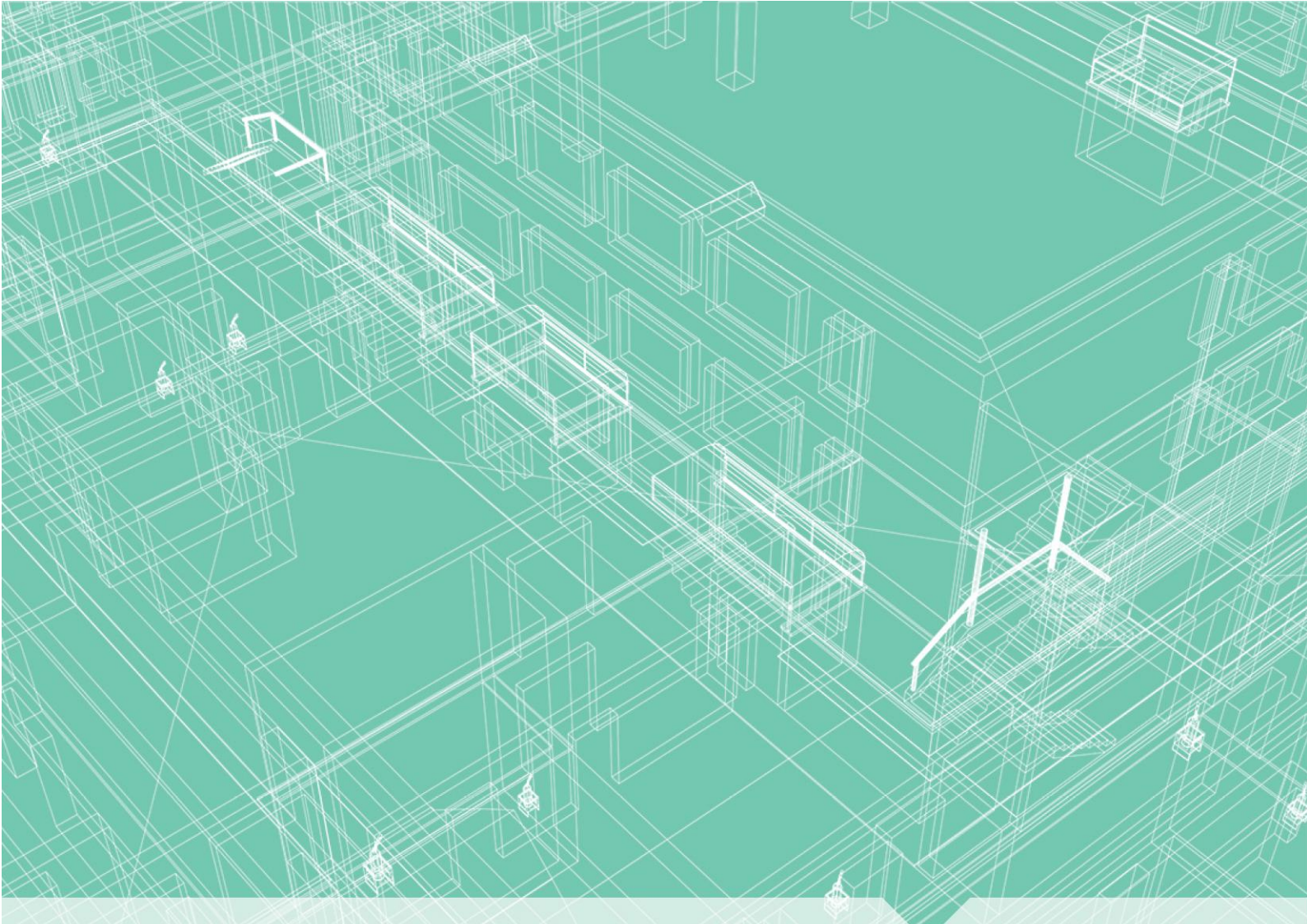
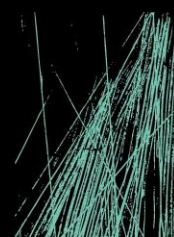




ESD SSDA REPORT

88 WATERLOO ROAD, MACQUARIE PARK

ESD SERVICES



JHA

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DOCUMENT CONTROL SHEET

Project Number	250138
Project Name	88 Waterloo Road, Macquarie Park
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EXECUTIVE SUMMARY

This ESD SSDA Report has been prepared by JHA Consulting Engineers to accompany a State Significant Development Application (SSDA) and concurrent Rezoning Proposal – SSD-94006708 for a mixed-use development identified at 15-21 Cottonwood Crescent, Macquarie Park (the **site**).

The proposal includes provision for the demolition of existing buildings and construction of a residential development comprising two residential flat buildings above a common basement car park / sleaved podium incorporating residential, car parking, and a retail component within the Waterloo Road frontage and provision of 10% affordable housing.

The legal description of the site is outlined in **Table 1** below.

Table 1 – Legal description

Property Address	Title Description
15 Cottonwood Crescent, Macquarie Park	SP8144
17 Cottonwood Crescent, Macquarie Park	SP7630
19 Cottonwood Crescent, Macquarie Park	SP7892
21 Cottonwood Crescent, Macquarie Park	SP7984

Note: for the purposes of reporting and branding of the proposal, we will also refer to the site as '**88 Waterloo Road, Macquarie Park**'.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-94006708).

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following planned management and mitigation measures:

- ESD principles are incorporated in the design and ongoing operation of the development as outlined in this report.
- Sustainability Standards for Residential Development (BASIX) are incorporated in the design and ongoing operation of the development as detailed in this report and the BASIX Certificate.
- Sustainability Standards for Non-Residential Development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022 are incorporated in the design and ongoing operation of the development as detailed in this report.

ECOLOGICALLY SUSTAINABLE DESIGN

This ESD SSDA Report identifies and summarises the Ecologically Sustainable Design (ESD) initiatives that have been proposed in the design of mixed-use development to demonstrate compliance with the following planning requirements:

- Item 15 Ecologically Sustainable Development within Industry Specific SEARs for SSD-94006708, including the ESD principles as defined in Section 193 of the EP&A Regulation
- State Environmental Planning Policy (Sustainable Buildings) 2022

This report should be read in conjunction with the architectural design drawings and other consultant's design reports submitted as part of the application.

The ESD objectives of this project are to encourage a balanced approach for the project; to be resource-efficient, cost-effective in construction and operation; and to deliver enhanced sustainability benefits concerning impacts on the environment and well-being of residents, staff, and visitors whilst providing the best possible facilities for a constructive environment.

The proposed key ESD commitments for the development are listed below:

- Sufficient exposure to daylight
- High-performance façade with efficient building fabric
- Energy-efficient air-conditioning systems with control strategy and thermal comfort tuning
- Energy-efficient lighting systems
- On-site photovoltaic system
- High WELS-rated water fixtures

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1. INTRODUCTION

This report has been prepared in support of a State Significant Development Application (SSDA) and concurrent Rezoning Proposal – SSD-94006708 – at 15-21 Cottonwood Crescent, Macquarie Park (AKA. 88 Waterloo Road).

The application seeks development consent for the redevelopment of the site for a mixed-use development comprising residential accommodation and retail uses.

Specifically, this application seeks approval for the following:

- Demolition of all existing four-storey residential flat buildings on the site
- Site preparation works including:
 - Removal of existing forty-nine (49) trees
 - Excavation of the site to a maximum depth of six (6) basement levels
- Construction of two mixed-use buildings comprising a 60 and 52 storey building respectively, which will accommodate:
 - 858 Residential apartments inclusion 10% affordable housing of the uplift being sought
- Six (6) levels of basement with 741 car parking spaces, bicycle parking, services.
 - A four-level commercial podium containing:
 - Retail spaces
 - Four townhouses
 - Residential lobbies
 - Waste Storages
 - Residential and visitor Parking spaces
 - Bicycle Parking spaces
- Communal Open Space and residential amenities on level four (4).
- Rooftop Terrace on Level 52 of Cottonwood Crescent Tower and level 60 of Waterloo Road Tower.

The proposal includes provision to amend Clauses 4.3 and 4.4 of the *Ryde Local Environmental Plan 2014 (RLEP2014)* by virtue of the concurrent rezoning process. This includes the following amendments:

- Clause 4.3 – Height of Buildings:
 - Amend the current 65m maximum building height to 212m
- Clause 4.4 – FSR:
 - Amend the current FSR of 4.5:1 to 16.8:1

1.1 PURPOSE OF THIS REPORT

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 October 2025 and issued for the SSDA (SSD-94006708). Specifically, this report has been prepared to respond to the SEARs requirement and government agency comments issued below.

