monitoring methods are to be reported in the DMP. Dewatering volume during the construction phase (1 year) is expected to be greater than in the operational phase of the proposed development due to the groundwater volume extracted in the matrix.

Water quality of the discharge waters will need to be treated with a permanent water treatment system and monitored to confirm the quality of the discharge water. This will need to be detailed within the DMP and Groundwater Works Access Licence required to be obtained for the development.

6.4.2 IMPERVIOUS AREAS

With reference to the proposed development, it Is expected that there may be a slight increase in impervious (hardstand) areas, particularly in the footprint of the basement carpark. The likely impacts from the increase in hardstand includes reduced infiltration and recharge into the underlying aquifer. As the proposed development is likely to mirror the current existing impervious area, there is not thought to be a significant change to the recharge and filtration rates as a consequence of the operation of the proposed development. Areas of natural landscaping

incorporated into the development design will act to retain conditions close to the natural state of the land within the proposed development.

6.4.3 SURFACE WATER AND GROUNDWATER QUALITY IMPACTS

The operational phase activities associated with the proposed development that have the potential to impact the local stormwater network and receiving surface water body water quality include:

- Spills or litter generated from major maintenance activities
- Erosion and sedimentation caused by mobilised soils from exposed areas.
- Dewatering during operational phase of the proposed 'drained basement'.

Based on the results of the groundwater sampling undertaken at the site to date, the quality of the water that is to be discharged by continued dewatering will require management in order to meet the above criteria which can be addressed in a future Long-term Dewatering Management Plan (LTDMP).

7 Cumulative Impacts

Assessment of the impacts resulting from the proposed development may include the cumulative impacts of developments occurring in the surrounding area and nearby proposals that have the potential to increase the risk to ground and surface water. The area surrounding the proposed development is considered highly urbanised and modified land which indicates that similar development is likely to occur, unless land zoning should change. Review of the Land Zoning Map indicates that the surrounding land is zoned as services, commodities, residential and farm infrastructure. Under the current land zoning, it is considered possible that large developments have the potential to have a cumulative environmental impact on the local groundwater and surface water. For future developments that would have the potential to create a cumulative impact on groundwater and surface water, impact assessments would be required to outline the potential impacts of the development. The future management and mitigation strategies would be expected to minimise those impacts.

8 Mitigation and Management Measures

Assessment of potential surface water and groundwater impacts, associated risks during construction works and mitigation measures are presented below.

A summary of impacts to surface water and groundwater during the construction phase, and mitigation measures are presented in **Table 8-1** below.

Table 8-1 Potential Construction Risks and Mitigation Measures

RISK	IMPACT TYPE	PHASE	POTENTIAL IMPACTS	MITIGATION MEASURES
Excavation, dust suppression and land clearing works	Surface water	Construction	Pollute receiving waterbodies (Fairy Creek and associated water courses) with increased sediment, especially during rain events Changes to the hydrological regime.	Soil and water management plans incorporated in a Construction Environmental Management Plan (CEMP) to manage risk. Erosion and sediment control measures in accordance with Blue Book (DECC, 2008). Incorporate water quality monitoring plan into the CEMP that will constantly monitor water quality of receiving water bodies.
Stockpiling	Surface water	Construction	Pollute the receiving water bodies with increased sediments from improper stockpiling of materials. Changes to the hydrological regime.	Soil and water management plans incorporated in a CEMP to manage risk. Erosion and sediment control measures in accordance with Blue Book (DECC, 2008).
Stormwater discharge	Surface water	Construction / Operation	Contamination of receiving water body (Fairy Creek) and associated water courses down-stream of excavation as a result of discharging water to the stormwater network during dewatering	Extraction rates, drawdown and water quality monitoring requirements incorporated into a dewatering management plan (DMP) All construction groundwater to be discharged during basement construction dewatering is to be appropriately treated and to comply with adopted discharge water quality criteria (DWQC).
Impervious Areas	Groundwater / Surface water	Construction / Operation	Increase overland flow during rain events has potential to transport contaminants and sediments into surface water bodies reduce recharge into aquifers.	Provide adequate deep soil and permeable landscape areas as vegetation buffer strips. Incorporation, were possible, of permeable pavements and appropriate design of stormwater detention.
Chemical spills	Groundwater / Surface water	Construction / Operation	Contaminate the underlying groundwater via seepage into the ground or surface water via run-off into receiving waterbodies	Storage of hazardous liquids and refuelling operations to take place in bunded areas to reduce chance of spillage causing impacts Incorporate water quality monitoring plan into CEMP that will constantly monitor water quality of receiving water bodies.

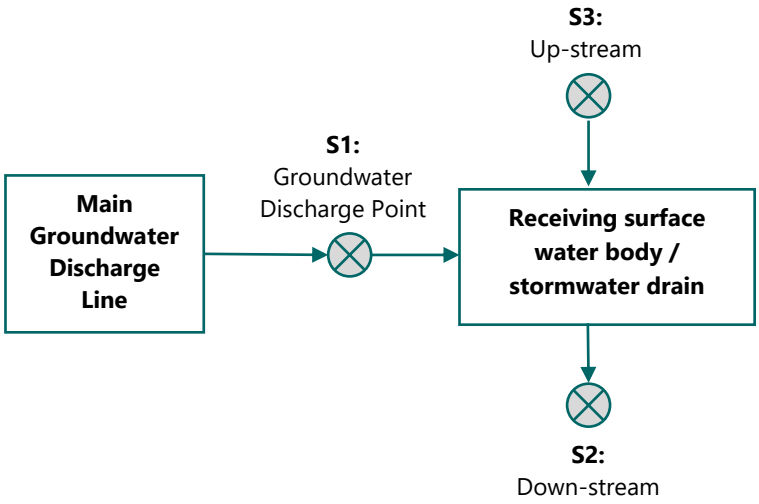
RISK	IMPACT TYPE	PHASE	POTENTIAL IMPACTS	MITIGATION MEASURES
Dewatering	Groundwater	Construction	Impacts to surrounding GDEs and water supply bores within the vicinity of the basement construction caused by drawdown during dewatering activities	Extraction rates, drawdown and water quality monitoring requirements incorporated into a dewatering management plan (DMP) Reduce dewatering time period during basement excavations.

8.1 Construction Phase

8.1.1 DEWATERING MANAGEMENT AND MONITORING MEASURES

Monitoring of the discharge water is to be completed in accordance with a future DMP. Construction phase groundwater and surface water monitoring is to be completed by a suitably qualified person, using calibrated equipment to collect and analyse samples that are representative of the water to be discharge from the basement excavation works. Results will be compared to discharge water quality criteria. Council will be notified if any results indicate an adverse impact to the environment.

Furthermore, surface water quality monitoring will be undertaken in accordance with future DMP. Water quality samples will be collected from the following locations as presented in the flow chart below.



The future DMP will establish the monitoring frequency and staging of monitoring requirements. This is to include initial assessment/trial run period, construction dewatering discharge monitoring period, identification of roles and responsibilities, inspection requirements, contingencies for non compliance and records and reporting to be held throughout the life of the construction project.

8.1.2 DEWATERING IMPACT MEASURES AND MITIGATION

The potential impacts to surface water and groundwater via drawdown of the water table during basement excavation include impact to groundwater users, GDEs and ASSs. Based on the analytical model discussed in **Section 6.3**, dewatering activities are considered to be of Minimal Impact to the water table, water pressure and water quality. Assessment of the impacts discussed from drawdown have been provided in **Section 6.4** and indicate that any potential impacts are considered minimal. However, it would be considered prudent to include mitigation and management measures for the identified potential impacts. The future DMP would include strategies to manage potential impacts during both construction, and ongoing operation, including:

- Staging of construction works which would include assessment of drawdown impacts to assess if the construction works are adversely impacting the environment.
- Monitoring of groundwater elevations surrounding the basement excavation during the construction period.
- Outlining mitigation and management measures in the instance that groundwater discharge quantities exceed the expected discharge quantity which would include ceasing of dewatering activities.
- Although it is expected that the water table will stabilise, climatic conditions, including prolonged wet and dry periods can have significant impacts to groundwater levels. Operational long-term dewatering for the life of the development will be required for the proposed drained basement. Implementation of filtration systems that will allow constant management of groundwater discharge is required to ensure that the water being collected in the basement sump meets the discharge water quality criteria before being discharge to the stormwater system. Discussion, recommendations and implementation of the systems required for drained basement groundwater discharge will be presented in future DMP.

8.1.3 POLLUTION OF GROUNDWATER AND SURFACE WATER

To appropriately manage the impacts of pollutants and sediments on surface water and groundwater during the construction works. A Construction Environment Management Plan (CEMP) is to be implemented. The CEMP will address the potential risks and impacts to the receiving water body associated with hazardous chemical spillages, loose soil and increased run-off from increased hardstand areas, and will develop adequate mitigation measures that would typically include:

- Bunding of storage areas that contain hazardous goods
- Staging of construction works to minimise impacts
- Implement adequate site drainage to prevent ponding of water in active areas that can potentially mobilise contaminants and seep into groundwater or via overland flow into surface water bodies.
- Soil management plans to appropriately manage revegetation and proper compaction of soils to reduce sedimentation impact to receiving water bodies.
- Implement stormwater management designs that appropriately manage potentially contaminated surface water run-off.

Construction related risks such as earthworks, spills and stockpiling of soils will be generally managed in accordance with the Blue Book (Landcom 2004/DECC, 2008).

8.2 Operational Phase

8.2.1 DEWATERING MANAGEMENT AND MEASURES

Operational long-term dewatering for the life of the development will be required for the proposed drained basement. Implementation of filtration systems that will allow constant management of groundwater discharge is required to ensure that the water being collected in the basement sump meets the discharge water quality criteria before being discharge to the stormwater system and the receiving surface water environment. Discussion, recommendations and implementation of the systems required for drained basement groundwater discharge, investigation and management will be presented in a future site Long Term Dewatering Management Plan (LTDMP).

8.2.2 DRAWDOWN IMPACT MEASURES AND MITIGATION

The impacts associated with drawdown during the operational phase of the development are to be managed via long-term monitoring of groundwater levels over the life of the development. Although it is expected that the water table will stabilise, climatic conditions including prolonged wet or dry periods can have significant impacts to groundwater levels. The change in water level caused by climatic conditions and the basement carpark could potentially create a cumulative effect on the groundwater level. Mitigation measures for the operational phase drawdown impacts will be presented in the future site LTDMP.

8.2.3 POLLUTION OF SURFACE WATER AND GROUNDWATER

Operational phase risk of potential pollution to surface water and groundwater is considered to be minimal. However, potential risks including risks associated with mobilisation of dissolved metals leaching in groundwater and surface waters will be addressed in the future site LTDMP.

8.3 Reporting

Appropriate management systems will include the reporting and recording of monitoring outcomes, significant water quality impacts and associated intervention measures should occur as frequently as once a month for the construction period and the operational period of the development, or when necessary, such in the instance that an incident was to occur. The requirements, roles and responsibilities of the principal contractors including reporting responsibilities to the relevant government bodies will be discussed in further detail in future DMP.

9 Conclusion

The findings of this report include characterisation of the existing environment at the site, a review of the of potential impacts to the surface water and groundwater environment from the proposed development, review of relevant legislation and policy relating to the development and mitigation measures for the identified impacts.

A summary of the findings of this assessment include:

- The groundwater quality was typical of highly disturbed urbanised environments which have been exposed to various land use and industrial activity. There were a number of analytes that tested above the designated water quality criteria including aluminium, cadmium, cooper, iron, lead, nickel and zinc. The groundwater exceedances are expected to be adequately managed with a successful implementation of a DMP in the future.
- The groundwater impacts associated with the basement excavation have been assessed based on the inflow calculations and probable drawdown expectations during the construction phase and operational phase of the development.
  - The assessment found that in the upper-case (less likely) scenario for drawdown during the development, impact to surrounding surface water bodies, groundwater users, GDEs and ASSs are minimal.
  - In the most-likely scenario for drawdown during the development, the impacts will be negligible.
- Other potential impacts to groundwater and surface water including potential chemical spillages, increase in hardstand areas, increase in potentially contaminating activities such as vehicle movement, incorrect soil stabilisation and other construction related impacts.

All identified potential impacts are considered to be manageable with appropriate mitigation measures that include:

- Soil and water management plans incorporated in a CEMP to manage risk.
- Erosion and sediment control measures in accordance with Blue Book (DECC, 2008).
- Appropriately designed deep soil, landscaping buffers and stormwater detention to mitigate impacts associated with increases in impervious surfaces.
- Extraction rates, drawdown and water quality monitoring requirements incorporated into a DMP
  - Minimise depths of excavation below the groundwater table during basement construction
  - Reduce the dewatering time period during basement excavations.
- All water to be discharged during basement construction dewatering to comply with adopted discharge water quality criteria (DWQC).
- Storage of hazardous liquids and refuelling operations to take place in bunded areas to reduce chance of spillage causing impacts
- Incorporate water quality monitoring plan into CEMP that will constantly monitor water quality of receiving water bodies during construction.

10 Limitations

The report or document does not purport to provide legal advice and any conclusions or recommendations made should not be relied upon as a substitute for such advice.

The report does not constitute a recommendation by Reditus for the client (Urban Property Group Pty Ltd) or any other party to engage in any commercial or financial transaction and any decision by the client or other party to engage in such activities is strictly a matter for the client.

The report relies upon data, surveys, measurements and results taken at or under the site at particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the client. Furthermore, the report has been prepared solely for use by the client and Reditus accepts no responsibility for its use by other parties. The client agrees that Reditus' report or associated correspondence will not be used or reproduced in full or in part for promotional purposes and cannot be used or relied upon by any other individual, party, group or company in any prospectus or offering. Any individual, party, group or company seeking to rely this report cannot do so and should seek their own independent advice.

No warranties, express or implied, are made. Subject to the scope of work undertaken, Reditus assessment is limited strictly to identifying typical environmental conditions associated with the subject property based on the scope of work and testing undertaken and does not include and evaluation of the structural conditions of any buildings on the subject property or any other issues that relate to the operation of the site and operational compliance of the site with state or federal laws, guidelines, standards or other industry recommendations or best practice. Scope of work undertaken for assessments are agreed in advance with the client and may not necessarily comply with state or federal laws or industry guidelines for the type of assessment conducted.

Additionally, unless otherwise stated Reditus did not conduct soil, air or wastewater analyses including asbestos or perform contaminated sampling of any kind. Nor did Reditus investigate any waste material from the property that may have been disposed off the site, or undertake and assessment or review of related site waste management practices.

The results of this assessment are based upon (if undertaken as part of the scope work) a site inspection conducted by Reditus personnel and/or information from interviews with people who have knowledge of site conditions and/or information provided by regulatory agencies. All conclusions and recommendations regarding the property are the professional opinions of the Reditus personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project/assessment.

Reditus is not engaged in environmental auditing and/or reporting of any kind for the purpose of advertising sales promoting, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project.

Information relating to soil, groundwater, waste, air or other matrix conditions in this document is considered to be accurate at the date of issue. Surface, subsurface and atmospheric conditions can vary across a particular site or region, which cannot be wholly defined by investigation. As a result, it is unlikely that the results and estimations presented in this report will represent the extremes of conditions within the site that may exist. Subsurface conditions including contaminant concentrations can change in a limited period of time and typically have a high level of spatial heterogeneity.

From a technical perspective, there is a high degree of uncertainty associated with the assessment of subsurface, aquatic and atmospheric environments. They are prone to be heterogeneous, complex environments, in which small subsurface features or changes in geologic conditions or other environmental anomalies can have substantial impact on water, air and chemical movement.

Major uncertainties can also occur with source characterisation, assessment of chemical fate and transport in the environment, assessment of exposure risks and health effects, and remedial action performance. These factors make uncertainty an inherent feature of potentially impacted sites. Technical uncertainties are characteristically several orders of magnitude greater at impacted sites than for other kinds of projects.

Reditus' professional opinions are based upon its professional judgment, experience, and training. These opinions are also based upon data derived from the limited testing and analysis described in this report or reports reviewed. It is possible that additional testing and analysis might produce different results and/or different opinions or other opinions. Reditus has limited its investigation(s) to the scope agreed upon with its client. Reditus believes that its opinions are reasonably supported by the testing and analysis that has been undertaken (if any), and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. Other opinions and interpretations may be possible. That standard of care may change and new methods and practices of exploration, testing and analysis may develop in the future, which might produce different results.

11 References

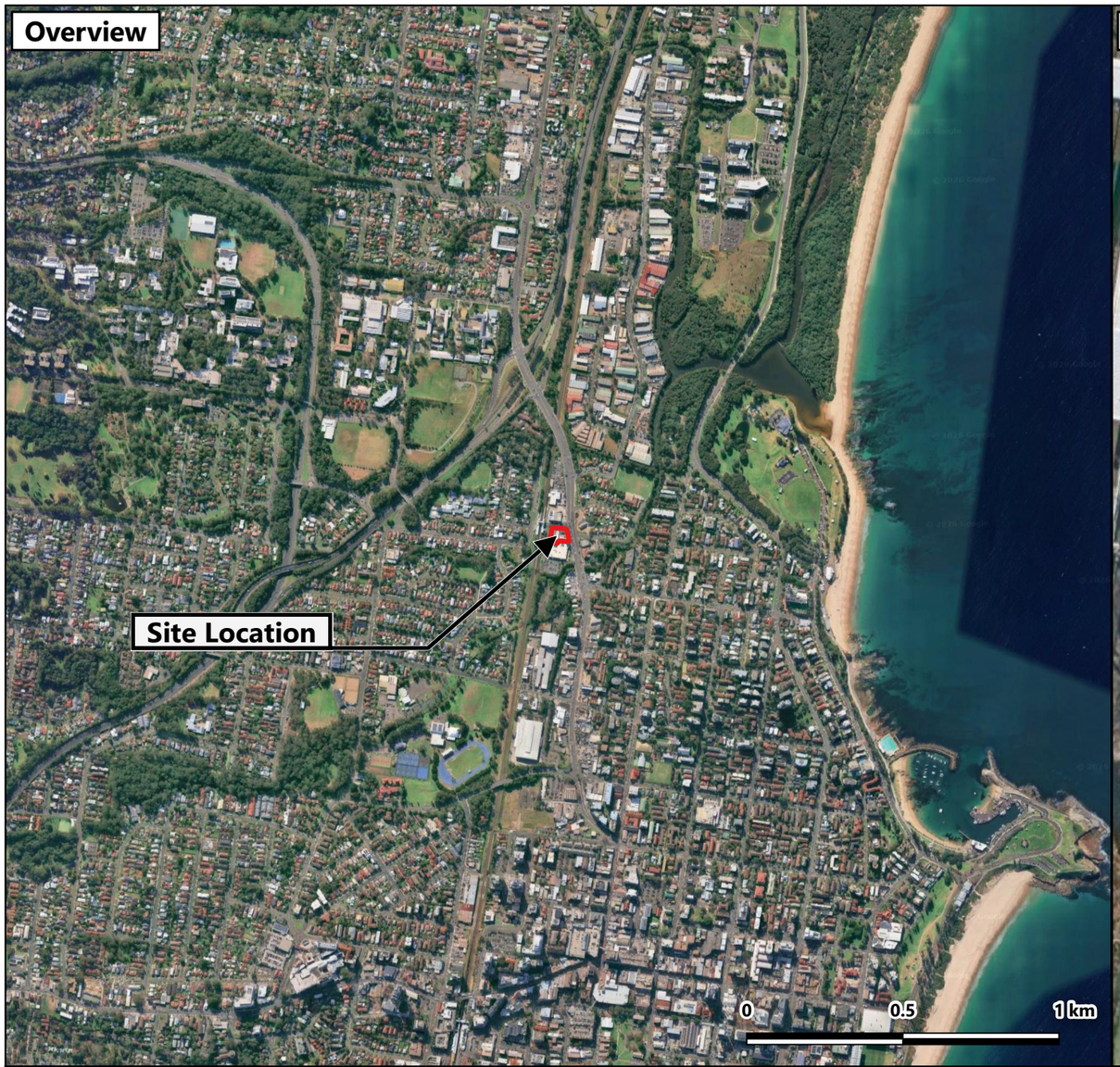
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- JK Geotechnics (2026) Geotechnical Investigations for Proposed Mixed-Use Development at 4-4a Flinders Street, North Wollongong, NSW dated 22 May 2026.

A

Figures



REDITUS





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Date of Export	28/05/2026
Author	NB
Approver	SM
Data Source	Metromap, Google Maps, Open Street Map, Geoscience Australia

Legend

Site Boundary

Google Satellite

Figure 1 - Site Location

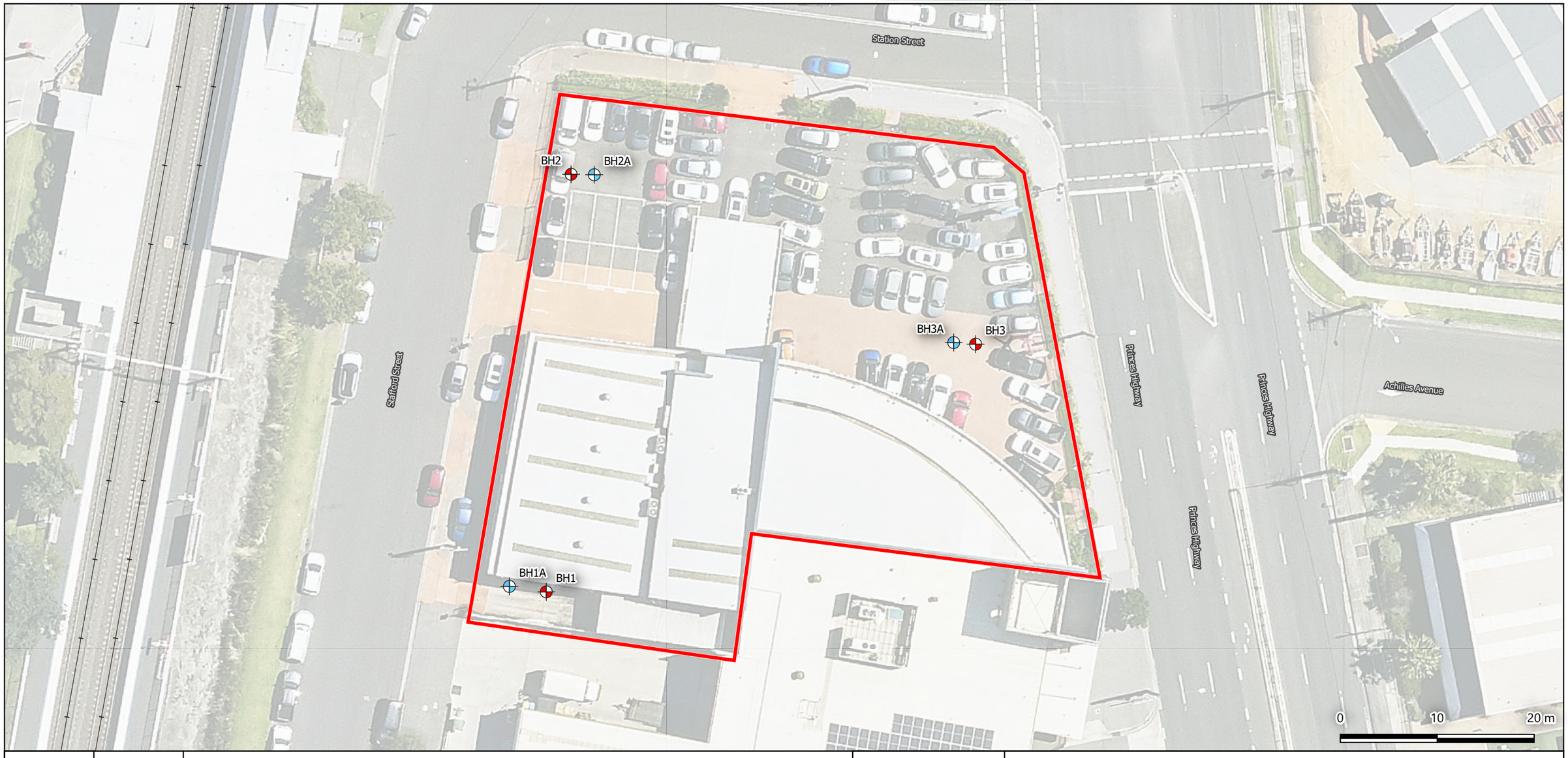
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26166 - Groundwater Impact Assessment

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Legend

- Site Boundary
- Railways

Locations

- Borehole
- Groundwater Monitoring Well

N

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Approximate Scale at A3

Figure 2 - Sample Locations

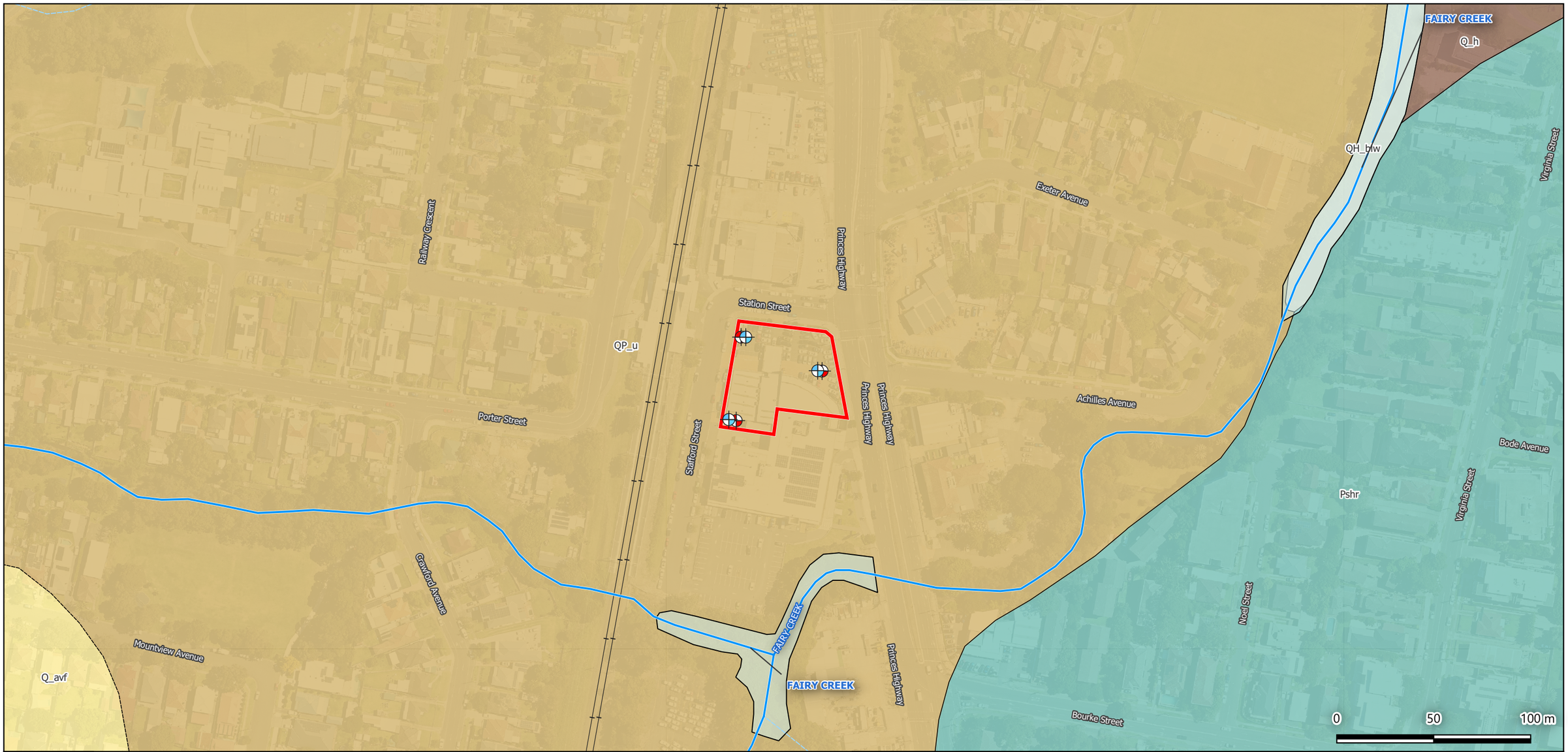
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Legend

- Site Boundary v2
- 1km Site Buffer

Watercourses

- Stream (Perennial)
- Unnamed Stream (Non-Perennial)
- Railways

Borehole Locations

- Borehole
- Groundwater Monitoring Well

Rock Units

- Pshr
- Q_avf
- Q_h
- QH_blw
- QP_u

N

1:2,500

Approximate Scale at A3

Figure 3 - Geological Setting

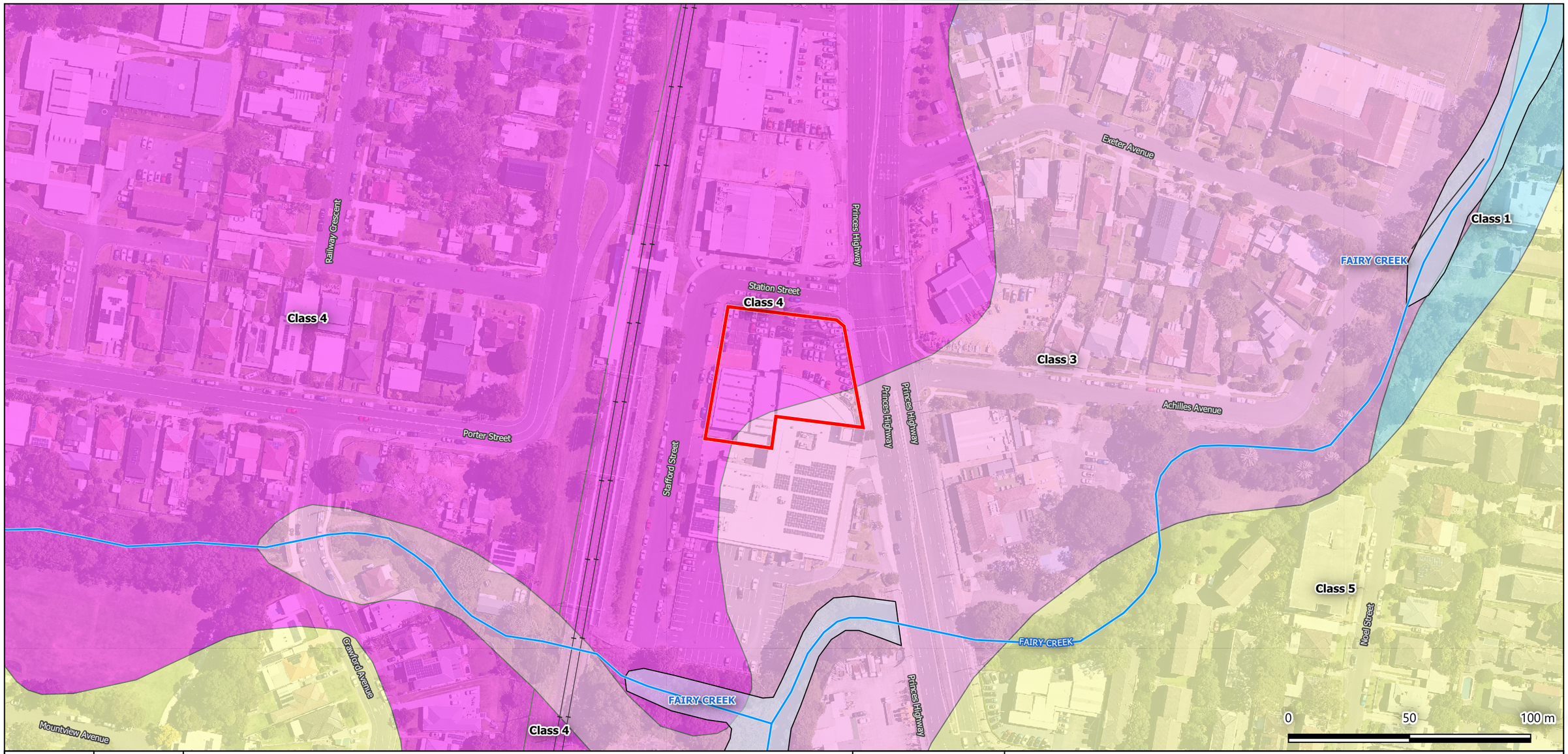
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Legend

- Site Boundary
- Surface Water
- Railways
- Stream (Non-Perennial)
- Unnamed Stream (Non-Perennial)
- Other Channels

Watercourses

- Rivers
- Stream (Perennial)

EPI Acid Sulfate Soils Risk

- Class
- Class 1
- Class 2
- Class 2a
- Class 2b
- Class 3
- Class 4
- Class 5

N

1:2,000

Approximate Scale at A3

Figure 4 - Acid Sulfate Soils

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Legend

- Site Boundary
- Surface Water
- Railways

Watercourses

- Stream (Perennial)
- Stream (Non-Perennial)
- Unnamed Stream (Non-Perennial)

HEVAE GDEs - Southern Rivers - Sydney Basin

- High Priority

BOM NGIS GW Bore

- Production Bore
- Monitoring Bore

N

1:10,000

Approximate Scale at A3

Figure 5 - Groundwater Dependant Ecosystems and Registered Groundwater Bores

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Legend

- 500 m Buffer
- Surface Water
- Railways

Watercourses

- Stream (Perennial)
- Stream (Non-Perennial)
- Unnamed Stream (Non-Perennial)

