

# WATERLOO METRO QUARTER OVER STATION DEVELOPMENT

**Appendix Q – Ecologically Sustainable  
Development Report and Sustainability Strategy**

**SSD-79307746 Central Precinct**

Detailed State Significant Development  
Development Application

Prepared for **WL Developer Pty Ltd**

22<sup>nd</sup> September 2025

Reference	Description
Applicable SSD Applications	SSD-79307746 Central Precinct
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## 1. Glossary and abbreviations

Reference	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG	Apartment Design Guide
AHD	Australian height datum
AQIA	Air Quality Impact Assessment
BC Act	Biodiversity Conservation Act 2016
BCA	Building Code of Australia
BC Reg	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
CEEC	critically endangered ecological community
CIV	capital investment value
CMP	Construction Management Plan
Concept DA	A concept DA is a staged application often referred to as a 'Stage 1' DA. The subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act.
Council	City of Sydney Council
CPTED	Crime Prevention Through Environmental Design
CSSI approval	Critical State Significant Infrastructure approval
CTMP	Construction Traffic Management Plan
DA	Development Application
DPIE	NSW Department of Planning, Industry and Environment
DRP	Design Review Panel
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPA Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	Ecologically Sustainable Design

Reference	Description
GANSW	NSW Government Architect's Office
GFA	Gross Floor Area
HIA	Heritage Impact Assessment
IAP	Interchange Access Plan
LGA	Local Government Area
NCC	National Construction Code
OSD	Over Station Development
PIR	Preferred Infrastructure Report
POM	Plan of Management
PSI	Preliminary Site Investigation
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2009
SREP Sydney Harbour	State Regional Environmental Plan (Sydney Harbour Catchment) 2005
SSD	State significant development
SSDA	State significant development application
SLEP	Sydney Local Environmental Plan 2012
Transport for NSW	Transport for New South Wales
TIA	Traffic Impact Assessment
The proposal	The proposed development which is the subject of the detailed SSDA
The site	The site which is the subject of the detailed SSDA
VIA	Visual Impact Assessment
WMQ	Waterloo Metro Quarter
WMP	Waste Management Plan
WSUD	Water Sensitive Urban Design

## 2. Executive summary

This report has been prepared by Cundall Johnston and Partners Pty Ltd (Cundall) on behalf of WL Developer Pty Ltd (the applicant) to accompany a State Significant Development Application (SSDA) for the detailed Central Precinct SSD (SSD-79307746), located within the Waterloo Metro Quarter (WMQ) at 150 Cope Street, Waterloo. This SSD will replace the previous detailed approval applying to the Central precinct.

This report has been prepared to respond to Item 10 of the Planning Secretary's Environmental Assessment Requirements (SEARs) issued by Department of Planning, Infrastructure and Housing (DPHI) on 13 February 2025, and Conditions B15 & B6 of the amending Concept SSD-9393.

This application seeks consent for the design, construction and operation of a mixed-use development within the Central Precinct (the site) of the WMQ site.

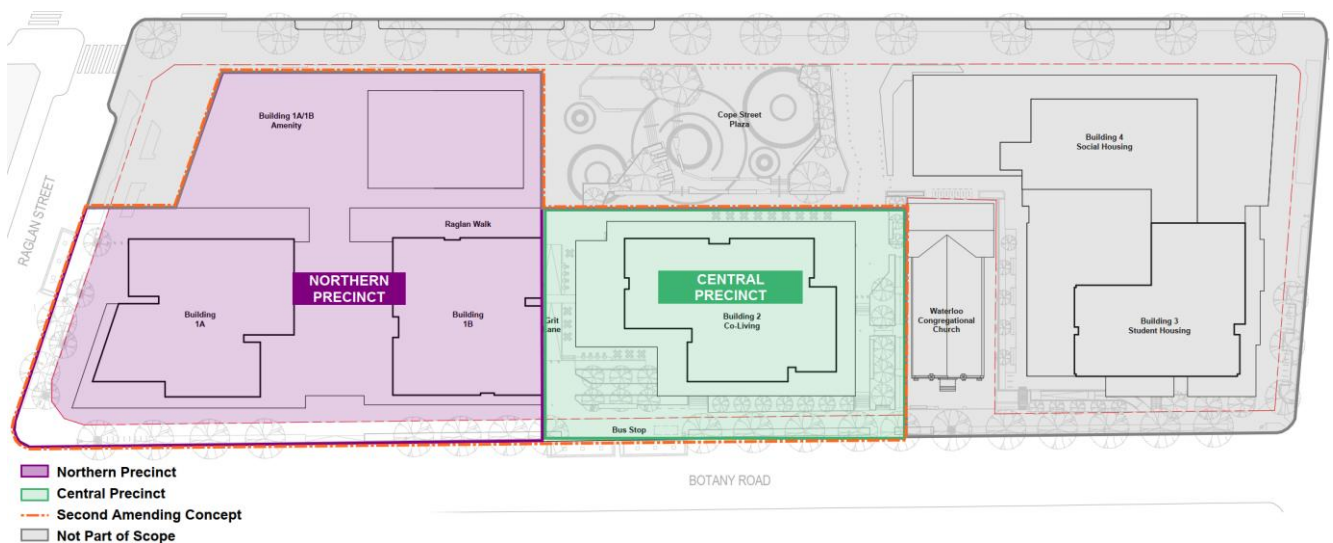
This report concludes that the proposed Central Precinct OSD is suitable and warrants approval subject to the implementation of the following mitigation measures:

- A bespoke sustainability framework developed for the site to deliver sustainability outcomes against a range of environmental and social issues. The framework categories are:
  - Zero Carbon Energy
  - Sustainable Water
  - Waste Minimisation
  - Materials and Supply Chain
  - Land and Nature
  - Travel and Transport
  - Sustainable Food
  - Climate Risk and Adaptation
  - Health and Wellbeing
  - Ethics and Equity
  - Community and Culture
- The Central precinct will achieve, at minimum, third party certification using the following rating tool:
  - 5 Star rating – Green Star Design & As-Built v1.3
- The precinct is also included within the whole Waterloo Metro Quarter site which will obtain the following site-wide certifications:
  - 6-star rating – Green Star Communities rating tool v1.1

### 3. Introduction

This report has been prepared by Cundall Johnston and Partners Pty Ltd (Cundall) on behalf of WL Developer Pty Ltd (the applicant) to accompany a State Significant Development Application (SSDA) for the detailed Central Precinct SSD (SSD-79307746), located within the Waterloo Metro Quarter (WMQ) at 150 Cope Street, Waterloo. This SSDA will replace the previous detailed approval applying to the Central precinct.