Table 2 – SEARs Requirements & Government Agency Comments

Item	Description of Requirement	Section Reference (this Report)
15. Ecologically Sustainable Development (ESD) SEARs Requirement	Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	Section 2.3 <i>Appendix A: Environmental Pre-screening Checklist</i>
	Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.	<i>For design responses, please refer to Section 3 Sustainable Building SEPP 2022.</i>

1.2 THE SITE

The site is at 15-21 Cottonwood Crescent; Macquarie Park is located within the Ryde Local Government Area (**LGA**). The site occupies a prominent and highly accessible position within the Macquarie Park precinct, benefitting from dual street frontages to Waterloo Road along the north-eastern boundary and Cottonwood Crescent along the south-eastern boundary. These street interfaces provide strong address, visibility and access opportunities for the proposed development.

The western boundary adjoins Elouera Reserve, providing a high-amenity interface with publicly accessible open space, mature vegetation and a landscaped green corridor. This relationship enhances the site's environmental quality and outlook and provides opportunities for sensitive integration of the proposed development with the adjoining parkland.

The south-western boundary adjoins existing residential properties at 13 Cottonwood Crescent and 12-14 Lachlan Avenue, which represent the primary low-rise residential interface for the site.

The approximate boundary dimensions are as follows:

52.45 metres to Waterloo Road

97.35 metres to Cottonwood Crescent

50.6 metres to adjoining residential properties

100.9 metres to Elouera Reserve

The site is fully serviced, with existing connections to water, sewer, electricity, gas and telecommunications, and is therefore capable of supporting redevelopment without the need for major external servicing upgrades.

An aerial of the site is provided in Figure 1 below.

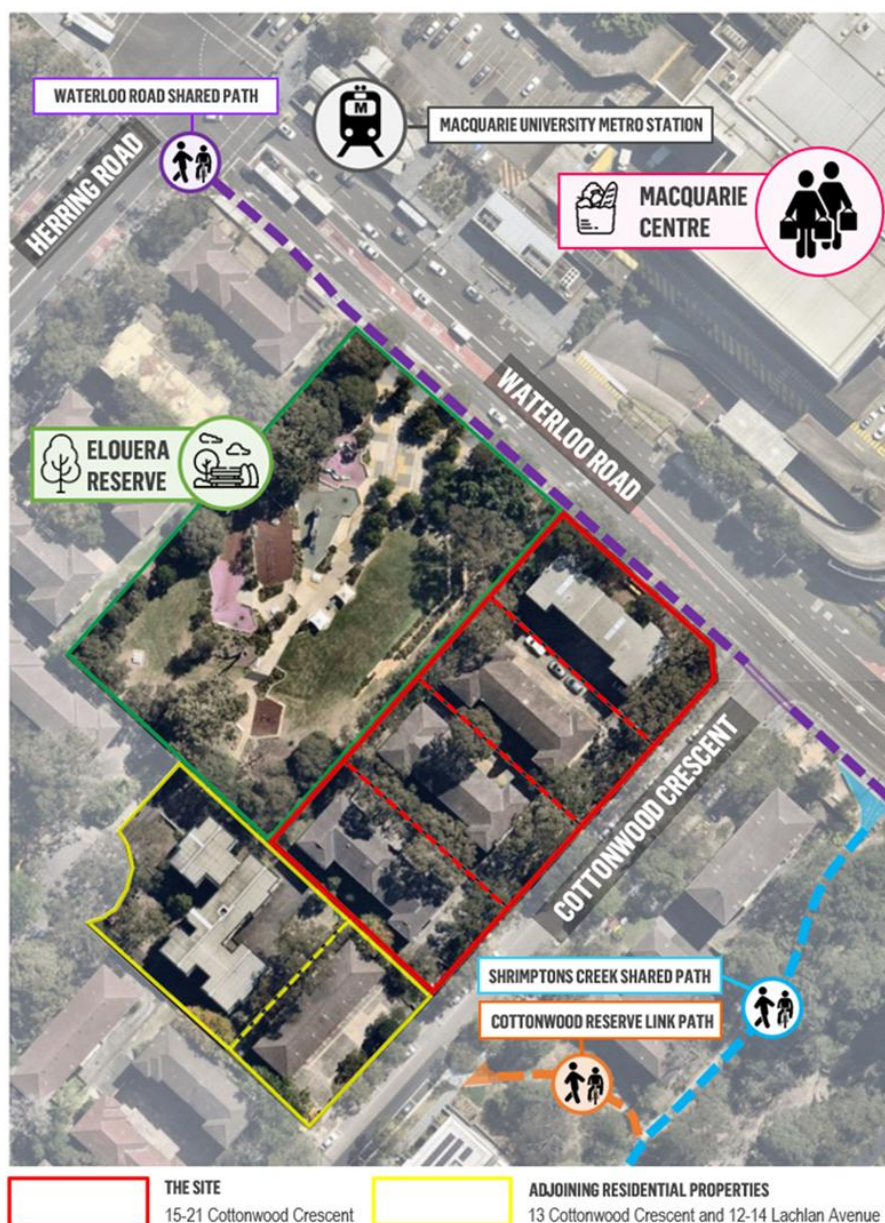


Figure 1 – Aerial of the site, Source: Urbis (Nearmap)

1.3 BUILDING CLASSIFICATIONS

The development contains the following building classes. Please refer to the project's BCA report for the detailed Building Classification assessment.

Area	NCC class
Basements	Class 7a /7b
Retail	Class 6
Communal Spaces	Class 9b
Sole Occupancy Units	Class 2

1.4 REFERENCE DOCUMENTS

Architectural Drawings: AJC Architects
Project: 88 WATERLOO DEVELOPMENT APPLICATION
Project No.: 23024

Title	Drawing No	Revision
BASEMENT 6	DA2001	B
BASEMENT 5	DA2002	B
BASEMENT 4	DA2003	B
BASEMENT 3	DA2004	B
BASEMENT 2	DA2005	B
BASEMENT 1	DA2006	B
LOWER GROUND	DA2007	B
UPPER GROUND	DA2008	B
LEVEL 1	DA2009	B
LEVEL 2	DA2010	B
LEVEL 3	DA2011	B
LEVEL 4	DA2012	B
LEVEL 5	DA2013	B
LEVEL 10	DA2014	B
LEVELS 11 – 19	DA2015	B
LEVELS 20 – 22	DA2016	B
LEVEL 23	DA2017	B
LEVEL 24	DA2018	B
LEVEL 25 – 26	DA2019	B
LEVEL 27	DA2020	B
LEVEL 28	DA2021	B
LEVEL 29 – 30	DA2022	B
LEVEL 31	DA2023	B
LEVEL 32 – 33	DA2024	B
LEVEL 34	DA2025	B
LEVEL 35 – 40	DA2026	B
LEVEL 41 – 44	DA2027	B
LEVEL 45 – 50	DA2028	B
LEVEL 51	DA2029	B
LEVEL 52	DA2030	B
LEVEL 53 – 57	DA2031	B
LEVEL 58 – 59	DA2032	B
LEVEL 60	DA2033	B
ROOF PLAN	DA2034	B
EAST ELEVATION COTTONWOOD TOWER	DA3101	B
WEST ELEVATION COTTONWOOD TOWER	DA3102	B
SOUTH ELEVATION COTTONWOOD TOWER	DA3103	B
NORTH ELEVATION COTTONWOOD TOWER	DA3104	B
NORTH ELEVATION WATERLOO ROAD	DA3105	B
SOUTH ELEVATION WATERLOO ROAD	DA3106	B
SECTIONS 1	DA3201	B
SECTIONS 2	DA3202	B

1.5 METHODOLOGY

The goal of this SSDA ESD Report is to identify and summarise the Ecologically Sustainable Design (ESD) initiatives that have been proposed in the design of the development to demonstrate compliance with the relevant planning requirements and respond to the SEARs requirement.

To achieve this goal, this report first outlines the planning requirements relevant to ESD in Section 2 and 3. The following sub-sections in Section 2 and 3 present how the planning requirements are addressed. Subsequently, Section 4 illustrates the Sustainable Design Framework for the development providing a detailed summary of the ESD commitments. In addition to the assessment of relevant planning requirements, an Environmental Pre-screening Checklist, a BASIX assessment and a Section J Part J4 assessment has been undertaken to inform Section 2, 3 and 4. Finally, Section 5 concludes, listing the mitigation measures ensuring that remaining impacts of the development are appropriate.

2. PLANNING REQUIREMENTS

2.1 ESD PLANNING REQUIREMENTS

This mixed-use development is required to demonstrate compliance with the following planning requirements:

- Item 15 Ecologically Sustainable Development within Industry Specific SEARs for SSD-94006708, including the ESD principles as defined in Section 193 of the EP&A Regulation
- State Environmental Planning Policy (Sustainable Buildings) 2022

To ensure alignment with the aforementioned planning requirements, the following ESD targets are proposed:

- National Construction Code (NCC) 2022 Section J – Energy Efficiency [overall development]
- Sustainability Standards for Residential Development (BASIX) [residential and associated spaces]
- Sustainability Standards for Non-Residential Development [non-residential and associated spaces]

2.2 ITEM 15 ESD WITHIN INDUSTRY-SPECIFIC SEARS (SSD-94006708)

This ESD SSDA Report has been prepared to address the Planning Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) for the subject SSDA, with specific SEAR(s) identified in the table below.