Contaminated Sites

- Other Petroleum
- Service Station

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1:10,000

Approximate Scale at A3

Figure 6 - Contaminated Sites

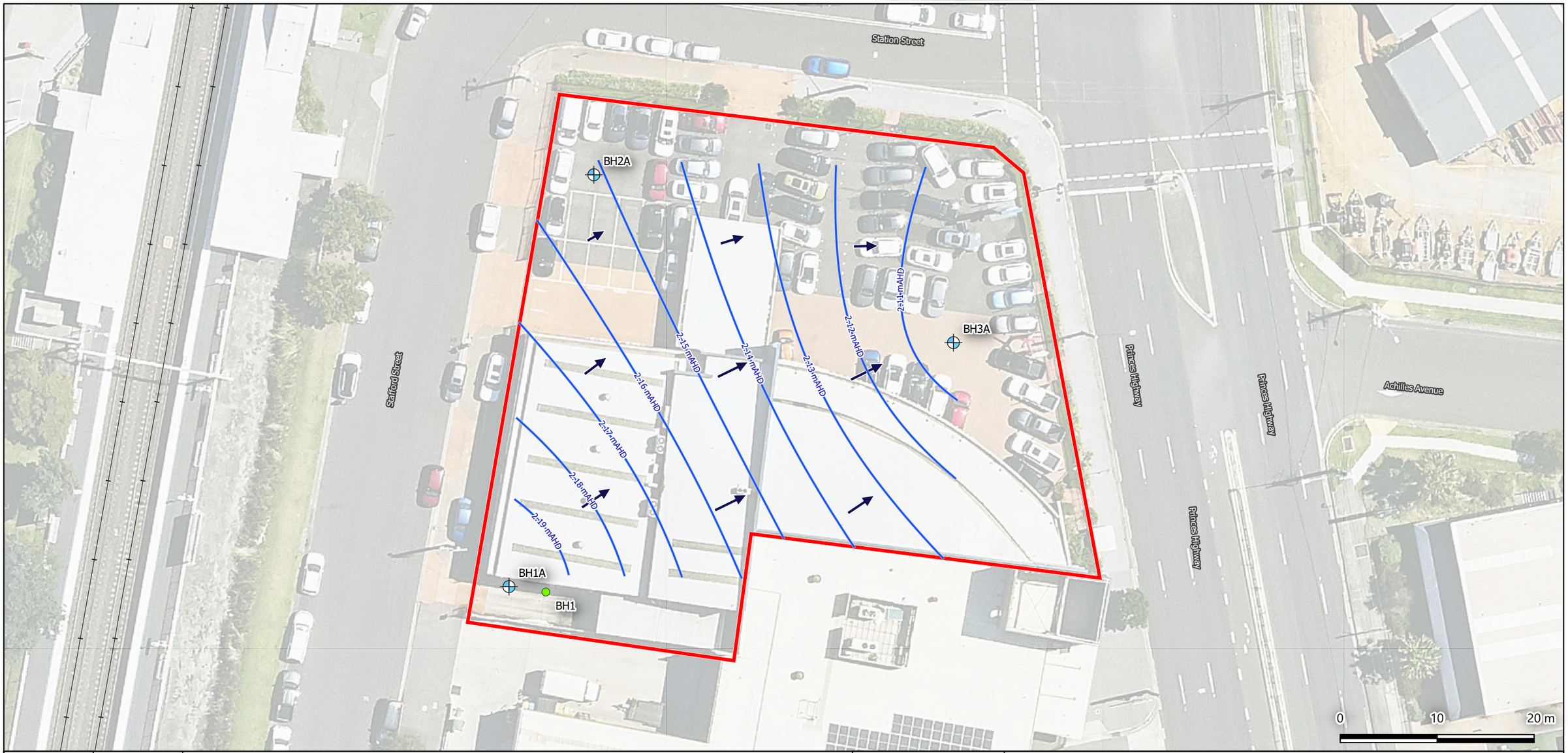
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Legend

- Site Boundary
- Inferred Groundwater Elevation Contours (m AHD)
- Inferred Groundwater Flow Direction
- Railways

Locations

- Groundwater Monitoring Well

N

1:500

Approximate Scale at A3

Figure 7 - Groundwater Elevation Contours

4-4a Flinders St., North Wollongong NSW 2500

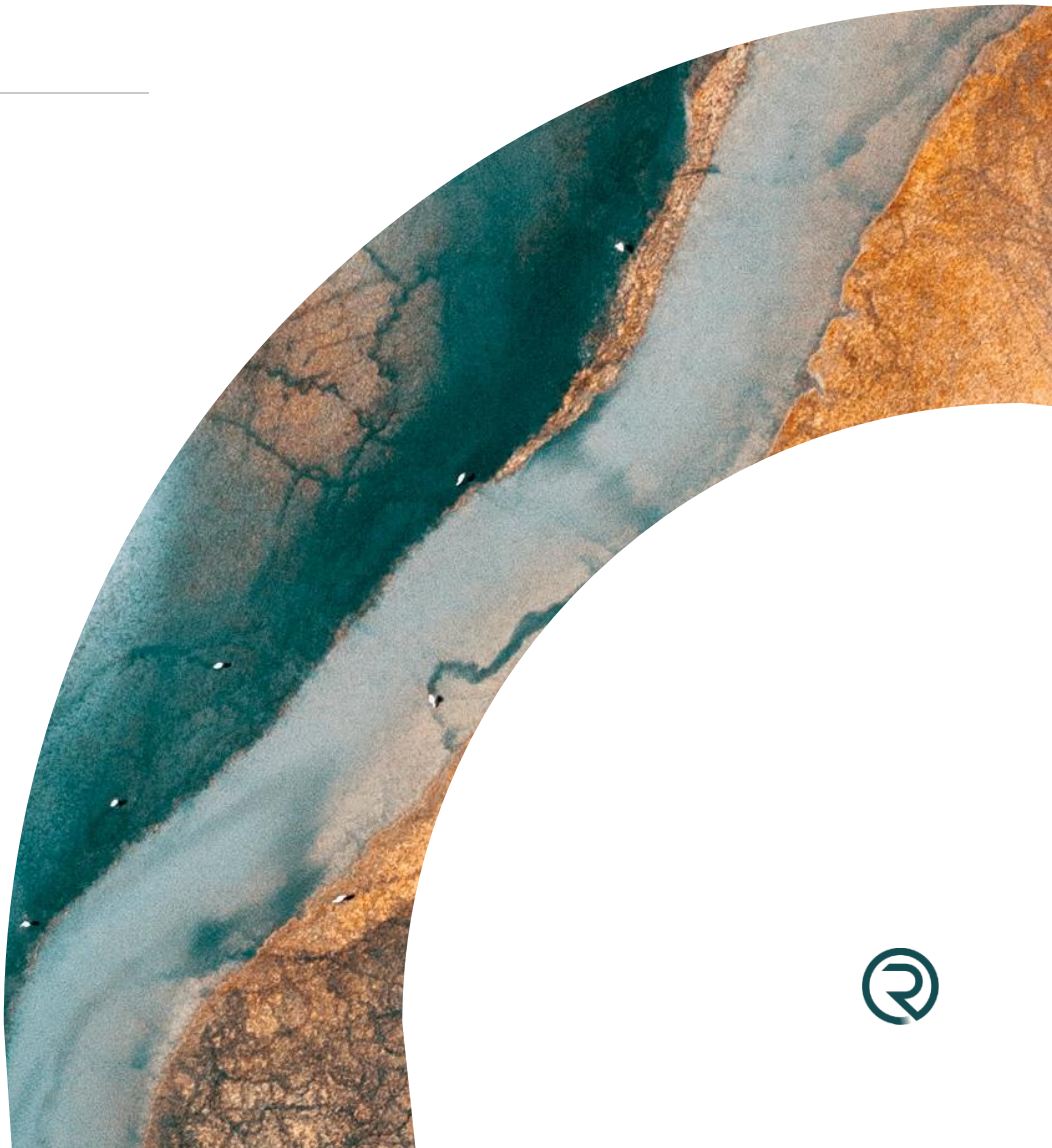
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B

Development Plans & Survey



4-4a FLINDERS STREET, WOLLONGONG

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DRAWING LIST		
NUMBER	REV	DESCRIPTION
20240022-AD-DA00_001	B	COVER PAGE
20240022-AD-DA11_095	B	GA PLAN - BASEMENT 05
20240022-AD-DA11_096	C	GA PLAN - BASEMENT 04
20240022-AD-DA11_097	C	GA PLAN - BASEMENT 03
20240022-AD-DA11_098	C	GA PLAN - BASEMENT 02
20240022-AD-DA11_099	C	GA PLAN - BASEMENT 01
20240022-AD-DA11_100	C	GA PLAN - GROUND FLOOR
20240022-AD-DA11_101	D	GA PLAN - LEVELS 01-02
20240022-AD-DA11_103	D	GA PLAN - LEVELS 03-04
20240022-AD-DA11_105	D	GA PLAN - LEVEL 05
20240022-AD-DA11_106	C	GA PLAN - LEVELS 06-29
20240022-AD-DA11_130	D	GA PLAN - LEVEL 30
20240022-AD-DA11_131	C	GA PLAN - LEVELS 31-37
20240022-AD-DA11_138	C	GA PLAN - ROOF LEVEL 38
20240022-AD-DA21_101	D	ELEVATION - SHEET 01
20240022-AD-DA21_102	D	ELEVATION - SHEET 02
20240022-AD-DA31_101	D	SECTIONS - SHEET 01
20240022-AD-DA31_102	D	SECTIONS - SHEET 02
20240022-AD-DA60-101	A	LIVEABLE UNITS - SHEET 1
20240022-AD-DA60-102	A	LIVEABLE UNITS - SHEET 2
20240022-AD-DA60-111	A	PLATINUM LIVEABLE UNITS - SHEET 1
20240022-AD-DA60-121	A	ACCESSIBLE ROOMS - CO-LIVING
20240022-AD-DA80_101	B	SOLAR ACCESS
20240022-AD-DA80_102	B	CROSS VENTILATION
20240022-AD-DA81_001	A	OVERSHADOWING - WINTER
20240022-AD-DA83_101	A	LIVEABLE APARTMENTS
20240022-AD-DA84_101	A	AFFORDABLE APARTMENTS
20240022-AD-DA85_101	A	GFA SCHEDULE - SHEET 1
20240022-AD-DA85_102	A	GFA SCHEDULE - SHEET 2
20240022-AD-DA85_501	B	DEVELOPMENT SUMMARY - SHEET 1
20240022-AD-DA85_502	A	DEVELOPMENT SUMMARY - SHEET 2
Grand total: 31		

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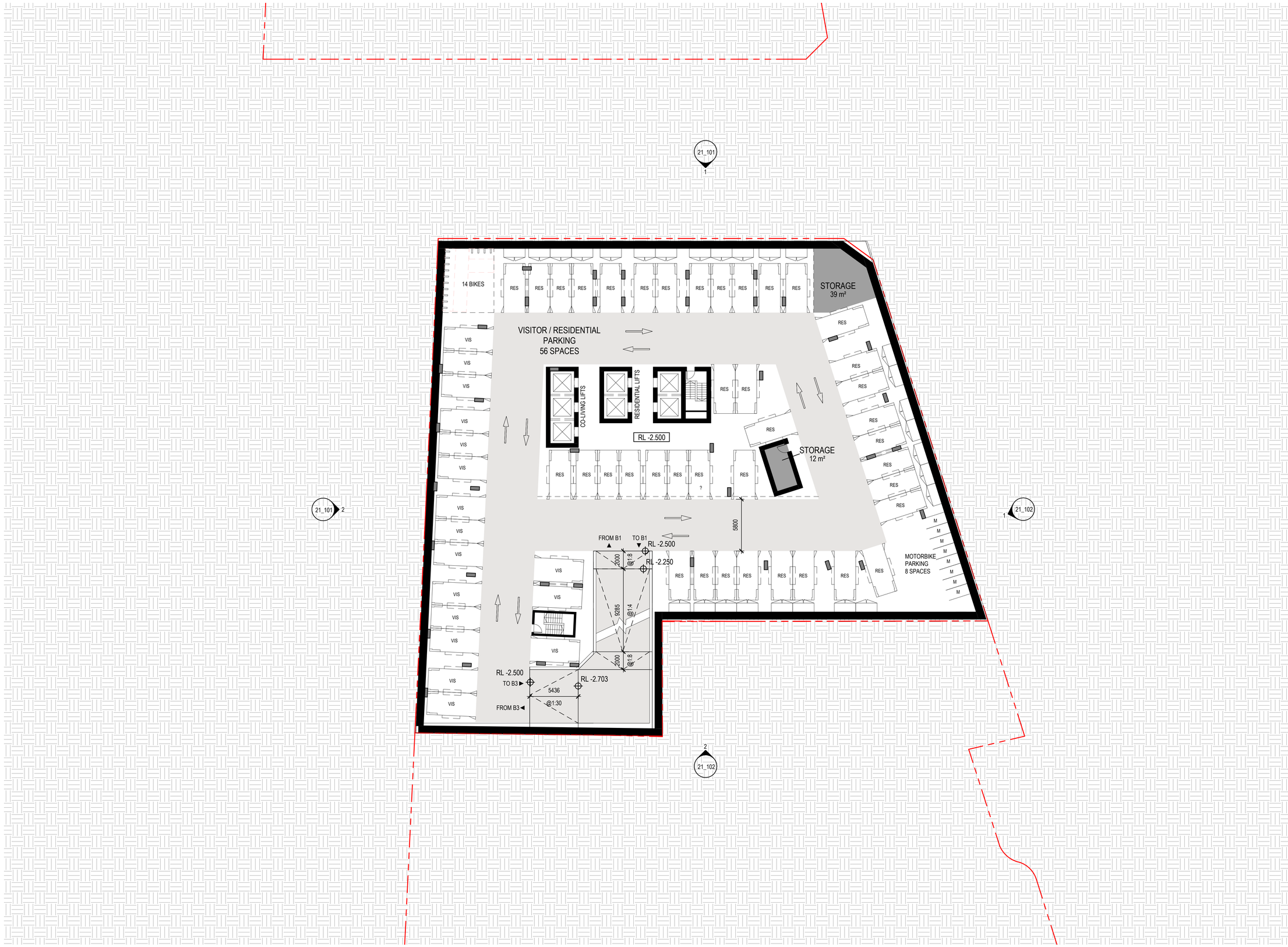
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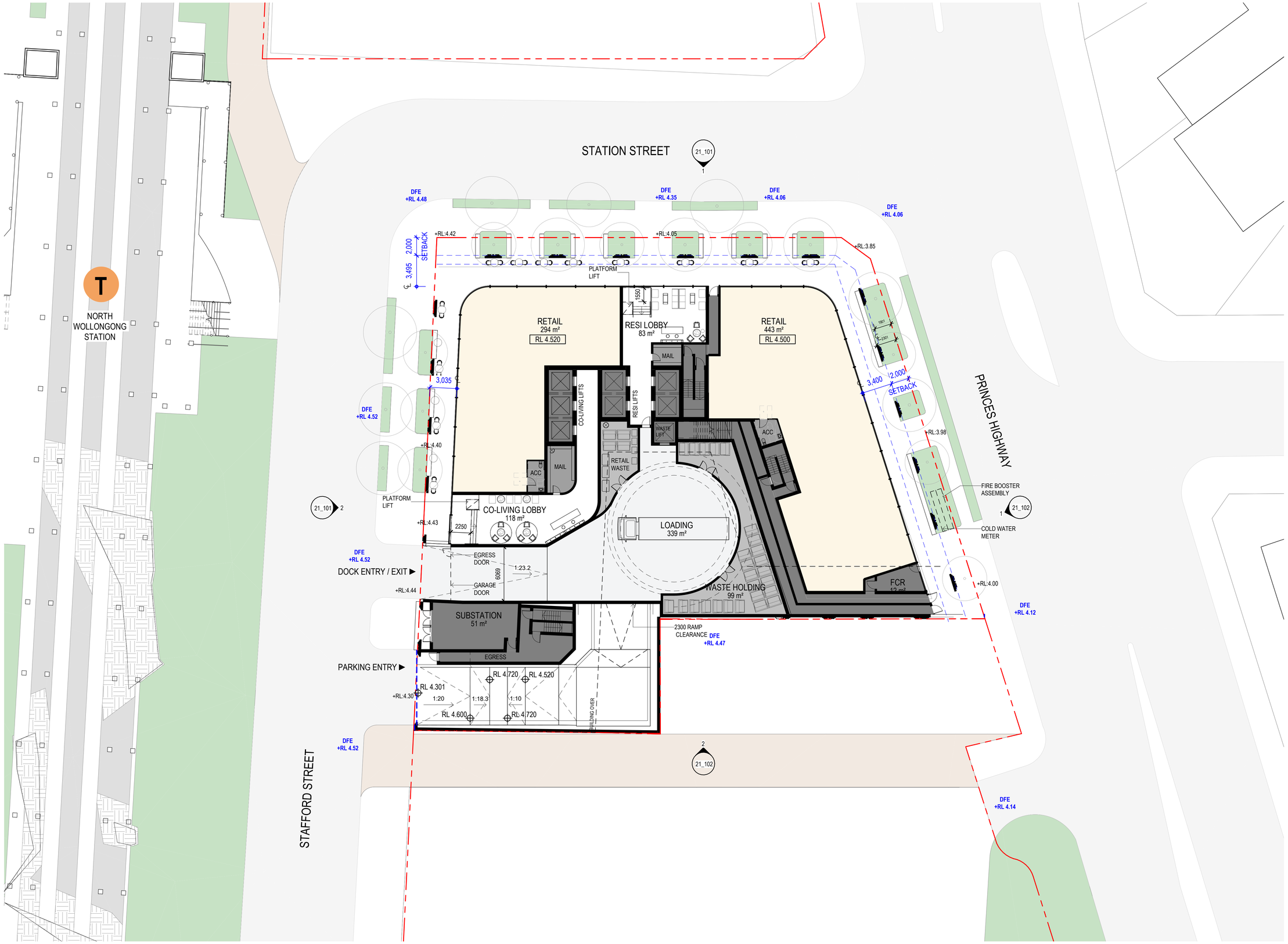
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History

[Rev#]	[Description]	[Date]dd.mm.yy
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - GROUND FLOOR

[Ref] 20240022 [Dwg No] AD-DA11_100 [Rev] C

STATION STREET

21_101
1

NORTH
WOLLONGONG
STATION

2,000
SETBACK

RESI
LIFTS

LAUNDRY

RESI
LIFTS

CO-LIVING LIFTS

WASTE

SERVICES
32 m²

0144
CDDA

1
60-121

2,000
SETBACK

PRINCES HIGHWAY

21_101
2

21_102
1

REFER TO
LANDSCAPE FOR
FURTHER DETAIL

2
60-121

0140
CDDA

1700

STAFFORD STREET

2
21_102

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:43:46 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
A	FOR COORDINATION	29.04.2026
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVELS 01-02

[Ref] 20240022 [Dwg No] AD-DA11_101 [Rev] D

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:43:58 PM

History

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVELS 03-04

[Ref] 20240022 [Dwg No] AD-DA11_103 [Rev] D



[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:44:12 PM

History

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVEL 05

[Ref] 20240022 [Dwg No] AD-DA11_105 [Rev] D

[Status] PRELIMINARY

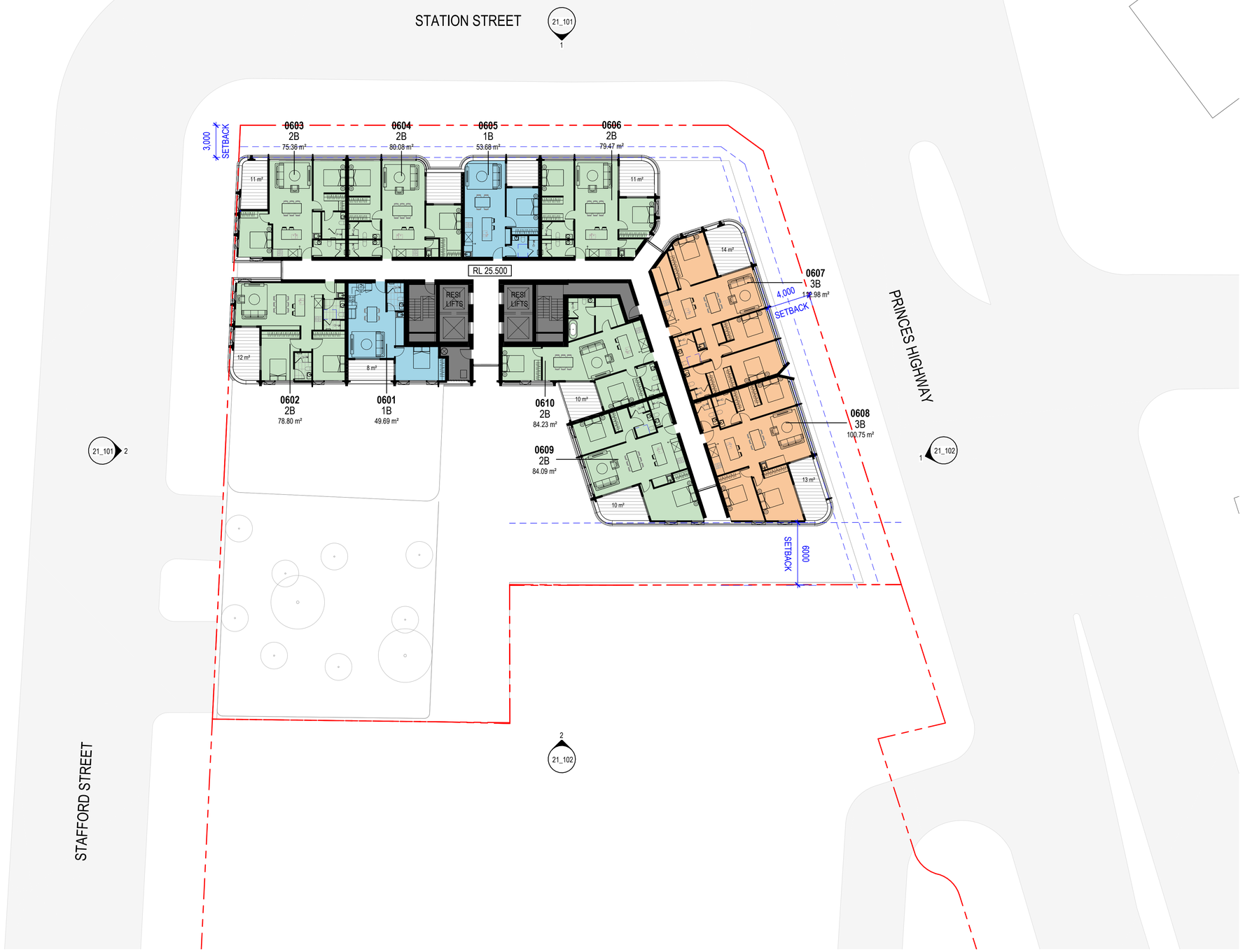
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:51:08 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVELS 06-29

[Ref] 20240022 [Dwg No] AD-DA11_106 [Rev] C

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:44:23 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVEL 30

[Ref] 20240022 [Dwg No] AD-DA11_130 [Rev] D

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:21:24 AM

History

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

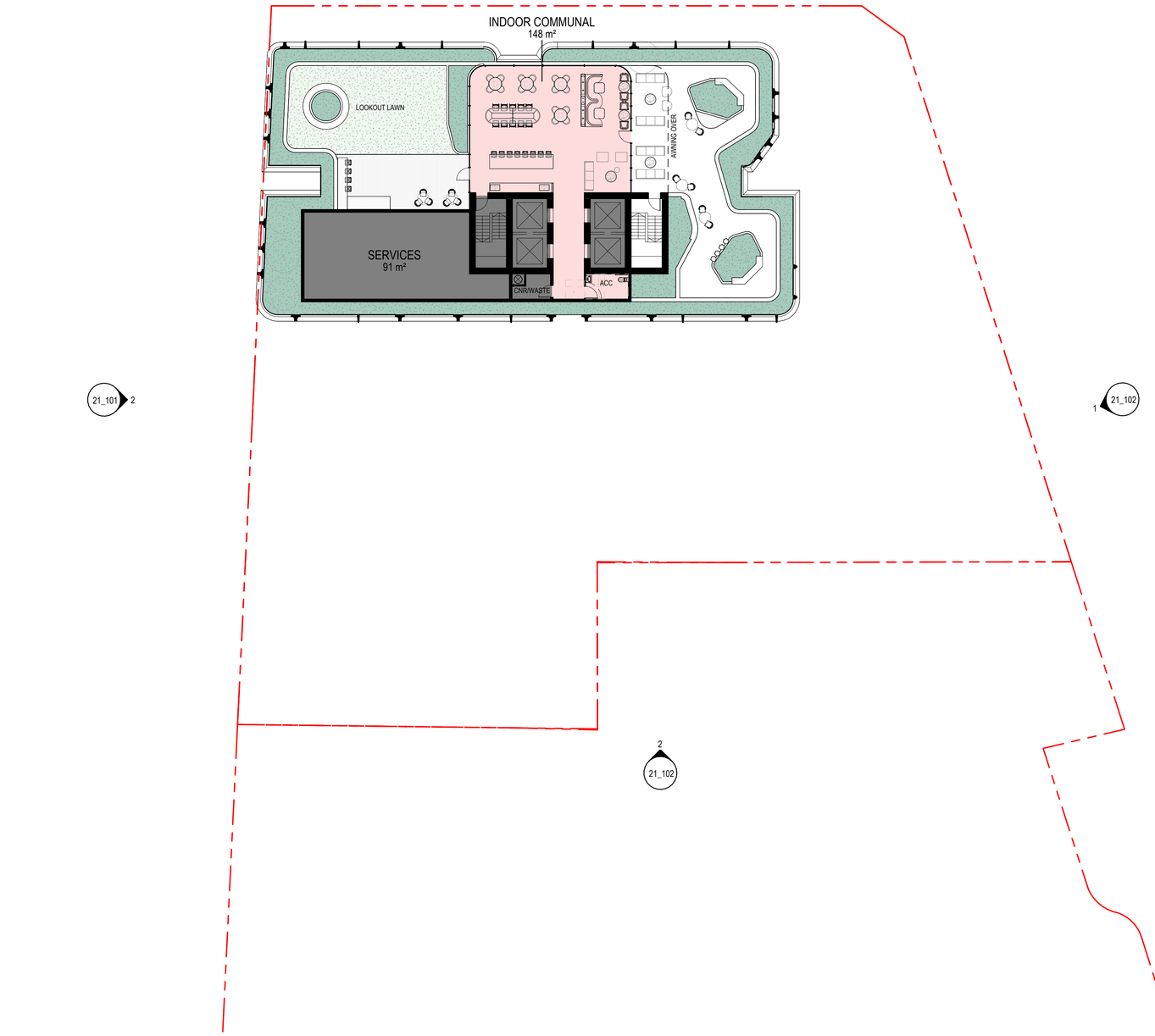
[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - LEVELS 31-37

[Ref] 20240022 [Dwg No] AD-DA11_131 [Rev] C



[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:17:46 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - ROOF LEVEL 38

[Ref] 20240022 [Dwg No] AD-DA11_138 [Rev] C

[Status] PRELIMINARY

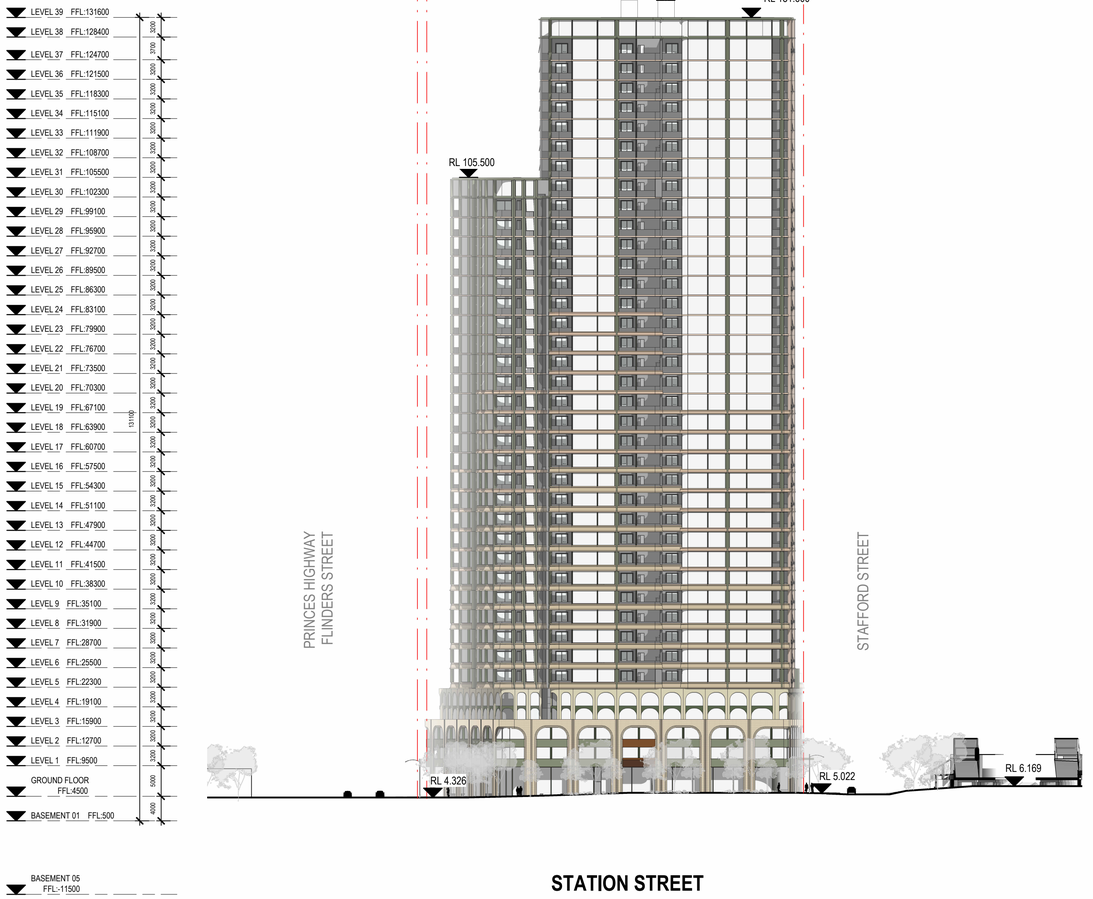
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:45:08 PM

History

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STATION STREET



STAFFORD STREET

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

ELEVATION - SHEET 01

[Ref] 20240022 [Dwg No] AD-DA21_101 [Rev] D

[Status] PRELIMINARY

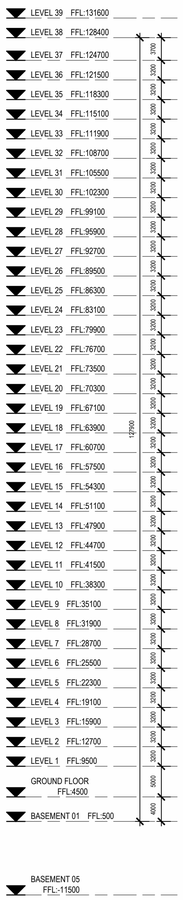
[Nom. Architect] Nicholas Bandounas /8499

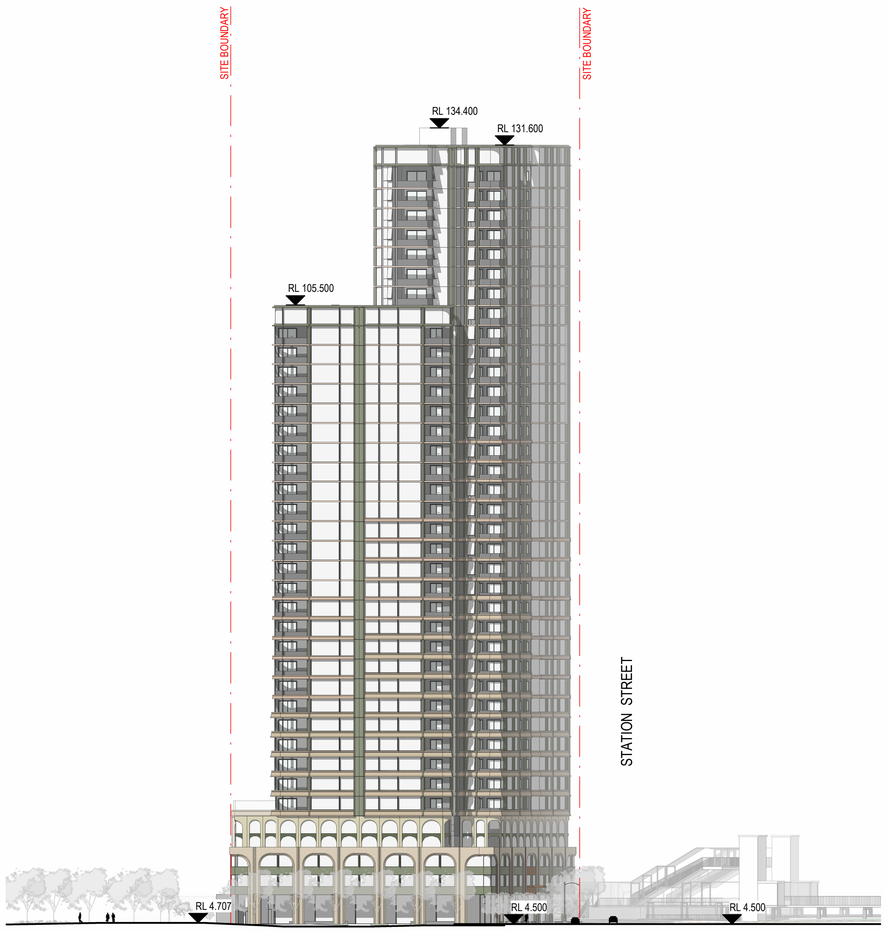
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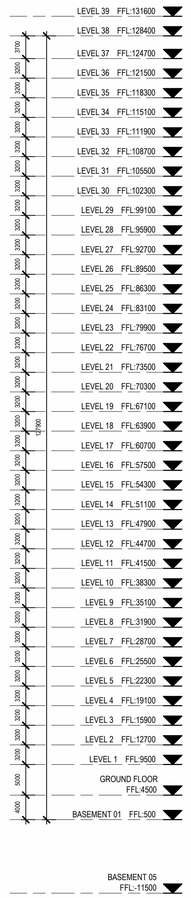
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FLINDERS STREET





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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