This report has been prepared to respond to Item 10 of the Planning Secretary’s Environmental Assessment Requirements (SEARs) issued by Department of Planning, Infrastructure and Housing (DPHI) on 13 February 2025. The figure below indicates the land to which this SSDA applies in relation to the overall WMQ site (shaded in Green).



**Figure 1 – Land to which scoping reports apply**

This application seeks consent for the design, construction and operation of a 26 storey (including plant level) mixed use building within the Central Precinct (the site) of the WMQ estate. The proposal comprises a Co-living housing tower above a three-storey podium containing retail and community facility in the form of a childcare centre. Specifically, the proposal comprises:

- Ground level retail tenancies, community facility, and childcare, co-living and shared access basement lobbies.
- Community centre in the form of a childcare centre at Level 1 and Level 2
- A Co-living housing tower from Levels 3 to 24 comprising:
  - Self-contained co-living accommodation rooms across 20 levels, with capacity for around 500 rooms
  - Indoor and outdoor communal amenity at Levels 3 and 24
  - Communal space also provided on each accommodation level.
- Ground level vehicular access from Church Square shared zone to the shared basement, delivery of a pedestrian thoroughfare through the site, landscaping and public domain works.
- Indicative building signage zones

This application is submitted for concurrent assessment with a DA to amend the Waterloo Metro Over Station Development (OSD) Concept DA (SSD 9393) (the Concept DA) - referred to as the Second Amending Concept DA. The Second Amending Concept DA seeks consent to modify the existing concept approval as it relates to the Northern and Central Precincts, by amending the building envelopes to redistribute floor space to suit a new mix of land uses. This Central Precinct SSD will be consistent with the Concept DA as amended.

Separately, a Detailed SSDA for the detailed design, construction and operation of the Northern Precinct (SSD-79307758) and a Section 4.55 Modification Application to modify the approved detailed Basement SSDA (SSD 10438), will be concurrently submitted with this application.

The SEARS requirements to which this report responds are as follows:

**Table 1 - SEARs requirements & Response Reference**

Item	Description of requirement	Section reference (this report)
10	<p>Ecologically Sustainable Development (ESD)</p> <p>The EIS shall:</p> <ul style="list-style-type: none"> <li>• Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.</li> <li>• Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.</li> </ul> <p>Demonstrate how the development has been designed to address the provisions set out in Chapter 3.2(1) of the SEPP (Sustainable Buildings) 2022.</p> <ul style="list-style-type: none"> <li>• Provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development (as defined in section 35BA of the EP&amp;A Regulation).</li> </ul>	<p>7, 8</p> <p>7, 8</p> <p>Appendix C: Embodied Emissions Form</p>
	<ul style="list-style-type: none"> <li>• In addition, if the development includes large commercial development types (offices with a net lettable area of at least 1000m<sup>2</sup>) provide: <ul style="list-style-type: none"> <li>○ A Net Zero Statement (as defined in Section 35C of the EP&amp;A Regulation and outlined above).</li> <li>○ A NABERS Agreement to Rate that demonstrates the large commercial areas of the development are capable of achieving the standards for water use specified in Schedule 3 of SEPP (Sustainable Buildings) 2022. A separate agreement is required for each large commercial use.</li> </ul> </li> </ul>	Not applicable

	<ul style="list-style-type: none"> <li>○ A NABERS Agreement to Rate or Commitment Agreement that demonstrates the large commercial areas of the development are capable of achieving the standards for energy use specified in Schedule 3 of SEPP (Sustainable Buildings) 2022. A separate agreement is required for each large commercial use.</li> </ul>	Not applicable
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The following additional requirements have been set as conditions under Concept SSD-9393:

Item	Description	Section reference (this report)
B15	<p><b>ENVIRONMENTAL PERFORMANCE / ESD</b></p> <p>B15. Future development applications must demonstrate how the principles of ecologically sustainable development (ESD) have been incorporated into the design, construction and ongoing operation of the proposal. This shall include preparation and implementation of Environmental Sustainability Strategies that incorporate low-carbon, high efficiency targets aimed at reducing emissions, optimising use of water, reducing waste and optimising carparking provision to maximise sustainability and minimise environmental impacts.</p>	7, 8
B16	<p>B16. The minimum performance targets for environmental performance are:</p> <p>(a) Precinct overall:</p> <p>(i) 6-star Green Star Communities Rating Tool</p> <p>(ii) Endorsed under One Living Planet framework</p> <p>(b) Commercial / office uses:</p> <p>(i) 5 Star Green Star Design and As-Built Rating Tool</p> <p>(ii) 'Gold Certification: Shell and Core' under WELL Building Standard</p> <p>(c) Residential uses:</p> <p>(i) 5 Star Green Star Design and As-Built Rating Tool</p>	<p>7.2, Appendix B</p> <p>No longer applicable: Has been removed from the PDA for the amended scheme</p> <p>Not applicable as no commercial space.</p> <p>Not applicable as no residential space.</p>

This report has also been prepared to respond to the objectives and design criteria set out in Section 3R Sustainability of the Waterloo Metro Quarter Design and Amenity Guidelines dated March 2020 as summarised in the table below.

**Table 2 – Sustainability Objectives and Design Criteria in Design and Amenity Guidelines**

Item	Description of requirement	Section reference (this report)
Objective 1	Create an integrated sustainable infrastructure network incorporating transport facilities, public domain, water systems and vegetation	8
Objective 2	New development encourages sustainable water use practices	8
Objective 3	Reduce energy consumption, emissions and urban heat island effect and improve air quality and the absorption of carbon	8
Design Criteria 1	Comply with the performance targets specified in development consent SSD-9393	7 & Tables above
Design Criteria 2	Water sensitive urban design measures are incorporated to improve stormwater quality flowing into waterways	8

## 4. The site

The site is located within the City of Sydney Local Government Area (LGA). The site is situated about 3.3 kilometres south of Sydney CBD and eight kilometres northeast of Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to Figure 1). The heritage-listed Waterloo Congregational Church at 103–105 Botany Road is within this street block but does not form a part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment with an overall site area of approximately 1.287 hectares.

The Waterloo Metro Quarter site comprises the following allotments and legal description at the date of this report. Following consolidation by Sydney Metro (the Principal) the land will be set out in deposited plan DP1257150.