SEAR	SEAR Description	Relevant Section of Report
15. Ecologically Sustainable Development (ESD) SEARs Requirement	Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	<i>Section 2.3 Principles of Ecologically Sustainable Development</i> <i>Appendix A: Environmental Pre-screening Checklist</i>
	Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.	<i>For design responses, please refer to Section 3 Sustainable Building SEPP 2022.</i>

In accordance with the above industry-specific SEARs requirements, the development will implement a holistic and integrated approach to ESD, maximising passive design opportunities while selectively applying modern technology where appropriate.

2.3 PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The ESD principles as defined in section 193 of the EP&A Regulation 2021 have been incorporated into the design and ongoing operation phases of the development as follows:

2.3.1 THE PRECAUTIONARY PRINCIPLE

The precautionary principle is that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In applying the precautionary principle, public and private decisions should be guided by

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and.
- (ii) an assessment of the risk-weighted consequences of various options.

PROJECT RESPONSE:

This development is being designed in accordance with a wide range of ESD goals that pertain to the design, construction, and operational stages. The development team will ensure that the building minimises the impact on the environment in the areas of energy, water, and materials. The design will incorporate energy efficiency-favoured passive design features to minimise severe or irreversible environmental damage.

In addition to the above, an *Environmental Pre-screening Checklist* has been undertaken to include the assessment of natural and urban hazards (e.g., storms, heat waves, bushfires, extreme storms, and other weather events). Increasing resilience to natural hazards has been considered in the development so that associated costs are budgeted. Refer to the Appendix A – Environmental Pre-screening Checklist for the details of risks identified for this project and the relative responses, actions and responsibilities for high and extreme risks identified.

2.3.2 INTER-GENERATIONAL EQUITY

The principle of inter-generational equity is that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

PROJECT RESPONSE:

This development will not cause any significant impact on the health, diversity and productivity of the environment and will predominantly provide a community benefit in the form of increased housing supply. Employment opportunities are provided via the retail tenancies and leasing/building management/cleaning associated with the residential functions. This will be achieved by aligning the development with the following principles:

- Use of sustainable materials with low embodied emissions and low VOC values.
- Improving the biodiversity by incorporating native vegetation for landscaping.
- Incorporating water-efficient fixtures and systems to reduce water consumption and protect future water resources.
- Educating employees and occupants about sustainable practices and the importance of responsible resource use.

By following these principles and practices, the development will minimise its negative environmental impacts, reduce resource consumption, and enhance the health and productivity of the environment for the benefit of future generations.

2.3.3 CONSERVATION OF BIOLOGICAL DIVERSITY AND ECOLOGICAL INTEGRITY

The principle of the conservation of biological diversity and ecological integrity is that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

PROJECT RESPONSE:

A Biodiversity Development Assessment Report (BDAR) has been prepared by RPS Group and states that the development will not be likely to have any significant impacts on biodiversity values.

2.3.4 IMPROVED VALUATION, PRICING, AND INCENTIVE MECHANISMS

The principle of improved valuation, pricing and incentive mechanisms is that environmental factors should be included in the valuation of assets and services, such as

- (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, and,
- (ii) the users of goods and services should pay prices based on the full life cycle of the costs of providing the goods and services, including the use of natural resources and assets and the ultimate disposal of waste, and
- (iii) established environmental goals should be pursued in the most cost-effective way by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

PROJECT RESPONSE:

The project team has assessed the project against the ESD frameworks that are discussed in Section 3 of this report. The construction material will be selected based on the outcomes of relative cost-benefit analysis with decisions being made based on the whole-of-life costs rather than capital expenditure only. Certified recycled and reused materials, as well as materials with low embodied energy, will be utilised where appropriate.

3. SUSTAINABLE BUILDING SEPP 2022

The NSW Government is committed to ensuring that new and renovated buildings are sustainable and resilient for future climate and bring NSW closer to net zero emissions. To achieve the goal a new State Environmental Planning Policy (Sustainable Buildings) 2022 (Sustainable Buildings SEPP) was published in August 2022 and was made effective from 1 October 2023. Based on the type of building (residential or non-residential) different sustainability standards apply as follows:

- Sustainability Standards for Residential Development (BASIX)
- Sustainability Standards for Non-Residential Development

3.1 SUSTAINABILITY STANDARDS FOR RESIDENTIAL DEVELOPMENT [BASIX]

As per the Environmental Planning and Assessment Regulation 2021, a **BASIX building** means a building that contains **at least 1 dwelling** but does not include the following:

- Hotel or motel accommodation,
- A boarding house, hostel or co-living housing that:
 - accommodates more than 12 residents, or
 - has a gross floor exceeding 300 square meters.

In accordance with Chapter 2.1 of Sustainable Building SEPP 2022, the SB SEPP is applicable to all **BASIX building** that involves:

- **development that involves the erection, but not the relocation, of a BASIX building,**
- development that involves a change of building use by which a building becomes a BASIX building,
- development that involves the alteration of a BASIX building, if the estimated development cost is \$50,000 or more,
- development for the purposes of a swimming pool or spa, or combination of swimming pools and spas, that:
 - services 1 dwelling only, and
 - has a capacity, or combined capacity, of 40,000 litres or more.

Hence the **Sustainability Standards for Residential Development (BASIX)** applies to 88 Waterloo Road, Macquarie Park. Please refer to the BASIX certificate provided separately for compliance.

3.2 SUSTAINABILITY STANDARDS FOR NON-RESIDENTIAL DEVELOPMENT

This section addresses Item 15 of the industry-specific SEARs requirements to assess the development against the standards for non-residential development set out in Chapter 3 of *State Environmental Planning Policy (Sustainable Buildings) 2022*. In accordance with Chapter 3.1 of the Sustainable Building SEPP 2022, the SB SEPP is applicable to all **non-residential development** that involves:

- **The erection of a new building, if the development has a capital investment value of \$5 million or more;** or
- Alterations, enlargement or extension of an existing building, if the development has a capital investment value of \$10 million or more.

The Sustainable Building SEPP 2022 is applicable to the project, and as such will incorporate practical sustainability measures applicable to the project type.

The following sections within Chapter 3 of the Sustainable Building SEPP 2022 are not applicable for this project:

- *Chapter 3.3 Other considerations for large commercial development* as the project does not meet the definition for a Large Commercial Development.
- *Chapter 3.4 Other considerations for certain State significant development* as the project does not meet the definitions for this section.

Therefore, neither a NABERS commitment agreement nor a Net Zero Statement are required.

3.2.1 CHAPTER 3.2 (1) – GENERAL SUSTAINABILITY PROVISIONS

Chapter 3.2 (1) of Sustainable Building SEPP 2022 requires evidence that new development is designed to enable the following:

- The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,
- a reduction in peak demand for electricity, including through the use of energy efficiency technology,
- a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,
- the generation and storage of renewable energy,
- the metering and monitoring of energy consumption,
- the minimisation of consumption of potable water.

The following table summarises the project-specific ESD responses addressing the General Sustainability Provisions:

General Sustainability Provisions	Project Specific Responses
a) The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials.	▪ A Construction Waste Management Plan has been prepared by Elephants Foot Consulting which includes measures to maximise the diversion of construction and demolition waste from landfill.
b) A reduction in peak demand for electricity, including through the use of energy efficiency technology.	▪ A high-efficiency HVAC system. ▪ Energy-efficient LED lighting.
c) A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design.	▪ Appropriate insulation and roof colour will be provided. ▪ High thermal performance glazing system. ▪ Appropriate building design elements to maximise natural daylight and winter heat gains while minimising unwanted heat gains in summer.
d) The generation and storage of renewable energy.	▪ Provision of a roof-mounted photovoltaic system (PV).
e) The metering and monitoring of energy consumption.	▪ Metering is to be provided to enable building energy/water monitoring or leak detection and recording of the on-site renewable energy equipment. Accessible energy and water metering will be provided for all common uses, major uses and major sources.
f) The minimisation of consumption of potable water.	▪ Installed water-efficient fixtures and fittings meeting the minimum WELS Rating as nominated. ▪ Use of indigenous or low water use species.

3.2.2 CHAPTER 3.2 (2) – EMBODIED EMISSIONS

The NABERS embodied emissions materials form must be prepared for this development to disclose the amount of embodied emissions attributed to the development. Refer to Appendix B: NABERS Embodied Emissions Materials Form.