ELEVATION - SHEET 02

[Ref] 20240022 [Dwg No] AD-DA21_102 [Rev] D

[Status] PRELIMINARY

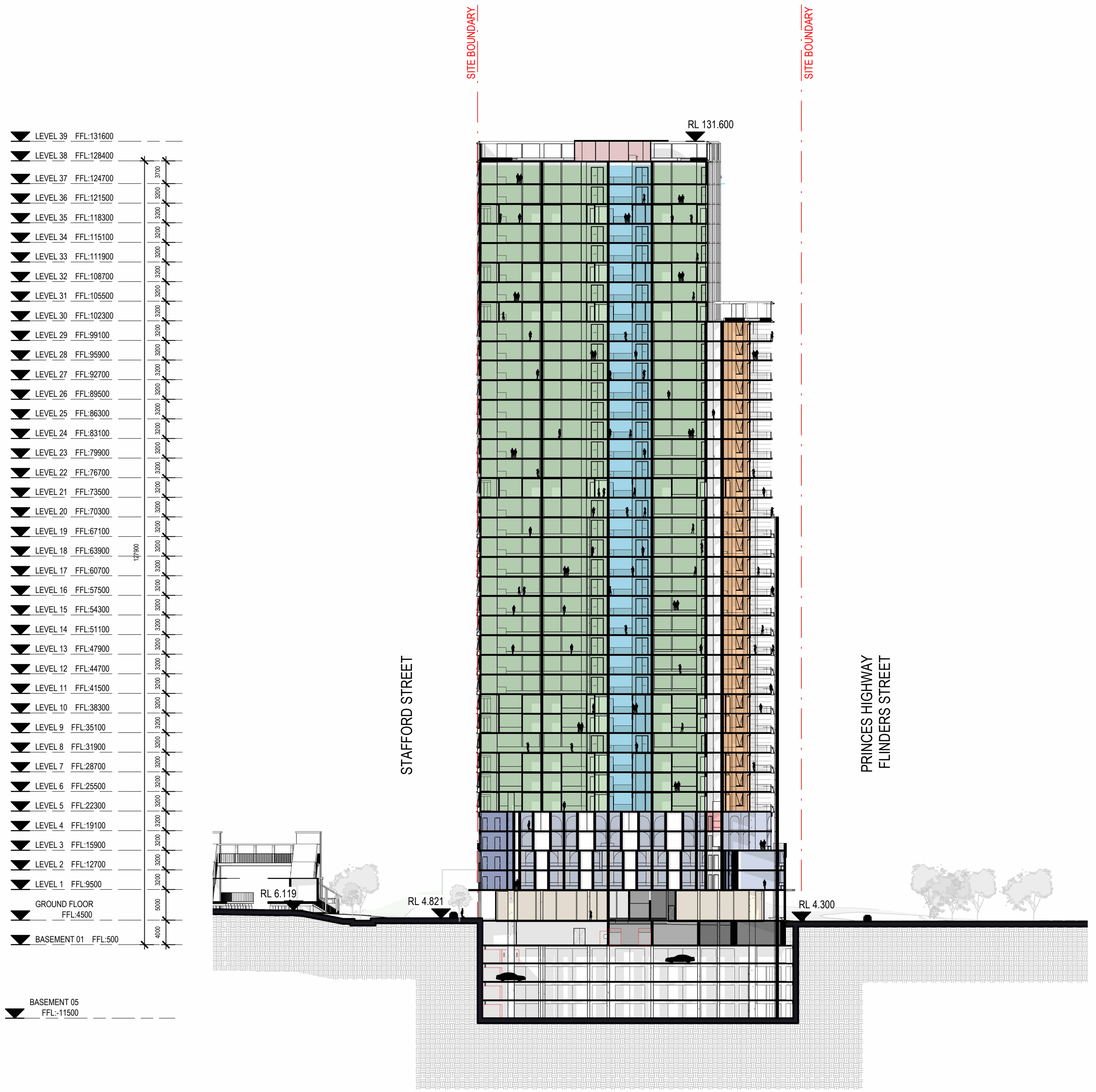
[Nom. Architect] Nicholas Bandounas /8499

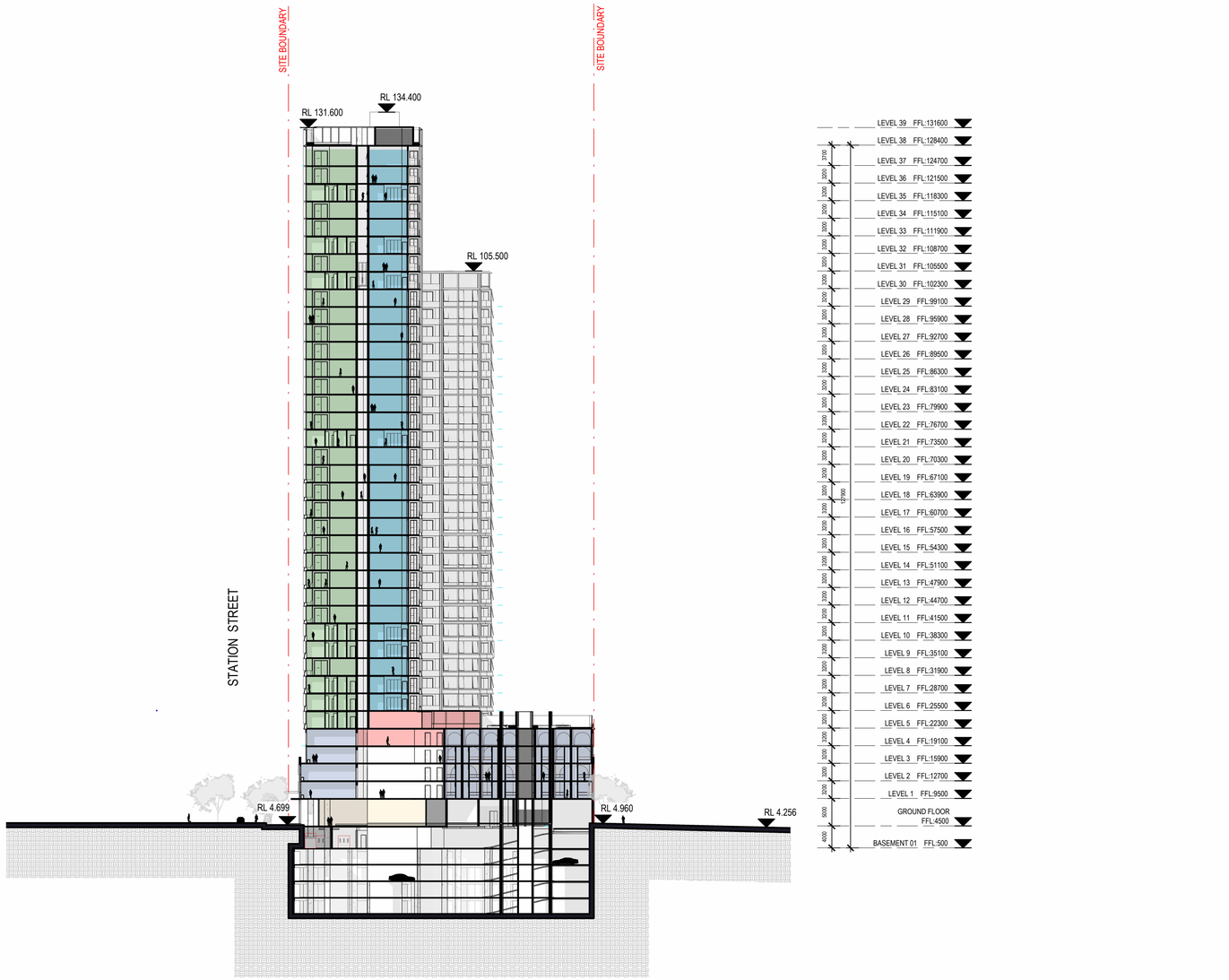
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

SECTIONS - SHEET 01

[Ref] 20240022 [Dwg No] AD-DA31_101 [Rev] D

[Status] PRELIMINARY

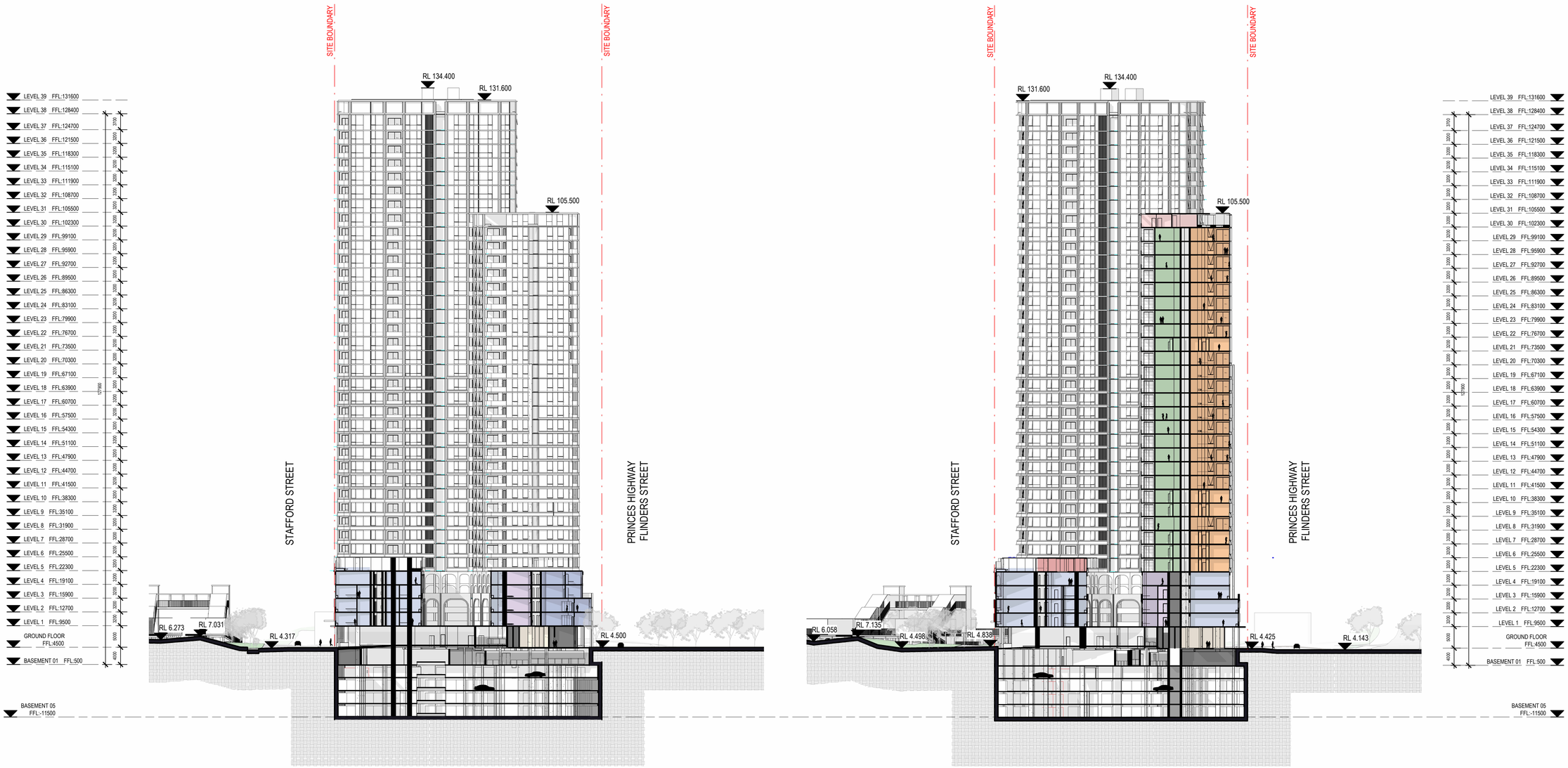
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 2:46:56 PM

History

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

SECTIONS - SHEET 02

[Ref] 20240022 [Dwg No] AD-DA31_102 [Rev] D

[Status] PRELIMINARY

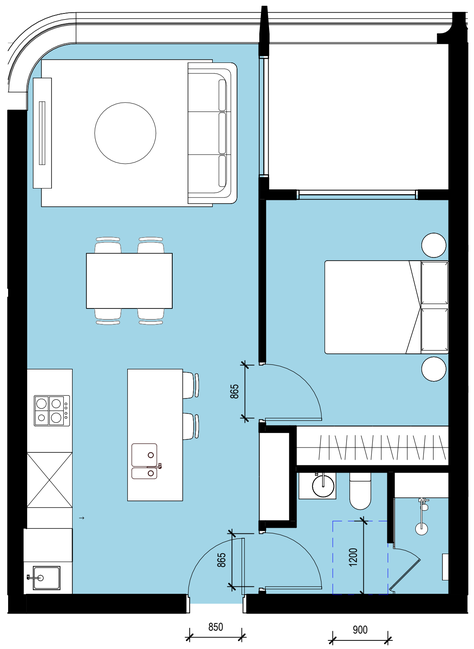
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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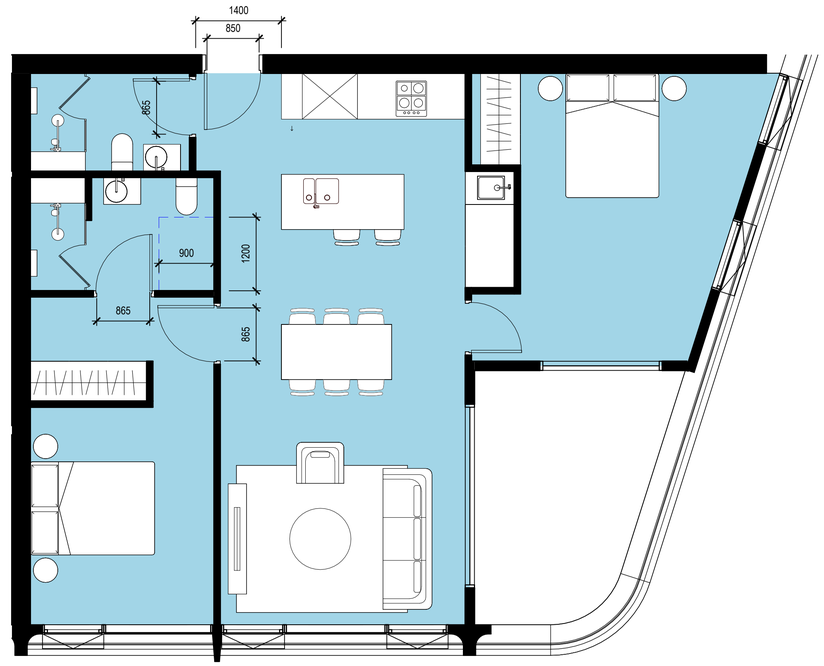
History

[Rev#]	[Description]	[Date]dd.mm.yy
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1 1B - SILVER LIVEABLE TYPE 1B01

1 : 50



2 2B - SILVER LIVEABLE TYPE 2B01

1 : 50

SILVER LIVEABLE - 1B01	
Number	Level
0705	LEVEL 7
0805	LEVEL 8
1005	LEVEL 10
1105	LEVEL 11
1205	LEVEL 12
1305	LEVEL 13
1405	LEVEL 14
1505	LEVEL 15

SILVER LIVEABLE - 1B01	
Number	Level
1605	LEVEL 16
1705	LEVEL 17
1805	LEVEL 18
1905	LEVEL 19
2005	LEVEL 20
0605	LEVEL 6
0503	LEVEL 5
0905	LEVEL 9
16	

SILVER LIVEABLE - 2B01	
Number	Level
0507	LEVEL 5
0609	LEVEL 6
0709	LEVEL 7
0809	LEVEL 8
0909	LEVEL 9
1009	LEVEL 10
1109	LEVEL 11
1209	LEVEL 12

SILVER LIVEABLE - 2B01	
Number	Level
1309	LEVEL 13
1409	LEVEL 14
1509	LEVEL 15
1609	LEVEL 16
1709	LEVEL 17
1809	LEVEL 18
1909	LEVEL 19
2009	LEVEL 20
16	

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] 1 : 50 @ A1

LIVEABLE UNITS - SHEET 1

[Ref] 20240022 [Dwg No] AD-DA60-101 [Rev] A

[Status] PRELIMINARY

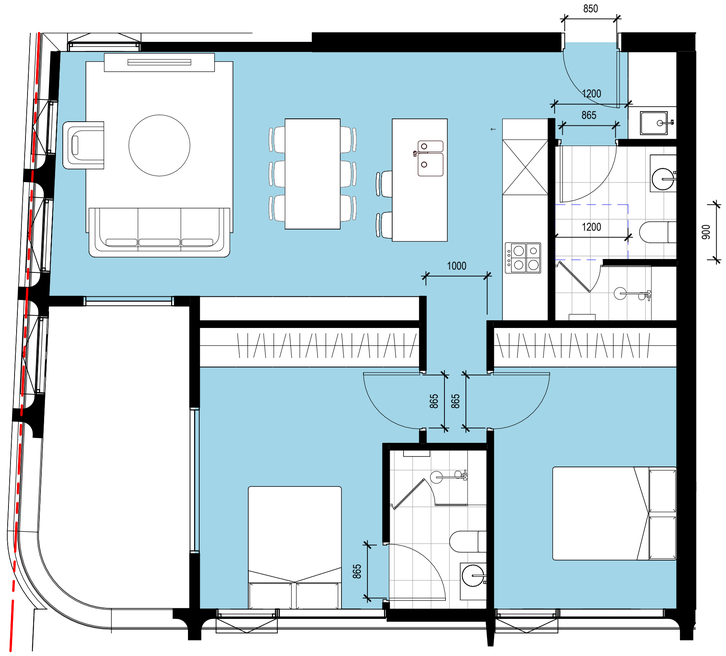
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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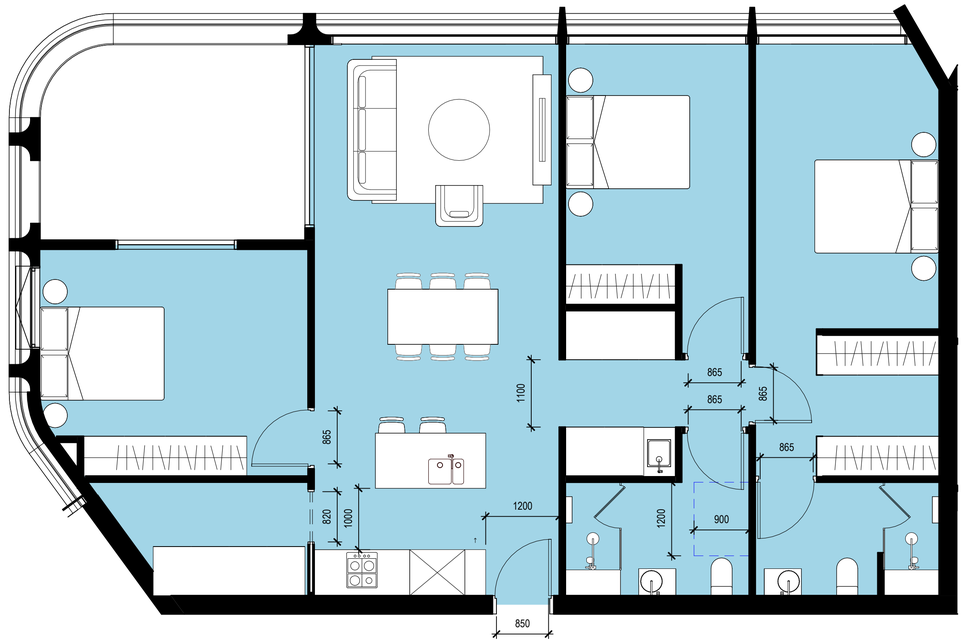
History

[Rev#]	[Description]	[Date]dd.mm.yy
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2 2B - SILVER LIVEABLE TYPE 2B02

1 : 50



1 3B - SILVER LIVEABLE TYPE 3B01

1 : 50

SILVER LIVEABLE - 2B02	
Number	Level
0602	LEVEL 6
0702	LEVEL 7
0802	LEVEL 8
0902	LEVEL 9
1002	LEVEL 10
1102	LEVEL 11
1202	LEVEL 12
1302	LEVEL 13

SILVER LIVEABLE - 2B02	
Number	Level
1402	LEVEL 14
1502	LEVEL 15
1602	LEVEL 16
1702	LEVEL 17
1802	LEVEL 18
1902	LEVEL 19
2002	LEVEL 20
15	

SILVER LIVEABLE - 3B01	
Number	Level
0505	LEVEL 5
0607	LEVEL 6
0707	LEVEL 7
0807	LEVEL 8
0907	LEVEL 9
1007	LEVEL 10
1107	LEVEL 11

SILVER LIVEABLE - 3B01	
Number	Level
1207	LEVEL 12
1307	LEVEL 13
1407	LEVEL 14
1507	LEVEL 15
1607	LEVEL 16
1707	LEVEL 17
1807	LEVEL 18
14	

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

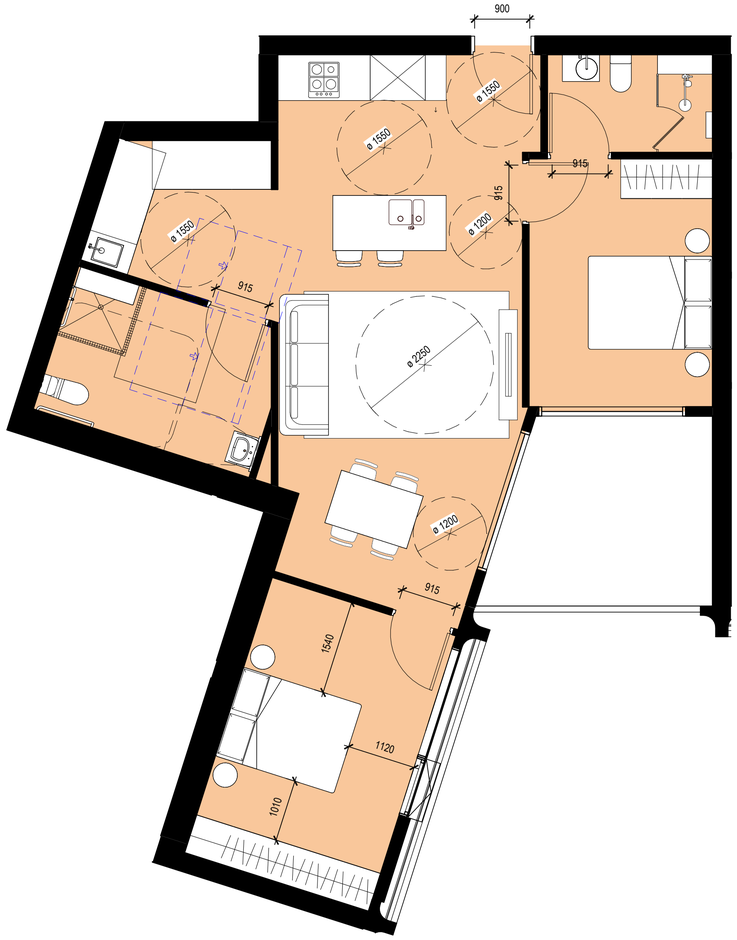
[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] 1 : 50 @ A1

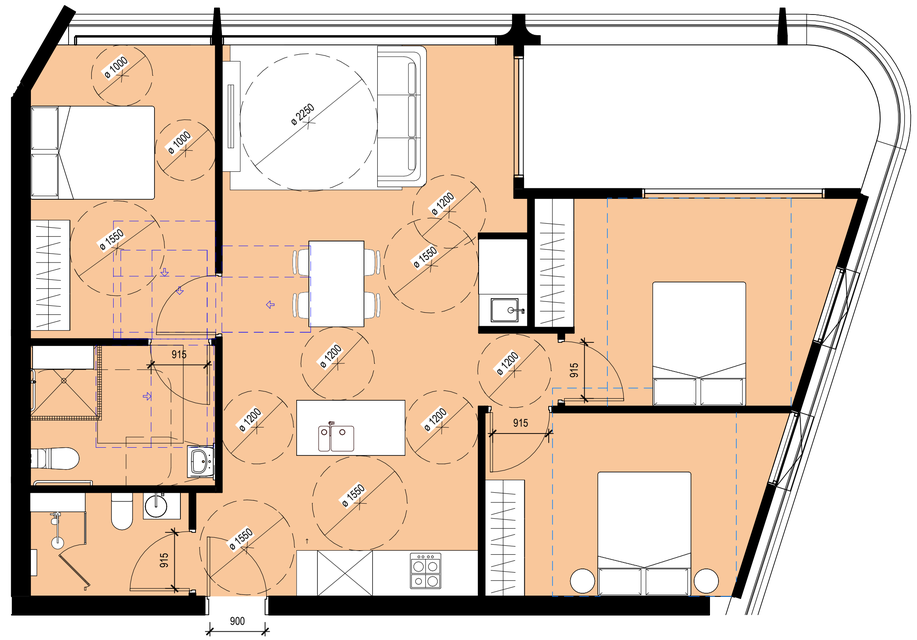
LIVEABLE UNITS - SHEET 2

[Ref] 20240022 [Dwg No] AD-DA60-102 [Rev] A



1 2B - PLATINUM LIVEABLE TYPE 2B01

1 : 50



2 3B - PLATINUM LIVEABLE TYPE 3B01

1 : 50

PLATINUM LIVEABLE - 2B01	
Number	Level
0508	LEVEL 5
0610	LEVEL 6
0710	LEVEL 7
0810	LEVEL 8
0910	LEVEL 9
1010	LEVEL 10
1110	LEVEL 11
1210	LEVEL 12

PLATINUM LIVEABLE - 2B01	
Number	Level
1310	LEVEL 13
1410	LEVEL 14
1510	LEVEL 15
1610	LEVEL 16
1710	LEVEL 17
1810	LEVEL 18
1910	LEVEL 19
2010	LEVEL 20

16

PLATINUM LIVEABLE - 3B01	
Number	Level
0506	LEVEL 5
0608	LEVEL 6
0708	LEVEL 7
0808	LEVEL 8
0908	LEVEL 9
1008	LEVEL 10
1108	LEVEL 11
1208	LEVEL 12

PLATINUM LIVEABLE - 3B01	
Number	Level
1308	LEVEL 13
1408	LEVEL 14
1508	LEVEL 15
1608	LEVEL 16
1708	LEVEL 17
1808	LEVEL 18
1908	LEVEL 19
2008	LEVEL 20

16

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:28:14 AM

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] 1 : 50 @ A1

PLATINUM LIVEABLE UNITS - SHEET 1

[Ref] 20240022 [Dwg No] AD-DA60-111 [Rev] A

[Status] PRELIMINARY

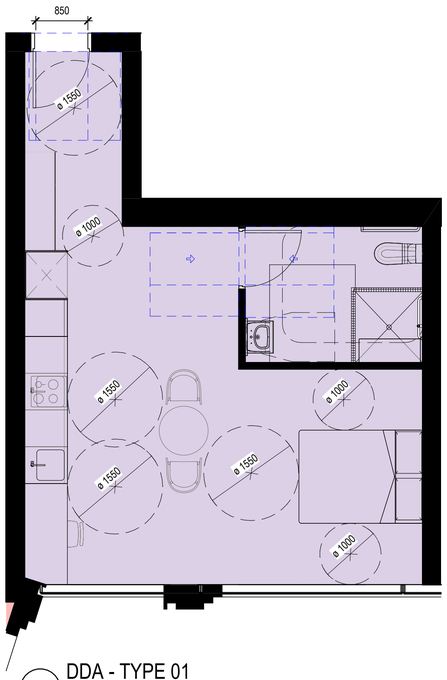
[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:28:26 AM

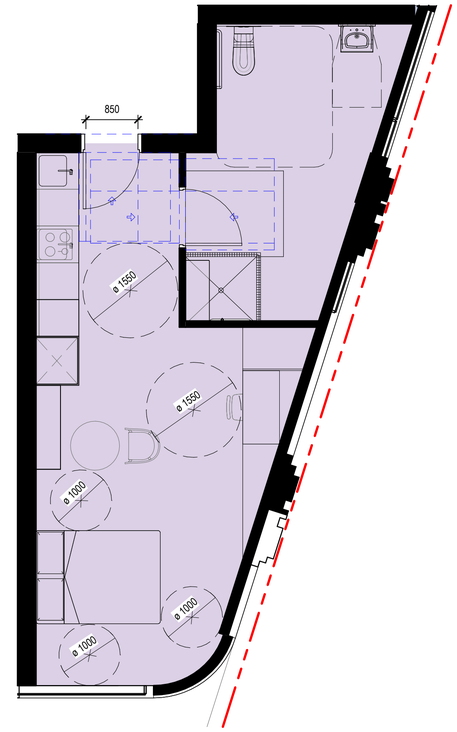
History

[Rev#]	[Description]	[Date]dd.mm.yy
A	FOR COORDINATION	21.05.2026



1 DDA - TYPE 01
1 : 50

	DDA - COLIV01
Number	Level
0144	LEVEL 1
0244	LEVEL 2
0343	LEVEL 3
0443	LEVEL 4
4	



2 DDA - TYPE 02
1 : 50

	DDA - COLIV02
Number	Level
0140	LEVEL 1
0240	LEVEL 2
0339	LEVEL 3
0439	LEVEL 4
4	

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

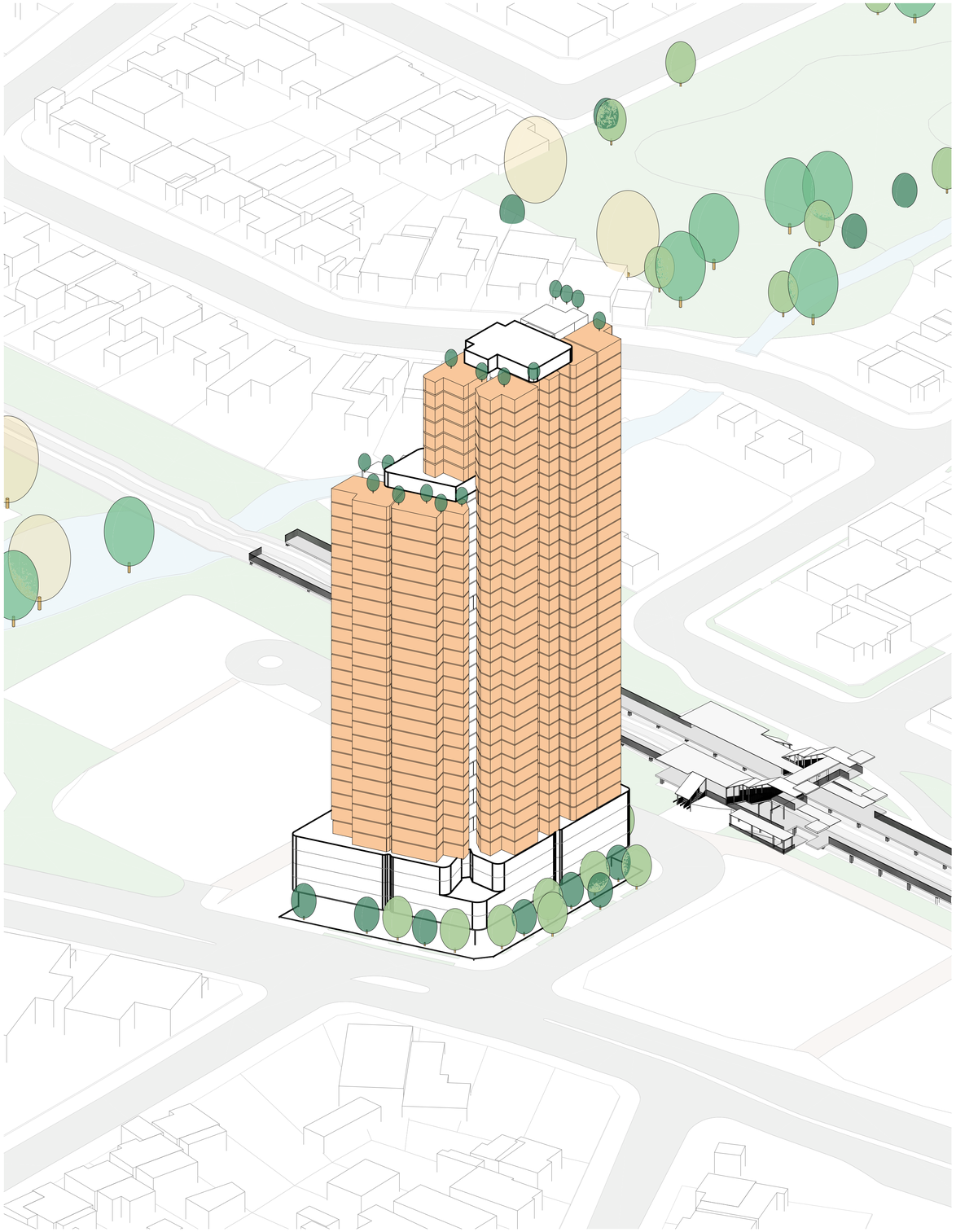
[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] 1 : 50 @ A1

ACCESSIBLE ROOMS - CO-LIVING

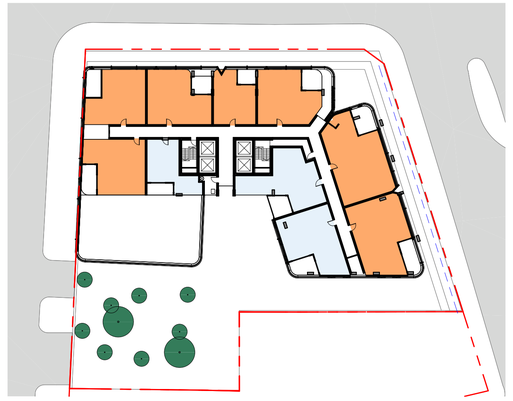
[Ref] 20240022 [Dwg No] AD-DA60-121 [Rev] A