- 1368 Raglan Street (Lot 4 DP 215751)
- 59 Botany Road (Lot 5 DP 215751)
- 65 Botany Road (Lot 1 DP 814205)
- 67 Botany Road (Lot 1 DP 228641)
- 124-128 Cope Street (Lot 2 DP 228641)
- 69-83 Botany Road (Lot 1, DP 1084919)
- 130-134 Cope Street (Lot 12 DP 399757)
- 136-144 Cope Street (Lots A-E DP 108312)
- 85 Botany Road (Lot 1 DP 27454)
- 87 Botany Road (Lot 2 DP 27454)
- 89-91 Botany Road (Lot 1 DP 996765)
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891)
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831)
- 156-160 Cope Street (Lot 31 DP 805384)
- 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116)
- 170-174 Cope Street (Lot 2 DP 205942).

The boundaries of the overall site and the subject site of the detailed SSD DA are identified in Figure 1. The site is reasonably flat with a slight fall to the south.

The site previously included three to five storeys commercial, light industrial and shop top housing buildings. All previous structures except for an office building at the corner of Botany Road and Wellington Street have been demolished to facilitate construction of the new Sydney Metro Waterloo station. Building 4 has been completed and Building 3 is currently under construction.



**Figure 2 - Aerial image of the site**  
**Source: Urbis**

The area surrounding the site consists of commercial premises to the north, light industrial and mixed-use development to the south, residential development to the east and predominantly commercial and light industry uses to the west.

## 5. Background

### 5.1 About Sydney Metro

Sydney Metro is Australia’s biggest public transport project. Services started in May 2019 in the city’s Northwest with a train every four minutes in the peak. A new standalone railway, this 21st century network will revolutionise the way Sydney travels.

The Sydney Metro project is illustrated below.

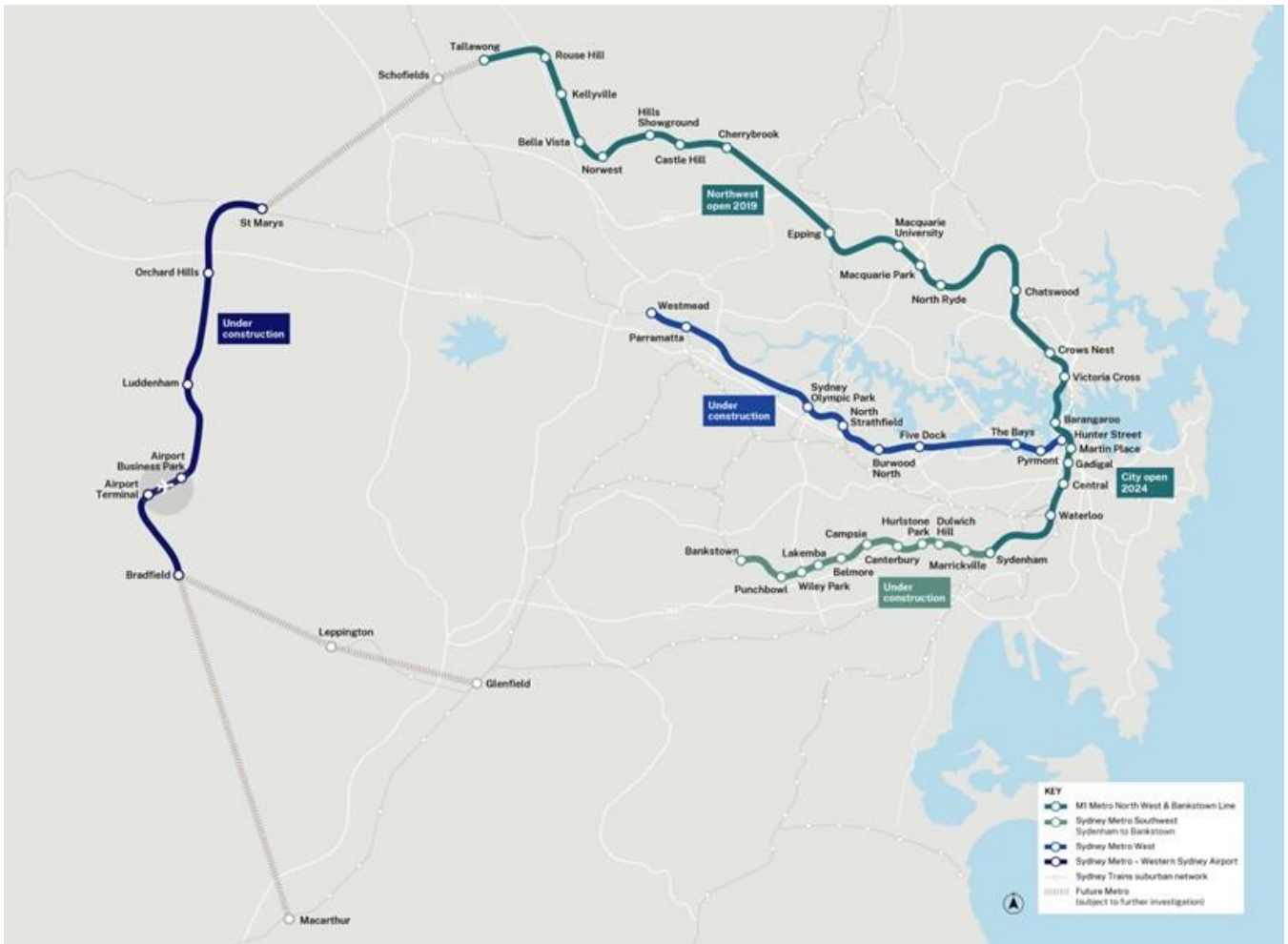


Figure 3 - Sydney Metro alignment map  
Source: Sydney Metro

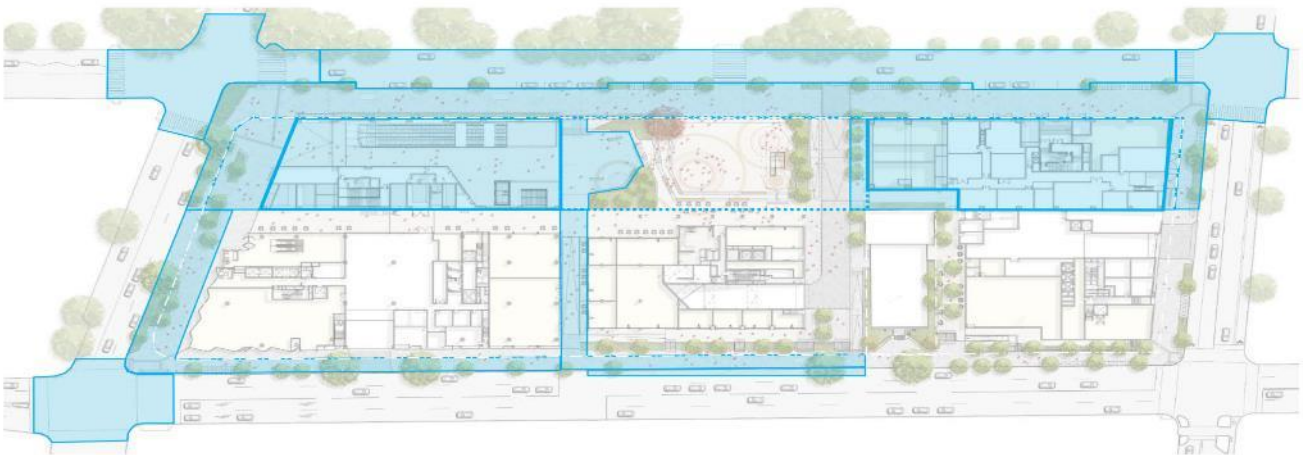
## 5.2 Sydney Metro CSSI Approval (SSI 7400)