4. SUSTAINABLE DESIGN FRAMEWORK

4.1 FRAMEWORK

The sustainable design framework for this development aims to incorporate the best practice design initiatives and ESD principles into the development. The ESD initiatives and targets outlined within this framework have been compiled based on the following:

- National Construction Code (NCC) 2022 Section J – Energy Efficiency
- Sustainable Building SEPP

These ESD initiatives and targets are to be incorporated into the design of the project during the detailed design by the design team.

4.2 BUILDING ENVELOPE

Intelligent design and material selection ensure that thermal comfort is not entirely achieved by mechanical means. The building design has incorporated passive design principles to minimise solar heat gains, improve occupant thermal comfort, reduce reliance on mechanical conditioning systems and improve overall building energy performance. The building envelope for the residential areas will be designed such that the average NatHERS star rating for the dwellings is more than 7 Stars.

Key Passive design initiatives incorporated into the development include:

- Selection of high-performance double glazing with low SHGC values for the residential areas to reduce unwanted solar gain, as well as general heat gains and losses, while maintaining good daylight access.
- Appropriate insulation around the building fabric to improve thermal comfort.
- Optimising glazing-to-wall ratios across each façade of each dwelling to balance the thermal performance. This includes increased solid facades for dwellings impacted by afternoon heat gain and higher heat loss for south orientation.
- Integration of external shading devices, balconies and architectural projections to reduce direct solar penetration.

These passive design measures collectively reduce peak cooling/heating demand, lower greenhouse gas emissions associated with building operation, and improve occupant comfort and resilience during extreme heat events.

4.2.1 BUILDING ENVELOPE PERFORMANCE

The façade performance and glazing selections have been informed by BASIX thermal comfort modelling (NatHERS) and NCC Section J compliance assessments, with the aim of optimising solar performance and reducing annual energy demand.

A glazing-to-wall ratio of 60% was considered in the early iterations of the design, which was further refined based on the orientation, dwelling area and other factors such as views to outside by conducting a NatHERS assessment for each dwelling. These assessments informed the refinement of the façade design to achieve an appropriate balance between thermal performance and occupant amenity.

The building fabric will be designed to meet or exceed the NCC 2022 Section J and BASIX requirements for the building envelope. The indicative results on total construction R-value requirements demonstrating compliance with NCC 2022 Section J and BASIX are provided below.

BUILDING FABRIC

NON-RESIDENTIAL AREAS

The building fabric will be designed in accordance with the NCC 2022 Section J Part J4. The minimum performance requirements have been obtained under Section J Deemed-to-Satisfy provision for the development at the proposed location (Climate Zone 5) as per the NCC 2022 Section J - Energy Efficiency.

Building Elements	Indicative NCC 2022 Requirements
Envelope Roof/Ceiling	Total R-Value of 3.7 (Downwards, Light Colour Roof Solar absorptance of the upper surface of a roof must be not more than 0.45)
Envelope Walls	Total R-Value of 1.4
Envelope Floors	Total R-Value of 2.0 (Downwards)

Note: The impact of thermal bridging must be considered within the total R-value calculation under NCC2022.

RESIDENTIAL AREAS

The building fabric for the residential areas has been designed to comply with the BASIX requirements. A NatHERS assessment was conducted to identify the building fabric performance requirements for the Class 2 SOUs. For the detailed thermal comfort specifications for the SOUs refer to the Stamped Drawings.

Building Elements		BASIX Requirements
Envelope Roof/Ceiling	Ceiling with balcony or external above	R4.0 - R6.0
	Internal Ceiling	No insulation
Envelope Walls	External Walls	R2.5
	Corridor Walls	R2.5
Envelope Floors	Exposed to outside air/unconditioned space	R2.0
	Apartment/common area/conditioned space below	No insulation

These requirements will necessitate the use of insulation to reduce heat flow and consequent heat loss in winter and heat gain in summer. This minimises the heating and cooling load demand on the air conditioning systems. Light-coloured roof material with a low solar absorptance (SA) is recommended to be used to isolate more sunlight and reduce summer heat gain. It also has the effect of reducing elevated localised temperatures (the heat island effect) and potentially will improve the efficiency of solar PV panels as they perform more efficiently in reduced temperatures.

GLAZING

Glazing is a major source of unwanted heat gain in the summer and can cause significant heat loss in the winter due to its low insulation performance. It is thus recommended that windows be high-performance glazing systems. Performance glazing substantially reduces heat transmission. This particularly reduces heat loss in winter; therefore, internal heat gain from equipment, lighting and people are better contained. Also, performance glazing absorbs the infrared portion of sunlight and reduces the amount of heat transferred into the conditioned space. This will correspond to a reduction of both heating and cooling loads.

NON-RESIDENTIAL AREAS

The building will be designed to comply with NCC 2022 Section J Energy Efficiency. The minimum glazing performance has been calculated based on the Part J4 DTS pathway.

Building Elements	NCC 2022 Requirements
Vertical Envelope Glazing	Total U=4.5 & Total SHGC=0.32 (DGU or the like)

RESIDENTIAL AREAS (CLASS 2 SOU)

For the Class 2 SOU areas, the glazing will be proposed with the following minimum performance. The BASIX requirements were determined based on the NatHERS assessment.

Building Elements	BASIX Requirements
Awnings	Total U=2.7 & Total SHGC=0.32 (DGU or the like)
Sliding	Total U=2.8 & Total SHGC=0.32 (DGU or the like)
Fixed	Total U=2.3 & Total SHGC=0.35 (DGU or the like)

4.2.2 SHADING AND DAYLIGHTING

Solar access can enhance indoor environmental quality through access to daylighting and reduce lighting energy consumption. However, excessive solar access and hence, direct solar radiation heat can increase HVAC energy demand and can also cause thermal discomfort. Passive solar design combines strategies that can conveniently take advantage of the site-specific solar access for optimised indoor environmental quality and reduction of HVAC energy demand through the use of tailored shadings. The passive solar heating principle aims to prevent solar heat gain in the summer and harvest it in the winter for a free source of heating. The passive cooling principle prevents heat from entering the building during the summer months.

The proposed building is designed to make the best use of the sun by using passive design elements to prevent the high summer sun from entering the building whilst allowing the low winter sun to enter the building for passive heating. The façade design seeks to balance glazing proportions and opaque building fabric to optimise thermal performance and minimise operational energy demand associated with cooling. The proposed towers incorporate recessed balconies and architectural shading elements, which provide passive solar protection to glazing systems. These elements are designed to reduce direct summer solar exposure to habitable spaces while maintaining access to daylight and external views. Figure 2 below shows an example of the proposed façade design.



Figure 2: Shading Device Design; Source: AJC/JHA

These passive design features allow for enriched daylighting and greater access to external views for occupants. Additional daylighting reduces the reliance on artificial light and benefits alertness, mood, and productivity. External views provide a connection to nature and the building and help to create an environment encouraging constructive experience.

4.3 ENERGY EFFICIENCY

Each climate zone under the Building Code has different design and conditioning requirements to minimise energy use for heating and cooling. A good balance of heating and cooling reduction techniques is required to create an energy-efficient development.

4.3.1 HEATING, COOLING AND VENTILATION SYSTEMS

The air-conditioning and ventilation systems shall be designed to comply with the minimum requirements of NCC 2022 Section J6 requirement.

The occupied spaces will be having high-efficiency air conditioning as required. An air-cooled heat rejection system is to be used as this will help minimise the impacts associated with harmful microbes (e.g., Legionella impact).

All bathrooms/toilets, laundries (if any), and general exhaust are mechanically ventilated. The design will have a sufficient amount of exhaust fans to ensure liveability for the building users.

The control of the air conditioning system shall be designed to minimise energy consumption. Further, high-efficiency equipment for the HVAC system will be selected to assist with the energy conservation of the building.

Ductwork systems will be designed to reduce system pressure losses to reduce fan motor power. This includes the selection of equipment for reduced coil and fittings drops and being generous with ductwork sizes to reduce friction losses.

4.3.2 LIGHTING

Lighting is to be designed to comply with NCC 2022 Section J7. Also, the Lighting illumination density is to be according to NCC2022 Section J7D3. Fittings incorporating the latest lamp technologies to be installed to minimise energy use and provide efficient artificial lighting systems. The proposed development shall be illuminated using energy-efficient light fittings.

All the external luminaires proposed will be according to AS 4282:1997. This will make sure that the external luminaires do not emit light pollution to the night sky above a given benchmark.

4.3.3 CONTROLS

All HVAC installed shall be controlled by the HVAC group controller. Closed spaces such as storage rooms and cleaners' cupboards are to be provided with a wall switch. For BOH areas (not task-specific areas) PIR sensors are to be provided. Voltage control (dimming) should be provided where appropriate.

4.3.4 ELECTRICITY METERING

Electricity metering and sub-metering shall be specified in accordance with Section J to monitor and manage electricity consumption in the building. Sub-metering is to be provided to distinct locations (e.g., apartment usage, mech plant and PV generation).