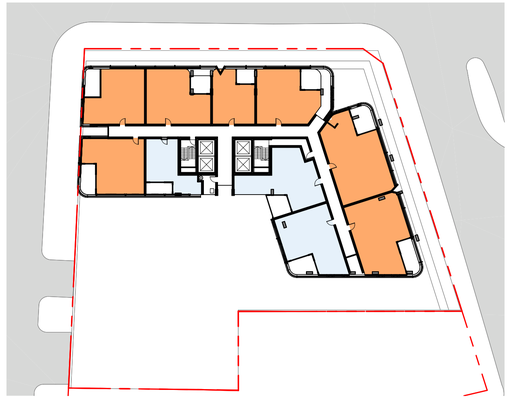
6 ISO - DIRECT SUNLIGHT - JUNE 21



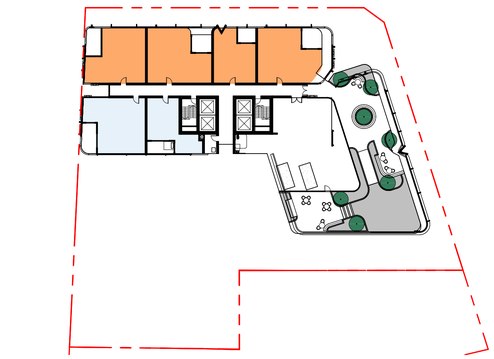
1 ADG SOLAR - LEVEL 05
1 : 500



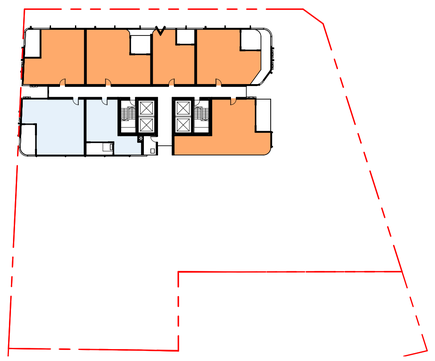
2 ADG SOLAR - LEVEL 06-08
1 : 500



3 ADG SOLAR - LEVEL 09-29
1 : 500



4 ADG SOLAR - LEVEL 30
1 : 500



5 ADG SOLAR - LEVEL 31-37
1 : 500

SOLAR

2+ HOURS	COUNT	%
-	90	30%
Yes	213	70%
	303	

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 11:52:35 AM

History

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

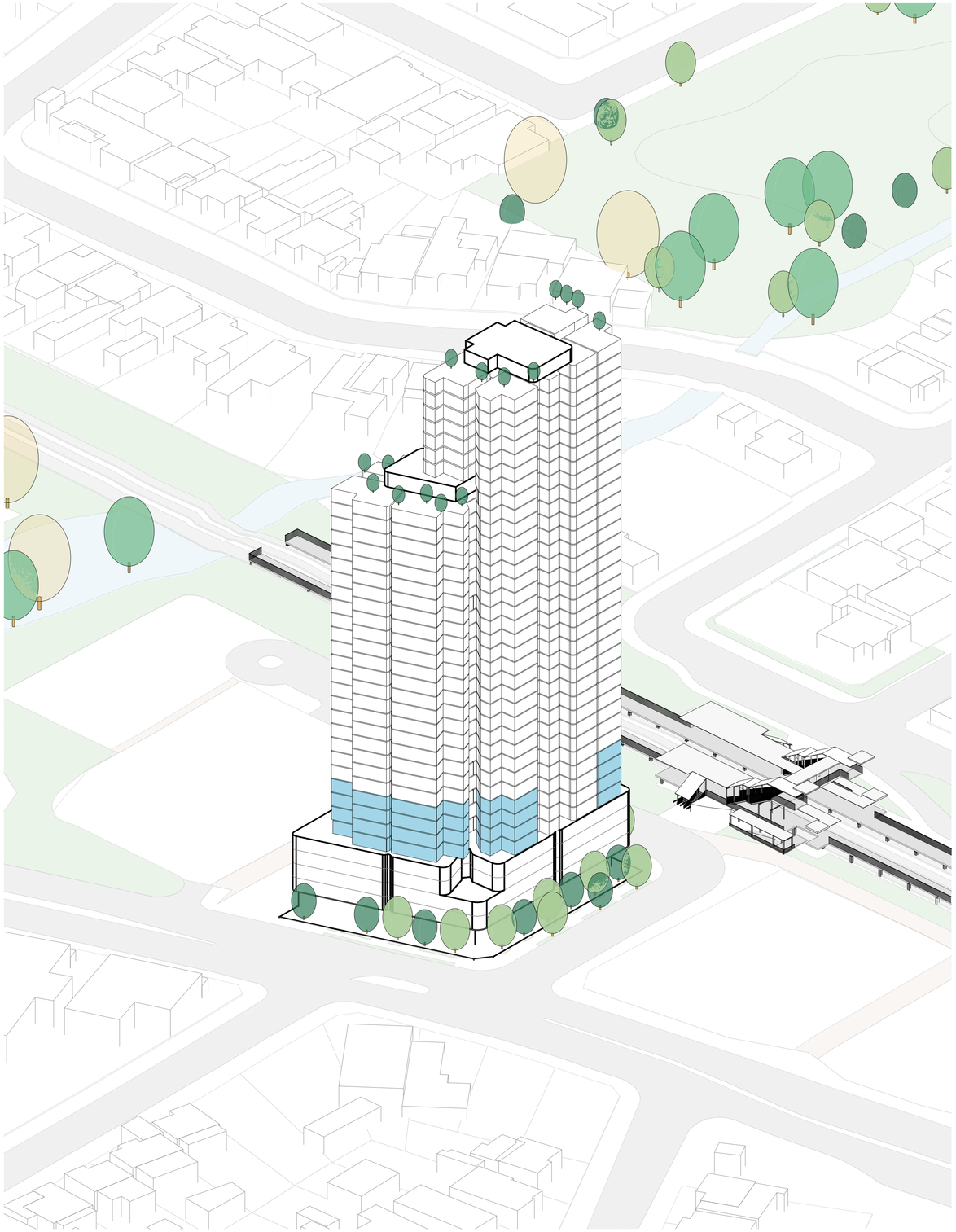
[Client] URBAN PROPERTY GROUP

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

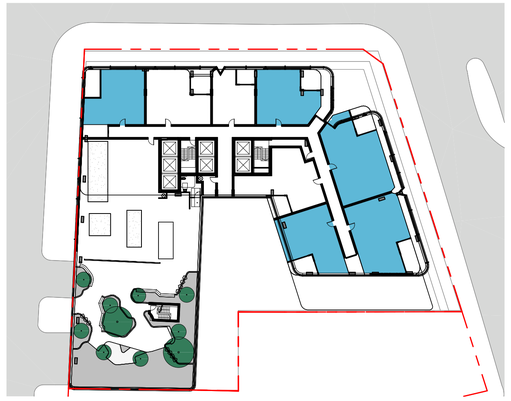
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SOLAR ACCESS

[Ref] 20240022 [Dwg No] AD-DA80_101 [Rev] B



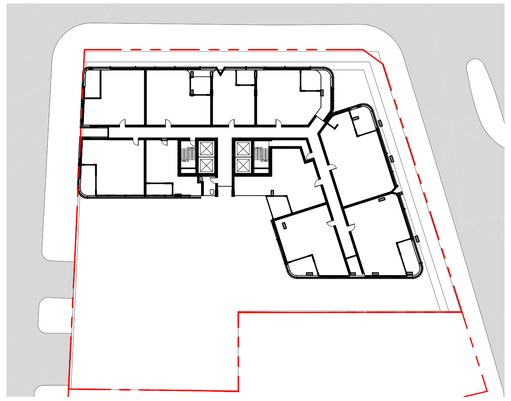
6 ISO - CROSS VENTILATED



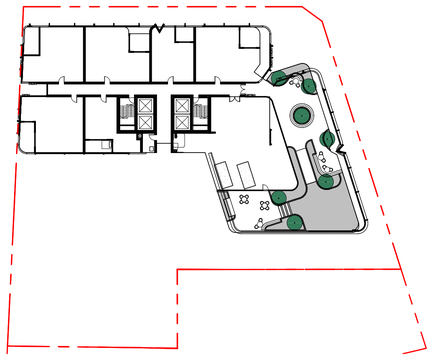
1 ADG XVENT - LEVEL 05
1 : 500



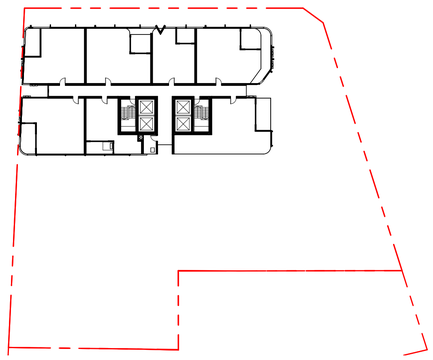
2 ADG XVENT - LEVEL 06-08
1 : 500



3 ADG XVENT - LEVEL 09-29
1 : 500



4 ADG XVENT - LEVEL 30
1 : 500



5 ADG XVENT - LEVEL 31-37
1 : 500

XVENT (FIRST 9 STOREYS)

XVENT	COUNT	%
N/A	15	39%
Yes	23	61%
	38	

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:30:32 AM

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

CROSS VENTILATION

[Ref] 20240022 [Dwg No] AD-DA80_102 [Rev] B

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

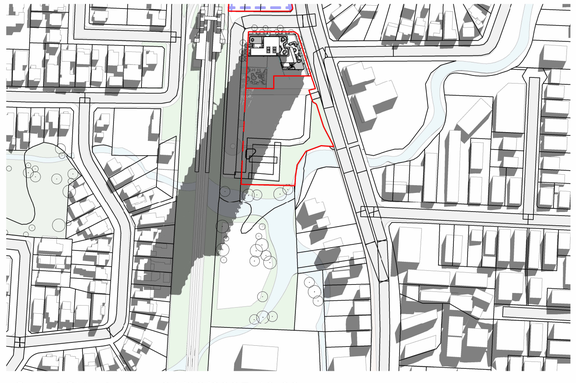
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History

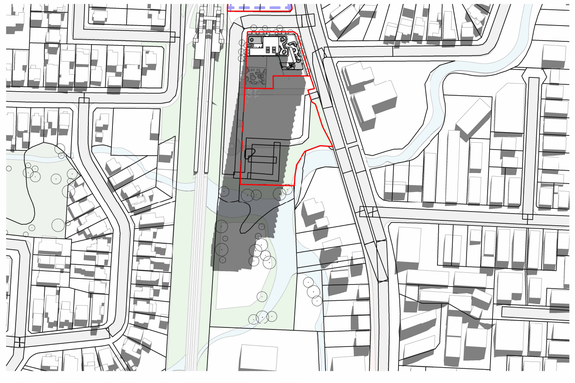
[Rev#]	[Description]	[Date]dd.mm.yy
A	FOR COORDINATION	21.05.2026



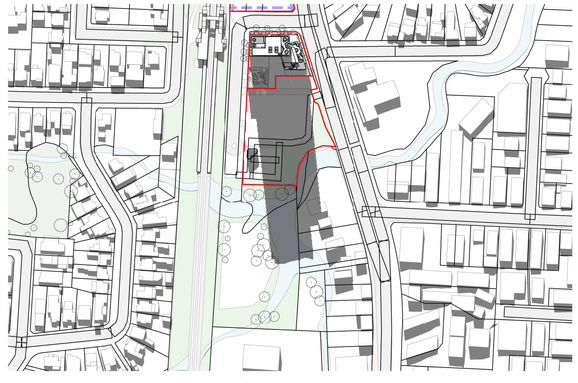
1 SHADOW PLAN - 21/06/2025-9.00
1 : 3000



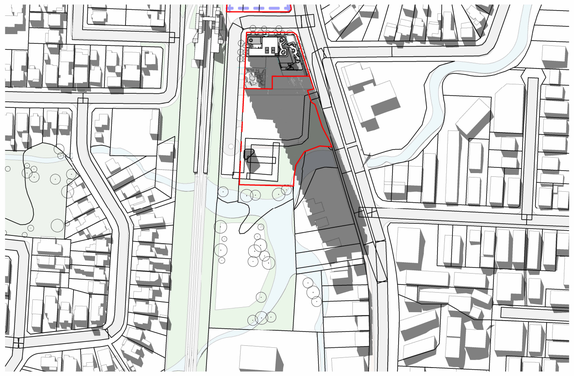
2 SHADOW PLAN - 21/06/2025-10.00
1 : 3000



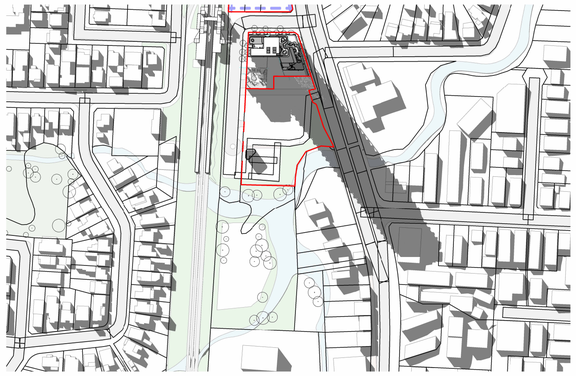
3 SHADOW PLAN - 21/06/2025-11.00
1 : 3000



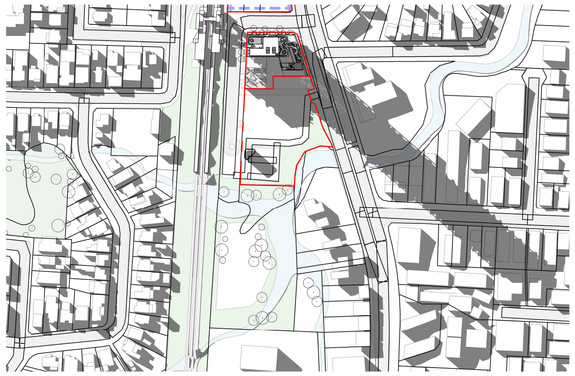
4 SHADOW PLAN - 21/06/2025-12.00
1 : 3000



5 SHADOW PLAN - 21/06/2025-13.00
1 : 3000



6 SHADOW PLAN - 21/06/2025-14.00
1 : 3000



7 SHADOW PLAN - 21/06/2025-15.00
1 : 3000

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

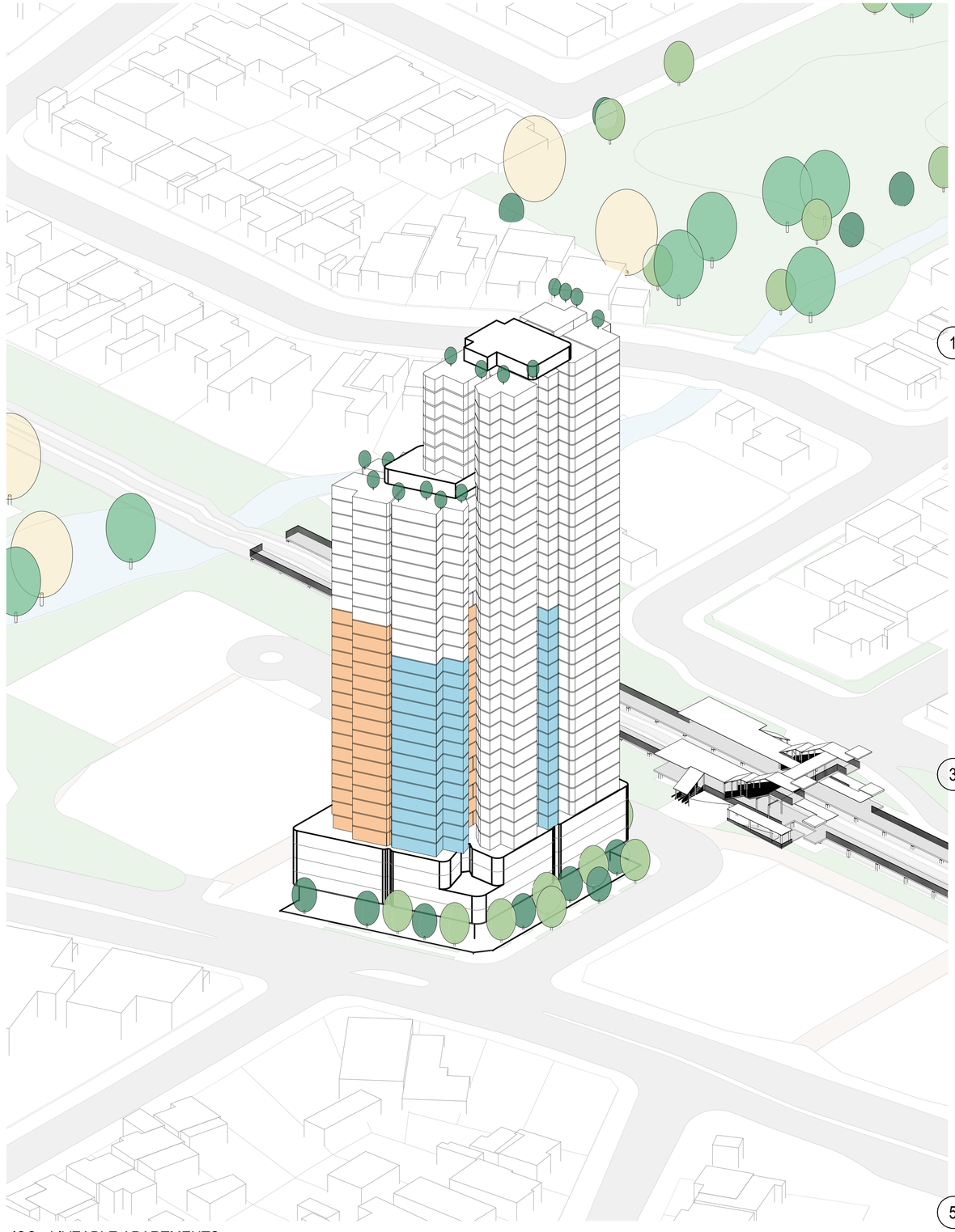
[Client] URBAN PROPERTY GROUP

0 30 60 90 120 150 m
Bar Scale 1:3000

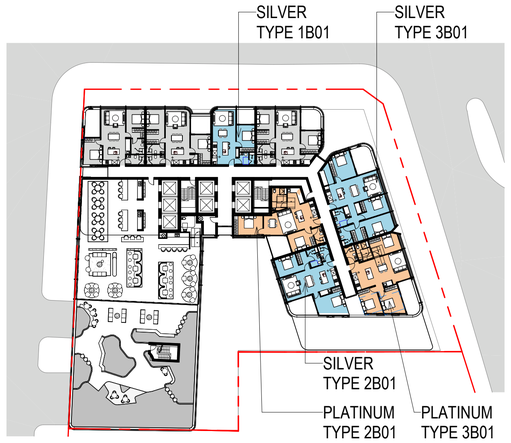
[Scale] 1 : 3000 @ A1

OVERSHADOWING - WINTER

[Ref] 20240022 [Dwg No] AD-DA81_001 [Rev] A



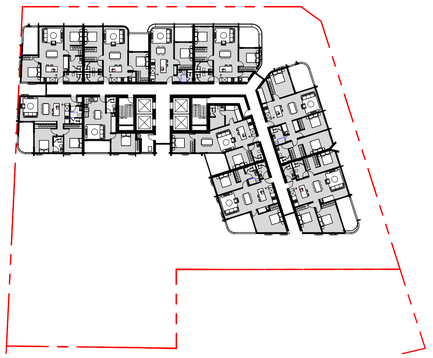
6 ISO - LIVEABLE APARTMENTS



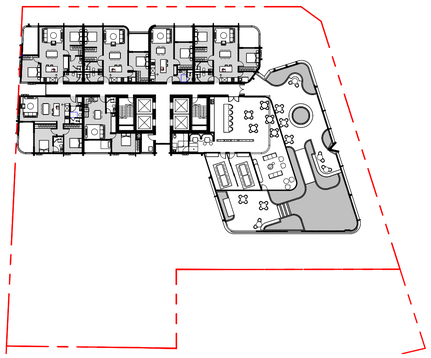
1 LIVEABLE APARTMENTS - LEVEL 05
1 : 500



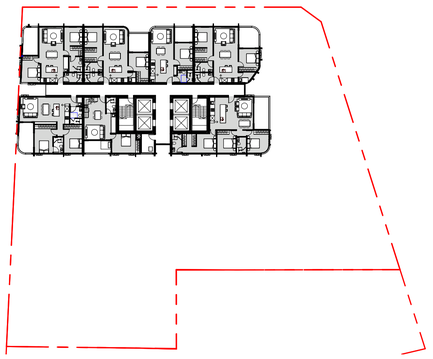
2 LIVEABLE APARTMENTS - LEVELS 06-20
1 : 500



3 LIVEABLE APARTMENTS - LEVELS 21-29
1 : 500



4 LIVEABLE APARTMENTS - LEVEL 30
1 : 500



5 LIVEABLE APARTMENTS - LEVELS 31-37
1 : 500

LIVEABLE

LIVEABLE HOUSING DESIGN LEVEL	COUNT	%
-	210	69%
Platinum	32	11%
Silver	61	20%
	303	

LIVEABLE MIX

LIVEABLE HOUSING DESIGN LEVEL	TYPE	COUNT	%
Platinum	2B	16	17%
Platinum	3B	16	17%
Silver	1B	16	17%
Silver	2B	31	33%
Silver	3B	14	15%
		93	

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

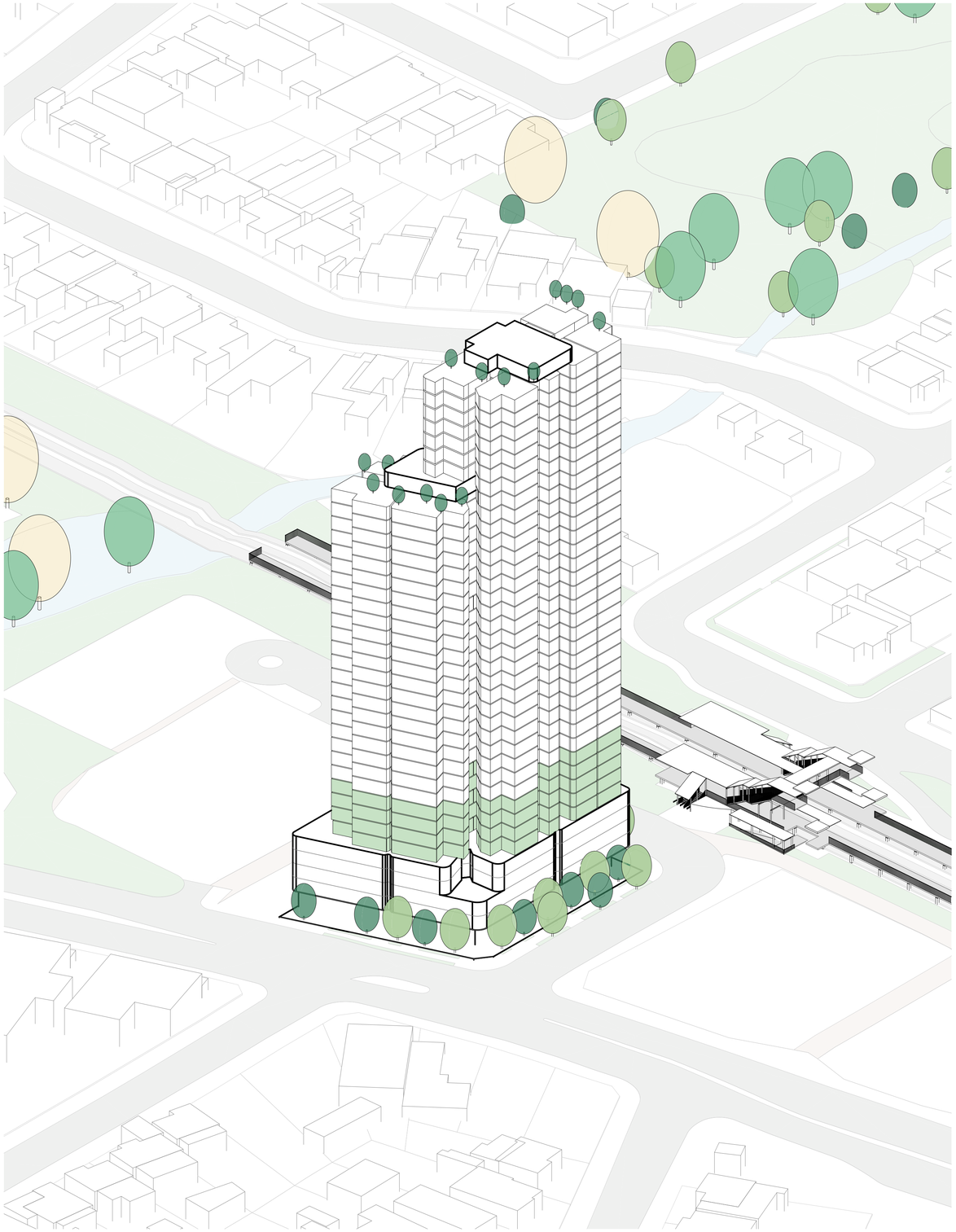
[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] 1 : 500 @ A1

LIVEABLE APARTMENTS

[Ref] 20240022 [Dwg No] AD-DA83_101 [Rev] A



3 ISO - AFFORDABLE APARTMENTS



1 AFFORDABLE APARTMENTS - LEVEL 05
1 : 500



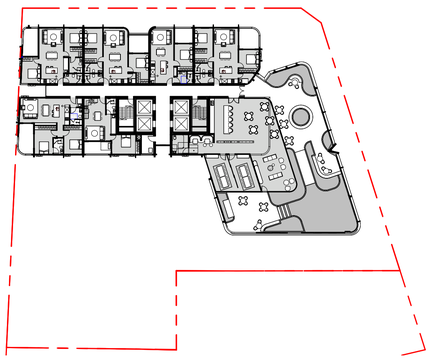
4 AFFORDABLE APARTMENTS - LEVELS 06-08
1 : 500



7 AFFORDABLE APARTMENTS - LEVEL 9
1 : 500



5 AFFORDABLE APARTMENTS - LEVELS 10-29
1 : 500



2 AFFORDABLE APARTMENTS - LEVEL 30
1 : 500



6 AFFORDABLE APARTMENTS - LEVELS 31-37
1 : 500

AFFORDABLE HOUSING

AFFORDABLE	TYPE	COUNT	MIX
-	1B	56	18.48%
-	2B	153	50.50%
-	3B	49	16.17%
-: 258		258	85.15%
Yes	1B	9	2.97%
Yes	2B	28	9.24%
Yes	3B	8	2.64%
Yes: 45		45	14.85%
		303	100.00%

**NOTE: REFER TO RESIDENTIAL GFA SCHEDULE FOR PERCENTAGE OF AFFORDABLE BY AREA (>= 15%)

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

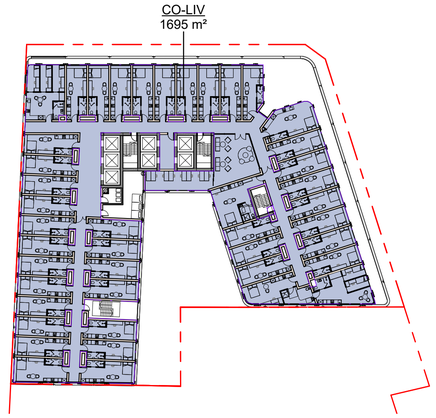
[Client] URBAN PROPERTY GROUP

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

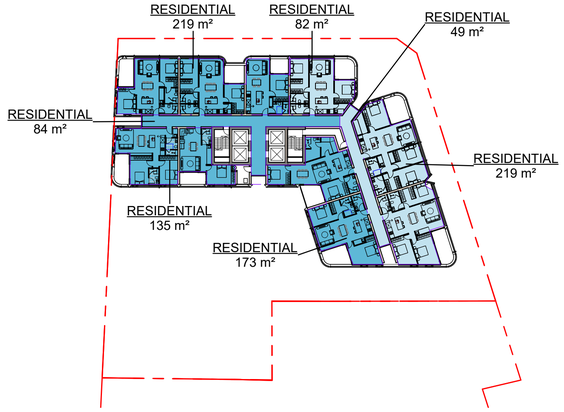
[Scale] 1 : 500 @ A1

AFFORDABLE APARTMENTS

[Ref] 20240022 [Dwg No] AD-DA84_101 [Rev] A



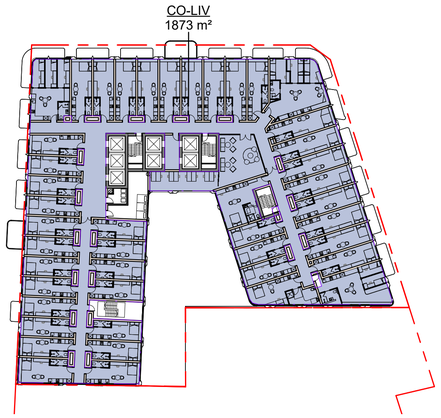
3 LEVELS 03-04
1 : 500



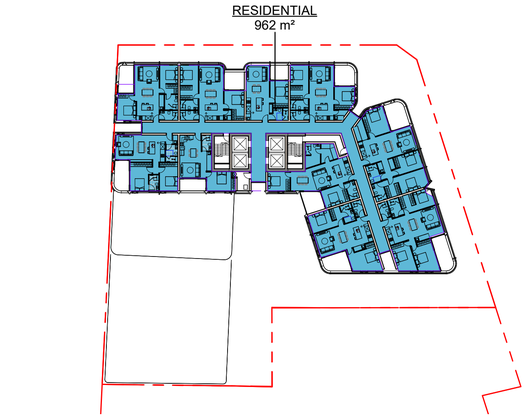
6 LEVEL 09
1 : 500



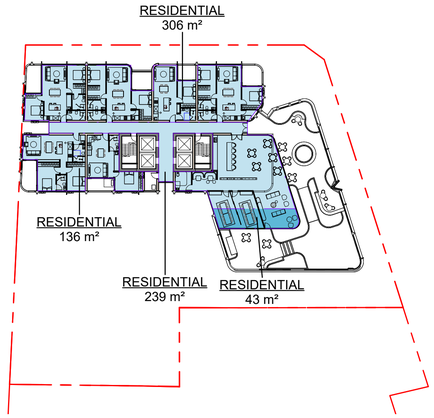
9 LEVELS 31-37
1 : 500



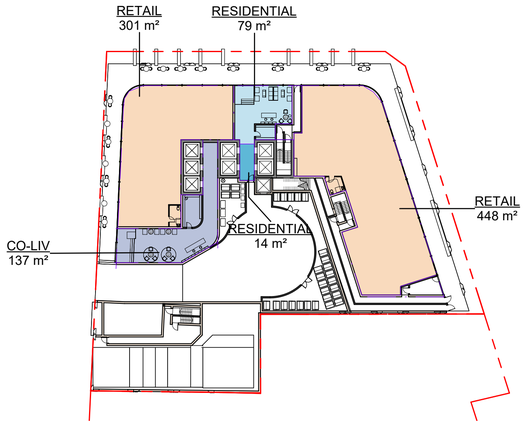
2 LEVELS 01-02
1 : 500



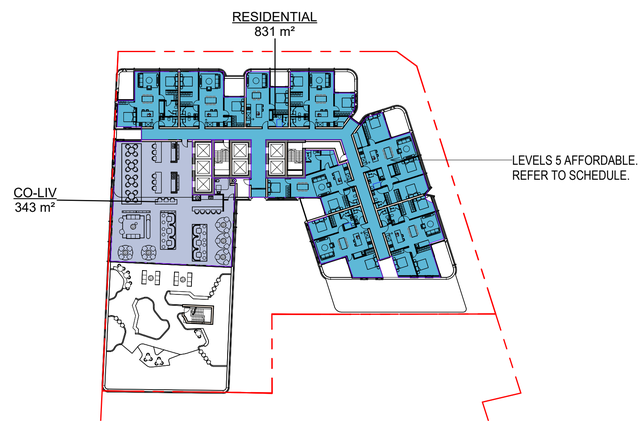
5 LEVELS 06-08
1 : 500



8 LEVEL 30
1 : 500



1 GROUND FLOOR
1 : 500



4 LEVEL 5
1 : 500



7 LEVELS 10-29
1 : 500

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

GFA SCHEDULE - SHEET 1

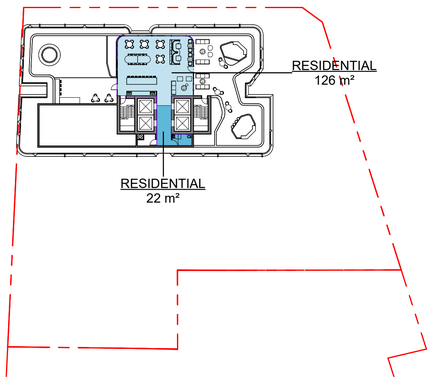
[Ref] 20240022 [Dwg No] AD-DA85_101 [Rev] A

RESIDENTIAL AREA SCHEDULE (GFA)

LEVEL	AREA	HOUSING TYPE	% OF RES AREA
AFFORDABLE			
GROUND FLOOR	14 m²	AFFORDABLE	0.05%
LEVEL 5	831 m²	AFFORDABLE	2.85%
LEVEL 6	962 m²	AFFORDABLE	3.30%
LEVEL 7	962 m²	AFFORDABLE	3.30%
LEVEL 8	962 m²	AFFORDABLE	3.30%
LEVEL 9	611 m²	AFFORDABLE	2.09%
LEVEL 30	43 m²	AFFORDABLE	0.15%
LEVEL 38	22 m²	AFFORDABLE	0.07%
	4407 m²		15.10%
MARKET HOUSING			
GROUND FLOOR	79 m²	MARKET HOUSING	0.27%
LEVEL 9	351 m²	MARKET HOUSING	1.20%
LEVEL 10	962 m²	MARKET HOUSING	3.30%
LEVEL 11	962 m²	MARKET HOUSING	3.30%
LEVEL 12	962 m²	MARKET HOUSING	3.30%
LEVEL 13	962 m²	MARKET HOUSING	3.30%
LEVEL 14	962 m²	MARKET HOUSING	3.30%
LEVEL 15	962 m²	MARKET HOUSING	3.30%
LEVEL 16	962 m²	MARKET HOUSING	3.30%
LEVEL 17	962 m²	MARKET HOUSING	3.30%
LEVEL 18	962 m²	MARKET HOUSING	3.30%
LEVEL 19	962 m²	MARKET HOUSING	3.30%
LEVEL 20	962 m²	MARKET HOUSING	3.30%
LEVEL 21	962 m²	MARKET HOUSING	3.30%
LEVEL 22	962 m²	MARKET HOUSING	3.30%
LEVEL 23	962 m²	MARKET HOUSING	3.30%
LEVEL 24	962 m²	MARKET HOUSING	3.30%
LEVEL 25	962 m²	MARKET HOUSING	3.30%
LEVEL 26	962 m²	MARKET HOUSING	3.30%
LEVEL 27	962 m²	MARKET HOUSING	3.30%
LEVEL 28	962 m²	MARKET HOUSING	3.30%
LEVEL 29	962 m²	MARKET HOUSING	3.30%
LEVEL 30	681 m²	MARKET HOUSING	2.33%
LEVEL 31	614 m²	MARKET HOUSING	2.11%
LEVEL 32	614 m²	MARKET HOUSING	2.11%
LEVEL 33	614 m²	MARKET HOUSING	2.11%
LEVEL 34	614 m²	MARKET HOUSING	2.11%
LEVEL 35	614 m²	MARKET HOUSING	2.11%
LEVEL 36	614 m²	MARKET HOUSING	2.11%
LEVEL 37	614 m²	MARKET HOUSING	2.11%
LEVEL 38	126 m²	MARKET HOUSING	0.43%
	24776 m²		84.90%
	29183 m²		100.00%