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a critical State significant infrastructure (CSSI) project (reference SSI 7400) (CSSI approval). The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station. The CSSI approval also includes the construction of below and above ground works within the metro station structure for appropriate integration with the OSD.

With regards to CSSI related works, any changes to the ‘metro station box’ envelope and public domain will be pursued in satisfaction of the CSSI conditions of approval and do not form part of the scope of the concept SSD DA or detailed SSD DA for the OSD.

Except to the extent described in the EIS or Preferred Infrastructure Report (PIR) submitted with the CSSI application, any OSD buildings and uses do not form part of the CSSI approval and will be subject to the relevant assessment pathway prescribed by the EP&A Act.

The delineation between the approved Sydney Metro works, generally described as within the two ‘metro station boxes’ and surrounding public domain works, and the OSD elements are illustrated in Figure 4.



**Figure 4 - CSSI Approval scope of works**  
Source: WL Developer Pty Ltd

## 6. ESD Principles

### 6.1 Definition

Regulation 193 of the Environmental Planning and Assessment Regulation 2021, defines the principles of ecologically sustainable development as follows:

#### 193 Principles of ecologically sustainable development

- (1) The principles of ecologically sustainable development are the following:
  - a) the precautionary principle,
  - b) inter-generational equity,
  - c) conservation of biological diversity and ecological integrity,
  - d) improved valuation, pricing and incentive mechanisms.
- (2) 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.
- (3) In applying the precautionary principle, public and private decisions should be guided by—
  - a) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
  - b) an assessment of the risk-weighted consequences of various options.
- (4) 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.
- (5) 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.
- (6) 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—
  - a) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, and
  - b) 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
  - c) 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.

## 6.2 Response

This project responds to the above ESD principles as follows. The sustainability initiatives are described in more detail in Section 8 and include design, construction, and operational initiatives.

### 6.2.1 Precautionary Principle

The project will present no threat of serious or irreversible environmental damage. The project will create habitat to improve the site, implement climate change adaptation principles, and apply industry best practice ESD initiatives and third-party certification including Green Star Design & As Built v1.3 and Green Star Communities v1.1.

Due diligence has been and will continue to be conducted along the development process to ensure the precautionary principle is satisfied. Due diligence includes conducting required studies to address all SEARs environmental requirements and all statutory provisions in all relevant planning instruments, including the Biodiversity Conservation Act 2016, relevant SEPPs and LEPs.

### 6.2.2 Inter-Generational Equity

The buildings and plaza are designed to provide healthier internal and external environments for occupants and visitors today and in the future. The landscaping principles of habitat creation will deliver benefit to current and future generations.

The all-electric building reduces fossil fuel dependence, while energy efficient facades and building services minimise greenhouse gas emissions. On-site renewable energy generation is provided, and the building is capable of being powered by renewable energy sources to support the NSW Government's goal of zero carbon emissions by 2050.

### 6.2.3 Conservation of Biological Diversity and Ecological Integrity

The site is of low ecological value and primarily contained existing buildings and paving which have been demolished to enable the construction of the new underground Sydney Metro station. An extensive landscaping strategy has been developed for the site which includes tree planting at street level, landscaping to the plaza, and green roofs on the buildings.

The landscape design will prioritise native species, selected based on sun exposure, shading and watering needs, to suit their position in the landscape and environmental attributes of that location. Tree and understorey planting throughout the site will provide a rich diversity of endemic species. The palette has been developed to create urban ecologies which may provide habitat or food sources for native birds, bees, and insects. Refer to the Landscape Report for further details.

### 6.2.4 Improved Valuation, Pricing, and Incentive Mechanisms

The design and operation of the building will reduce energy and water consumption and greenhouse gas emissions. Life Cycle Costing will be used during the design process to justify capital investment and reduce ongoing impacts.

Environmental goals have been established using industry recognised rating tools which are designed to deliver beneficial environmental and social outcomes during construction and operation.

## 7. Environmental Performance Targets

The precinct will achieve third party certification against the following rating tools and frameworks, and with Condition B15 & B16 of SSDA (SSD 9393) and Design Criteria 1 of Section 3R Sustainability of the WMQ Design and Amenity Guidelines dated March 2020.

The Central Precinct will achieve the following certification:

- 5 Star rating – Green Star Design & As-Built v1.3
- NCC (2022) Section J compliance

The Central precinct is also included within the whole Waterloo Metro Quarter site which will obtain the following site-wide certifications:

- 6 Star rating – Green Star Communities rating tool v1.1

Further details on the performance targets are given below.

### 7.1 Green Star Design & As Built

Green Star, developed and administered by the Green Building Council of Australia (GBCA), is a set of internationally recognised rating tools that deliver independent verification of sustainable outcomes throughout the life cycle of the built environment. The GBCA's mission is to "*lead the sustainable transformation of the built environment*" and it aims to achieve this by encouraging practices that:

- Reduce the impact of climate change
- Enhance the health and quality of life of inhabitants and the sustainability of the built environment
- Restore and protect the planet's biodiversity and ecosystems
- Ensure the ongoing optimum operational performance of buildings
- Contribute to market transformation and a sustainable economy

Green Star certification is a formal process during which a building, fitout, or precinct is awarded a rating by an independent, third-party assessment panel of sustainable development experts through a documentation-based assessment.

The Green Star Design and As-Built rating tool assesses the sustainability outcomes from the design and construction of new buildings or major refurbishments and rates them on a scale from 4 Stars (Best Practice) to 6 Stars (World Leadership).

The rating tool includes requirements across nine impact categories.



**Management** - aims to encourage and reward the adoption of practices and processes that support best practice sustainability outcomes throughout the different phases of a project's design, construction and ongoing operation.