4.3.5 PHOTOVOLTAICS

Collection of solar energy should be implemented, with a goal of reducing the building's energy consumption and greenhouse gas emissions from a renewable source via the provision of a roof-mounted photovoltaic system.

4.4 INDOOR AIR QUALITY (IAQ)

The quality of indoor air has a significant impact on our health and environment. Poor indoor air quality results in adverse health effects such as allergies, asthma, etc. The ventilation system shall be designed to minimise the entry of outdoor pollutants as per ASHRAE Standard 62.1:2013 and should comply with AS1668.2:2012.

4.5 WATER CONSERVATION

The following initiatives are proposed to ensure that significant water saving is achieved.

4.5.1 FITTINGS AND FIXTURES

Water consumption shall be reduced by incorporating water-efficient fixtures and fittings in accordance with the Australian Government's Water Efficiency Labelling Scheme (WELS). The fixtures and fittings to meet the minimum WELS Rating.

Water Fittings/Fixtures	Minimum WELS Rating
Showerhead rating	4 (>6, but ≤ 7.5L/min)
Toilet rating	4
Taps and flow controllers	5
Dishwashers	4
Washing machines	4

4.5.2 WATER-SENSITIVE URBAN DESIGN

The project is to implement best practices of water-sensitive design by decreasing the total suspended solids in stormwater and by not using water for heat rejection. Please refer to the stormwater management plan including water-sensitive urban design (WSUD).

4.6 SUSTAINABLE MATERIALS

4.6.1 LOW VOC/LOW FORMALDEHYDE MATERIALS

Adhesives, sealants, flooring and paint products selected to contain low or no Volatile Organic Compounds (VOCs) and all engineered timber used in exposed or concealed applications are specified to contain low or no formaldehyde to avoid harmful emissions that can cause illness and discomfort for the building users.

4.6.2 WASTE

Waste collection and disposal play an important role in the protection of the environment and the health of the population in the modern world. A Construction Waste Management Plan (CWMP) will be prepared to assess and monitor the waste management process during the construction and demolition. An Operational Waste Management Plan (OWMP) will be prepared regarding the waste produced during occupation within the development. The waste management plans shall incorporate how to minimise the amount of waste generated, maximise the reuse, recycling and reprocessing of construction waste materials and minimise the volume of materials disposed to landfill. Refer to the waste consultant reports for details.

5. CONCLUSION

This ESD report has identified and summarised the project's Ecologically Sustainable Design (ESD) initiatives for the Department of Planning and Environment (DPE) in support of a State Significant Development Application (SSD-94006708) and in accordance with Item 15 of the SEARs issued by the Department of Planning, Housing and Infrastructure (DPHI) on 8 October 2025.

Through the inclusion of the sustainability initiatives outlined within this report, the project addresses the Industry Specific SEARs for SSD-94006708, the requirements of the State Environmental Planning Policy (Sustainable Buildings) 2022 and of the Environmental Planning and Assessment (EP&A) Regulation 2000.

To ensure alignment with the aforementioned planning requirements, the ESD targets followed the National Construction Code (NCC) 2022 Section J – Energy Efficiency (overall development), the Sustainability Standards for Residential Development (BASIX) (residential and associated spaces) and the Sustainability Standards for Non-Residential Development (non-residential and associated spaces).

5.1 MITIGATION MEASURES

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

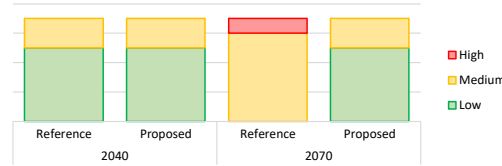
- ESD principles are incorporated in the design and ongoing operation of the development as outlined in this report (refer to Section 2.3 & Appendix A).
- Sustainability Standards for Residential Development (BASIX) are incorporated in the design and ongoing operation of the development as detailed in this report and the BASIX Certificate.
- Sustainability Standards for Non-Residential Development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022 are incorporated in the design and ongoing operation of the development as detailed in this report.

The relevant impacts have been addressed by following the implementation of the above mitigation measures.

6. APPENDIX A: ENVIRONMENTAL PRE-SCREENING CHECKLIST



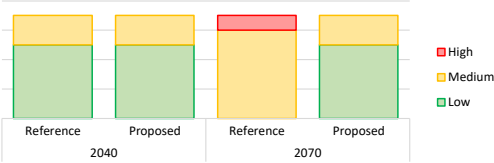
88 Waterloo Road, Macquarie Park - Risk Profile



Climate Variables & Hazards	Climate Projections	Potential Climate Impacts	Consequence (2040)	Likelihood (2040)	Risk (2040)	Consequence (2070)	Likelihood (2070)	Risk (2070)	Responsible Parties	Adaptation Measures	Consequence (Residual 2040)	Likelihood (Residual 2040)	Risk (Residual 2040)	Consequence (Residual 2070)	Likelihood (Residual 2070)	Risk (Residual 2070)	Summary of how measures reduce risks
Hotter and dryer conditions resulting in higher frequency and/or severity of BUSHFIRE events	On balance, the projected climate scenarios indicate summers that will be warmer in the near future and becoming hotter and possibly drier later. Under these projected scenarios, the likelihood and severity of bushfire events will be increased.	DIRECT: Increased bushfires risk due to warmer to hotter conditions may increase exposure to smoke and particulate for staff and visitors, impacting health. In addition, smoke and embers may damage the air conditioning system.	Minor	Unlikely	Low	Minor	Possible	Medium	Mechanical Developer	Operation: Project may consider an emergency plan in case of smoke leading to low air quality, e.g. a resident guide and increased air filtration and cleaning frequency during periods of low air quality.	Insignificant	Unlikely	Low	Minor	Unlikely	Low	The risk and impact of smoke on occupants will be reduced by good management practice implemented.
Hotter and dryer conditions resulting in higher frequency and/or duration of HEATWAVES/ EXTREME HEAT (over 35 degree Celsius)	On balance, the projected climate scenarios indicate a summer that will be warmer in the near future and becoming hotter and drier later. Under these projected scenarios, the likelihood and severity of heatwaves will be increased.	DIRECT: Heatwaves/Extreme heat will increase demand for the HVAC system and may impact the ability of the HVAC system to maintain the thermal comfort of occupants due to capacity constraints. Increased urban heat risk due to warmer to hotter conditions may further increase cooling energy requirement and cause a direct impact on the health and well-being of the building occupants.	Minor	Likely	Medium	Moderate	Likely	High	Architect Landscape ESD Mechanical	Arch: Incorporate passive thermal design principles in the design and construction of the building such as appropriate levels of shading devices and thermal insulation. Consider targeting light coloured roofs and facade as well as landscaped areas to reduce heat gains to help mitigate urban heat island effect. Landscape: Improving the vegetation on site by planting more indigenous species to improve the microclimate of the site. Providing water bodies where possible. ESD: Building is targeting a reduction in energy use. Reduction will be achieved through efficiency systems, building fabric optimisation and onsite PV array on roof. The solutions will help to reduce the peak load, and therefore the HVAC system strain.	Minor	Possible	Medium	Minor	Likely	Medium	The incorporation of passive thermal design principles will help mitigate extreme heat risks in the near future. Energy efficiency and an appropriate PV system will help ensure the HVAC system will be capable of handling more extreme temperatures in the far future.
Hotter and dryer conditions resulting in higher frequency and/or duration of HEATWAVES/ EXTREME HEAT (over 35 degree Celsius)	On balance, the projected climate scenarios indicate a summer that will be warmer in the near future and becoming hotter and drier later. Under these projected scenarios, the likelihood and severity of heatwaves will be increased.	DIRECT: Reduction in the ability to use outdoor spaces due to effects of Urban Heat Island, Heatwaves/Extreme heat.	Minor	Likely	Medium	Minor	Almost certain	Medium	Architect Landscape	Landscape/Arch: Provide extensive landscaping, shade structures/overhangs for outdoor spaces and light colour finishes to roof and envelope to reduce the effect of urban heat island effect.	Minor	Possible	Medium	Minor	Likely	Medium	Providing landscaping, shade and increasing reflectivity of hardscape and roof will reflect more heat and lower microclimate temperatures.
Hotter and dryer conditions resulting in higher frequency and/or duration of HEATWAVES/ EXTREME HEAT (over 35 degree Celsius)	On balance, the projected climate scenarios indicate a summer that will be warmer in the near future and becoming hotter and drier later. Under these projected scenarios, the likelihood and severity of heatwaves will be increased.	DIRECT: Heatwaves/Extreme heat may impact the operation of electrical equipment, finishes and infrastructures as temperature exceeds design limits.	Minor	Unlikely	Low	Minor	Possible	Medium	Electrical Civil Arch Landscape	Elec: In the near future, current temperature ratings for electrical equipment should be able to cope with projected temperature increases relevant to the component's design life. Civil: Ensure Civil design specifies paving/ hardscapes that can cope with increased temperatures to reduce cracking/ buckling. In the far future, equipment should be gradually upgraded as required to cope with more extreme conditions.	Insignificant	Unlikely	Low	Minor	Unlikely	Low	Appropriate upgrade of electrical equipment at their end of their service life will help ensure system will be capable of handling more extreme temperatures in the far future.