AREA SCHEDULE (TOTAL GFA)

Level	Area	FSR
CO-LIV		
GROUND FLOOR	137 m²	0.05
LEVEL 1	1873 m²	0.68
LEVEL 2	1873 m²	0.68
LEVEL 3	1695 m²	0.62
LEVEL 4	1695 m²	0.62
LEVEL 5	343 m²	0.13
	7617 m²	2.78
RESIDENTIAL		
GROUND FLOOR	93 m²	0.03
LEVEL 5	831 m²	0.30
LEVEL 6	962 m²	0.35
LEVEL 7	962 m²	0.35
LEVEL 8	962 m²	0.35
LEVEL 9	962 m²	0.35
LEVEL 10	962 m²	0.35
LEVEL 11	962 m²	0.35
LEVEL 12	962 m²	0.35
LEVEL 13	962 m²	0.35
LEVEL 14	962 m²	0.35
LEVEL 15	962 m²	0.35
LEVEL 16	962 m²	0.35
LEVEL 17	962 m²	0.35
LEVEL 18	962 m²	0.35
LEVEL 19	962 m²	0.35
LEVEL 20	962 m²	0.35
LEVEL 21	962 m²	0.35
LEVEL 22	962 m²	0.35
LEVEL 23	962 m²	0.35
LEVEL 24	962 m²	0.35
LEVEL 25	962 m²	0.35
LEVEL 26	962 m²	0.35
LEVEL 27	962 m²	0.35
LEVEL 28	962 m²	0.35
LEVEL 29	962 m²	0.35
LEVEL 30	724 m²	0.26
LEVEL 31	614 m²	0.22
LEVEL 32	614 m²	0.22
LEVEL 33	614 m²	0.22
LEVEL 34	614 m²	0.22
LEVEL 35	614 m²	0.22
LEVEL 36	614 m²	0.22
LEVEL 37	614 m²	0.22
LEVEL 38	147 m²	0.05
	29183 m²	10.67
RETAIL		
GROUND FLOOR	749 m²	0.27
	749 m²	0.27
	37549 m²	13.72



1 LEVEL 38
1 : 500

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:34:57 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
A	FOR COORDINATION	21.05.2026

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Suite 2.02, 155 Clarence Street, Sydney NSW 2000, Australia
www.studiosc.com.au +61 2 9957 3988

[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

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

[Scale] 1 : 500 @ A1

GFA SCHEDULE - SHEET 2

[Ref] 20240022 [Dwg No] AD-DA85_102 [Rev] A

UNIT MIX

TYPE	COUNT	MIX
1B	65	21%
2B	181	60%
3B	57	19%
	303	

AFFORDABLE HOUSING

AFFORDABLE	TYPE	COUNT	MIX
-	1B	56	18.48%
-	2B	153	50.50%
-	3B	49	16.17%
-: 258		258	85.15%
Yes	1B	9	2.97%
Yes	2B	28	9.24%
Yes	3B	8	2.64%
Yes: 45		45	14.85%
		303	100.00%

**NOTE: REFER TO RESIDENTIAL GFA SCHEDULE FOR PERCENTAGE OF AFFORDABLE BY AREA (>= 15%)

XVENT (FIRST 9 STOREYS)

XVENT	COUNT	%
N/A	15	39%
Yes	23	61%
	38	

SOLAR

2+ HOURS	COUNT	%
-	90	30%
Yes	213	70%
	303	

LIVEABLE

LIVEABLE HOUSING DESIGN LEVEL	COUNT	%
-	210	69%
Platinum	32	11%
Silver	61	20%
	303	

UNIT MIX - CO-LIVING

TYPE	COUNT	MIX
C1B	156	90%
C2B	4	2%
C3B	6	3%
CDDA	8	5%
	174	

A_BICYLE PARKING

Level	Type	No. of Bikes
RETAIL		
BASEMENT 01	Wall Mount	3
RETAIL: 1		3
RESIDENTIAL		
BASEMENT 05	Wall Mount	10
BASEMENT 04	Wall Mount	10
BASEMENT 03	Wall Mount	10
BASEMENT 02	Wall Mount	14
BASEMENT 01	Staggered	88
RESIDENTIAL: 7		132
CO-LIV		
BASEMENT 01	Refer to Plans	36
CO-LIV: 2		36
		171

PARKING SCHEDULE

Level	Type: Standard	Type: Tandem	Total
BASEMENT 01	11	0	11
BASEMENT 02	56	0	56
BASEMENT 03	56	0	56
BASEMENT 04	59	0	59
BASEMENT 05	61	3	64
	243	3	246

MOTORBIKE PARKING SCHEDULE

Level	Total
BASEMENT 02	8
BASEMENT 03	2
BASEMENT 04	2
BASEMENT 05	2
	14

PARKING SCHEDULE - BY USE

Level	Type Comments	Type: Standard	Type: Tandem	Total
Visitors Car Space				
BASEMENT 02	Visitors Car Space	17	0	17
		17	0	17
Retail Car Space				
BASEMENT 01	Retail Car Space	11	0	11
		11	0	11
Residential Car Space				
BASEMENT 02	Residential Car Space	39	0	39
BASEMENT 03	Residential Car Space	56	0	56
BASEMENT 04	Residential Car Space	59	0	59
BASEMENT 05	Residential Car Space	61	3	64
		215	3	218
		243	3	246

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
LEVEL 5					
1B	0503	N/A	Yes	Yes	54 m²
2B	0508	N/A	-	Yes	84 m²
2B	0504	Yes	Yes	Yes	79 m²
2B	0507	Yes	-	Yes	83 m²
2B	0501	Yes	Yes	Yes	75 m²
2B	0502	N/A	Yes	Yes	80 m²
3B	0505	Yes	Yes	Yes	113 m²
3B	0506	Yes	Yes	Yes	99 m²
8					
LEVEL 6					
1B	0605	N/A	Yes	Yes	54 m²
1B	0601	N/A	-	Yes	50 m²
2B	0610	N/A	-	Yes	84 m²
2B	0606	Yes	Yes	Yes	79 m²
2B	0609	Yes	-	Yes	84 m²
2B	0603	Yes	Yes	Yes	75 m²
2B	0604	N/A	Yes	Yes	80 m²
2B	0602	Yes	Yes	Yes	79 m²
3B	0607	Yes	Yes	Yes	113 m²
3B	0608	Yes	Yes	Yes	101 m²
10					
LEVEL 7					
1B	0705	N/A	Yes	Yes	54 m²
1B	0701	N/A	-	Yes	50 m²
2B	0710	N/A	-	Yes	84 m²
2B	0706	Yes	Yes	Yes	79 m²
2B	0709	Yes	-	Yes	84 m²
2B	0703	Yes	Yes	Yes	75 m²
2B	0704	N/A	Yes	Yes	80 m²
2B	0702	Yes	Yes	Yes	79 m²
3B	0707	Yes	Yes	Yes	113 m²
3B	0708	Yes	Yes	Yes	101 m²
10					
LEVEL 8					
1B	0805	N/A	Yes	Yes	54 m²
1B	0801	N/A	-	Yes	50 m²
2B	0810	N/A	-	Yes	84 m²
2B	0806	Yes	Yes	Yes	79 m²
2B	0809	Yes	-	Yes	85 m²
2B	0803	Yes	Yes	Yes	76 m²
2B	0804	N/A	Yes	Yes	80 m²
2B	0802	Yes	Yes	Yes	80 m²
3B	0807	Yes	Yes	Yes	114 m²
3B	0808	Yes	Yes	Yes	101 m²
10					
LEVEL 9					
1B	0905	N/A	Yes	Yes	54 m²
1B	0901	N/A	-	Yes	50 m²
2B	0910	N/A	-	Yes	84 m²
2B	0906	N/A	Yes	-	79 m²
2B	0909	N/A	-	Yes	84 m²
2B	0903	N/A	Yes	Yes	75 m²
2B	0904	N/A	Yes	Yes	80 m²
2B	0902	N/A	Yes	Yes	79 m²
3B	0907	N/A	Yes	-	113 m²
3B	0908	N/A	Yes	-	101 m²
10					
LEVEL 10					
1B	1005	N/A	Yes	-	54 m²
1B	1001	N/A	-	-	50 m²
2B	1010	N/A	-	-	84 m²
2B	1006	N/A	Yes	-	79 m²
2B	1009	N/A	-	-	84 m²
2B	1003	N/A	Yes	-	75 m²
2B	1004	N/A	Yes	-	80 m²
2B	1002	N/A	Yes	-	79 m²
3B	1007	N/A	Yes	-	113 m²
3B	1008	N/A	Yes	-	101 m²
10					
LEVEL 11					
1B	1105	N/A	Yes	-	54 m²
1B	1101	N/A	-	-	50 m²
2B	1110	N/A	-	-	84 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	1106	N/A	Yes	-	79 m²
2B	1109	N/A	-	-	85 m²
2B	1103	N/A	Yes	-	76 m²
2B	1104	N/A	Yes	-	80 m²
2B	1102	N/A	Yes	-	80 m²
3B	1107	N/A	Yes	-	114 m²
3B	1108	N/A	Yes	-	101 m²
10					
LEVEL 12					
1B	1205	N/A	Yes	-	54 m²
1B	1201	N/A	-	-	50 m²
2B	1210	N/A	-	-	84 m²
2B	1206	N/A	Yes	-	79 m²
2B	1209	N/A	-	-	85 m²
2B	1203	N/A	Yes	-	76 m²
2B	1204	N/A	Yes	-	80 m²
2B	1202	N/A	Yes	-	80 m²
3B	1207	N/A	Yes	-	114 m²
3B	1208	N/A	Yes	-	101 m²
10					
LEVEL 13					
1B	1305	N/A	Yes	-	54 m²
1B	1301	N/A	-	-	50 m²
2B	1310	N/A	-	-	84 m²
2B	1306	N/A	Yes	-	79 m²
2B	1309	N/A	-	-	85 m²
2B	1303	N/A	Yes	-	76 m²
2B	1304	N/A	Yes	-	80 m²
2B	1302	N/A	Yes	-	80 m²
3B	1307	N/A	Yes	-	114 m²
3B	1308	N/A	Yes	-	101 m²
10					
LEVEL 14					
1B	1405	N/A	Yes	-	54 m²
1B	1401	N/A	-	-	50 m²
2B	1410	N/A	-	-	84 m²
2B	1406	N/A	Yes	-	79 m²
2B	1409	N/A	-	-	85 m²
2B	1403	N/A	Yes	-	76 m²
2B	1404	N/A	Yes	-	80 m²
2B	1402	N/A	Yes	-	80 m²
3B	1407	N/A	Yes	-	114 m²
3B	1408	N/A	Yes	-	101 m²
10					
LEVEL 15					
1B	1505	N/A	Yes	-	54 m²
1B	1501	N/A	-	-	50 m²
2B	1510	N/A	-	-	84 m²
2B	1506	N/A	Yes	-	79 m²
2B	1509	N/A	-	-	85 m²
2B	1503	N/A	Yes	-	76 m²
2B	1504	N/A	Yes	-	80 m²
2B	1502	N/A	Yes	-	80 m²
3B	1507	N/A	Yes	-	114 m²
3B	1508	N/A	Yes	-	101 m²
10					
LEVEL 16					
1B	1605	N/A	Yes	-	54 m²
1B	1601	N/A	-	-	50 m²
2B	1610	N/A	-	-	84 m²
2B	1606	N/A	Yes	-	79 m²
2B	1609	N/A	-	-	85 m²
2B	1603	N/A	Yes	-	76 m²
2B	1604	N/A	Yes	-	80 m²
2B	1602	N/A	Yes	-	80 m²
3B	1607	N/A	Yes	-	114 m²
3B	1608	N/A	Yes	-	101 m²
10					
LEVEL 17					
1B	1705	N/A	Yes	-	54 m²
1B	1701	N/A	-	-	50 m²
2B	1710	N/A	-	-	84 m²
2B	1706	N/A	Yes	-	79 m²
2B	1709	N/A	-	-	85 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	1703	N/A	Yes	-	76 m²
2B	1704	N/A	Yes	-	80 m²
2B	1702	N/A	Yes	-	80 m²
3B	1707	N/A	Yes	-	114 m²
3B	1708	N/A	Yes	-	101 m²
10					
LEVEL 18					
1B	1805	N/A	Yes	-	54 m²
1B	1801	N/A	-	-	50 m²
2B	1810	N/A	-	-	84 m²
2B	1806	N/A	Yes	-	79 m²
2B	1809	N/A	-	-	85 m²
2B	1803	N/A	Yes	-	76 m²
2B	1804	N/A	Yes	-	80 m²
2B	1802	N/A	Yes	-	80 m²
3B	1807	N/A	Yes	-	114 m²
3B	1808	N/A	Yes	-	101 m²
10					
LEVEL 19					
1B	1905	N/A	Yes	-	54 m²
1B	1901	N/A	-	-	50 m²
2B	1910	N/A	-	-	84 m²
2B	1906	N/A	Yes	-	79 m²
2B	1909	N/A	-	-	85 m²
2B	1903	N/A	Yes	-	76 m²
2B	1904	N/A	Yes	-	80 m²
2B	1902	N/A	Yes	-	80 m²
3B	1907	N/A	Yes	-	114 m²
3B	1908	N/A	Yes	-	101 m²
10					
LEVEL 20					
1B	2005	N/A	Yes	-	54 m²
1B	2001	N/A	-	-	50 m²
2B	2010	N/A	-	-	84 m²
2B	2006	N/A	Yes	-	79 m²
2B	2009	N/A	-	-	85 m²
2B	2003	N/A	Yes	-	76 m²
2B	2004	N/A	Yes	-	80 m²
2B	2002	N/A	Yes	-	80 m²
3B	2007	N/A	Yes	-	114 m²
3B	2008	N/A	Yes	-	101 m²
10					
LEVEL 21					
1B	2105	N/A	Yes	-	54 m²
1B	2101	N/A	-	-	50 m²
2B	2110	N/A	-	-	84 m²
2B	2106	N/A	Yes	-	79 m²
2B	2109	N/A	-	-	84 m²
2B	2103	N/A	Yes	-	75 m²
2B	2104	N/A	Yes	-	80 m²
2B	2102	N/A	Yes	-	79 m²
3B	2107	N/A	Yes	-	113 m²
3B	2108	N/A	Yes	-	101 m²
10					
LEVEL 22					
1B	2205	N/A	Yes	-	54 m²
1B	2201	N/A	-	-	50 m²
2B	2210	N/A	-	-	84 m²
2B	2206	N/A	Yes	-	79 m²
2B	2209	N/A	-	-	85 m²
2B	2203	N/A	Yes	-	76 m²
2B	2204	N/A	Yes	-	80 m²
2B	2202	N/A	Yes	-	80 m²
3B	2207	N/A	Yes	-	114 m²
3B	2208	N/A	Yes	-	101 m²
10					
LEVEL 23					
1B	2305	N/A	Yes	-	54 m²
1B	2301	N/A	-	-	50 m²
2B	2310	N/A	-	-	84 m²
2B	2306	N/A	Yes	-	79 m²
2B	2309	N/A	-	-	85 m²
2B	2303	N/A	Yes	-	76 m²
2B	2304	N/A	Yes	-	80 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	2302	N/A	Yes	-	80 m²
3B	2307	N/A	Yes	-	114 m²
3B	2308	N/A	Yes	-	101 m²
10					
LEVEL 24					
1B	2405	N/A	Yes	-	54 m²
1B	2401	N/A	-	-	50 m²
2B	2410	N/A	-	-	84 m²
2B	2406	N/A	Yes	-	79 m²
2B	2409	N/A	-	-	85 m²
2B	2403	N/A	Yes	-	76 m²
2B	2404	N/A	Yes	-	80 m²
2B	2402	N/A	Yes	-	80 m²
3B	2407	N/A	Yes	-	114 m²
3B	2408	N/A	Yes	-	101 m²
10					
LEVEL 25					
1B	2505	N/A	Yes	-	54 m²
1B	2501	N/A	-	-	50 m²
2B	2510	N/A	-	-	84 m²
2B	2506	N/A	Yes	-	79 m²
2B	2509	N/A	-	-	85 m²
2B	2503	N/A	Yes	-	76 m²
2B	2504	N/A	Yes	-	80 m²
2B	2502	N/A	Yes	-	80 m²
3B	2507	N/A	Yes	-	114 m²
3B	2508	N/A	Yes	-	101 m²
10					
LEVEL 26					
1B	2605	N/A	Yes	-	54 m²
1B	2601	N/A	-	-	50 m²
2B	2610	N/A	-	-	84 m²
2B	2606	N/A	Yes	-	79 m²
2B	2609	N/A	-	-	85 m²
2B	2603	N/A	Yes	-	76 m²
2B	2604	N/A	Yes	-	80 m²
2B	2602	N/A	Yes	-	80 m²
3B	2607	N/A	Yes	-	114 m²
3B	2608	N/A	Yes	-	101 m²
10					
LEVEL 27					
1B	2705	N/A	Yes	-	54 m²
1B	2701	N/A	-	-	50 m²
2B	2710	N/A	-	-	84 m²
2B	2706	N/A	Yes	-	79 m²
2B	2709	N/A	-	-	85 m²
2B	2703	N/A	Yes	-	76 m²
2B	2704	N/A	Yes	-	80 m²
2B	2702	N/A	Yes	-	80 m²
3B	2707	N/A	Yes	-	114 m²
3B	2708	N/A	Yes	-	101 m²
10					
LEVEL 28					
1B	2805	N/A	Yes	-	54 m²
1B	2801	N/A	-	-	50 m²
2B	2810	N/A	-	-	84 m²
2B	2806	N/A	Yes	-	79 m²
2B	2809	N/A	-	-	85 m²
2B	2803	N/A	Yes	-	76 m²
2B	2804	N/A	Yes	-	80 m²
2B	2802	N/A	Yes	-	80 m²
3B	2807	N/A	Yes	-	114 m²
3B	2808	N/A	Yes	-	101 m²
10					
LEVEL 29					
1B	2905	N/A	Yes	-	54 m²
1B	2901	N/A	-	-	50 m²
2B	2910	N/A	-	-	84 m²
2B	2906	N/A	Yes	-	79 m²
2B	2909	N/A	-	-	85 m²
2B	2903	N/A	Yes	-	76 m²
2B	2904	N/A	Yes	-	80 m²
2B	2902	N/A	Yes	-	80 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
3B	2907	N/A	Yes	-	114 m²
3B	2908	N/A	Yes	-	101 m²
10					
LEVEL 30					
1B	3001	N/A	-	-	49 m²
1B	3005	N/A	Yes	-	54 m²
2B	3002	N/A	-	-	79 m²
2B	3006	N/A	Yes	-	80 m²
2B	3003	N/A	Yes	-	75 m²
2B	3004	N/A	Yes	-	80 m²
6					
LEVEL 31					
1B	3101	N/A	-	-	49 m²
1B	3105	N/A	Yes	-	54 m²
2B	3102	N/A	-	-	80 m²
2B	3106	N/A	Yes	-	80 m²
2B	3103	N/A	Yes	-	76 m²
2B	3104	N/A	Yes	-	80 m²
3B	3107	N/A	Yes	-	93 m²
7					
LEVEL 32					
1B	3201	N/A	-	-	49 m²
1B	3205	N/A	Yes	-	54 m²
2B	3202	N/A	-	-	79 m²
2B	3206	N/A	Yes	-	80 m²
2B	3203	N/A	Yes	-	75 m²
2B	3204	N/A	Yes	-	80 m²
3B	3207	N/A	Yes	-	93 m²
7					
LEVEL 33					
1B	3301	N/A	-	-	49 m²
1B	3305	N/A	Yes	-	54 m²
2B	3302	N/A	-	-	80 m²
2B	3306	N/A	Yes	-	80 m²
2B	3303	N/A	Yes	-	76 m²
2B	3304	N/A	Yes	-	80 m²
3B	3307	N/A	Yes	-	93 m²
7					
LEVEL 34					
1B	3401	N/A	-	-	49 m²
1B	3405	N/A	Yes	-	54 m²
2B	3402	N/A	-	-	80 m²
2B	3406	N/A	Yes	-	80 m²
2B	3403	N/A	Yes	-	76 m²
2B	3404	N/A	Yes	-	80 m²
3B	3407	N/A	Yes	-	93 m²
7					
LEVEL 35					
1B	3501	N/A	-	-	49 m²
1B	3505	N/A	Yes	-	54 m²
2B	3502	N/A	-	-	79 m²
2B	3506	N/A	Yes	-	80 m²
2B	3503	N/A	Yes	-	75 m²
2B	3504	N/A	Yes	-	80 m²
3B	3507	N/A	Yes	-	93 m²
7					
LEVEL 36					
1B	3601	N/A	-	-	49 m²
1B	3605	N/A	Yes	-	54 m²
2B	3602	N/A	-	-	80 m²
2B	3606	N/A	Yes	-	80 m²
2B	3603	N/A	Yes	-	76 m²
2B	3604	N/A	Yes	-	80 m²
3B	3607	N/A	Yes	-	93 m²
7					
LEVEL 37					
1B	3701		-	-	50 m²
1B	3705	N/A	Yes	-	54 m²
2B	3702		-	-	80 m²
2B	3706	N/A	Yes	-	80 m²
2B	3703	N/A	Yes	-	76 m²
2B	3704	N/A	Yes	-	80 m²
3B	3707		Yes	-	93 m²

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 3:51:08 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
A	PRELIMINARY	29.08.2025
B	FOR COORDINATION	21.05.2026

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PRINT IN COLOUR

[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

[Scale]

DEVELOPMENT SUMMARY - SHEET 1

[Ref] 20240022 [Dwg No] AD-DA85_501 [Rev] B

UNIT MIX - CO-LIVING

TYPE	COUNT	MIX
C1B	156	90%
C2B	4	2%
C3B	6	3%
CDDA	8	5%
	174	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 1			
C1B	0116	1	25 m²
C1B	0113	1	25 m²
C1B	0111	1	25 m²
C1B	0112	1	25 m²
C1B	0115	1	25 m²
C1B	0114	1	25 m²
C1B	0117	1	25 m²
C1B	0118	1	25 m²
C1B	0109	1	25 m²
C1B	0108	1	34 m²
C1B	0110	1	25 m²
C1B	0119	1	27 m²
C1B	0103	1	25 m²
C1B	0104	1	25 m²
C1B	0101	1	25 m²
C1B	0102	1	25 m²
C1B	0106	1	25 m²
C1B	0107	1	30 m²
C1B	0105	1	25 m²
C1B	0129	1	30 m²
C1B	0135	1	32 m²
C1B	0134	1	32 m²
C1B	0132	1	32 m²
C1B	0133	1	32 m²
C1B	0136	1	32 m²
C1B	0127	1	32 m²
C1B	0128	1	32 m²
C1B	0131	1	32 m²
C1B	0143	1	25 m²
C1B	0142	1	25 m²
C1B	0141	1	25 m²
C1B	0137	1	32 m²
C1B	0138	1	31 m²
C1B	0126	1	32 m²
C1B	0125	1	32 m²
C1B	0122	1	32 m²
C1B	0121	1	32 m²
C1B	0123	1	32 m²
C1B	0124	1	32 m²
C2B	0139	2	66 m²
C3B	0120	3	61 m²
C3B	0130	3	78 m²
CDDA	0140	1	42 m²
CDDA	0144	1	43 m²
44		49	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 2			
C1B	0216	1	25 m²
C1B	0213	1	25 m²
C1B	0211	1	25 m²
C1B	0212	1	25 m²
C1B	0215	1	25 m²
C1B	0214	1	25 m²
C1B	0217	1	25 m²
C1B	0218	1	25 m²
C1B	0209	1	25 m²
C1B	0208	1	34 m²
C1B	0210	1	25 m²
C1B	0219	1	27 m²
C1B	0203	1	25 m²
C1B	0204	1	25 m²
C1B	0201	1	25 m²
C1B	0202	1	25 m²
C1B	0206	1	25 m²
C1B	0207	1	30 m²
C1B	0205	1	25 m²
C1B	0229	1	30 m²
C1B	0235	1	32 m²
C1B	0234	1	32 m²
C1B	0232	1	32 m²
C1B	0233	1	32 m²
C1B	0236	1	32 m²
C1B	0227	1	32 m²
C1B	0228	1	32 m²
C1B	0231	1	32 m²
C1B	0243	1	25 m²
C1B	0242	1	25 m²
C1B	0241	1	25 m²
C1B	0237	1	32 m²
C1B	0238	1	31 m²
C1B	0226	1	32 m²
C1B	0225	1	32 m²
C1B	0222	1	32 m²
C1B	0221	1	32 m²
C1B	0223	1	32 m²
C1B	0224	1	32 m²
C2B	0239	2	66 m²
C3B	0220	3	61 m²
C3B	0230	3	78 m²
CDDA	0240	1	42 m²
CDDA	0244	1	43 m²
44		49	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 3			
C1B	0325	1	29 m²
C1B	0329	1	26 m²
C1B	0316	1	25 m²
C1B	0313	1	25 m²
C1B	0311	1	25 m²
C1B	0312	1	25 m²
C1B	0334	1	26 m²
C1B	0333	1	26 m²
C1B	0315	1	25 m²
C1B	0314	1	25 m²
C1B	0317	1	25 m²
C1B	0318	1	25 m²
C1B	0309	1	25 m²
C1B	0308	1	33 m²
C1B	0310	1	25 m²
C1B	0331	1	26 m²
C1B	0332	1	26 m²
C1B	0335	1	26 m²
C1B	0319	1	27 m²
C1B	0330	1	39 m²
C1B	0303	1	25 m²
C1B	0304	1	25 m²
C1B	0301	1	25 m²
C1B	0302	1	25 m²
C1B	0306	1	25 m²
C1B	0307	1	29 m²
C1B	0305	1	25 m²
C1B	0342	1	25 m²
C1B	0341	1	25 m²
C1B	0340	1	25 m²
C1B	0336	1	26 m²
C1B	0337	1	26 m²
C1B	0326	1	29 m²
C1B	0328	1	29 m²
C1B	0327	1	29 m²
C1B	0324	1	28 m²
C1B	0323	1	29 m²
C1B	0322	1	29 m²
C1B	0321	1	29 m²
C2B	0338	2	48 m²
C3B	0320	3	55 m²
CDDA	0339	1	41 m²
CDDA	0343	1	43 m²
43		46	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 4			
C1B	0425	1	29 m²
C1B	0429	1	26 m²
C1B	0416	1	25 m²
C1B	0413	1	25 m²
C1B	0411	1	25 m²
C1B	0412	1	25 m²
C1B	0434	1	26 m²
C1B	0433	1	26 m²
C1B	0415	1	25 m²
C1B	0414	1	25 m²
C1B	0417	1	25 m²
C1B	0418	1	25 m²
C1B	0409	1	25 m²
C1B	0408	1	33 m²
C1B	0410	1	25 m²
C1B	0431	1	26 m²
C1B	0432	1	26 m²
C1B	0435	1	26 m²
C1B	0419	1	27 m²
C1B	0430	1	40 m²
C1B	0403	1	25 m²
C1B	0404	1	25 m²
C1B	0401	1	25 m²
C1B	0402	1	25 m²
C1B	0406	1	25 m²
C1B	0407	1	29 m²
C1B	0405	1	25 m²
C1B	0442	1	25 m²
C1B	0441	1	25 m²
C1B	0440	1	25 m²
C1B	0436	1	26 m²
C1B	0437	1	26 m²
C1B	0426	1	29 m²
C1B	0428	1	29 m²
C1B	0427	1	29 m²
C1B	0424	1	28 m²
C1B	0423	1	29 m²
C1B	0422	1	29 m²
C1B	0421	1	29 m²
C2B	0438	2	48 m²
C3B	0420	3	55 m²
CDDA	0439	1	41 m²
CDDA	0443	1	43 m²
43		46	
174		190	

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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History

[Rev#]	[Description]	[Date]dd.mm.yy
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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

[Scale] @ A1

DEVELOPMENT SUMMARY - SHEET 2

[Ref] 20240022 [Dwg No] AD-DA85_502 [Rev] A

4-4a FLINDERS STREET, WOLLONGONG

URBAN PROPERTY GROUP

DRAWING LIST		
NUMBER	REV	DESCRIPTION
20240022-AD-DA00_001	B	COVER PAGE
20240022-AD-DA11_095	B	GA PLAN - BASEMENT 05
20240022-AD-DA11_096	C	GA PLAN - BASEMENT 04
20240022-AD-DA11_097	C	GA PLAN - BASEMENT 03
20240022-AD-DA11_098	C	GA PLAN - BASEMENT 02
20240022-AD-DA11_099	C	GA PLAN - BASEMENT 01
20240022-AD-DA11_100	C	GA PLAN - GROUND FLOOR
20240022-AD-DA11_101	D	GA PLAN - LEVELS 01-02
20240022-AD-DA11_103	D	GA PLAN - LEVELS 03-04
20240022-AD-DA11_105	D	GA PLAN - LEVEL 05
20240022-AD-DA11_106	C	GA PLAN - LEVELS 06-29
20240022-AD-DA11_130	D	GA PLAN - LEVEL 30
20240022-AD-DA11_131	C	GA PLAN - LEVELS 31-37
20240022-AD-DA11_138	C	GA PLAN - ROOF LEVEL 38
20240022-AD-DA21_101	D	ELEVATION - SHEET 01
20240022-AD-DA21_102	D	ELEVATION - SHEET 02
20240022-AD-DA31_101	D	SECTIONS - SHEET 01
20240022-AD-DA31_102	D	SECTIONS - SHEET 02
20240022-AD-DA60-101	A	LIVEABLE UNITS - SHEET 1
20240022-AD-DA60-102	A	LIVEABLE UNITS - SHEET 2
20240022-AD-DA60-111	A	PLATINUM LIVEABLE UNITS - SHEET 1
20240022-AD-DA60-121	A	ACCESSIBLE ROOMS - CO-LIVING
20240022-AD-DA80_101	B	SOLAR ACCESS
20240022-AD-DA80_102	B	CROSS VENTILATION
20240022-AD-DA81_001	A	OVERSHADOWING - WINTER
20240022-AD-DA83_101	A	LIVEABLE APARTMENTS
20240022-AD-DA84_101	A	AFFORDABLE APARTMENTS
20240022-AD-DA85_101	A	GFA SCHEDULE - SHEET 1
20240022-AD-DA85_102	A	GFA SCHEDULE - SHEET 2
20240022-AD-DA85_501	B	DEVELOPMENT SUMMARY - SHEET 1
20240022-AD-DA85_502	A	DEVELOPMENT SUMMARY - SHEET 2
Grand total: 31		

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - BASEMENT 05

[Ref] 20240022 [Dwg No] AD-DA11_095 [Rev] B



[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - BASEMENT 04

[Ref] 20240022 [Dwg No] AD-DA11_096 [Rev] C



[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - BASEMENT 03

[Ref] 20240022 [Dwg No] AD-DA11_097 [Rev] C

[Status] PRELIMINARY

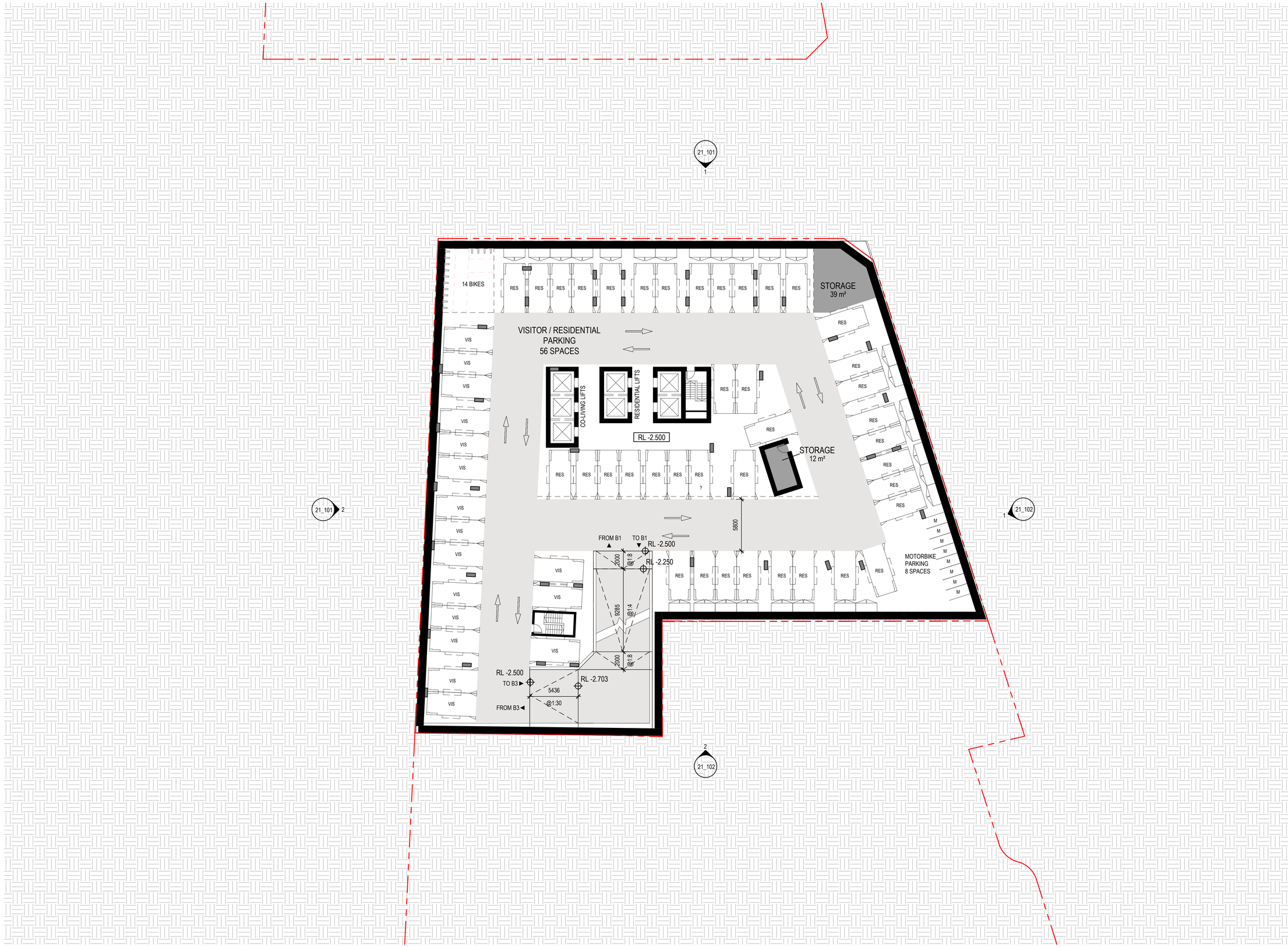
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[Print Date] 22/05/2026 3:54:30 PM