**Indoor Environment Quality** - aims to encourage and reward initiatives that enhance the comfort and well-being of occupants. The credits within this category address issues such as air quality, thermal comfort and acoustic comfort.



**Energy** - aims to reward projects that are designed and constructed to reduce overall greenhouse emissions from operations by addressing energy demand reduction, use efficiency and generation from alternative sources.



**Transport** - aims to reward projects that facilitate a reduction on the dependency of private car use as an important means of reducing overall greenhouse gas emissions, as well as to encourage the provision of alternative forms of transportation.



**Water** - aims to encourage and reward initiatives that reduce the consumption of potable water through measures such as the incorporation of water efficient fixtures and building systems and water re-use.



**Materials** - aims to address the consumption of resources for the project, by encouraging the selection of low-impact materials.



**Land Use and Ecology** - aims to reduce the negative impacts on sites' ecological value as a result of urban development and reward projects that minimise harm and enhance the quality of local ecology.



**Emissions** - aims to assess the environmental impacts of 'point source' pollution generated by projects and reduce their effects on the atmosphere, watercourse and native animals.



**Innovation** - aims to recognise the implementation of innovative practices, processes and strategies that promote sustainability in the built environment.

The building will be designed and constructed to achieve the following rating:

Rating Tool	SSDA Condition of Consent	Project Response
Green Star Design and As Built v1.3	5 star	5 star

A preliminary Green Star Pathway for the building has been prepared and will be refined over the following project stages, to ensure a minimum of 60 credits are achieved as per the requirements of a 5-star rating.

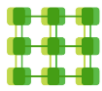
## 7.2 Green Star Communities

Green Star Communities is one of a suite of Green Star rating tools developed and administered by the Green Building Council of Australia (refer to Section 7.1). The tool assesses the environmental and social sustainability outcomes associated with the planning, design, and construction of large-scale development projects at a precinct, neighbourhood and/or community scale, and rates them on a scale from 4 Stars (45 points – Best Practice) to 6 Stars (75 points – World Leadership).

The rating tool includes requirements across the following five impact categories:



**Governance** - aims to encourage and recognise developers and projects that demonstrate leadership within the sector, by establishing and maintaining strong governance practices. The category promotes engagement, transparency, as well as community and industry capacity building. It also seeks to ensure that community projects are resilient to a changing climate.



**Liveability** - aims to encourage and recognise developments that deliver safe, accessible, and culturally rich communities. The category encourages the development of healthy and active lifestyles, and rewards communities that have a high level of amenity, activity, and inclusiveness.



**Economic prosperity** - aims to encourage and recognise projects that promote prosperity and productivity. The category encourages affordable living and housing, investment in education and skills development, and community capacity building. This category also promotes greater productivity through emerging opportunities in the digital economy.



**Environment** - aims to reduce the impact of urban development on ecosystems. It encourages resource management and efficiency by promoting infrastructure, transport, and buildings, with reduced ecological footprints. The Environment category seeks to reduce the impacts of projects on land, water, and the atmosphere.



**Innovation** - aims to recognise the implementation of innovative practices, processes and strategies that promote sustainability in the built environment.

The Waterloo Metro Quarter site, comprising the Northern Precinct, Central Precinct, Southern Precinct, and Basement, will achieve the following rating:

Rating Tool	SSDA Condition of Consent	Project Response
Green Star Communities v1.1	6 star	6 star

A Preliminary Green Star Communities Pathway for the site has been prepared and the targeted credits are summarised in Appendix B. The exact credits targeted may change over the project lifetime so long as the overall target of a minimum of 75 points for a 6-star rating is achieved.

## 7.3 Section J

The project will comply with the National Construction Code (NCC) Section J requirements for energy efficiency. A preliminary assessment of the building fabric against the Deemed-To-Satisfy provisions of Section J has been undertaken to establish performance requirements for the building envelope during to be developed further detailed design.

The project's conditioned occupied spaces will comply with NCC 2022 Section J energy efficiency requirements including:

- Energy efficiency performance requirements (J1)
- Energy efficiency (J2)
- Building fabric (J4)
- Building sealing (J5)
- Air-conditioning and ventilation systems (J66)
- Artificial lighting and power (J7)
- Heated water supply (J8)
- Energy monitoring and on-site distributed energy resource(J9)

## 7.4 Embodied Emissions

Under the Sustainable Buildings SEPP, Section C.6, the project is required to disclose the quantities of key materials (super-structure, substructure, façade, etc.), and describe how embodied emissions have been minimised. Please refer NABERS Embodied Emissions Materials Form (Appendix C).

## 8. Sustainability Framework

A bespoke sustainability framework developed for the site to deliver sustainability outcomes against a range of environmental and social issues. The framework will inform design, construction, and operational stages of the project. An integrated design approach will be adopted for the incorporation of sustainability measures, with input from the sustainability consultant from early planning through to construction phases.

### 8.1 Framework Categories

The sustainability framework impact categories are:

-  Zero Carbon Energy
-  Sustainable Water
-  Waste Minimisation
-  Materials and Supply Chain
-  Land and Nature
-  Travel and Transport
-  Sustainable Food
-  Climate Risk and Adaptation
-  Health and Wellbeing
-  Ethics and Equity
-  Community and Culture

## 8.2 Framework Alignment

The Sustainability Framework impact categories align with the various sustainability impacts identified in the following:

- UN Sustainable Development Goals
- Sustainable Sydney 2030 – Community Strategic Plan 2017-2021
- Concept SSDA (SSD 9393) dated 10 December 2019 and second amending concept SSDA (79307765)
- Secretary’s Environmental Assessment Requirements (SEARs) dated 8 April 2020
- Waterloo Metro Quarter Design and Amenity Guidelines – Section 3R sustainability
- Sydney Metro City and Southwest Sustainability Strategy 2017-2024 (June 2019 update)
- Green Star Design & As Built v1.3 rating tool
- Green Star Communities v1.1 rating tool
- NCC (2022) Section J

The Sustainability Framework also aligns with the environmental and social impacts addressed under the various rating tools described in Section 7.

Refer to Appendix A for further details on the alignment.

## 8.3 Framework Initiatives and Implementation

A broad range of initiatives are proposed in order to minimise consumption of resources, especially energy, water, and waste, and contribute to the delivery of sustainability outcomes. Some of the initiatives described below are unique to this precinct and some are initiatives that apply across the whole Waterloo Metro Quarter site.

The initiatives listed in the sections below will be further refined and reviewed during design development and will be modified or enhanced as required to achieve the objectives and goals/targets stated.