88 Waterloo Road, Macquarie Park - Risk Profile



			Pre-adaptation Actions						Medium Low				Post-adaptation Actions					
			2040			2070			Reference 2040	Proposed	Reference 2070	Proposed	2040			2070		
Climate Variables & Hazards	Climate Projections	Potential Climate Impacts	Consequence (2040)	Likelihood (2040)	Risk (2040)	Consequence (2070)	Likelihood (2070)	Risk (2070)	Responsible Parties	Adaptation Measures	Consequence (Residual 2040)	Likelihood (Residual 2040)	Risk (Residual 2040)	Consequence (Residual 2070)	Likelihood (Residual 2070)	Risk (Residual 2070)	Summary of how measures reduce risks	
Hotter and dryer conditions resulting in higher frequency and/or duration of HEATWAVES/ EXTREME HEAT (over 35 degree Celsius)	On balance, the projected climate scenarios indicate a summer that will be warmer in the near future and becoming hotter and drier later. Under these projected scenarios, the likelihood and severity of heatwaves will be increased.	INDIRECT: Increased water demand from both landscaping and occupants.	Minor	Unlikely	Low	Minor	Possible	Medium	Architect Landscape	Arch: Fixtures will be low flow rated to reduce potable water demand. Landscape: Selection of planting from landscape architect to consider resilient indigenous plants that require less watering than other species.	Insignificant	Unlikely	Low	Insignificant	Possible	Low	Reduction in water demand reduces dependency on potable water.	
Hotter and wetter conditions increasing severity of extreme STORM/ WIND events (by providing more fuel to increase the wind speeds of storms)	There is no strong consensus whether it will become wetter or drier in the near future but hotter temperature may impact on the severity of storm and wind events.	DIRECT: Extreme weather causing damage to external equipment/façade and roof finishes.	Minor	Unlikely	Low	Minor	Possible	Medium	Architect Façade	Arch: Plant rooms have their own skin w/ screen wall and will reduce particulates and protect from hail damage. Facade: External fabric is a durable finish.	Minor	Rare	Low	Minor	Unlikely	Low	Plant-room and finishes designed to account for extreme weather events.	
Increased frequency and intensity of DROUGHT periods.	On balance, the projected climate scenarios indicate more extensive drought periods followed by increased intensity of extreme rainfall events.	DIRECT: Damage to landscaping due to lack of rainfall.	Insignificant	Likely	Low	Insignificant	Almost certain	Medium	Landscape	Landscape: Selection of planting from landscape architect to be resilient indigenous plants that require less watering than other species. Investigate specifying low water requirement landscaping with a high efficiency irrigation system (e.g. Sub-surface drip irrigation).	Insignificant	Possible	Low	Insignificant	Possible	Low	Decreasing the landscapes dependency on regular rainfall and increasing the tolerance of the plants selected will reduce the need to replace planting.	

7. APPENDIX B: NABERS EMBODIED EMISSIONS MATERIALS FORM

Step 1: About the building

Fill out blue cells

Building location and site data	Value	Unit	Note	Comment
Building address	88 WATERLOO ROAD, MACQUARIE PARK 2113			
Postcode	2113		Required	Postcode of building
Town/city	BLENHEIM ROAD + 5 other localities		Town/city/suburb/region automated from postcode (may not give exact town name)	Town/city/suburb/region of the building site.
Distance to nearest major city/town		km	Enter for rural/regional locations only	Declare the shortest route by road to your site from the centre of your nearest major city (>100,000 people). The route must be traversable by a semitrailer truck.
Project stage	Development Application		Required	Stage of development
New build or major renovation?	New build		Required	
Brownfield or greenfield site?	Brownfield		Required	

Floor area by NCC building classification	Gross (GFA)	Net (NLA/NSA/UFA)	Unit	Note	
Please enter all floor areas relevant to your building. Leave areas blank if not applicable. Please enter Gross Floor Area (GFA) for all building classifications. Please also enter the corresponding net area (Net Lettable Area, Net Sellable Area or Usable Floor Area) where it commonly used for that building classification.					
Class 1a: Detached residential buildings			m²	Required for Class 1a: Detached residential houses, townhouses	Gross Floor Area (GFA), as defined by the AIQS Australian Cost Management Manual
Class 1b: Boarding houses and hostels			m²	Required for Class 1b: Boarding house, guest house, hostel	Net area (Net Lettable Area, Net Sellable Area, Usable Floor Area), as defined by the PCA's Method of Measurement
Class 2: Multi-unit residential buildings			m²	Required for Class 2: Multi-unit residential, including apartment buildings	
Class 3: Other residential buildings			m²	Required for Class 3: Other residential buildings	
Class 4: Residential inside non-residential	99,897		m²	Required for Class 4: Residential building inside a non-residential building, e.g., caretaker residence	
Class 5: Office buildings			m²	Required for Class 5: Office building	
Class 6: Retail buildings			m²	Required for Class 6: Retail building, e.g., shop, restaurant, café	
Class 7a: Carparks			m²	Required for Class 7a: Carparks	
Class 7b: Warehouse-type buildings			m²	Required for Class 7b: Warehouses, wholesalers and storage facilities	
Class 8: Industrial buildings			m²	Required for Class 8: Industrial buildings, e.g., factories and workshops	
Class 9a: Healthcare buildings			m²	Required for Class 9a: Healthcare, e.g., hospitals, clinics, day surgeries	
Class 9b: Civic buildings			m²	Required for Class 9b: Civic buildings, e.g., theatres, civic centres, train stations	
Class 9c: Aged care and personal care buildings			m²	Required for Class 9c: Aged care and personal care	
Class 10a: Non-habitable buildings			m²	Required for Class 10a: Non-habitable buildings including sheds, carports and private garages	
Class 10b: Miscellaneous structures			m²	Required for Class 10b: Miscellaneous structures, including fences, masts, antennas, retaining walls and swimming pools	
Class 10c: Bushfire shelters			m²	Required for Class 10c: Bushfire shelters not attached to a Class 1a building	
Total	99,897		0 m²	Required: Sum of m² inputs must be more than 0.	

Project information	Value	Unit	Note	
Total cost of project	599,033,844	AUD excl. GST	Required	Include labour, materials, transport, plant, equipment and professional fees. Exclude GST, land, finance, escalation and other costs.
Building design life	50	years	Required	If uncertain, enter 50 years
Estimated envelope life		years	Optional	
Estimated replacement cycle for mechanical services		years	Optional	
Estimated replacement cycle for vertical transportation		years	Optional	

Dimensions of the building and the site	Value	Unit	Note	
Site area	4,500	m²	Required	Total area of site to external boundary.
Shared services or infrastructure	No		Required	Indicate if there are shared services that the building utilises, or shared foundations, basement or podium
Building footprint area	3,538	m²	Required	Total floor area of the ground floor measured to the outside edge of the floorplate.
Typical floor area (if different to building footprint area)	2,000	m²	Only needed if different to row above	
Typical floor perimeter	380	m	Required	Tower B
Typical floor perimeter		m	Required	Tower A
Area of external carpark (not included in GFA)	0	m²	Required. Enter 0 if not applicable.	
Area of external hardstand (not included in GFA)	0	m²	Required. Enter 0 if not applicable.	
Area of other hard landscaping (not included in GFA)	0	m²	Required. Enter 0 if not applicable.	Include all other impervious areas. For example, patios, paths and driveways (not already included in carparks and hardstands above).
Number of floors/storeys above ground, including ground floor	62	no.	Required	Tower A
Number of floors/storeys above ground, including ground floor		no.	Required	Tower B
Number of floors/storeys below ground	6	no.	Required. Enter 0 if not applicable.	
Number of floors/storeys of car parking	10	no.	Required. Enter 0 if not applicable.	
Total height above ground	185	m	Required	Measured from the average finished grade to the highest point of the building, excluding protrusions (lighting rods, masts, chimneys, etc.)

Structural material choices	Value	Unit	Note	
Foundation type	Spot/pad footing		Required	
Frame type (dominant)	Reinforced concrete		Required	
Suspended floor type (typical)	Reinforced concrete		Only needed for multi-storey buildings	
Describe low carbon materials specified in your building (e.g. green concrete, low carbon bricks)	Low carbon concrete		Required	
Describe recycled content specified in your building (e.g. recycled steel)	To be decided when project is to be tendered		Required	

Step 2: Quantity of materials

Complete all blue cells that are applicable to the building. Leave items that aren't applicable, blank.