History

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C	FOR COORDINATION	21.05.2026



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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - BASEMENT 02

[Ref] 20240022 [Dwg No] AD-DA11_098 [Rev] C



[Status] PRELIMINARY

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[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 10:18:33 AM

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

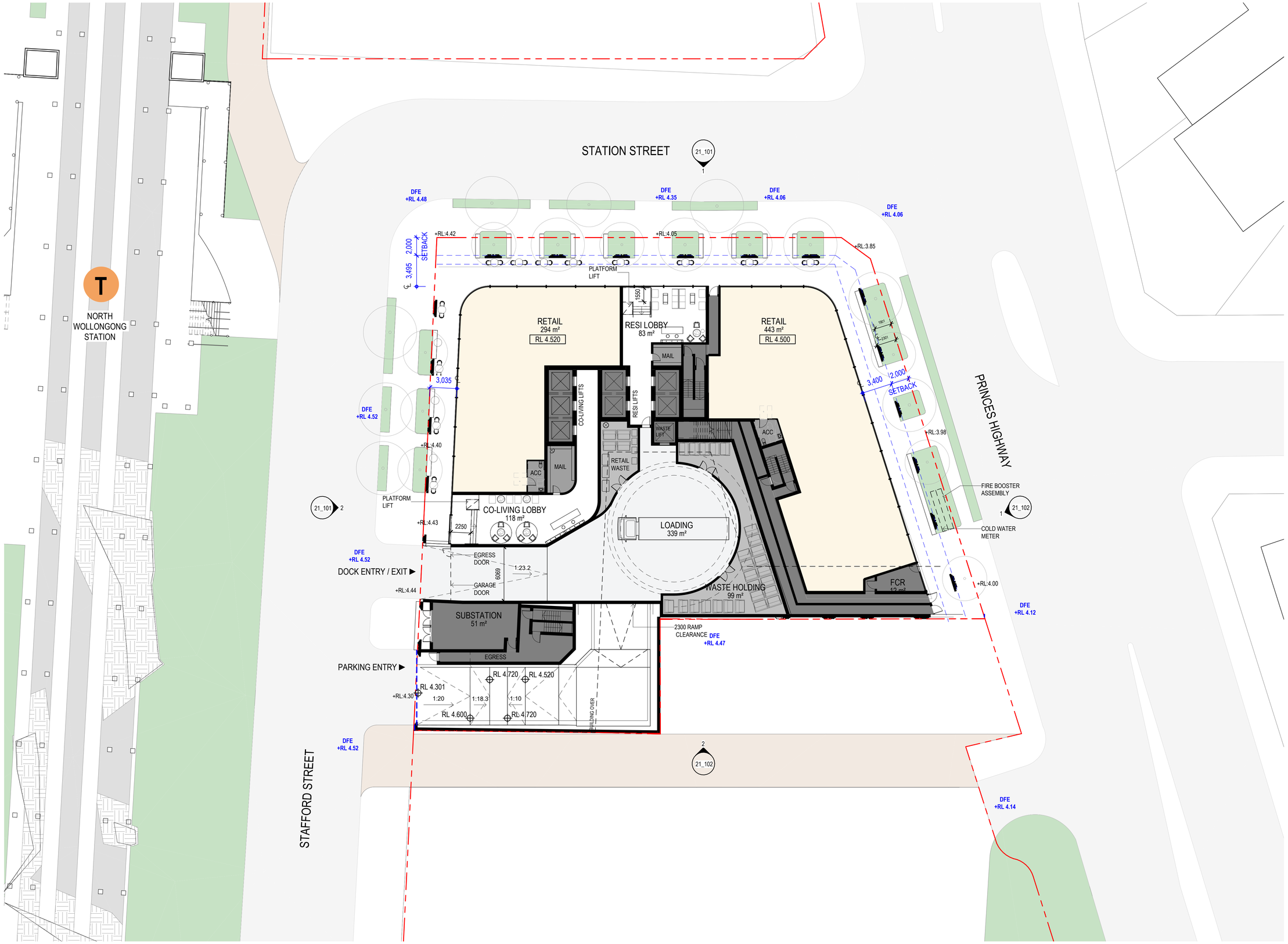
[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - BASEMENT 01

[Ref] 20240022 [Dwg No] AD-DA11_099 [Rev] C



[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 2 4 6 8 10 m
Bar Scale 1:200

[Scale] 1 : 200 @ A1

GA PLAN - GROUND FLOOR

[Ref] 20240022 [Dwg No] AD-DA11_100 [Rev] C

UNIT MIX

TYPE	COUNT	MIX
1B	65	21%
2B	181	60%
3B	57	19%
	303	

AFFORDABLE HOUSING

AFFORDABLE	TYPE	COUNT	MIX
-	1B	56	18.48%
-	2B	153	50.50%
-	3B	49	16.17%
-: 258		258	85.15%
Yes	1B	9	2.97%
Yes	2B	28	9.24%
Yes	3B	8	2.64%
Yes: 45		45	14.85%
		303	100.00%

**NOTE: REFER TO RESIDENTIAL GFA SCHEDULE FOR PERCENTAGE OF AFFORDABLE BY AREA (>= 15%)

XVENT (FIRST 9 STOREYS)

XVENT	COUNT	%
N/A	15	39%
Yes	23	61%
	38	

SOLAR

2+ HOURS	COUNT	%
-	90	30%
Yes	213	70%
	303	

LIVEABLE

LIVEABLE HOUSING DESIGN LEVEL	COUNT	%
-	210	69%
Platinum	32	11%
Silver	61	20%
	303	

UNIT MIX - CO-LIVING

TYPE	COUNT	MIX
C1B	156	90%
C2B	4	2%
C3B	6	3%
CDDA	8	5%
	174	

A_BICYLE PARKING

Level	Type	No. of Bikes
RETAIL		
BASEMENT 01	Wall Mount	3
RETAIL: 1		3
RESIDENTIAL		
BASEMENT 05	Wall Mount	10
BASEMENT 04	Wall Mount	10
BASEMENT 03	Wall Mount	10
BASEMENT 02	Wall Mount	14
BASEMENT 01	Staggered	88
RESIDENTIAL: 7		132
CO-LIV		
BASEMENT 01	Refer to Plans	36
CO-LIV: 2		36
		171

PARKING SCHEDULE

Level	Type: Standard	Type: Tandem	Total
BASEMENT 01	11	0	11
BASEMENT 02	56	0	56
BASEMENT 03	56	0	56
BASEMENT 04	59	0	59
BASEMENT 05	61	3	64
	243	3	246

MOTORBIKE PARKING SCHEDULE

Level	Total
BASEMENT 02	8
BASEMENT 03	2
BASEMENT 04	2
BASEMENT 05	2
	14

PARKING SCHEDULE - BY USE

Level	Type Comments	Type: Standard	Type: Tandem	Total
Visitors Car Space				
BASEMENT 02	Visitors Car Space	17	0	17
		17	0	17
Retail Car Space				
BASEMENT 01	Retail Car Space	11	0	11
		11	0	11
Residential Car Space				
BASEMENT 02	Residential Car Space	39	0	39
BASEMENT 03	Residential Car Space	56	0	56
BASEMENT 04	Residential Car Space	59	0	59
BASEMENT 05	Residential Car Space	61	3	64
		215	3	218
		243	3	246

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
LEVEL 5					
1B	0503	N/A	Yes	Yes	54 m²
2B	0508	N/A	-	Yes	84 m²
2B	0504	Yes	Yes	Yes	79 m²
2B	0507	Yes	-	Yes	83 m²
2B	0501	Yes	Yes	Yes	75 m²
2B	0502	N/A	Yes	Yes	80 m²
3B	0505	Yes	Yes	Yes	113 m²
3B	0506	Yes	Yes	Yes	99 m²
8					
LEVEL 6					
1B	0605	N/A	Yes	Yes	54 m²
1B	0601	N/A	-	Yes	50 m²
2B	0610	N/A	-	Yes	84 m²
2B	0606	Yes	Yes	Yes	79 m²
2B	0609	Yes	-	Yes	84 m²
2B	0603	Yes	Yes	Yes	75 m²
2B	0604	N/A	Yes	Yes	80 m²
2B	0602	Yes	Yes	Yes	79 m²
3B	0607	Yes	Yes	Yes	113 m²
3B	0608	Yes	Yes	Yes	101 m²
10					
LEVEL 7					
1B	0705	N/A	Yes	Yes	54 m²
1B	0701	N/A	-	Yes	50 m²
2B	0710	N/A	-	Yes	84 m²
2B	0706	Yes	Yes	Yes	79 m²
2B	0709	Yes	-	Yes	84 m²
2B	0703	Yes	Yes	Yes	75 m²
2B	0704	N/A	Yes	Yes	80 m²
2B	0702	Yes	Yes	Yes	79 m²
3B	0707	Yes	Yes	Yes	113 m²
3B	0708	Yes	Yes	Yes	101 m²
10					
LEVEL 8					
1B	0805	N/A	Yes	Yes	54 m²
1B	0801	N/A	-	Yes	50 m²
2B	0810	N/A	-	Yes	84 m²
2B	0806	Yes	Yes	Yes	79 m²
2B	0809	Yes	-	Yes	85 m²
2B	0803	Yes	Yes	Yes	76 m²
2B	0804	N/A	Yes	Yes	80 m²
2B	0802	Yes	Yes	Yes	80 m²
3B	0807	Yes	Yes	Yes	114 m²
3B	0808	Yes	Yes	Yes	101 m²
10					
LEVEL 9					
1B	0905	N/A	Yes	Yes	54 m²
1B	0901	N/A	-	Yes	50 m²
2B	0910	N/A	-	Yes	84 m²
2B	0906	N/A	Yes	-	79 m²
2B	0909	N/A	-	Yes	84 m²
2B	0903	N/A	Yes	Yes	75 m²
2B	0904	N/A	Yes	Yes	80 m²
2B	0902	N/A	Yes	Yes	79 m²
3B	0907	N/A	Yes	-	113 m²
3B	0908	N/A	Yes	-	101 m²
10					
LEVEL 10					
1B	1005	N/A	Yes	-	54 m²
1B	1001	N/A	-	-	50 m²
2B	1010	N/A	-	-	84 m²
2B	1006	N/A	Yes	-	79 m²
2B	1009	N/A	-	-	84 m²
2B	1003	N/A	Yes	-	75 m²
2B	1004	N/A	Yes	-	80 m²
2B	1002	N/A	Yes	-	79 m²
3B	1007	N/A	Yes	-	113 m²
3B	1008	N/A	Yes	-	101 m²
10					
LEVEL 11					
1B	1105	N/A	Yes	-	54 m²
1B	1101	N/A	-	-	50 m²
2B	1110	N/A	-	-	84 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	1106	N/A	Yes	-	79 m²
2B	1109	N/A	-	-	85 m²
2B	1103	N/A	Yes	-	76 m²
2B	1104	N/A	Yes	-	80 m²
2B	1102	N/A	Yes	-	80 m²
3B	1107	N/A	Yes	-	114 m²
3B	1108	N/A	Yes	-	101 m²
10					
LEVEL 12					
1B	1205	N/A	Yes	-	54 m²
1B	1201	N/A	-	-	50 m²
2B	1210	N/A	-	-	84 m²
2B	1206	N/A	Yes	-	79 m²
2B	1209	N/A	-	-	85 m²
2B	1203	N/A	Yes	-	76 m²
2B	1204	N/A	Yes	-	80 m²
2B	1202	N/A	Yes	-	80 m²
3B	1207	N/A	Yes	-	114 m²
3B	1208	N/A	Yes	-	101 m²
10					
LEVEL 13					
1B	1305	N/A	Yes	-	54 m²
1B	1301	N/A	-	-	50 m²
2B	1310	N/A	-	-	84 m²
2B	1306	N/A	Yes	-	79 m²
2B	1309	N/A	-	-	85 m²
2B	1303	N/A	Yes	-	76 m²
2B	1304	N/A	Yes	-	80 m²
2B	1302	N/A	Yes	-	80 m²
3B	1307	N/A	Yes	-	114 m²
3B	1308	N/A	Yes	-	101 m²
10					
LEVEL 14					
1B	1405	N/A	Yes	-	54 m²
1B	1401	N/A	-	-	50 m²
2B	1410	N/A	-	-	84 m²
2B	1406	N/A	Yes	-	79 m²
2B	1409	N/A	-	-	85 m²
2B	1403	N/A	Yes	-	76 m²
2B	1404	N/A	Yes	-	80 m²
2B	1402	N/A	Yes	-	80 m²
3B	1407	N/A	Yes	-	114 m²
3B	1408	N/A	Yes	-	101 m²
10					
LEVEL 15					
1B	1505	N/A	Yes	-	54 m²
1B	1501	N/A	-	-	50 m²
2B	1510	N/A	-	-	84 m²
2B	1506	N/A	Yes	-	79 m²
2B	1509	N/A	-	-	85 m²
2B	1503	N/A	Yes	-	76 m²
2B	1504	N/A	Yes	-	80 m²
2B	1502	N/A	Yes	-	80 m²
3B	1507	N/A	Yes	-	114 m²
3B	1508	N/A	Yes	-	101 m²
10					
LEVEL 16					
1B	1605	N/A	Yes	-	54 m²
1B	1601	N/A	-	-	50 m²
2B	1610	N/A	-	-	84 m²
2B	1606	N/A	Yes	-	79 m²
2B	1609	N/A	-	-	85 m²
2B	1603	N/A	Yes	-	76 m²
2B	1604	N/A	Yes	-	80 m²
2B	1602	N/A	Yes	-	80 m²
3B	1607	N/A	Yes	-	114 m²
3B	1608	N/A	Yes	-	101 m²
10					
LEVEL 17					
1B	1705	N/A	Yes	-	54 m²
1B	1701	N/A	-	-	50 m²
2B	1710	N/A	-	-	84 m²
2B	1706	N/A	Yes	-	79 m²
2B	1709	N/A	-	-	85 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	1703	N/A	Yes	-	76 m²
2B	1704	N/A	Yes	-	80 m²
2B	1702	N/A	Yes	-	80 m²
3B	1707	N/A	Yes	-	114 m²
3B	1708	N/A	Yes	-	101 m²
10					
LEVEL 18					
1B	1805	N/A	Yes	-	54 m²
1B	1801	N/A	-	-	50 m²
2B	1810	N/A	-	-	84 m²
2B	1806	N/A	Yes	-	79 m²
2B	1809	N/A	-	-	85 m²
2B	1803	N/A	Yes	-	76 m²
2B	1804	N/A	Yes	-	80 m²
2B	1802	N/A	Yes	-	80 m²
3B	1807	N/A	Yes	-	114 m²
3B	1808	N/A	Yes	-	101 m²
10					
LEVEL 19					
1B	1905	N/A	Yes	-	54 m²
1B	1901	N/A	-	-	50 m²
2B	1910	N/A	-	-	84 m²
2B	1906	N/A	Yes	-	79 m²
2B	1909	N/A	-	-	85 m²
2B	1903	N/A	Yes	-	76 m²
2B	1904	N/A	Yes	-	80 m²
2B	1902	N/A	Yes	-	80 m²
3B	1907	N/A	Yes	-	114 m²
3B	1908	N/A	Yes	-	101 m²
10					
LEVEL 20					
1B	2005	N/A	Yes	-	54 m²
1B	2001	N/A	-	-	50 m²
2B	2010	N/A	-	-	84 m²
2B	2006	N/A	Yes	-	79 m²
2B	2009	N/A	-	-	85 m²
2B	2003	N/A	Yes	-	76 m²
2B	2004	N/A	Yes	-	80 m²
2B	2002	N/A	Yes	-	80 m²
3B	2007	N/A	Yes	-	114 m²
3B	2008	N/A	Yes	-	101 m²
10					
LEVEL 21					
1B	2105	N/A	Yes	-	54 m²
1B	2101	N/A	-	-	50 m²
2B	2110	N/A	-	-	84 m²
2B	2106	N/A	Yes	-	79 m²
2B	2109	N/A	-	-	84 m²
2B	2103	N/A	Yes	-	75 m²
2B	2104	N/A	Yes	-	80 m²
2B	2102	N/A	Yes	-	79 m²
3B	2107	N/A	Yes	-	113 m²
3B	2108	N/A	Yes	-	101 m²
10					
LEVEL 22					
1B	2205	N/A	Yes	-	54 m²
1B	2201	N/A	-	-	50 m²
2B	2210	N/A	-	-	84 m²
2B	2206	N/A	Yes	-	79 m²
2B	2209	N/A	-	-	85 m²
2B	2203	N/A	Yes	-	76 m²
2B	2204	N/A	Yes	-	80 m²
2B	2202	N/A	Yes	-	80 m²
3B	2207	N/A	Yes	-	114 m²
3B	2208	N/A	Yes	-	101 m²
10					
LEVEL 23					
1B	2305	N/A	Yes	-	54 m²
1B	2301	N/A	-	-	50 m²
2B	2310	N/A	-	-	84 m²
2B	2306	N/A	Yes	-	79 m²
2B	2309	N/A	-	-	85 m²
2B	2303	N/A	Yes	-	76 m²
2B	2304	N/A	Yes	-	80 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
2B	2302	N/A	Yes	-	80 m²
3B	2307	N/A	Yes	-	114 m²
3B	2308	N/A	Yes	-	101 m²
10					
LEVEL 24					
1B	2405	N/A	Yes	-	54 m²
1B	2401	N/A	-	-	50 m²
2B	2410	N/A	-	-	84 m²
2B	2406	N/A	Yes	-	79 m²
2B	2409	N/A	-	-	85 m²
2B	2403	N/A	Yes	-	76 m²
2B	2404	N/A	Yes	-	80 m²
2B	2402	N/A	Yes	-	80 m²
3B	2407	N/A	Yes	-	114 m²
3B	2408	N/A	Yes	-	101 m²
10					
LEVEL 25					
1B	2505	N/A	Yes	-	54 m²
1B	2501	N/A	-	-	50 m²
2B	2510	N/A	-	-	84 m²
2B	2506	N/A	Yes	-	79 m²
2B	2509	N/A	-	-	85 m²
2B	2503	N/A	Yes	-	76 m²
2B	2504	N/A	Yes	-	80 m²
2B	2502	N/A	Yes	-	80 m²
3B	2507	N/A	Yes	-	114 m²
3B	2508	N/A	Yes	-	101 m²
10					
LEVEL 26					
1B	2605	N/A	Yes	-	54 m²
1B	2601	N/A	-	-	50 m²
2B	2610	N/A	-	-	84 m²
2B	2606	N/A	Yes	-	79 m²
2B	2609	N/A	-	-	85 m²
2B	2603	N/A	Yes	-	76 m²
2B	2604	N/A	Yes	-	80 m²
2B	2602	N/A	Yes	-	80 m²
3B	2607	N/A	Yes	-	114 m²
3B	2608	N/A	Yes	-	101 m²
10					
LEVEL 27					
1B	2705	N/A	Yes	-	54 m²
1B	2701	N/A	-	-	50 m²
2B	2710	N/A	-	-	84 m²
2B	2706	N/A	Yes	-	79 m²
2B	2709	N/A	-	-	85 m²
2B	2703	N/A	Yes	-	76 m²
2B	2704	N/A	Yes	-	80 m²
2B	2702	N/A	Yes	-	80 m²
3B	2707	N/A	Yes	-	114 m²
3B	2708	N/A	Yes	-	101 m²
10					
LEVEL 28					
1B	2805	N/A	Yes	-	54 m²
1B	2801	N/A	-	-	50 m²
2B	2810	N/A	-	-	84 m²
2B	2806	N/A	Yes	-	79 m²
2B	2809	N/A	-	-	85 m²
2B	2803	N/A	Yes	-	76 m²
2B	2804	N/A	Yes	-	80 m²
2B	2802	N/A	Yes	-	80 m²
3B	2807	N/A	Yes	-	114 m²
3B	2808	N/A	Yes	-	101 m²
10					
LEVEL 29					
1B	2905	N/A	Yes	-	54 m²
1B	2901	N/A	-	-	50 m²
2B	2910	N/A	-	-	84 m²
2B	2906	N/A	Yes	-	79 m²
2B	2909	N/A	-	-	85 m²
2B	2903	N/A	Yes	-	76 m²
2B	2904	N/A	Yes	-	80 m²
2B	2902	N/A	Yes	-	80 m²

APARTMENT SCHEDULE

Unit	NO.	CROSS VENT.	SOLAR ACCESS (2+ HOURS)	AFFORDABLE HOUSING	AREA
3B	2907	N/A	Yes	-	114 m²
3B	2908	N/A	Yes	-	101 m²
10					
LEVEL 30					
1B	3001	N/A	-	-	49 m²
1B	3005	N/A	Yes	-	54 m²
2B	3002	N/A	-	-	79 m²
2B	3006	N/A	Yes	-	80 m²
2B	3003	N/A	Yes	-	75 m²
2B	3004	N/A	Yes	-	80 m²
6					
LEVEL 31					
1B	3101	N/A	-	-	49 m²
1B	3105	N/A	Yes	-	54 m²
2B	3102	N/A	-	-	80 m²
2B	3106	N/A	Yes	-	80 m²
2B	3103	N/A	Yes	-	76 m²
2B	3104	N/A	Yes	-	80 m²
3B	3107	N/A	Yes	-	93 m²
7					
LEVEL 32					
1B	3201	N/A	-	-	49 m²
1B	3205	N/A	Yes	-	54 m²
2B	3202	N/A	-	-	79 m²
2B	3206	N/A	Yes	-	80 m²
2B	3203	N/A	Yes	-	75 m²
2B	3204	N/A	Yes	-	80 m²
3B	3207	N/A	Yes	-	93 m²
7					
LEVEL 33					
1B	3301	N/A	-	-	49 m²
1B	3305	N/A	Yes	-	54 m²
2B	3302	N/A	-	-	80 m²
2B	3306	N/A	Yes	-	80 m²
2B	3303	N/A	Yes	-	76 m²
2B	3304	N/A	Yes	-	80 m²
3B	3307	N/A	Yes	-	93 m²
7					
LEVEL 34					
1B	3401	N/A	-	-	49 m²
1B	3405	N/A	Yes	-	54 m²
2B	3402	N/A	-	-	80 m²
2B	3406	N/A	Yes	-	80 m²
2B	3403	N/A	Yes	-	76 m²
2B	3404	N/A	Yes	-	80 m²
3B	3407	N/A	Yes	-	93 m²
7					
LEVEL 35					
1B	3501	N/A	-	-	49 m²
1B	3505	N/A	Yes	-	54 m²
2B	3502	N/A	-	-	79 m²
2B	3506	N/A	Yes	-	80 m²
2B	3503	N/A	Yes	-	75 m²
2B	3504	N/A	Yes	-	80 m²
3B	3507	N/A	Yes	-	93 m²
7					
LEVEL 36					
1B	3601	N/A	-	-	49 m²
1B	3605	N/A	Yes	-	54 m²
2B	3602	N/A	-	-	80 m²
2B	3606	N/A	Yes	-	80 m²
2B	3603	N/A	Yes	-	76 m²
2B	3604	N/A	Yes	-	80 m²
3B	3607	N/A	Yes	-	93 m²
7					
LEVEL 37					
1B	3701		-	-	50 m²
1B	3705	N/A	Yes	-	54 m²
2B	3702		-	-	80 m²
2B	3706	N/A	Yes	-	80 m²
2B	3703	N/A	Yes	-	76 m²
2B	3704	N/A	Yes	-	80 m²
3B	3707		Yes	-	93 m²

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 22/05/2026 3:51:08 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
A	PRELIMINARY	29.08.2025
B	FOR COORDINATION	21.05.2026

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

[Scale]

DEVELOPMENT SUMMARY - SHEET 1

[Ref] 20240022 [Dwg No] AD-DA85_501 [Rev] B

UNIT MIX - CO-LIVING

TYPE	COUNT	MIX
C1B	156	90%
C2B	4	2%
C3B	6	3%
CDDA	8	5%
	174	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 1			
C1B	0116	1	25 m²
C1B	0113	1	25 m²
C1B	0111	1	25 m²
C1B	0112	1	25 m²
C1B	0115	1	25 m²
C1B	0114	1	25 m²
C1B	0117	1	25 m²
C1B	0118	1	25 m²
C1B	0109	1	25 m²
C1B	0108	1	34 m²
C1B	0110	1	25 m²
C1B	0119	1	27 m²
C1B	0103	1	25 m²
C1B	0104	1	25 m²
C1B	0101	1	25 m²
C1B	0102	1	25 m²
C1B	0106	1	25 m²
C1B	0107	1	30 m²
C1B	0105	1	25 m²
C1B	0129	1	30 m²
C1B	0135	1	32 m²
C1B	0134	1	32 m²
C1B	0132	1	32 m²
C1B	0133	1	32 m²
C1B	0136	1	32 m²
C1B	0127	1	32 m²
C1B	0128	1	32 m²
C1B	0131	1	32 m²
C1B	0143	1	25 m²
C1B	0142	1	25 m²
C1B	0141	1	25 m²
C1B	0137	1	32 m²
C1B	0138	1	31 m²
C1B	0126	1	32 m²
C1B	0125	1	32 m²
C1B	0122	1	32 m²
C1B	0121	1	32 m²
C1B	0123	1	32 m²
C1B	0124	1	32 m²
C2B	0139	2	66 m²
C3B	0120	3	61 m²
C3B	0130	3	78 m²
CDDA	0140	1	42 m²
CDDA	0144	1	43 m²
44		49	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 2			
C1B	0216	1	25 m²
C1B	0213	1	25 m²
C1B	0211	1	25 m²
C1B	0212	1	25 m²
C1B	0215	1	25 m²
C1B	0214	1	25 m²
C1B	0217	1	25 m²
C1B	0218	1	25 m²
C1B	0209	1	25 m²
C1B	0208	1	34 m²
C1B	0210	1	25 m²
C1B	0219	1	27 m²
C1B	0203	1	25 m²
C1B	0204	1	25 m²
C1B	0201	1	25 m²
C1B	0202	1	25 m²
C1B	0206	1	25 m²
C1B	0207	1	30 m²
C1B	0205	1	25 m²
C1B	0229	1	30 m²
C1B	0235	1	32 m²
C1B	0234	1	32 m²
C1B	0232	1	32 m²
C1B	0233	1	32 m²
C1B	0236	1	32 m²
C1B	0227	1	32 m²
C1B	0228	1	32 m²
C1B	0231	1	32 m²
C1B	0243	1	25 m²
C1B	0242	1	25 m²
C1B	0241	1	25 m²
C1B	0237	1	32 m²
C1B	0238	1	31 m²
C1B	0226	1	32 m²
C1B	0225	1	32 m²
C1B	0222	1	32 m²
C1B	0221	1	32 m²
C1B	0223	1	32 m²
C1B	0224	1	32 m²
C2B	0239	2	66 m²
C3B	0220	3	61 m²
C3B	0230	3	78 m²
CDDA	0240	1	42 m²
CDDA	0244	1	43 m²
44		49	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 3			
C1B	0325	1	29 m²
C1B	0329	1	26 m²
C1B	0316	1	25 m²
C1B	0313	1	25 m²
C1B	0311	1	25 m²
C1B	0312	1	25 m²
C1B	0334	1	26 m²
C1B	0333	1	26 m²
C1B	0315	1	25 m²
C1B	0314	1	25 m²
C1B	0317	1	25 m²
C1B	0318	1	25 m²
C1B	0309	1	25 m²
C1B	0308	1	33 m²
C1B	0310	1	25 m²
C1B	0331	1	26 m²
C1B	0332	1	26 m²
C1B	0335	1	26 m²
C1B	0319	1	27 m²
C1B	0330	1	39 m²
C1B	0303	1	25 m²
C1B	0304	1	25 m²
C1B	0301	1	25 m²
C1B	0302	1	25 m²
C1B	0306	1	25 m²
C1B	0307	1	29 m²
C1B	0305	1	25 m²
C1B	0342	1	25 m²
C1B	0341	1	25 m²
C1B	0340	1	25 m²
C1B	0336	1	26 m²
C1B	0337	1	26 m²
C1B	0326	1	29 m²
C1B	0328	1	29 m²
C1B	0327	1	29 m²
C1B	0324	1	28 m²
C1B	0323	1	29 m²
C1B	0322	1	29 m²
C1B	0321	1	29 m²
C2B	0338	2	48 m²
C3B	0320	3	55 m²
CDDA	0339	1	41 m²
CDDA	0343	1	43 m²
43		46	

ROOM SCHEDULE - CO-LIVING

Unit	NO.	NO. OF BEDS	AREA
LEVEL 4			
C1B	0425	1	29 m²
C1B	0429	1	26 m²
C1B	0416	1	25 m²
C1B	0413	1	25 m²
C1B	0411	1	25 m²
C1B	0412	1	25 m²
C1B	0434	1	26 m²
C1B	0433	1	26 m²
C1B	0415	1	25 m²
C1B	0414	1	25 m²
C1B	0417	1	25 m²
C1B	0418	1	25 m²
C1B	0409	1	25 m²
C1B	0408	1	33 m²
C1B	0410	1	25 m²
C1B	0431	1	26 m²
C1B	0432	1	26 m²
C1B	0435	1	26 m²
C1B	0419	1	27 m²
C1B	0430	1	40 m²
C1B	0403	1	25 m²
C1B	0404	1	25 m²
C1B	0401	1	25 m²
C1B	0402	1	25 m²
C1B	0406	1	25 m²
C1B	0407	1	29 m²
C1B	0405	1	25 m²
C1B	0442	1	25 m²
C1B	0441	1	25 m²
C1B	0440	1	25 m²
C1B	0436	1	26 m²
C1B	0437	1	26 m²
C1B	0426	1	29 m²
C1B	0428	1	29 m²
C1B	0427	1	29 m²
C1B	0424	1	28 m²
C1B	0423	1	29 m²
C1B	0422	1	29 m²
C1B	0421	1	29 m²
C2B	0438	2	48 m²
C3B	0420	3	55 m²
CDDA	0439	1	41 m²
CDDA	0443	1	43 m²
43		46	
174		190	

[Status] PRELIMINARY

[Nom. Architect] Nicholas Bandounas /8499

[File] 20240022-AB-SK001-North Wollongong Model.rvt

[Print Date] 21/05/2026 11:52:04 AM

History

[Rev#]	[Description]	[Date]dd.mm.yy
A	FOR COORDINATION	21.05.2026

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[Project] 4-4a FLINDERS STREET, WOLLONGONG

[Client] URBAN PROPERTY GROUP

0 0.5 1 1.5 2 2.5 m
Bar Scale 1:50

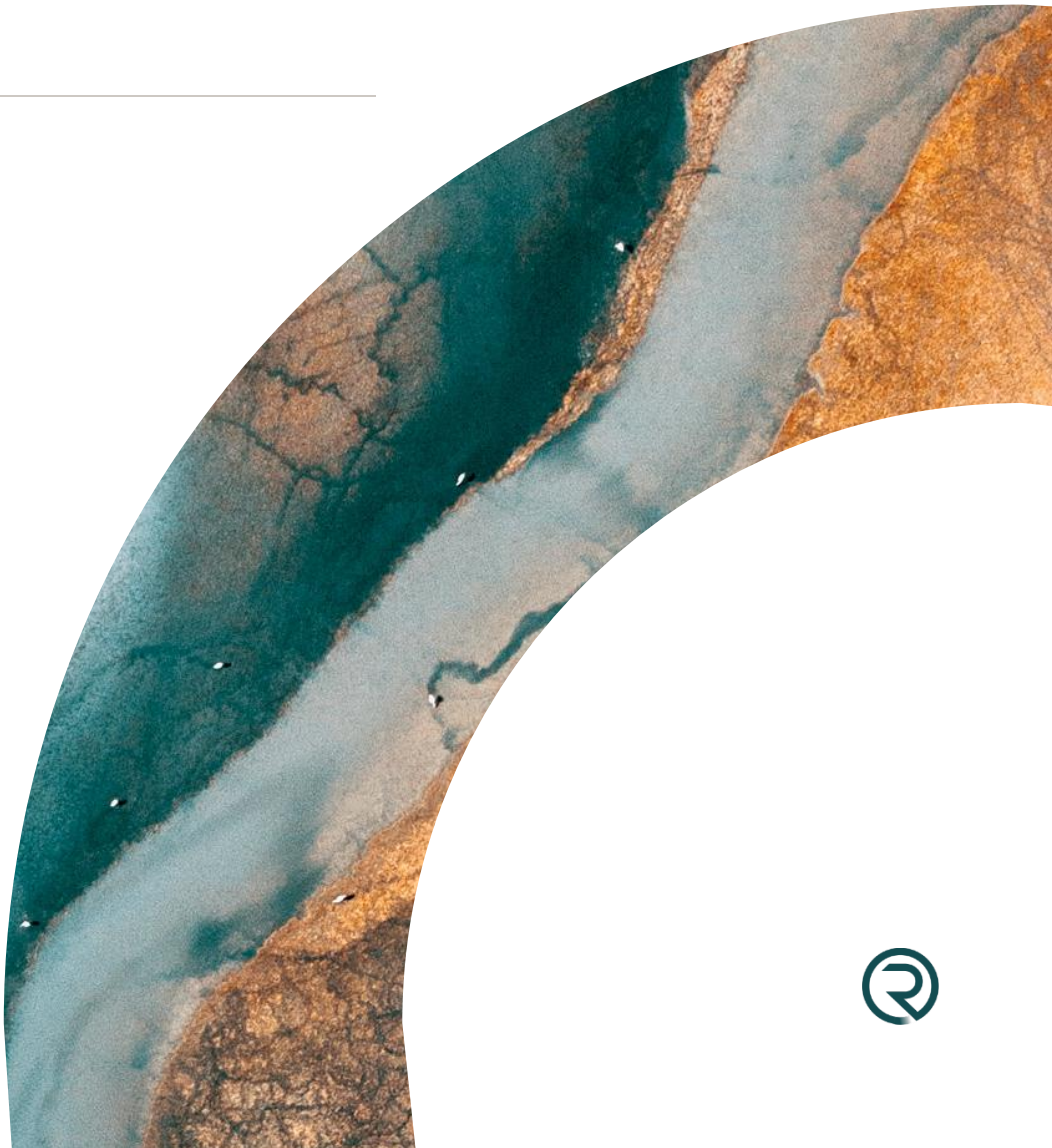
[Scale] @ A1

DEVELOPMENT SUMMARY - SHEET 2

[Ref] 20240022 [Dwg No] AD-DA85_502 [Rev] A

C

Borehole & Monitoring Well Logs



JKGeotechnics

BOREHOLE LOG

Borehole No. 1

1 / 5

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 31/3/26 TO 2/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										CONCRETE: 110mm.t				6mm DIA. REINFORCEMENT, 65mm TOP COVER
						4			-	FILL: Silty clay, high plasticity, dark grey and grey, trace of fine to medium grained igneous gravel, and ash.	w>PL			
					N = 4 0,2,2				CH	Silty CLAY: high plasticity, dark grey, trace of root fibres.	w>PL	St	120 140 130	APPEARS POORLY COMPACTED ALLUVIAL
						3	1							
					N = 5 2,2,3								150 150 160	
						2	2		CL-CI	Silty sandy CLAY: low to medium plasticity, red brown and grey, fine to medium grained sand, trace of root fibres.				
							3		CI	Silty CLAY: medium plasticity, grey mottled orange brown, trace of fine to medium grained sand, and root fibres.		VSt		
ON COMPLETION OF CORING					N = 8 2,3,5	1							250 270 260	
ON COMPLETION OF AUGERING							4		CI-CH	Silty CLAY: medium to high plasticity, light grey mottled orange brown, trace of fine grained sand, and root fibres.				
					N = 9 2,4,5	0							390 270 280	
						-1	5							
					N = 10 4,4,6		6		CL	Silty CLAY: low plasticity, grey and orange brown, with fine to medium grained sand, trace of root fibres.			280 330 360	
						-2								