## 8.4 Zero Carbon Energy



### 8.4.1 Objective

Make buildings and infrastructure energy efficient, reduce use of fossil fuels and maximise renewable energy.

### 8.4.2 Goals / Targets

- Green Star Design & As-Built Greenhouse Gas Emissions requirements
- NCC Section J (2022) compliance

### 8.4.3 Initiatives

- All-electric building: No gas connections will be provided.
- Passive design:
  - Building façade designed to meet NCC 2022 Section J requirements for the building envelope, improving thermal comfort and reducing heating and cooling loads.
  - Natural ventilation capability to co-living rooms.
  - Investigate the feasibility of introducing mixed-mode ventilation to specific common areas of the building, during the next stage of design.
- Energy efficient HVAC: Efficient systems will be selected, with room key controls provided in co-living rooms to turn off AC system when rooms are vacant.
- Energy Efficient Domestic Hot Water (DHW) including electric heat pumps
- Energy efficient lighting: LED lighting with zoned control, occupancy sensors and / or daylight dimming to suit the use of different spaces.
- Energy efficient lifts with power regeneration.
- Renewable energy: A rooftop photovoltaic system will be installed. Final system size will be determined during detailed design.

## 8.5 Sustainable Water



### 8.5.1 Objective

Use water efficiently, protect, local water resources and minimise stormwater runoff quantities and pollution.

### 8.5.2 Goals / Targets

- Reduce reliance on mains potable water consumption.
- Reduce wastewater generation

### 8.5.3 Initiatives

- Minimum water efficiency ratings for fittings & fixtures, including
  - 4-star WELS rated toilets
  - 5-star WELS rated taps
  - 3-star WELS rated showers
- Selection of predominantly native species will minimise irrigation demand in landscaping.

- Efficient irrigation systems will be installed where practical, including sub-surface drip systems with rain/ moisture sensors.
  - Rainwater will be harvested and stored for use in non-potable demands. The most appropriate end-uses for rainwater will be determined during detailed design and may include landscape irrigation and car wash bays.
  - Reuse of fire system test water.
  - Water sub-metering and monitoring of major water end uses.
  - Water Sensitive Urban Design (WSUD) measures, to reduce stormwater run-off and water pollution will be implemented in accordance with the City of Sydney Development Control Plans. Initiatives include:
    - Rainwater storage
    - Raingardens
    - Water Quality Chamber
    - Maximise permeability of paving
- For further details, please refer to the Integrated Water Management Report and Stormwater Management Strategy and Flood Impact Assessment.

## 8.6 Waste Minimisation



### 8.6.1 Objective

Reduce material consumption, minimise waste production, and maximise waste diversion from landfill.

### 8.6.2 Goals / Targets

- > 90% of construction waste diverted from landfill
- Waste rooms sized for separation of operational waste streams to maximise diversion from landfill.

### 8.6.3 Initiatives

- Develop and implement a Construction Waste Minimisation Plan to Best Practice Green Star standards and achieve Green Star construction waste diversion criteria.
- Use of prefabricated bathroom pods in co-living apartments.
- An Operational Waste Management Plan has been developed to inform the management of operational waste and encourage its diversion from landfill. Operational waste management measures include:
  - Making recycling equally as convenient as disposing of waste to landfill via recycling chutes at each level.
  - Bulky waste storeroom will provide space for diversion of cardboard / paper from landfill.
  - Space for organic waste storage is provided in the basement for any organic waste generated by users.
- For further details on Operational Waste initiatives and strategy refer to Construction & Operational Waste Management Plan.

## 8.7 Materials & Supply Chain



### 8.7.1 Objective

Use materials from sustainable sources, apply life cycle principles, and prioritise products with transparent, ethical supply chains.

### 8.7.2 Goals / Targets

- Investigate materials and products that are certified, reused, or contain recycled content.
- Life Cycle Assessment to achieve >30% reduction in life cycle impacts.
- Demonstrate embodied carbon reductions compared to a reference case.

### 8.7.3 Initiatives

- Conduct life cycle assessment (LCA) to inform the design and identify material selection / specification improvements during design development.
- Specify lower carbon concrete mixes
- Specify low-off gassing materials including paints, sealants / adhesives, and carpets.
- Specify best practice PVC compliance for pipes, flooring, blinds & cables.
- Encourage key sub-contractors to become members of the Australian Supply Chain Sustainability School (Mirvac and John Holland are both Partners with the school).
- Preference materials and suppliers with third party accreditation (social and/or environmental sustainability).

## 8.8 Land & Nature



### 8.8.1 Objective

Improve biodiversity on-site and introduce new habitats for native species.

### 8.8.2 Goals / Targets

- Improve biodiversity on site compared to existing conditions.
- Maximise native or endemic species selection in landscaping.

### 8.8.3 Initiatives

- Significant areas of planting including street trees and landscaped terraces.
- Specify majority native plant species which may provide habitat or food sources for native birds, bees, and insects.
- Landscaped spaces will assist in mitigating urban heat island effects.
- Design external lighting to minimise night sky pollution in line with Green Star Requirements.
- For further details on land and nature initiatives refer to Landscape and Public Domain Report.

## 8.9 Travel & Transport



### 8.9.1 Objective

Encourage active and public transport and support the transition to a lower-carbon transport sector.

### 8.9.2 Goals / Targets

- Support active transport through the provision of safe pathways, end-of trip facilities, and cycling storage
- Promote public transport through connections to Waterloo Metro Station and other transport networks and reduced private car parking provisions.

### 8.9.3 Initiatives

- Safe and quick access to the Sydney Metro station and other transport services.
- Secure End of Trip facilities and cycle storage for building occupants.
- Varied amenities within walking distance reduce private vehicle dependency.
- Private car usage discouraged through no car parking for co-living allocated in the Basement Car Park under the Central Precinct.
- Community user information will promote public and active transport.

## 8.10 Sustainable Food



### 8.10.1 Objective

Promote sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein.

### 8.10.2 Goals / Targets

- Access to healthy food retailers.

### 8.10.3 Initiatives

- Access to fresh food retailers, which will be promoted through the Community User Information.
- Consideration of food & beverage retailers which provide sustainable, ethical, or healthy food options.

## 8.11 Climate Risk & Adaptation



### 8.11.1 Objective

Apply practical actions to manage risks from climate impacts, to building occupants, visitors and the local community.

### 8.11.2 Goals / Targets

- Prepare a Climate Change Adaptation Plan to identify key climate-related risks and inform the design.