Fill out blue cells

Material category	Sub-category 1	Sub-category 2	Sub-category 3	Value	Unit of measure	Comment	AIGS ACMM Code	ICMS3 (Level 3 Codes Construction)
Structure								
The structural parts of the building that are below ground (substructure) and above ground (superstructure). This includes fill below the substructure, foundations, basement levels, suspended floors, wall structure, roof structure, stairs, lift shafts and balconies. It excludes external areas such as hardstands, carparks, patios, etc.								
Coverage of structural material spend	-	-	-	90	%	Required. Coverage of spend for structural elements entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Concrete in-situ	≤10 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>10 MPa to ≤20 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>20 MPa to ≤32 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>32 MPa to ≤40 MPa	-	-	47,581.5	m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>40 MPa to ≤50 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>50 MPa to ≤60 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>60 MPa to ≤80 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>80 MPa to ≤100 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>100 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete pre-cast panel	-	-	-		m²	Please enter reinforcing steel in relevant line items below. If not known at DA stage, please make your best estimate. If not known at CC stage, please ask your supplier.	01_SB or 02-11	02 or 03
Concrete block	Hollow core	-	-		m³	Please include all block fill concrete and all reinforcing steel in relevant line items	01_SB	02 or 03
Concrete block/brick	Solid	-	-	3,933.0	m³	Enter as cubic metres, calculated as (area in m²) * (thickness in mm / 1000)	01_SB	02 or 03
Concrete block/brick	Solid AAC	-	-		m³	Solid Aerated Autoclaved Concrete (AAC) block.	01_SB	02 or 03
Mortar	-	-	-		kg	Enter as cubic metres, calculated as (area in m²) * (thickness in mm / 1000).	01_SB	02 or 03
Reinforcing steel	Bar & mesh	-	-	4,903,489	kg	include an reinforcing steel bar/beam in the building's structure in this row. Usually this is calculated as kg/m² per concrete element and then summed. Example: 10 m² of 40 MPa concrete @ 100 kg/m² + 5 m³ of 50 MPa concrete @ 150 kg/m³ = 1,750 kg reinforcing steel	01_SB or 02-11	02 or 03
Reinforcing steel	Fibre & strand	-	-		kg	include an steel fibre reinforcing and steel strand in the building's structure in this row	01_SB or 02-11	02 or 03
Structural steel	Hot rolled structural	-	-		t	Examples include universal beams, universal columns and welded beams	01_SB	02 or 03
Structural steel	Cold formed structural	-	-		t	Examples include C purlins, Z purlins and all light gauge steel framing	01_SB	02 or 03
Structural steel	Other welded structural	-	-	20	t		01_SB	02 or 03
Structural steel	Plate	-	-		t	Include any allowance for connections here	01_SB	02 or 03
Structural steel	Sheet	-	-		t		01_SB	02 or 03
Structural steel	Stainless steel	-	-		t		02_11	02 or 03
Reinforced concrete piles	Concrete	-	-		m³	Primarily for engineered timber structure connections	01_SB	02 or 03
Reinforced concrete piles	Steel reinforcing	-	-		kg	Please enter reinforcing steel in the line below. If not known at DA stage, please make your best estimate. If not known at CC stage, please ask your supplier.	01_SB	02 or 03
Steel piles	-	-	-		t	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber poles/piles	-	-	-		m³	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber (solid)	Sawn softwood	-	-		m³		02_11	02 or 03
Timber (solid)	Sawn hardwood	-	-		m³		02_11	02 or 03
Timber (engineered)	CLT	-	-		m³		02_11	02 or 03
Timber (engineered)	Glulam	-	-		m³		02_11	02 or 03
Timber (engineered)	LVL	-	-		m³		02_11	02 or 03
Timber (engineered)	OSB	-	-		m³		02_11	02 or 03
Brick	Heat cured	-	-	49	m³	Enter as cubic metres, calculated as (area of wall in m²) * (thickness in mm / 1000)	02_11	02 or 03
Structural Insulated Panel (SIP)	Steel outer	-	-		m³	Enter as cubic metres, calculated as (area of wall in m²) * (thickness in mm / 1000)	01_SB	02 or 03
Structural Insulated Panel (SIP)	Aluminium outer	-	-		m³		01_SB	02 or 03
Structural Insulated Panel (SIP)	Engineered timber outer	-	-		m³		01_SB	02 or 03
Fill	-	-	-		t	Include purchased material only. Exclude site-won material.	01_SB	01
Sand & gravel	-	-	-		t	Include purchased material only. Exclude site-won material and sand/gravel in concrete.	01_SB	01
Waterproofing membrane	Bituminous	-	-	4,000	m²	Tanking to roof slab	01_SB	01 or 02 or 03
Waterproofing membrane	Polyethylene	-	-	24,196	m²	Waterproofing to slab on ground, shoring wall etc.	01_SB	01 or 02 or 03
Other structural (Describe and add unit >>)		-	-			Please enter a description for any structural material that does not fit a predefined classification		
Other structural (Describe and add unit >>)		-	-			Please enter a description for any structural material that does not fit a predefined classification		
Other structural (Describe and add unit >>)		-	-			Please enter a description for any structural material that does not fit a predefined classification		
Envelope								
The skin of the building that separates the internal building from the external environment. This includes the roof cladding, wall cladding, windows, doors and internal/external shading. It also includes insulation and the internal wall lining of envelope walls.								
Coverage of envelope material spend	-	-	-	90	%	Required. Coverage of spend for the envelope items you have entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Roof cladding	Profiled steel	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row includes all metal-coated and pre-painted steel sheets where steel is the base metal. Examples include: galvanised steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	05_RF	03 or 04
Roof cladding	Profiled aluminium	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row also includes pre-painted aluminium sheets.	05_RF	03 or 04
Roof cladding	Profiled zinc	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row also includes pre-painted zinc sheets.	05_RF	03 or 04
Roof cladding	Membrane	-	-	4,500	m²	Enter as m² of roof area. Exclude allowances for overlap in the membrane sheets.	05_RF	03 or 04
Roof cladding	Tiles (traditional clay)	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Tiles (concrete)	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Other (Please describe >>)		-		m²	Please enter a description for any roofing that does not fit a predefined classification	05_RF	03 or 04
Wall cladding	Bricks (heat cured)	-	-		m²	Enter as m² of wall area. Heat-cured bricks use a kiln or furnace to raise the brick temperature above ambient temperature during curing process.	06_EW	03 or 04
Wall cladding	Bricks (air dried)	-	-		m²	Enter as m² of wall area. Air-dried bricks are cured using ambient temperature.	06_EW	03 or 04
Wall cladding	Bricks (under fired)	-	-		m²	Enter as m² of wall area.	06_EW	03 or 04
Wall cladding	Bricks (concrete)	-	-		m²	Enter as m² of wall area	06_EW	03 or 04
Wall cladding	Mortar and render	-	-		kg		06_EW	03 or 04
Wall cladding	Profiled steel	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row includes all metal-coated and pre-painted steel sheets where steel is the base metal. Examples include: galvanised steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	06_EW	03 or 04
Wall cladding	Profiled aluminium	-	-	4,900	m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row also includes pre-painted aluminium sheets.	06_EW	03 or 04
Wall cladding	Profiled zinc	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row also includes pre-painted zinc sheets.	06_EW	03 or 04
Wall cladding	GRC cladding	-	-		m²	Enter as m² of wall area. GRC = Glass Reinforced Concrete.	06_EW	03 or 04
Wall cladding	Timber weatherboards	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap between weatherboards, offsets, etc.	06_EW	03 or 04
Wall cladding	Fibre cement board	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Terra-cotta	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Brick tiles / veneers	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Plasterboard	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding	Plywood	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding	Other (Please describe >>)		-		m²	Please enter a description for any wall cladding that does not fit a predefined classification	06_EW or 12_WF	03 or 04
Windows & doors	Aluminium frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Aluminium frame	Double glazed	-	44,100	m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Aluminium frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Single glazed	-	1,000	m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Other (Please describe >>)		-		m²	Please enter a description for any windows or doors that do not fit a predefined classification	07_WW or 08_ED	03 or 04
Curtain wall	Single skin façade	Glazed panel	Single glazed		m²	Please declare all single-skin façade area in this section. All double-skin façade area should be entered in the next section. Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall	Single skin façade	Glazed panel	Double glazed		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall	Single skin façade	Glazed panel	Triple glazed		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Aluminium cladding		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Insulated shadow box		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Brick cladding		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Stone cladding		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Single glazed		m²	Please declare all double-skin façade area in this section. Please declare as the area of the curtain wall and do not enter the inner and outer skins twice.	06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Double glazed		m²	Include all single glazing, including standard, toughened, laminated and low-E.	06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Triple glazed		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Aluminium cladding		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Insulated shadow box		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Brick cladding		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Stone cladding		m²		06_EW	03 or 04
Curtain wall	Other (Please describe >>)		-		m²	Please enter a description for any curtain wall that does not fit a predefined classification	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Glazed section	Single glazed		m²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04