JK 9.02.4 LIB.GLB Log JK AUGERHOLE - MASTER 38224AH NORTHWOLLONGONG.GPJ <<DrawingFile>> 18/05/2026 11:13 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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BOREHOLE LOG

Borehole No. 1

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 31/3/26 TO 2/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									CL	Silty CLAY: low plasticity, grey and orange brown, with fine to medium grained sand, trace of root fibres.	w>PL	VSt		
									CI		w<PL	Hd		RESIDUAL
						-3				Silty CLAY: medium plasticity, light grey and orange brown.			550	
				■	N > 15 4,9,6/ 50mm REFUSAL								500	
													520	
										Extremely Weathered sandstone: silty CLAY, medium plasticity, light grey and orange brown.	XW	Hd		BUDGONG SANDSTONE
							8		-		HW	VL		VERY LOW 'TC' BIT RESISTANCE
						-4				SANDSTONE: fine to medium grained, orange brown and grey.				
							9				MW	M		MODERATE TO HIGH RESISTANCE
				■		-5								
							10			REFER TO CORED BOREHOLE LOG				BOREHOLE BACKFILLED WITH BENTONITE 18.20m TO 30.00m. GROUNDWATER MONITORING WELL INSTALLED TO 18.20m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 12.20m TO 18.20m. CASING 0.09m TO 12.20m. 2mm SAND FILTER PACK 11.95m TO 18.20m. BENTONITE SEAL 8.95m TO 11.95m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						-6								
							11							
						-7								
							12							
						-8								
							13							
						-9								

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CORED BOREHOLE LOG

Borehole No. 1

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Core Size:** HQ **R.L. Surface:** ~4.4 m

Date: 31/3/26 TO 2/4/26 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK310 **Bearing:** N/A **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS SPACING (mm)	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
75% RETURN		-6	11		START CORING AT 10.00m SANDSTONE: fine to medium grained, orange brown and grey, bedded at 0-20°.	MW	M	0.30 0.50		(10.05m) XWS, 0°, 30 mm.t (10.28m) Be, 5°, P, R, Fe Sn (10.53m) Ji, 40°, C, Fe Sn (10.68m) J, 40°, P, R, Fe Sn (10.76m) Jh, 30°, C, Fe Sn (10.83m) J, 40°, P, R, Fe Sn (10.88m) Be, 20°, P, R, Fe Sn (10.93m) Be, 0°, P, R, Fe Sn	
		-7	12		SANDSTONE: fine to medium grained, grey, with occasional orange brown seams, bedded at 0-15°.	HW	VL - L	0.10 0.050 0.10 0.10 0.10 0.070		(11.35m) Be, 5°, P, R, Fe Sn (11.68m) J, 30°, P, R, Clay Vn (11.82m) Be, 5°, P, R, Fe Sn (12.24m) Jh, 30°, P, Fe (12.46m) XWS, 0°, 25 mm.t (12.72m) Be, 5°, P, R, Clay Vn (12.95-13.90m) J, 60 - 90°, Un, R, Cn (13.45m) J, 75°, P, S, Cn	Budgong Sandstone
		-8	13								
		-9	14								
		-10	15		SANDSTONE: fine to medium grained, grey, bedded at 0-15°.	FR	M	0.20 0.40 0.30		(14.15m) J, 90°, P, R, Cn (14.63m) J, 60°, P, R, Cn (14.91m) Ji, 90°, P (15.03m) J, 40°, P, R, Cn	
		-11	16					0.60 0.50		(15.37m) J, 90°, C, R, Cn (16.03m) J, 75°, P, S, Cn	
		-12					L	0.10 0.60		(16.56m) J, 70°, Un, R, Cn (16.69m) XWS, 0°, 12 mm.t	

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CORED BOREHOLE LOG

Borehole No. 1

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Core Size:** HQ **R.L. Surface:** ~4.4 m

Date: 31/3/26 TO 2/4/26 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK310 **Bearing:** N/A **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
75% RETURN		-13			SANDSTONE: fine to medium grained, grey and light grey, trace of fine grained quartz gravel and occasional quartz veins, bedded at 0-5°.	FR	M	0.30		(17.19m) Jh x 2, 50°, Clay Ct (17.31m) J, 80°, Un, S, Clay Vn	Budgong Sandstone
										(17.55m) J, 30°, P, R, Cn	
								0.60		(17.70m) J, 65°, P, R, Cn	
60% RETURN		-14	18		SANDSTONE: fine grained, dark grey, with light grey bands, occasional quartz veins and quartz laminae, bedded at 0-5°.			0.50		(18.08-18.60m) Ji x 5, 45 - 80°, P or Un, Qz Ct	
								0.60			
			19					0.90		(19.03m) Ji, 70°, P, Qz Ct (19.13m) XWS, 0°, 20 mm.t	
		-15					L	0.20			
							M - H			(19.46m) Jh, 90°, Un, Qz Ct (19.56m) J, 35°, C, R, Cn (19.65m) Ji, 60°, P, Qz Ct (19.70m) Ji, 70°, P	
								1.0		(19.88m) XWS, 0°, 45 mm.t (19.95m) J, 45°, P, R, Cn (20.05m) J, 70°, P, S, Cn (20.12m) J, 80°, P, R, Cn	
		-16	20					0.60			
								0.90			
80% RETURN			21							(21.11m) Jh, 70°, P, Qz Ct	
		-17						1.2			
								0.60			
		-18	22					1.1			
								1.2		(22.78m) Jh, 65°, Un, Qz Ct	
			23		as above, but grey and light grey.					(22.92-23.25m) Jh x 4, 60 - 80°, C or P, Qz Ct	
		-19						0.90			
							M	0.50		(23.70-24.00m) J, 90°, Un, R, Clay FILLED, < 50mm.t	
					SANDSTONE: as below.						

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CORED BOREHOLE LOG

Borehole No. 1 **5 / 5**

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Core Size:** HQ **R.L. Surface:** ~4.4 m

Date: 31/3/26 TO 2/4/26 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK310 **Bearing:** N/A **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness)	Formation
80% RETURN		-20	25		SANDSTONE: fine grained, grey and light grey, with sub-horizontal and sub-vertical quartz veins and occasional fine to medium grained bands, bedded at 0-15°.	FR	M	0.50		(24.12m) J, 70°, P, S, Cn	Budgong Sandstone
		-21	26				H	0.60		(24.40m) J, 70°, P, R, Qz Ct	
		-22	27					0.70		(24.93m) Ji, 45°, Un, Qz Ct	
		-23	28				M	1.5		(25.10m) J, 60°, P, R, Cn	
		-24	29					2.4		(25.28m) CS, 15°, 25 mm.t	
		-25			SANDSTONE: fine to medium grained, grey, bedded at 0-5°.			2.3		(26.21m) Be, 5°, P, S, Cn	
								2.3			
								1.7			
								1.5	60 90 60 20	(27.46m) J x 2, 65°, P, R, Cn	
										(27.61m) J, 30°, C, R, Cn	
										(27.62m) J, 80°, P, R, Cn	
										(27.72m) J, 75°, St, R, Cn	
							M	0.70		(28.27m) J, 80°, Un, R, Qz Ct	
										(28.34m) XWS, 0°, 25 mm.t	
								0.40		(28.63m) J, 60°, P, R, Cn	
								0.70		(28.75m) J, 75°, P, R, Cn	
										(29.09m) J, 60°, P, R, Cn	
								0.40		(29.55m) Ji, 45°, C	
		-26	30		END OF BOREHOLE AT 30.00 m					(29.80m) Ji, 85°, Un	

POINT LOAD STRENGTH INDEX $I_s(50)$ scale: VL 0.1, L 0.3, M 1, H 3, VH 10, EH

DEFECT DETAILS: SPACING (mm) scale: 600, 200, 60, 20

DEFECT DETAILS: DESCRIPTION — Specific / General

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PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 38224AH
DATE: 8/04/26
LOCATION ID: BH1
DEPTH: 10.00m - 17.00 m
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
38224AH BH1 START CORING AT 10.00m
10
11
12
13
14
15
16


PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 38224AH
DATE: 8/04/26
LOCATION ID: BH1
DEPTH: 17.00 - 25.00
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
17
18
19
20
21
22
23
24


PROJECT: PROPOSED MIXED USE DEVELOPMENT
PROJECT No: 38224AH
DATE: 8/04/26
LOCATION ID: BH1
DEPTH: 25.00-30.00
JKGeotechnics
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
25
26
27
28
29
END OF BOREHOLE AT 30.00m

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BOREHOLE LOG

Borehole No.
1A
1 / 2

Client: UPG FLINDERS PTY LTD
Project: PROPOSED MIXED-USE DEVELOPMENT
Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m
Date: 7/4/26 **Datum:** AHD
Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										CONCRETE: 110mm.t				6mm DIA. REINFORCEMENT, 65mm TOP COVER
						4			-	FILL: Silty clay, high plasticity, dark grey and grey, trace of fine to medium grained igneous gravel, and ash.	w>PL			
							1		CH	Silty CLAY: high plasticity, dark grey, trace of root fibres.	w>PL			ALLUVIAL
						3								
							2							
						2			CL-CI	Silty sandy CLAY: low to medium plasticity, red brown and grey, fine to medium grained sand, trace of root fibres.				
							3		CI	Silty CLAY: medium plasticity, grey mottled orange brown, trace of fine to medium grained sand, and root fibres.				
						1								
							4		CI-CH	Silty CLAY: medium to high plasticity, light grey mottled orange brown, trace of fine grained sand, and root fibres.				
						0								
							5							
						-1								
							6		CL	Silty CLAY: low plasticity, grey and orange brown, with fine to medium grained sand, trace of root fibres.				
						-2								

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BOREHOLE LOG

Borehole No.
1A
2 / 2

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 7/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									CL	Silty CLAY: low plasticity, grey and orange brown, with fine to medium grained sand, trace of root fibres.	w>PL			
									CI		w<PL			GROUNDWATER MONITORING WELL INSTALLED TO 7.18m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 1.18m TO 7.18m. CASING 0.13m TO 1.18m. 2mm SAND FILTER PACK 1.00m TO 7.18m. BENTONITE SEAL 0.30m TO 1.00m. COMPLETED WITH A CONCRETED GATIC COVER.
						-3				Silty CLAY: medium plasticity, light grey and orange brown.				
										END OF BOREHOLE AT 7.18 m				
						-4	8							
						-5	9							
							10							
						-6								
							11							
						-7								
							12							
						-8								
							13							
						-9								

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BOREHOLE LOG

Borehole No. 2

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 7/4/26 TO 8/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									-	ASPHALTIC CONCRETE: 70mm.t				
										FILL: Silty sandy gravel, fine to medium grained, dark grey, fine to coarse grained sand.	M w>PL			
					N = 3 0,1,2	4			CH	FILL: Silty clay, medium to high plasticity, dark grey, trace of fine to medium grained igneous gravel.	w>PL	F - St	120 140 140	ALLUVIAL
							1			Silty CLAY: high plasticity, grey mottled orange brown, trace of root fibres.				
					N = 8 2,3,5	3				Silty CLAY: high plasticity, grey, red brown and orange brown, trace of fine grained sand, fine to medium grained ironstone gravel, and root fibres.		VSt	220 200 210	
ON COMPLETION OF AUGERING						2	2							
					N = 7 2,3,4	1	3						240 240 230	
										Silty CLAY: high plasticity, grey and light grey mottled orange brown, trace of fine to medium grained ironstone and quartz gravel, and root fibres.				
					N = 10 2,5,5	0	4						290 290 310	
						-1	5		CI-CH	Silty CLAY: medium to high plasticity, grey and orange brown, with extremely weathered sandstone seams, trace of fine to coarse grained ironstone gravel.		VSt - Hd		RESIDUAL
					N = 17 3,8,9	-2	6						400 410 460	
									-	SANDSTONE: as below.	HW	VL - L		BUDGONG SANDSTONE

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BOREHOLE LOG

Borehole No. 2

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 7/4/26 TO 8/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				■		-3	8		-	SANDSTONE: fine to medium grained, grey and light brown, with extremely weathered bands.	HW	VL - L		BUDGONG SANDSTONE LOW 'TC' BIT RESISTANCE WITH VERY LOW BANDS
				■		-4								
							9			REFER TO CORED BOREHOLE LOG				BOREHOLE BACKFILLED WITH BENTONITE 18.54m TO 20.98m. GROUNDWATER MONITORING WELL INSTALLED TO 18.54m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 12.54m TO 18.54m. CASING 0.09m TO 12.54m. 2mm SAND FILTER PACK 12.19m TO 18.54m. BENTONITE SEAL 8.48m TO 12.19m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						-5								
							10							
						-6								
							11							
						-7								
							12							
						-8								
							13							
						-9								

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CORED BOREHOLE LOG

Borehole No. 2

3 / 4

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH | **Core Size:** HQ | **R.L. Surface:** ~4.4 m

Date: 7/4/26 TO 8/4/26 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK310 | **Bearing:** N/A | **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness)	Formation
		-4			START CORING AT 8.67m						
90% RETURN			9		Extremely Weathered sandstone: sandy silty CLAY, medium plasticity, light orange brown and grey, fine to medium grained sand.	XW	Hd			(9.20m) J, 80°, Un, R, Fe Sn (9.29m) CS, 0°, 48 mm.t	
		-5			SANDSTONE: fine grained, orange brown, with light grey seams, bedded at 0-15°.	HW	L - M VL - L	0.30 0.080		(9.53m) XWS, 0°, 7 mm.t (9.90m) J, 80°, Un, R, Fe Sn	
			10							(10.00-10.60m) J, 80 - 90°, Un, R, Fe Sn	
		-6								(10.74m) J, 75°, P, R, Fe Sn (10.85m) XWS, 10°, 40 mm.t	
			11		SANDSTONE: fine grained, grey, with orange brown bands, bedded at 0-10°.	SW	L - M	0.40			
		-7						0.70		(11.35m) Ji, 60°, P, Fe Sn (11.45m) Be, 0°, P, R, Cn	
			12			MW	L	0.20			Budgong Sandstone
		-8						0.20		(12.55m) J, 65°, P, R, Fe Sn	
			13		SANDSTONE: fine grained, grey, bedded at 0-5°.			0.20		(12.87m) Cr, 0°, 18 mm.t (13.28m) Be, 5°, Un, R, Clay Vn	
		-9				FR	M			(13.72m) Ji, 75°, P (13.83m) J, 90°, St, S, Clay Ct (13.90m) J, 90°, P, S, Clay Ct	
			14							(14.03m) J, 45°, P, R, Cn (14.15m) Be, 5°, Un, R, Fe Sn (14.05-14.40m) Ji x 5, 50 - 90°, C or Ir, Qz Ct	
		-10			as above, but with occasional sub-vertical quartz veins.			0.40 0.70		(14.78m) Be, 5°, P, R, Cn	

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CORED BOREHOLE LOG

Borehole No. 2
4 / 4

Client: UPG FLINDERS PTY LTD
Project: PROPOSED MIXED-USE DEVELOPMENT
Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH | **Core Size:** HQ | **R.L. Surface:** ~4.4 m
Date: 7/4/26 TO 8/4/26 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK310 | **Bearing:** N/A | **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
80% RETURN		-11 to -13	16 to 18		SANDSTONE: fine grained, grey, with occasional sub-horizontal and sub-vertical quartz veins, bedded at 0-20°.	FR	M	0.70, 0.30, 0.40, 1.1, 1.3, 0.90, 0.90		(15.45m) J, 60°, P, R, Qz Ct; (17.48m) J, 70°, P, R, Cn; (18.35m) J, 80 - 90°, Un, R, Cn; (18.57m) Be, 20°, P, R, Cn; (18.66m) J, 60°, P, R, Cn; (18.78m) J, 50°, P, R, Cn	Budgong Sandstone
							M - H				
70% RETURN		-14 to -16	19 to 21		as above, but fine to coarse grained.		L	1.6, 0.50, 1.0, 0.60, 0.20			
		-17	21		END OF BOREHOLE AT 20.98 m						

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PROJECT: PROPOSED MIXEDUSE DEVELOPMENT
PROJECT No: 38224AH
DATE: 9/04/2026
LOCATION ID: BH2
DEPTH: 8.67m - 15.00m
JKGeotechnics
38224AH BH2 START CORING AT 8.67m
8
9
10
11
12
13
14

PROJECT: PROPOSED MIXEDUSE DEVELOPMENT

PROJECT No: 38224AH DATE: 10/04/2026

LOCATION ID: BH2 DEPTH: 15.00m - 20.98m

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BOREHOLE LOG

Borehole No.
2A
1 / 2

Client: UPG FLINDERS PTY LTD
Project: PROPOSED MIXED-USE DEVELOPMENT
Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m
Date: 9/4/26 **Datum:** AHD
Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						4	0		-	ASPHALTIC CONCRETE: 70mm.t	M			
										FILL: Silty sandy gravel, fine to medium grained, dark grey, fine to coarse grained sand.	w>PL			
									CH	FILL: Silty clay, medium to high plasticity, dark grey, trace of fine to medium grained igneous gravel.	w>PL			ALLUVIAL
							1			Silty CLAY: high plasticity, grey mottled orange brown, trace of root fibres.				
						3								
										Silty CLAY: high plasticity, grey, red brown and orange brown, trace of fine grained sand, fine to medium grained ironstone gravel, and root fibres.				
						2	2							
							3							
						1								
							4			Silty CLAY: high plasticity, grey and light grey mottled orange brown, trace of fine to medium grained ironstone, siltstone and quartz gravel, and root fibres.				
						0								
							5							
						-1			CI-CH	Silty CLAY: medium to high plasticity, grey and orange brown, with extremely weathered sandstone seams, trace of fine to coarse grained ironstone gravel.				RESIDUAL
							6							
						-2			-	SANDSTONE: as below.	HW	VL - L		BUDGONG SANDSTONE

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BOREHOLE LOG

Borehole No. 2A

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.4 m

Date: 9/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-3	8		-	SANDSTONE: fine to medium grained, grey and light brown, with extremely weathered bands.	HW	VL - L		BUDGONG SANDSTONE LOW 'TC' BIT RESISTANCE
						-4								
						-5	9			END OF BOREHOLE AT 8.90 m				GROUNDWATER MONITORING WELL INSTALLED TO 8.90m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 6.90m TO 8.90m. CASING 0.08m TO 6.90m. 2mm SAND FILTER PACK 6.50m TO 8.90m. BENTONITE SEAL 0.60m TO 6.50m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						-6	10							
						-7	11							
						-8	12							
						-9	13							

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BOREHOLE LOG

Borehole No. 3

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.5 m

Date: 9/4/26 TO 10/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									-	BRICK PAVERS: 50mm.t	M			APPEARS MODERATELY COMPACTED
										FILL: Sand, fine to coarse grained, light brown, trace of fine to medium grained igneous gravel, and silt fines.				
					N = 7 12,5,2	4				FILL: Silty gravelly sand, fine to medium grained, grey, fine grained igneous gravel.	w>PL			APPEARS POORLY COMPACTED
							1			FILL: Silty clay, high plasticity, dark grey, trace of fine to medium grained igneous gravel.				
▽ ON COMPLETION OF CORING									CH	Silty CLAY: high plasticity, grey mottled orange brown and red brown, trace of root fibres.	w>PL	F - St		ALLUVIAL
					N = 3 1,2,1	3							120 130 120	
						2	2							
										Silty CLAY: high plasticity, red brown and grey mottled orange brown, trace of fine to medium grained ironstone gravel, and root fibres.			180 180 200	HP READINGS ON REMOULDED AUGER SAMPLE
▽ ON COMPLETION OF AUGERING					N = 5 0,2,3	1	3							NO SPT SAMPLE RETURN
									CI	Silty CLAY: medium plasticity, grey and orange brown, trace of fine grained sand.		VSt - Hd		
					N = 11 3,5,6	0	4						400 400 410	
						-1	5							
									CL	Silty sandy CLAY: low plasticity, grey and orange brown, fine to coarse grained sand.		VSt		
					N = 15 3,5,10	-2	6						240 220 220	

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BOREHOLE LOG

Borehole No. 3

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.5 m

Date: 9/4/26 TO 10/4/26 **Datum:** AHD

Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-3			CL	Silty sandy CLAY: low plasticity, grey and orange brown, fine to coarse grained sand. *(continued)*	w>PL	VSt - Hd		
					N = 22 3,11,11		8		-	SANDSTONE: fine to medium grained, grey and light brown.	HW	VL		BUDGONG SANDSTONE LOW 'TC' BIT RESISTANCE
						-4								
						-5	9			REFER TO CORED BOREHOLE LOG				BOREHOLE BACKFILLED WITH BENTONITE 18.07m TO 21.00m. GROUNDWATER MONITORING WELL INSTALLED TO 18.07m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 12.07m TO 18.07m. CASING 0.17m TO 12.07m. 2mm SAND FILTER PACK 11.84m TO 18.07m. BENTONITE SEAL 9.90m TO 11.84m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						-6	10							
						-7	11							
						-8	12							
						-9	13							

JK 9.02.4 LIB.GLB Log JK AUGERHOLE - MASTER 38224AH NORTHWOLLONGONG.GPJ <<DrawingFile>> 18/05/2026 11:17 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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CORED BOREHOLE LOG

Borehole No. 3

Client: UPG FLINDERS PTY LTD

Project: PROPOSED MIXED-USE DEVELOPMENT

Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Core Size:** HQ **R.L. Surface:** ~4.5 m

Date: 9/4/26 TO 10/4/26 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK310 **Bearing:** N/A **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness)	Formation
		-4			START CORING AT 8.72m						
90% RETURN			9		SANDSTONE: fine to medium grained, light orange brown, bedded at 0-20°.	HW	VL	0.040, 0.10, 0.080, 0.030, 0.10		(8.93m) CS, 0°, 18 mm.t (9.18m) CS, 0°, 30 mm.t (9.40m) Be, 20°, P, R, Cn (9.67m) Be, 20°, P, R, Clay Ct (9.73m) CS, 0°, 50 mm.t (9.84m) XWS, 0°, 40 mm.t (10.26m) XWS, 0°, 30 mm.t (10.57m) XWS, 0°, 20 mm.t (10.66m) Be, 10°, P, R, Cn (10.69m) Be, 20°, P, R, Cn (10.91m) CS, 0°, 19 mm.t	Budgong Sandstone
		-5	10								
		-6									
			11		as above, but brown.	MW	M	0.40, 0.30			
		-7								(11.58m) CS, 0°, 65 mm.t (11.65m) Be, 5°, P, R, Fe Sn	
		-8	12		as above, but grey and brown.		M - H	0.60		(12.17m) J, 65°, P, R, Fe Sn (12.37m) Be, 10°, P, S, Cn (12.48m) Cr, 0°, 6 mm.t (12.56m) J, 60°, P, R, Cn (12.74m) CS, 0°, 35 mm.t (12.82m) XWS, 0°, 10 mm.t	
70% RETURN			13		SANDSTONE: fine grained, grey, with occasional sub-horizontal and sub-vertical quartz veins, bedded at 0-20°.	FR		1.1		(13.06m) Be, 10°, P, S, Fe Sn (13.07m) Be, 10°, P, S, Fe Sn (13.14m) J, 20°, P, R, Cn (13.24m) J, 20°, P, R, Cn	
		-9						0.70			
			14				H - VH	1.1		(13.73m) Be, 5°, P, R, Clay Vn	
		-10						0.70, 1.9		(14.67m) J, 80°, P, R, Cn	

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CORED BOREHOLE LOG

Borehole No. 3
4 / 4

Client: UPG FLINDERS PTY LTD
Project: PROPOSED MIXED-USE DEVELOPMENT
Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH | **Core Size:** HQ | **R.L. Surface:** ~4.5 m
Date: 9/4/26 TO 10/4/26 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK310 | **Bearing:** N/A | **Logged/Checked By:** M.H./A.J.H.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
30% RETURN		-11			SANDSTONE: fine grained, dark grey, with occasional sub-horizontal and sub-vertical quartz veins, bedded at 0-20°.	FR	H - VH	2.5			
								3.5			
			16				M - H	0.80			
60% RETURN		-12						2.0			
								1.0			
			17							(17.18m) Be, 15°, Un, R, Cn	
		-13						0.90			
			18				H	2.3			Budgong Sandstone
70% RETURN		-14									
								1.0			
			19					1.2			
		-15									
								1.4			
			20					2.1			
		-16									
								2.3			
			21		END OF BOREHOLE AT 21.00 m						
		-17									

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PROJECT: PROPOSED MIXEDUSE DEVELOPMENT
PROJECT No: 38224AH
DATE: 13/04/2026
LOCATION ID: BH3
DEPTH: 8.72m - 15.00m
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38224AH BH3 START CORING AT 8.72m
8
9
10
11
12
13
14

PROJECT: PROPOSED MIXEDUSE DEVELOPMENT

PROJECT No: 38224AH DATE: 13/04/2026

LOCATION ID: BH3 DEPTH: 15.00m - 21.00m

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BOREHOLE LOG

Borehole No.
3A
1 / 2

Client: UPG FLINDERS PTY LTD
Project: PROPOSED MIXED-USE DEVELOPMENT
Location: 4-4A FLINDERS STREET, NORTH WOLLONGONG, NSW

Job No.: 38224AH **Method:** SPIRAL AUGER **R.L. Surface:** ~4.5 m
Date: 13/4/26 **Datum:** AHD
Plant Type: JK310 **Logged/Checked By:** M.H./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						4	0		-	BRICK PAVERS: 50mm.t	M			
										FILL: Sand, fine to coarse grained, light brown, trace of fine to medium grained igneous gravel, and silt fines.				
										FILL: Silty gravelly sand, fine to medium grained, grey, fine grained igneous gravel.	w>PL			
							1			FILL: Silty clay, high plasticity, dark grey, trace of fine to medium grained igneous gravel.				
						3			CH	Silty CLAY: high plasticity, grey mottled orange brown and red brown, trace of root fibres.	w>PL			ALLUVIAL
						2	2							
						2				Silty CLAY: high plasticity, red brown and grey mottled orange brown, trace of fine to medium grained ironstone gravel, and root fibres.				
						1	3							
									CI	Silty CLAY: medium plasticity, grey and orange brown, trace of fine grained sand.				
						0	4							
						-1	5							
									CL	Silty sandy CLAY: low plasticity, grey and orange brown, fine to coarse grained sand.				
						-2	6							

JK 9.02.4.LIB.GLB Log JK AUGERHOLE - MASTER 38224AH NORTHWOLLONGONG.GPJ <<DrawingFile>> 18/05/2026 11:18 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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D

Tabulated Groundwater & Surface Water Analytical Data

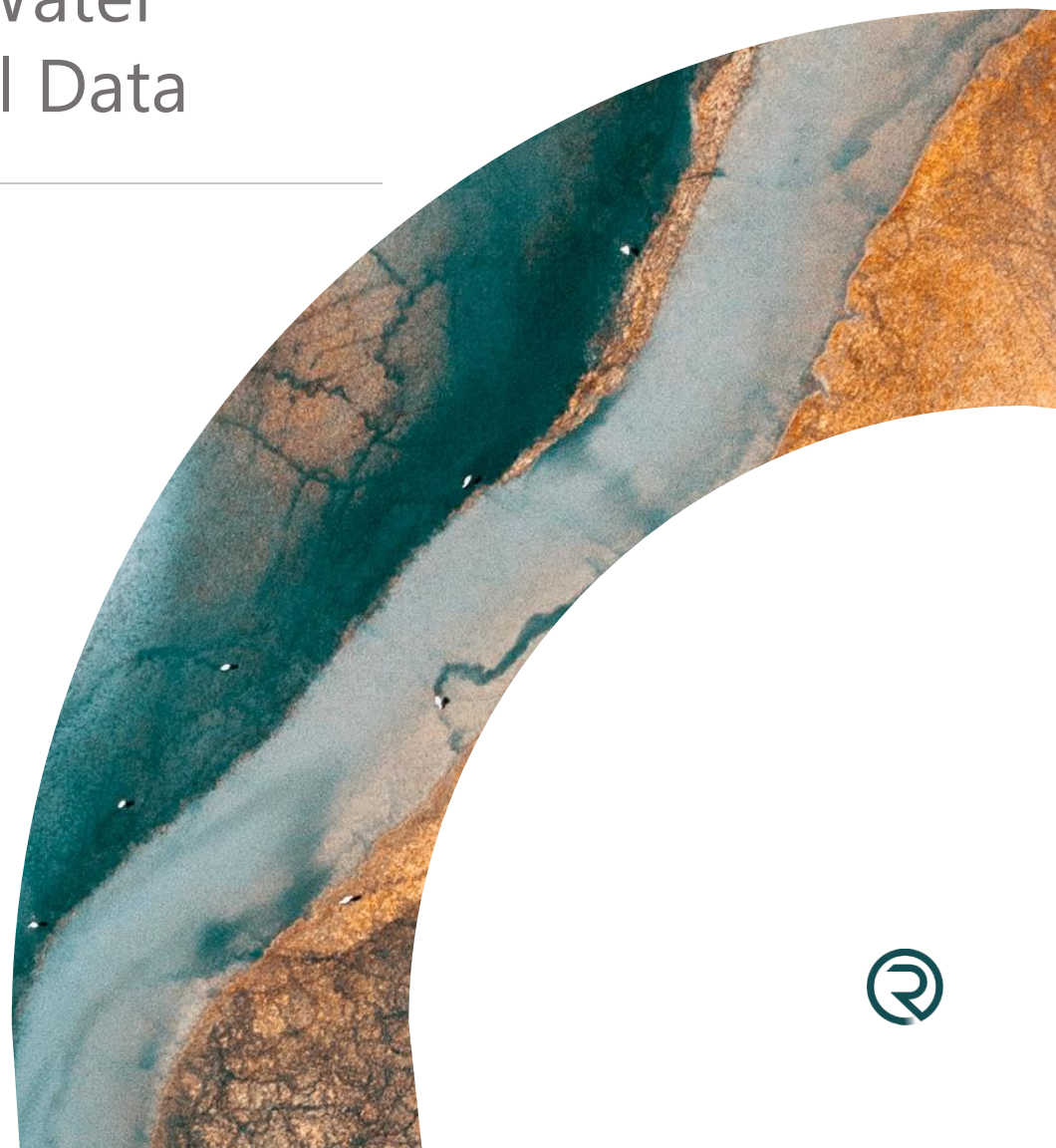


Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

				Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)							TRH - NEPM Fractions							Total Recoverable Hydrocarbons (TRH)				
				Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	C6-C10 Fraction (F1)	C6-C10 (F1) (TRH C6-C10 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2) (TRH >C10-C16 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
				T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
				1	1	1	2	1	3	1	20	20	50	50	100	100	100	20	50	100	100	100
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection				950	180	80	-	350	-	16	-	-	-	-	-	-	-	-	-	-	-	-
ADWG (2018) Table 10.6. Human Health				1	800	300	-	-	600	-	-	-	-	-	-	-	-	-	-	-	-	-
Field ID	Sampled D	Lab Repo	Matrix	QC Sample Type																		
BH1	26-05-2026	1363970	Water	Normal	< 1	1	< 1	< 2	< 1	< 3	< 1	< 20	< 20	< 50	< 50	< 100	< 100	< 100	< 20	< 50	< 100	< 100	< 100
BH2	26-05-2026	1363970	Water	Normal	< 1	< 1	< 1	< 2	< 1	< 3	< 1	< 20	< 20	< 50	< 50	1,300	< 100	1,300	< 20	< 50	900	700	1,600
BH3	26-05-2026	1363970	Water	Normal	2	70	34	33	13	46	1	310	160	< 50	< 50	< 100	< 100	< 100	250	< 50	< 100	< 100	< 100

Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

					Aluminium	Aluminium	Antimony	Antimony	Arsenic	Arsenic	Barium	Barium	Beryllium	Beryllium	Boron	Boron	Cadmium	Cadmium	Chromium (III+VI)	Chromium (III+VI)	Cobalt	Cobalt	Copper	Copper	Iron	Iron
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
					T	F	T	F	T	F	T	F	T	F	T	F	T	F	F	T	F	T	T	F	F	T
					50	50	5	5	1	1	20	20	1	1	50	50	0.2	0.2	1	1	1	1	1	1	50	50
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection					55	55	-	-	-	-	-	-	-	-	940	940	0.2	0.2	-	-	-	-	1.4	1.4	280	280
ADWG (2018) Table 10.6. Human Health					-	-	3	3	10	10	2,000	2,000	60	60	4,000	4,000	2	2	-	-	-	-	2,000	2,000	-	-
Field ID	**Sampled D**	**Lab Repo**	**Matrix**	**QC Sampl**																						
BH1	**26-05-2026**	**1363970**	**Water**	**Normal**	440	90	< 5	< 5	< 1	< 1	60	40	< 1	< 1	50	60	0.4	< 0.2	< 1	13	< 1	< 1	3	< 1	< 50	690
BH2	**26-05-2026**	**1363970**	**Water**	**Normal**	15,000	60	< 5	< 5	8	< 1	150	30	4	< 1	< 50	< 50	0.4	0.3	< 1	14	81	120	38	< 1	2,600	40,000
BH3	**26-05-2026**	**1363970**	**Water**	**Normal**	380	90	< 5	< 5	2	1	40	30	< 1	< 1	70	60	< 0.2	< 0.2	< 1	2	< 1	< 1	2	< 1	620	1,100

Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

					Heavy Metals																					
					Lead	Lead	Lithium	Lithium	Manganese	Manganese	Mercury	Mercury	Molybdenum	Molybdenum	Nickel	Nickel	Selenium	Selenium	Silver	Silver	Strontium	Strontium	Uranium	Uranium	Vanadium	Vanadium	Zinc	Zinc
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
					T	F	T	F	F	T	T	F	T	F	F	T	T	F	T	F	F	T	T	F	T	F	T	F
					1	1	10	10	5	5	0.1	0.1	5	5	1	1	1	1	5	5	1	10	5	5	5	5	5	5
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection					3.4	3.4	-	-	1,900	1,900	0.6	0.6	-	-	11	11	11	11	0.05	0.05	-	-	-	-	-	-	8	8
ADWG (2018) Table 10.6. Human Health					10	10	-	-	500	500	1	1	50	50	20	20	10	10	100	100	-	-	20	20	-	-	-	-
Field ID	Sampled D	Lab Repor	Matrix	QC Sampl																						
BH1	26-05-2026	1363970	Water	Normal	< 1	< 1	30	20	24	37	< 0.1	< 0.1	21	11	< 1	3	< 1	< 1	< 5	< 5	330	500	< 5	< 5	10	11	17	< 5
BH2	26-05-2026	1363970	Water	Normal	10	< 1	90	80	1,400	1,600	< 0.1	< 0.1	5	< 5	71	120	7	1	< 5	< 5	2,700	3,000	< 5	< 5	86	< 5	130	35
BH3	26-05-2026	1363970	Water	Normal	< 1	< 1	30	30	160	170	< 0.1	< 0.1	8	5	< 1	2	< 1	< 1	< 5	< 5	500	480	< 5	< 5	< 5	< 5	6	< 5

Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

					Polycyclic Aromatic Hydrocarbons (PAH)																	Physical/Chemical Parameters											
					Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) pyrene	Benzo(a)anthracene	Benzo(b+k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Naphthalene (VOC)	Phenanthrene	Pyrene	PAHs (Vic EPA List)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Carbonate as CaCO3)	Alkalinity (total) as CaCO3	Electrical Conductivity (Lab)	Hardness as CaCO3	Redox Potential mV (relative to Ag/AgCl)	pH (Lab)	Sodium Adsorption Ratio	Turbidity (Lab)	Total Suspended Solids (Lab)	Total Dissolved Solids (Lab)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µS/cm	µg/L	mV	pH	none	ntu	µg/L	µg/L
					T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
					1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	1	1	20,000	20,000	20,000	20,000	10	1,000	1	0.1	0.1	1	5,000	10,000
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection					-	-	0.4	0.2	-	-	-	-	-	-	1.4	-	-	16	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADWG (2018) Table 10.6. Human Health					-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field ID	Sampled D	Lab Repo	Matrix	QC Sampl																														
BH1	26-05-2026	1363970	Water	Normal	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 20,000	150,000	< 20,000	150,000	1,600	170,000	67	8.8	12	42	39,000	830,000
BH2	26-05-2026	1363970	Water	Normal	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 20,000	160,000	< 20,000	160,000	9,300	940,000	90	6.2	23	770	770,000	#######
BH3	26-05-2026	1363970	Water	Normal	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 10	< 1	< 1	1	< 20,000	360,000	32,000	390,000	2,400	160,000	96	7.8	15	38	38,000	#######

Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

					Inorganics		Major Anions							Major Cations										Nutrients									
					Dissolved Oxygen (Lab)	Ionic Balance	Bromide	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Anions Total	Aluminium	Aluminium	Calcium	Iron	Iron	Magnesium	Manganese	Manganese	Potassium	Sodium	Cations Total	Ammonia as N	Carbon	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	Phosphate total (as P)	Reactive Phosphorus as P (Orthophosphate as P)	Sulphate	Total Organic Nitrogen (TON)
					µg/L	%	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	meq/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	meq/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	mg/L
					T	T	T	T	T	T	T	T	T	T	F	T	F	T	T	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T
					100	0.01	500	1,000	100	20	20	50	0.01	50	50	500	50	50	500	5	5	500	500	0.01	10	5,000	200	20	20	100	0.01	50	2,000	0.2
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection					-	-	-	-	-	-	-	-	-	55	55	-	280	280	-	1,900	1,900	-	-	-	-	-	-	-	-	-	-	-	-	-
ADWG (2018) Table 10.6. Human Health					-	-	-	-	1,500	-	-	-	-	-	-	-	-	-	-	500	500	-	-	-	-	-	-	-	-	-	-	-	-	-
Field ID	Sampled D	Lab Repo	Matrix	QC Sampl																														
BH1	26-05-2026	1363970	Water	Normal	9,400	4.3	5,200	410,000	600	< 20	< 20	< 50	17	440	90	24,000	< 50	690	26,000	24	37	7,600	350,000	19	20	23,000	1,700	< 20	< 20	1,700	0.29	< 50	130,000	1.68
BH2	26-05-2026	1363970	Water	Normal	9,300	2.3	< 10,000	########	2,300	30	< 20	< 50	100	15,000	60	110,000	2,600	40,000	160,000	1,400	1,600	3,000	########	96	200	< 5,000	< 2,000	30	< 20	< 2,000	0.51	< 50	880,000	< 0.2
BH3	26-05-2026	1363970	Water	Normal	10,000	22	< 2,500	180,000	700	< 20	< 20	< 50	14	380	90	33,000	620	1,100	20,000	160	170	2,000	430,000	22	< 10	5,600	600	< 20	< 20	600	0.11	60	61,000	0.6

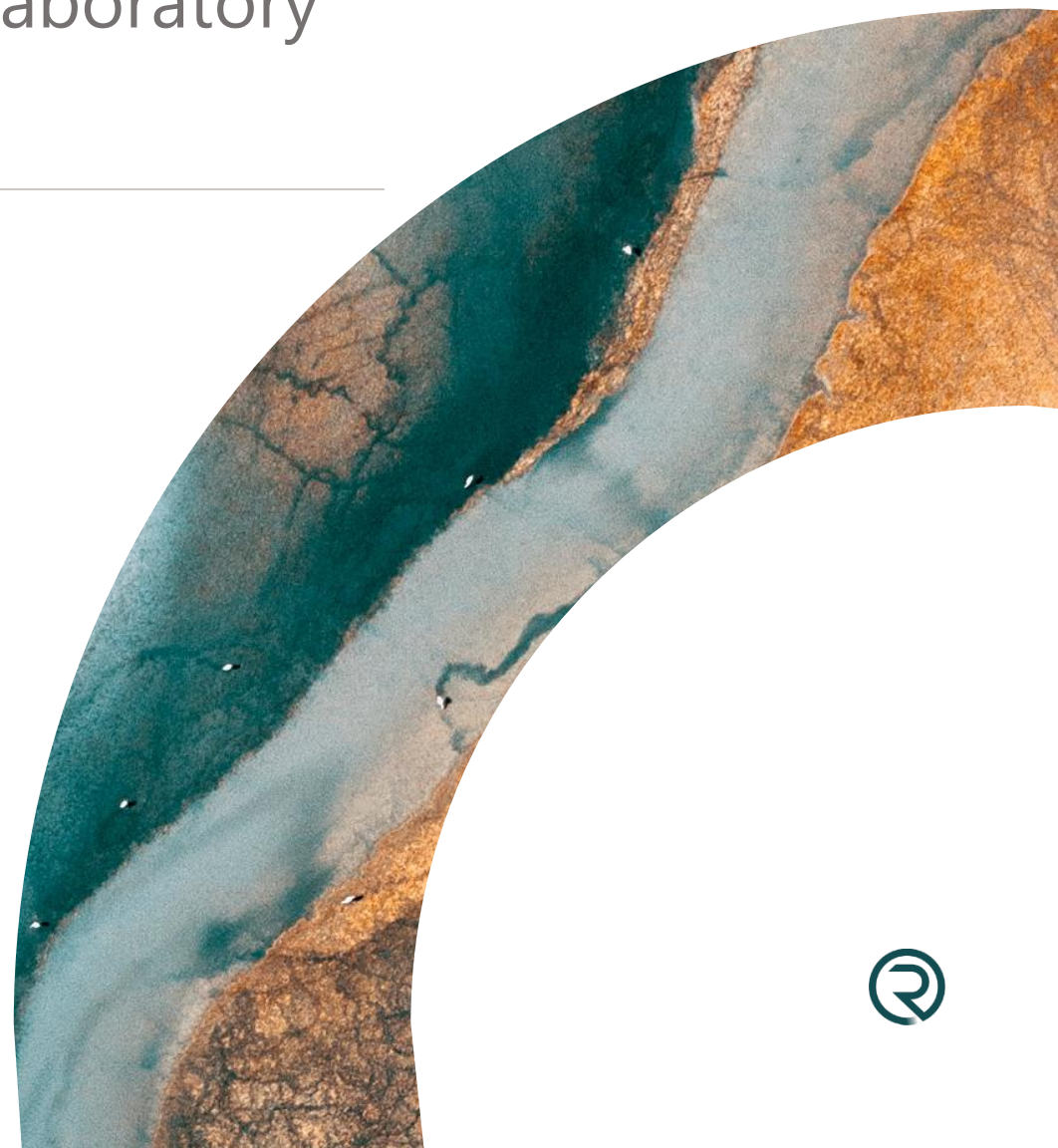
Table [1]
Water Analytical Results Summary
ANZG, NEMP, ADWG

REDITUS

					Dissolved Gases	Microbiological	Other	
					Dissolved Oxygen (Lab)	Thermotolerant Coliforms	Escherichia coli	Silica as SiO2
					µg/L	CFU/100 mL	CFU/100 mL	µg/L
					T	T	T	T
					100	1	1	500
ANZG (2018) Toxicant DGVs Freshwater - 95% Species Protection					-	-	-	-
ADWG (2018) Table 10.6. Human Health					-	-	-	-
Field ID	Sampled D	Lab Repor	Matrix	QC Sample				
BH1	26-05-2026	1363970	Water	Normal	9,400	5	6	17,000
BH2	26-05-2026	1363970	Water	Normal	9,300	49	9	54,000
BH3	26-05-2026	1363970	Water	Normal	10,000	26	3	25,000

E

Groundwater & Surface Water Sample Laboratory Reports



CHAIN OF CUSTODY RECORD

Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	Reditus Consulting Pty Ltd
Address	Unit 1A, 29-33 Waratah Street, Kirrawee NSW 2232
Contact Name	Sebastien McCulloch
Phone No	402823691
Special Directions	24hr TAT Requested
Purchase Order	
Quote ID No	

Project No	26166
Project Name	26166
Project Manager	Sebastien McCulloch
EDD Format (Excel, EQuIS etc)	ESDAT + EQUIS
Sampler(s)	Aaron Cummins
Handed over by	AC
Email for Invoice	accounts@reditus.com.au
Email for Results	SebastienMcCulloch@reditus.com.au aaroncummins@reditus.com.au Catherinecharles@reditus.com.au

Analyses (Please specify in "Cell" or "Cell-ref" if Cell-ref please specify in "Cell-ref" if Cell-ref please specify in "Cell-ref" if Cell-ref please specify in

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

All samples on the coc should be listed as the 26.05.2026, thanks Greg.

Regards,

Aaron Cummins
Graduate Environmental Scientist

REDITUS

0450626121
Unit 1A, 29-33 Waratah Street
Kirrawee NSW 2232
aaroncummins@reditus.com.au
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From: Gregory De Battista <EET-ELVIS@eurofinsanz.com>
Sent: Tuesday, May 26, 2026 5:30 PM
To: Sebastien McCulloch <sebmcculloch@reditus.com.au>
Cc: Aaron Cummins <aaroncummins@reditus.com.au>
Subject: Eurofins Sample Receipt Advice - Report 1363970 : Site 26166 (26166)

Short TAT samples delivered after 3:00PM are prone to delays. Plastic Purple Inorganics bottle not received for BH1. Sample Date on BH2 and BH3 error - listed as 25th of June. Faecal Streptococci has been logged as Enterococci.

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

Kind Regards,
Greg De Battista
Sample Receipt Officer

Eurofins | Environment Testing
Unit 16/7 Investigator Dr
Unanderra NSW 2526
AUSTRALIA

Phone: +61 429 365 410
Email: GregoryDeBattista@eurofins.com

View our latest EnviroNotes

eurofins | Environment Testing

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Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Newcastle	Canberra	Brisbane	Hobart
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	1/2 Frost Drive	Unit 1,2 Dacre Street	7 Smallwood Place	282A Argyle Street
Dandenong South	Grovedale	Girraween	Mayfield West	Mitchell	Murarrie	North Hobart
VIC 3175	VIC 3216	NSW 2145	NSW 2304	ACT 2911	QLD 4172	TAS 7000
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 4968 8448	+61 2 6113 8091	+61 7 3902 4600	+61 3 8564 5000
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25079	Site# 25466	Site# 20794 & 2780	Site# 1254

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 2554

Sample Receipt Advice

Company name:	Reditus Consulting Pty Ltd
Contact name:	Sebastien McCulloch
Project name:	26166
Project ID:	26166
Turnaround time:	2 Day
Date/Time received	May 26, 2026 3:48 PM
Eurofins reference	1363970

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Short TAT samples delivered after 3:00PM are prone to delays. Plastic Purple Inorganics bottle not received for BH1. Sample Date on BH2 and BH3 error - listed as 25th of June. Faecal Streptococci has been logged as Enterococci.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Bonnie Pu on phone : or by email: Bonnie.Pu@eurofinsanz.com

Results will be delivered electronically via email to Sebastien McCulloch - sebmcculloch@reditus.com.au.

Note: A copy of these results will also be delivered to the general Reditus Consulting Pty Ltd email address.

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
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+61 3 8564 5000
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Site# 2370 & 2554

web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Company Name: Reditus Consulting Pty Ltd
Address: 1/11-15 Gray Street
Sutherland
NSW 2232

Project Name: 26166
Project ID: 26166

Order No.:
Report #: 1363970
Phone: 61 413 177 501
Fax:

Received: May 26, 2026 3:48 PM
Due: May 28, 2026
Priority: 2 Day
Contact Name: Sebastien McCulloch

Eurofins Analytical Services Manager : Bonnie Pu

Sample Detail	Aluminium	Aluminium (filtered)	Antimony	Antimony (filtered)	Barium	Barium (filtered)	Beryllium	Beryllium (filtered)	Boron	Boron (filtered)	Bromide	Cobalt	Cobalt (filtered)	Conductivity (at 25 °C)	Dissolved Oxygen	Enterococci	Escherichia coli	Iron	Iron (filtered)	Lithium	Lithium (filtered)	Manganese	Manganese (filtered)	Molybdenum	Molybdenum (filtered)	pH (at 25 °C)	Redox Potential mV (relative to Ag/AgCl)	Selenium	Selenium (filtered)	Silica (calculation from Si as SiO2)	Silver	Silver (filtered)	Strontium	Strontium (filtered)	Thermotolerant Coliforms	Total Organic Carbon	Total Suspended Solids Dried at 103°C to	Turbidity	Uranium	Uranium (filtered)	Vanadium	Vanadium (filtered)	Metals M8 filtered	Sodium Adsorption Ratio Set	Hardness Set	Ion Balance Set	Eurofins Suite B7	Eurofins Suite B19E: Total N_TKN, NOx	Eurofins Suite B11F: Cl/SO4/Alkalinity/Total	Eurofins Suite B11C: Na/K/Ca/Mg	Total Dissolved Solids Dried at 180 °C ± 2 °C
Melbourne Laboratory - NATA # 1261 Site # 1254																											X			X						X											X				
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Canberra Laboratory - NATA # 1261 Site # 25466																X	X																		X																
External Laboratory																																																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																																																
1	BH1	May 26, 2026		Water	W26-My0078288	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	BH2	May 26, 2026		Water	W26-My0078289	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	BH3	May 26, 2026		Water	W26-My0078290	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Reditus Consulting Pty Ltd
1/11-15 Gray Street
Sutherland
NSW 2232

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Sebastien McCulloch**

Report **1363970-W**
Project name 26166
Project ID 26166
Received Date May 26, 2026

Client Sample ID			**BH1**	**BH2**	**BH3**
Sample Matrix			**Water**	**Water**	**Water**
Eurofins Sample No.			**W26-My0078288**	**W26-My0078289**	**W26-My0078290**
Date Sampled			**May 26, 2026**	**May 26, 2026**	**May 26, 2026**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	0.25
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	0.9	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	0.7	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	1.6	< 0.1
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	0.002
Toluene	0.001	mg/L	0.001	< 0.001	0.070
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	0.034
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	0.033
o-Xylene	0.001	mg/L	< 0.001	< 0.001	0.013
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	0.046
4-Bromofluorobenzene (surr.)	1	%	93	93	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2)*[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	0.31
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	0.16
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001

Client Sample ID			BH1	BH2	BH3
Sample Matrix			Water	Water	Water
Eurofins Sample No.			W26-My0078288	W26-My0078289	W26-My0078290
Date Sampled			May 26, 2026	May 26, 2026	May 26, 2026
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Total PAH*	0.001	mg/L	< 0.001	< 0.001	0.001
2-Fluorobiphenyl (surr.)	1	%	INT	INT	INT
p-Terphenyl-d14 (surr.)	1	%	67	95	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	1.3	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	1.3	< 0.1
Ammonia (as N)	0.01	mg/L	0.02	0.20	< 0.01
Bromide	0.5	mg/L	5.2	[R16]< 10	[R16]< 2.5
Chloride	1	mg/L	410	2800	180
Conductivity (at 25 °C)	10	uS/cm	1600	9300	2400
Dissolved Oxygen	0.1	mg/L	[I04]9.4	[I04]9.3	[I04]10.0
Fluoride	0.1	mg/L	0.6	2.3	0.7
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.03	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)*	0.2	mg/L	1.68	< 0.2	0.6
pH (at 25 °C)	0.1	pH Units	8.8	6.2	7.8
Phosphate total (as P)	0.01	mg/L	0.29	0.51	0.11
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	0.06
Redox Potential mV (relative to Ag/AgCl)	1	mV	67	90	96
Sulphate (as SO4)	2	mg/L	130	880	61
Total Dissolved Solids Dried at 180 °C ± 2 °C	10	mg/L	830	5800	1300
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.7	< 2	0.6
Total Nitrogen (as N)*	0.1	mg/L	1.7	< 2	0.6
Total Organic Carbon	5	mg/L	23	< 5	5.6
Total Suspended Solids Dried at 103°C to 105°C	5	mg/L	39	770	38
Turbidity	1	NTU	42	770	38
Hardness mg equivalent CaCO3/L	1	mg/L	170	940	160
Silica (calculation from Si as SiO2)	0.5	mg/L	17	54	25
Sodium Adsorption Ratio*	0.1	none	12	23	15
Enterococci	1	CFU/100mL	54	[M23b]3	13
Escherichia coli	1	CFU/100mL	[M23b]6	[M23b]9	[M23b]3
Thermotolerant Coliforms	1	CFU/100mL	[M23b]5	49	26
Alkalinity (speciated)					
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	150	160	360
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	32
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	150	160	390
Ion Balance Set					
Ionic Balance*	0.01	%	4.3	2.3	22
Total Anions*	0.01	meq/L	17	100	14
Total Cations*	0.01	meq/L	19	96	22

Client Sample ID			BH1	BH2	BH3
Sample Matrix			Water	Water	Water
Eurofins Sample No.			W26-My0078288	W26-My0078289	W26-My0078290
Date Sampled			May 26, 2026	May 26, 2026	May 26, 2026
Test/Reference	LOR	Unit			
Heavy Metals					
Aluminium	0.05	mg/L	0.44	15	0.38
Antimony	0.005	mg/L	< 0.005	< 0.005	< 0.005
Barium	0.02	mg/L	0.06	0.15	0.04
Beryllium	0.001	mg/L	< 0.001	0.004	< 0.001
Boron	0.05	mg/L	[R05]0.05	< 0.05	0.07
Cobalt	0.001	mg/L	< 0.001	0.12	< 0.001
Iron	0.05	mg/L	0.69	40	1.1
Lithium	0.01	mg/L	0.03	0.09	0.03
Manganese	0.005	mg/L	0.037	1.6	0.17
Molybdenum	0.005	mg/L	0.021	0.005	0.008
Selenium	0.001	mg/L	< 0.001	0.007	< 0.001
Silver	0.005	mg/L	< 0.005	< 0.005	< 0.005
Strontium	0.01	mg/L	0.50	3.0	[R05]0.48
Uranium	0.005	mg/L	< 0.005	< 0.005	< 0.005
Vanadium	0.005	mg/L	0.010	0.086	< 0.005
Metals M8					
Arsenic	0.001	mg/L	< 0.001	0.008	0.002
Cadmium	0.0002	mg/L	0.0004	0.0004	< 0.0002
Chromium	0.001	mg/L	0.013	0.014	0.002
Copper	0.001	mg/L	0.003	0.038	0.002
Lead	0.001	mg/L	< 0.001	0.010	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Nickel	0.001	mg/L	0.003	0.12	0.002
Zinc	0.005	mg/L	0.017	0.13	0.006
Metals M8 filtered					
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	0.0003	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.071	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.035	< 0.005
Heavy Metals (filtered)					
Aluminium (filtered)	0.05	mg/L	0.09	0.06	0.09
Antimony (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005
Barium (filtered)	0.02	mg/L	0.04	0.03	0.03
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	[R05]0.06	< 0.05	0.06
Cobalt (filtered)	0.001	mg/L	< 0.001	0.081	< 0.001
Iron (filtered)	0.05	mg/L	< 0.05	2.6	0.62
Lithium (filtered)	0.01	mg/L	0.02	0.08	0.03
Manganese (filtered)	0.005	mg/L	0.024	1.4	0.16
Molybdenum (filtered)	0.005	mg/L	0.011	< 0.005	0.005
Selenium (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005
Strontium (filtered)	0.001	mg/L	0.33	2.7	[R05]0.50
Uranium (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005
Vanadium (filtered)	0.005	mg/L	0.011	< 0.005	< 0.005

Client Sample ID			BH1	BH2	BH3
Sample Matrix			Water	Water	Water
Eurofins Sample No.			W26-My0078288	W26-My0078289	W26-My0078290
Date Sampled			May 26, 2026	May 26, 2026	May 26, 2026
Test/Reference	LOR	Unit			
Eurofins Suite B11C: Na/K/Ca/Mg					
Calcium	0.5	mg/L	24	110	33
Magnesium	0.5	mg/L	26	160	20
Potassium	0.5	mg/L	7.6	3.0	2.0
Sodium	0.5	mg/L	350	1700	430

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 28, 2026	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 28, 2026	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 28, 2026	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 28, 2026	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 28, 2026	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Sydney	May 28, 2026	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N)	Melbourne	May 29, 2026	28 Days
- Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser			
Nitrate & Nitrite (as N)	Melbourne	May 29, 2026	28 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Nitrate (as N)	Melbourne	May 29, 2026	28 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Nitrite (as N)	Melbourne	May 29, 2026	2 Days
- Method: LTM-INO-4450 Nitrogens by Discrete Analyser			
Phosphate total (as P)	Sydney	May 28, 2026	28 Days
- Method: E052 Total Phosphate (as P)			
Phosphorus reactive (as P)	Sydney	May 28, 2026	28 Days
- Method: E052 Reactive phosphate (as P)			
Total Kjeldahl Nitrogen (as N)	Melbourne	May 29, 2026	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Bromide	Sydney	May 28, 2026	28 Days
- Method: In-house method LTM-INO-4270 Anions by Ion Chromatography			
Conductivity (at 25 °C)	Sydney	May 28, 2026	28 Days
- Method: LTM-INO-4030 Conductivity			
Dissolved Oxygen	Sydney	May 26, 2026	24 Hours
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
pH (at 25 °C)	Sydney	May 28, 2026	6 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Redox Potential mV (relative to Ag/AgCl)	Melbourne	May 29, 2026	5 Days
- Method: APHA 2580B Redox Potential			
Total Organic Carbon	Melbourne	May 29, 2026	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103°C to 105°C	Sydney	May 28, 2026	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Turbidity	Sydney	May 28, 2026	2 Days
- Method: LTM-INO-4140 Turbidity by Nephelometric Method			
Silica (calculation from Si as SiO2)	Melbourne	May 29, 2026	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Enterococci	Canberra	May 26, 2026	24 Hours
- Method: AS 4276.9 (Enterococci by the MF method in-house method LTM-MIC-6609)			
Escherichia coli	Canberra	May 26, 2026	24 Hours
- Method: AS 4276.5 (in-house method LTM-MIC-6010)			
Thermotolerant Coliforms	Canberra	May 26, 2026	24 Hours
- Method: AS 4276.5 (in-house method LTM-MIC-6010)			

Description	Testing Site	Extracted	Holding Time
Ion Balance Set	Sydney	May 26, 2026	
- Method: APHA 1030E (1)			
Heavy Metals	Sydney	May 28, 2026	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M8 filtered	Sydney	May 28, 2026	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	May 28, 2026	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11F: Cl/SO4/Alkalinity/Total F			
Chloride	Sydney	May 28, 2026	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Fluoride	Sydney	May 28, 2026	28 Days
- Method: LTM-INO-4270 Anions by Ion Chromatography			
Sulphate (as SO4)	Sydney	May 29, 2026	28 Days
- Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph			
Alkalinity (speciated)	Sydney	May 29, 2026	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Dissolved Solids Dried at 180 °C ± 2 °C	Sydney	May 28, 2026	7 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Hardness Set			
Hardness mg equivalent CaCO3/L	Sydney	May 28, 2026	28 Days
- Method: LTM-MET-3040 Hardness by Calculation			
Eurofins Suite B11C: Na/K/Ca/Mg	Sydney	May 28, 2026	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins

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Order No.:
Report #: 1363970
Phone: 61 413 177 501
Fax:

Received: May 26, 2026 3:48 PM
Due: May 28, 2026
Priority: 2 Day
Contact Name: Sebastien McCulloch

Eurofins Analytical Services Manager : Bonnie Pu

Sample Detail	Aluminium	Aluminium (filtered)	Antimony	Antimony (filtered)	Barium	Barium (filtered)	Beryllium	Beryllium (filtered)	Boron	Boron (filtered)	Bromide	Cobalt	Cobalt (filtered)	Conductivity (at 25 °C)	Dissolved Oxygen	Enterococci	Escherichia coli	Iron	Iron (filtered)	Lithium	Lithium (filtered)	Manganese	Manganese (filtered)	Molybdenum	Molybdenum (filtered)	pH (at 25 °C)	Redox Potential mV (relative to Ag/AgCl)	Selenium	Selenium (filtered)	Silica (calculation from Si as SiO2)	Silver	Silver (filtered)	Strontium	Strontium (filtered)	Thermotolerant Coliforms	Total Organic Carbon	Total Suspended Solids Dried at 103°C to	Turbidity	Uranium	Uranium (filtered)	Vanadium	Vanadium (filtered)	Metals M8 filtered	Sodium Adsorption Ratio Set	Hardness Set	Ion Balance Set	Eurofins Suite B7	Eurofins Suite B19E: Total N_TKN, NOx	Eurofins Suite B11F: Cl/SO4/Alkalinity/Total	Eurofins Suite B11C: Na/K/Ca/Mg	Total Dissolved Solids Dried at 180 °C ± 2 °C
Melbourne Laboratory - NATA # 1261 Site # 1254																											X			X						X											X			
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Canberra Laboratory - NATA # 1261 Site # 25466																X	X																		X															
External Laboratory																																																			
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																																															
1	BH1	May 26, 2026		Water	W26-My0078288	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	BH2	May 26, 2026		Water	W26-My0078289	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	BH3	May 26, 2026		Water	W26-My0078290	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Conductivity (at 25 °C)	uS/cm	< 10			10	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	mg/L	< 10			10	Pass	
Total Suspended Solids Dried at 103°C to 105°C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Turbidity	NTU	< 1			1	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	%	79			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	90			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	90			70-130	Pass	
m&p-Xylenes	%	92			70-130	Pass	
o-Xylene	%	92			70-130	Pass	
Xylenes - Total*	%	92			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	74			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Anthracene	%	126			70-130	Pass	
Benz(a)anthracene	%	106			70-130	Pass	
Benzo(a)pyrene	%	120			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(k)fluoranthene	%	127			70-130	Pass	
Chrysene	%	124			70-130	Pass	
Dibenz(a.h)anthracene	%	86			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	85			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
Phenanthrene	%	103			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	79			70-130	Pass	
LCS - % Recovery							
Bromide	%	101			70-130	Pass	
Chloride	%	105			70-130	Pass	
Conductivity (at 25 °C)	%	99			70-130	Pass	
Fluoride	%	92			70-130	Pass	
Phosphate total (as P)	%	87			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phosphorus reactive (as P)	%	90			70-130	Pass	
Sulphate (as SO4)	%	109			70-130	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	%	105			70-130	Pass	
Total Suspended Solids Dried at 103°C to 105°C	%	91			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	112			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	112			70-130	Pass	
Toluene	%	110			70-130	Pass	
Ethylbenzene	%	107			70-130	Pass	
m&p-Xylenes	%	115			70-130	Pass	
o-Xylene	%	113			70-130	Pass	
Xylenes - Total*	%	114			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	103			70-130	Pass	
TRH C6-C10	%	111			70-130	Pass	
LCS - % Recovery							
Turbidity	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S26-My0081680	NCP	%	99			70-130	Pass	
TRH C10-C14	S26-My0082263	NCP	%	91			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S26-My0081680	NCP	%	104			70-130	Pass	
Toluene	S26-My0081680	NCP	%	102			70-130	Pass	
Ethylbenzene	S26-My0081680	NCP	%	105			70-130	Pass	
m&p-Xylenes	S26-My0081680	NCP	%	106			70-130	Pass	
o-Xylene	S26-My0081680	NCP	%	106			70-130	Pass	
Xylenes - Total*	S26-My0081680	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S26-My0081680	NCP	%	98			70-130	Pass	
TRH C6-C10	S26-My0081680	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	W26-My0078288	CP	%	110			70-130	Pass	
Acenaphthylene	W26-My0078288	CP	%	118			70-130	Pass	
Anthracene	W26-My0078288	CP	%	96			70-130	Pass	
Benz(a)anthracene	W26-My0078288	CP	%	74			70-130	Pass	
Benzo(a)pyrene	W26-My0078288	CP	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	W26-My0078288	CP	%	78			70-130	Pass	
Benzo(k)fluoranthene	W26-My0078288	CP	%	94			70-130	Pass	
Chrysene	W26-My0078288	CP	%	93			70-130	Pass	
Fluoranthene	W26-My0078288	CP	%	102			70-130	Pass	
Fluorene	W26-My0078288	CP	%	112			70-130	Pass	
Naphthalene	W26-My0078288	CP	%	85			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	W26-My0078288	CP	%	86			70-130	Pass	
Pyrene	W26-My0078288	CP	%	104			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S26-My0082263	NCP	%	91			70-130	Pass	
Spike - % Recovery									
				Result 1					
Bromide	S26-My0075473	NCP	%	103			70-130	Pass	
Chloride	S26-My0075473	NCP	%	107			70-130	Pass	
Fluoride	S26-My0075473	NCP	%	104			70-130	Pass	
Phosphate total (as P)	W26-My0078288	CP	%	265			70-130	Fail	Q08
Sulphate (as SO4)	S26-My0075473	NCP	%	109			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	W26-My0078289	CP	%	81			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S26-My0081681	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S26-My0082717	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S26-My0082717	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S26-My0082717	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S26-My0081681	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S26-My0081681	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S26-My0081681	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S26-My0081681	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S26-My0081681	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S26-My0081681	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S26-My0081681	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S26-My0081681	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S26-My0082717	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S26-My0082717	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S26-My0082717	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Bromide	S26-My0075469	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Chloride	S26-My0075469	NCP	mg/L	37	37	<1	30%	Pass	
Conductivity (at 25 °C)	S26-My0077011	NCP	uS/cm	53000	53000	<1	30%	Pass	
Fluoride	S26-My0075469	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
pH (at 25 °C)	S26-My0077011	NCP	pH Units	7.1	7.1	Pass	30%	Pass	
Phosphate total (as P)	S26-My0075465	NCP	mg/L	0.37	0.38	1.5	30%	Pass	
Phosphorus reactive (as P)	W26-My0078288	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Sulphate (as SO4)	S26-My0075469	NCP	mg/L	7.8	7.6	3.0	30%	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	S26-My0065594	NCP	mg/L	20000	19000	4.0	30%	Pass	
Total Suspended Solids Dried at 103°C to 105°C	W26-My0062287	NCP	mg/L	< 5	< 5	<1	30%	Pass	

Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	S26-My0070409	NCP	mg/L	910	920	<1	30%	Pass	
Carbonate Alkalinity (as CaCO3)	S26-My0070409	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	S26-My0070409	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	S26-My0070409	NCP	mg/L	910	920	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	W26-My0078290	CP	mg/L	0.001	0.001	13	30%	Pass	
Phenanthrene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	W26-My0078290	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Turbidity	W26-My0078290	CP	NTU	38	42	9.3	30%	Pass	
Silica (calculation from Si as SiO2)	W26-My0078290	CP	mg/L	25	25	3.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
I04	This sample was received with headspace
M23b	AS 4276.1:2021 Water microbiology, Method 1: Water quality - General requirements and guidance for microbiological examinations by culture. For 3 to 9 colonies, the result is reported as “Estimate”
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
R05	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests
R16	The LORs have been raised due to the high concentration of one or more analytes

Authorised by:

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Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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