Stick-framed wall system	Aluminium frame	Glazed section	Double glazed		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Glazed section	Triple glazed		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Aluminium cladding		m²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Insulated shadow box		m²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Brick cladding		m²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Stone cladding		m²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Single glazed		m²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Double glazed		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Triple glazed		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Aluminium cladding		m²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Insulated shadow box		m²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Brick cladding		m²		06_EW	03 or 04

Stick-framed wall system	Steel frame	Opaque section	Stone cladding		m²		06_EW	03 or 04
Stick-framed wall system	Other (Please describe >>)		-		m²	Please enter a description for any wall system that does not fit a predefined classification	06_EW	03 or 04
Wall louvre system	Aluminium	-	-		430 m²		06_EW	03 or 04
External shading system	Aluminium frame	Aluminium cladding	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	GRC cladding	-		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
External shading system	Aluminium frame	Terracotta cladding	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Stone cladding	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Pre-cast concrete	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Timber	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Glass (opaque)	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Steel	-		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Other (Please describe >>)	Pergola roof	-		73 m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Other (Please describe >>)	Skylight	-		9 m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Other (Please describe >>)	Shopfront Awning	-		500 m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
Roller doors	Steel profile	-	-		100 m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors	Hardwood over steel	-	-		m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors	Softwood over steel	-	-		m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Revolving doors	Glass/aluminium/steel	-	-		m²		08_ED	03 or 04
Fire-rated doors	Engineered timber	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Fire-rated doors	Steel	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Fire-rated doors	Aluminium/glass	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Insulation	Glass wool / fibreglass	-	-		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Stone wool	-	-		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Polyster	-	-		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Expanded polystyrene	-	-		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Other (Please describe >>)		-		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Other (Please describe and add unit >>)		-	-			Please enter a description for any envelope material that does not fit a predefined classification		
Other (Please describe and add unit >>)		-	-			Please enter a description for any envelope material that does not fit a predefined classification		
Other (Please describe and add unit >>)		-	-			Please enter a description for any envelope material that does not fit a predefined classification		

Permanent internal walls and doors

Walls and doors within the building that are either structural or designed to be permanent.

Coverage of material spend on permanent internal walls and doors					90 %	Enter the % coverage of <u>spend</u> for the items you have entered below. There is no minimum requirement; enter what you know. This should include all structural walls. Exclude head contractor preliminaries and margins.		
Interior wall (permanent)	Steel (light framing)	-	-		121,384 m²		09_NW	03 or 04
Interior wall (permanent)	Timber framing	-	-		m²		09_NW	03 or 04
Interior wall (permanent)	AAC panel (reinforced)	-	-		m²	Panels of autoclaved aerated concrete (AAC) with reinforcing steel. E.g., Hebel.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Concrete-filled steel panel	-	-		m²	Panels made from a steel sheet outer with an aerated concrete core. E.g., Speedpanel.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Plasterboard	-	-		246,173 m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Plywood	-	-		m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Fibre cement sheet	-	-		m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Insulation	-	-		121,384.0 m²		09_NW or 12_WF	03 or 04
Interior wall (permanent)	Glass	-	-		m²		09_NW or 12_WF	03 or 04
Interior wall (permanent)	Other (Please describe >>)		-		m²	Please enter a description for any internal wall that does not fit a predefined classification	09_NW or 12_WF	03 or 04
Internal door (permanent)	Aluminium/glass	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	Timber/glass	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	Timber solid lightweight	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	Fire resistant	-	-		874 m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	Steel	-	-		m²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	Other (Please describe >>)		-		m²	Please enter a description for any internal door that does not fit a predefined classification	11_ND	03 or 04
Other (Please describe and add unit >>)	Wall tiling / Floor tiling	-	-		62,846.4 m²	Please enter a description for any material that does not fit a predefined classification		
Other (Please describe and add unit >>)		-	-			Please enter a description for any material that does not fit a predefined classification		
Other (Please describe and add unit >>)		-	-			Please enter a description for any material that does not fit a predefined classification		

Services

Services				Unit of measure				
Building services included <u>within the main building contract</u> - if the building components that are the subject of the development application or the construction certificate are base building only, then only enter these items. If you cannot split services by type, please enter them all in the "Other services" category at the bottom. Enter all values as material costs in dollars.								
Mechanical services	-	-	-	32,526,042	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Vertical transportation	-	-	-	8,538,750	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Electrical services	-	-	-	36,225,104	AUD excl. GST	Electrical services including the main power supply, backup generators, security and communications. Excluding solar installations.	26_LP	05
Solar photovoltaic installations	-	-	-	-	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	26_LP_LPPG	05
Plumbing/hydraulic services	-	-	-	29,151,242	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	18_PD and 19_WS	05 or 06
Fire services	-	-	-	12,375,000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	25_FFSS04 or 39_XWAW_03 or 41_XF	05
Other services (Please describe)		-	-	-	AUD excl. GST	Please group all other services here, meaning that coverage will always be 100% for services. Enter only the material costs (excluding labour, plant, equipment, margins and taxes).	29_SS or multiple	

External works

The materials associated with hard landscaping and outbuildings on the site but outside the building envelope.

This includes hardstands, carparks, driveways, covered walkways, decks, patios, awnings, fences, gates, etc. Soft landscaping should be excluded.

Coverage of spend on external works	-	-	-		90 %	Required: Coverage of <u>spend</u> for external works (excluding soft landscaping) entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Asphalt	-	-	-		122 m³		33_XR	07
Concrete in-situ	≤10 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	>10 MPa to ≤20 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	>20 MPa to ≤32 MPa	-	-		91.4 m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	>32 MPa to ≤40 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	>40 MPa to ≤50 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	>50 MPa	-	-		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Pavers, bricks and blocks	Concrete	-	-		250 m²		33_XR	07
Pavers, bricks and blocks	Clay	-	-		m²		33_XR	07
Reinforcing steel	Bar & mesh	-	-		3,656 kg	Include all reinforcing steel barmesh in the external works in this row. Usually this is calculated as kg/m³ per concrete element and then summed. Example: 10 m³ of 40 MPa concrete @ 100 kg/m³ + 5 m³ of 50 MPa concrete @ 150 kg/m³ = 1,750 kg reinforcing steel.	33_XR or 34_XN or 35_XB or 36_XL	07
Reinforcing steel	Fibre & strand	-	-		kg	Include all steel fibre reinforcing and steel strand in the external works in this row.	33_XR or 34_XN or 35_XB or 36_XL	07
Structural steel	-	-	-		m		02_11	07
Structural aluminium	-	-	-		m	Includes structures, louvre systems, etc.	35_XB	07
External roof/wall cladding	Polycarbonate	-	-		m²	Enter as profiled polycarbonate sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding	PVC	-	-		m²	Enter as profiled PVC sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding	Bitumen sheet	-	-		m²	Enter as bituminous sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding	Steel profile	-	-		m²	Enter as profiled steel sheet that would ordered, including allowance for overlap	35_XB	07
Fill	-	-	-		m	Include purchased material only. Exclude site-won material.	33_XR or 34_XN or 35_XB or 36_XL	07
Sand & gravel	-	-	-		m	Include purchased material only. Exclude site-won material and sand/gravel in concrete.	33_XR or 34_XN or 35_XB or 36_XL	07
Timber (solid)	Sawn softwood	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (solid)	Sawn hardwood	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)	CLT	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)	Glulam	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)	LVL	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)	OSB	-	-		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Fabric (awning/louvre/shade)		-	-		m²		35_XB or 36_XL	07
Other (Please describe and add unit >>)		-	-		m²			
Other (Please describe and add unit >>)		-	-			Please enter a description for any external works that does not fit a predefined classification		
Other (Please describe and add unit >>)		-	-			Please enter a description for any external works that does not fit a predefined classification		

Step 3: Certifier details

Fill out blue cells

The material quantities must be determined through an itemised list of building materials (such as a bill of quantities) and certified by a quantity surveyor, designer, engineer or NABERS Assessor.

Person that completed this form	Value
Name	Michael Mihailou
Company	Rider Levett Bucknall NSW Pty Ltd
ABN	
Profession	Certified Quantity Surveyor
Qualification or registration	CQS, MAIQS 14825

Person that certified the details in this form	Value
Name	Michael Mihailou
Company	Rider Levett Bucknall NSW Pty Ltd
ABN	
Profession	Certified Quantity Surveyor
Qualification or registration	CQS, MAIQS 14825

Confirmation of certification	Value
Are 80% of material costs captured for the building's structure, envelope and external works?	Yes
If no - why not?	

Additional comments from data provider

Additional comments of certifier

Attach this Excel spreadsheet to your development application or construction certificate application.