### 8.11.3 Initiatives

- A Climate Change Adaptation Plan will be developed during detailed design to determine key risks to the project and determine appropriate design or other interventions in accordance with Green Star credit requirements.
- Reduce heat island effect through planting vegetation, selection of materials with a high Solar Reflective Index (SRI) and shading by overhanging vegetation.
- Passive design of facades to improve thermal performance and reduce impact of extreme weather days.
- WSUD measures to reduce peak stormwater runoff and flood risk, including stormwater detention, rainwater harvesting, raingardens and permeable paving.

## 8.12 Health & Wellbeing



### 8.12.1 Objective

Encourage active, social, meaningful lives and provide the buildings, infrastructure, and spaces to support good health and wellbeing for all ages.

### 8.12.2 Goals / Targets

- Provide access to a range of spaces that support physical activity, quiet contemplation, social interaction, and recreation.
- Good levels of indoor environment quality (IEQ) including indoor air and light quality, acoustic, thermal, and visual comfort.

### 8.12.3 Initiatives

- Physical and mental health programs for workers during construction.
- Gym & wellness facilities provided on-site for co-living occupants
- Cycle storage and end-of-trip facilities for building occupants to support active transport.
- Community space on almost all co-living floors, for recreation, classes, study, work, games, exercise and other amenities to improve physical and mental wellbeing.
- Green landscaped areas providing connections to nature.
- Specify low-off gassing materials including paints, sealants / adhesives, and carpets, to improve indoor air-quality.

## 8.13 Ethics & Equity



### 8.13.1 Objective

Create safe, just, and equitable places to live, work, learn & trade, and support local prosperity and fair trade.

### 8.13.2 Goals / Targets

- Targets for social procurement of labour during construction

### 8.13.3 Initiatives

- Set targets for employment of disadvantaged groups during construction.
- Design for best practice accessibility.

## 8.14 Community & Culture



### 8.14.1 Objective

Nurture local identity and heritage, empower communities and promote a culture of sustainable living.

### 8.14.2 Goals / Targets

- Public Art program
- Community Engagement
- Access to community spaces.

### 8.14.3 Initiatives

The Community initiatives are site wide and cover all three precincts together – Northern, Central and Southern.

- Public Plaza (Cope Street Plaza) in adjacent Central Precinct as focus for local activity, interim activation, and events.
- Childcare centre in Central Precinct with extended hours of operation.
- Public art program including Indigenous curators, public art competitions and co-evolved works with community.
- Creative hoardings program as part of public art strategy during construction.
- Place naming and wayfinding programs to engage with local community.

## 9. Conclusion

The development complies with the ecologically sustainable development requirements set out in the Planning Secretary's Environmental Assessment Requirements (SEARs) item 10 issued by Department of Planning, Infrastructure and Housing (DPHI) on 13 February 2025, as well as the Conditions of Consent under Concept SSD-9393 (as amended).

The development is designed to reduce greenhouse gas emissions through eliminating fossil fuels, improved passive design, efficient building services, and on-site renewables, as well as through reduced water demand and waste to landfill.

The building in the Central Precinct will achieve the following certification:

- 5 Star rating – Green Star Design & As-Built v1.3
- NCC (2022) Section J compliance

The Central precinct is also included within the whole Waterloo Metro Quarter site which will obtain the following site-wide certifications:

- 6 Star rating – Green Star Communities rating tool v1.1

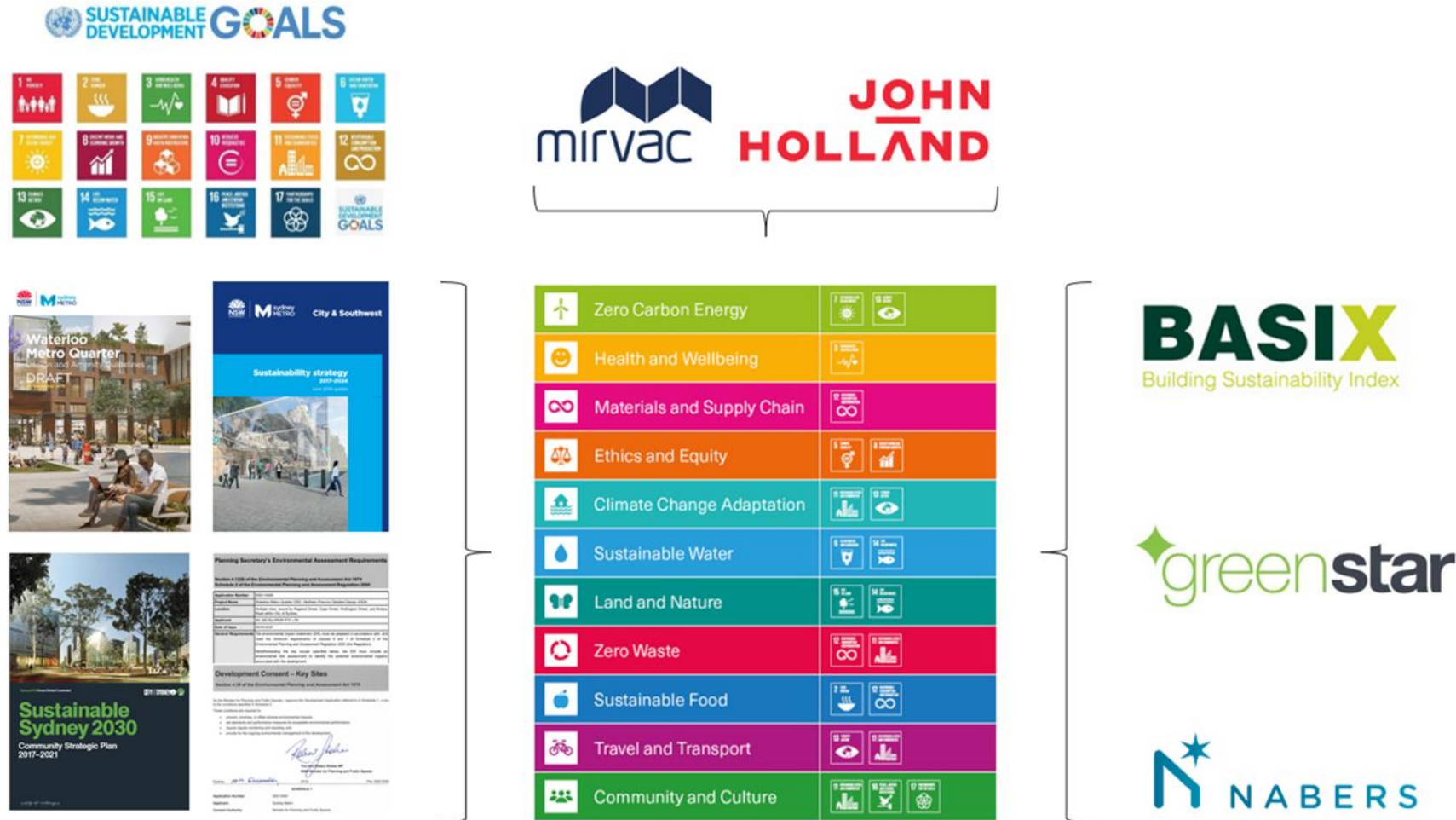
The Sustainability Framework includes objectives, goals/targets, and a range of initiatives for each of the following categories:

- Zero Carbon Energy
- Sustainable Water
- Waste Minimisation
- Materials and Supply Chain
- Land and Nature
- Travel and Transport
- Sustainable Food
- Climate Risk and Adaptation
- Health and Wellbeing
- Ethics and Equity
- Community and Culture

## 10. Appendices











- 10.1 **Appendix A: Sustainability Framework Alignment**
- 10.2 **Appendix B: Green Star Communities Preliminary Pathway**
- 10.3 **Appendix C: Embodied Emissions Form**

## Appendix A: Sustainability Framework Alignment














## Sustainability Framework Alignment with relevant strategies and frameworks

	Impact	Objective	Alignment with UN SDG	Sydney Metro Sustainability Objectives	Sustainable Sydney 2030
	<b>Zero Carbon Energy</b>	Make buildings and infrastructure energy efficient, reduce use of fossil fuels and maximise renewable energy.		Carbon & energy management	2, 9
	<b>Sustainable Water</b>	Use water efficiently, protect local water resources and reduce flooding, drought, and water pollution.		Water efficiency Pollution control	2, 9
	<b>Waste Minimisation</b>	Reduce consumption and re-use and recycle to work towards minimising waste to landfill.		Waste & materials consumption	2
	<b>Materials and Supply Chain</b>	Use materials from sustainable sources, apply life cycle principles, and prioritise products with transparent, ethical supply chains.		Waste & materials consumption Supply Chain	9
	<b>Land and Nature</b>	Improve biodiversity on-site and introduce new habitats for native species.		Biodiversity conservation Pollution control	2
	<b>Travel and Transport</b>	Encourage active and public transport and support the transition to a lower-carbon transport sector.		Liveability Carbon & energy management	3, 4
	<b>Sustainable Food</b>	Promote sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein.			-

	Impact	Objective	Alignment with UN SDG	Sydney Metro Sustainability Objectives	Sustainable Sydney 2030
	<b>Climate Risk and Adaptation</b>	Apply practical actions to manage risks from climate impacts, to building occupants, visitors and the local community.		Climate Change Resilience	2
	<b>Health and Wellbeing</b>	Encourage active, social, meaningful lives and provide the buildings, infrastructure, and spaces to support good health and wellbeing for all ages.		Liveability	4, 9
	<b>Ethics and Equity</b>	Create safe, just, and equitable places to live, work, learn & trade, and support local prosperity and fair trade.	 	Workforce development Economic Liveability	1, 6, 10
	<b>Community and Culture</b>	Nurture local identity and heritage, empower communities and promote a culture of sustainable living.	 	Heritage conservation Community Benefit	1, 5, 6, 9

## Sustainability Framework Alignment with SEARs, SSD, and rating tools

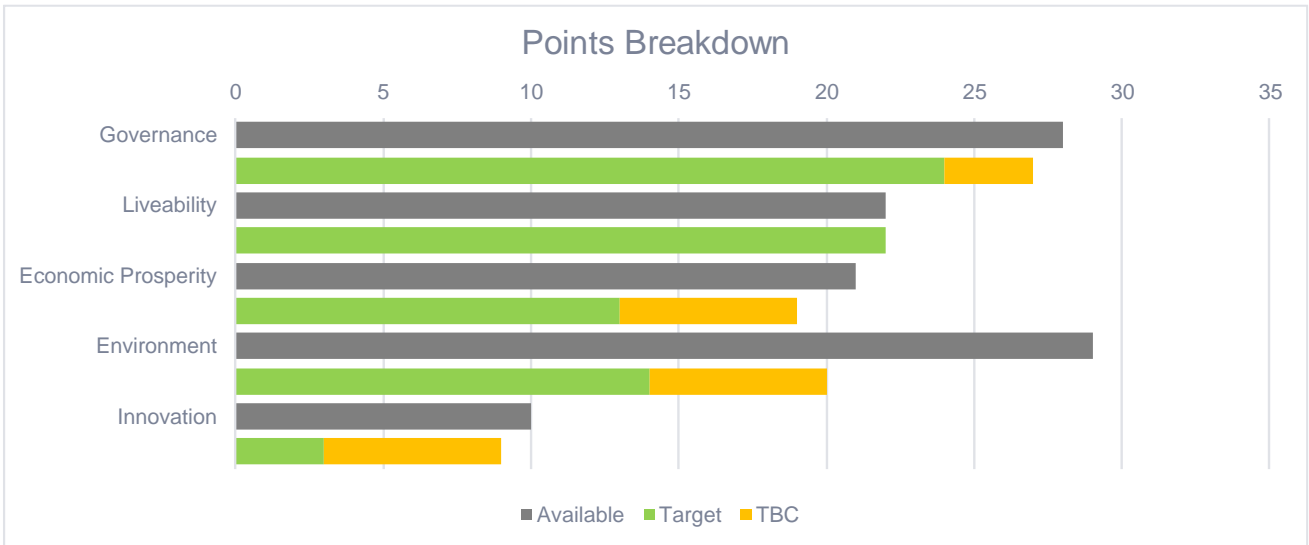
	Impact	SEARs and SSD conditions	WMQ Design & Amenity Guidelines	Green Star Design & As Built v1.3	Green Star Communities
	<b>Zero Carbon Energy</b>	Energy efficiency Renewable energy Low carbon	BASIX 30 NABERS 5.5 5% PV	Energy Management	Greenhouse gas strategy
	<b>Sustainable Water</b>	Water efficiency	BASIX 40+ WSUD Water Use	Water Emissions	Integrated water cycle
	<b>Waste Minimisation</b>	Waste management	Reduce Waste	Management Materials	Construction, demolition & operational waste
	<b>Materials and Supply Chain</b>			Materials	Life cycle assessment
	<b>Land and Nature</b>		Tree Canopy Green Roofs Biodiversity	Land Use & Ecology	Sustainable sites – reuse of land, contamination, biodiversity enhancement, light pollution
	<b>Travel and Transport</b>	Optimise carparking	Prioritise walking, cycling & public transport	Transport	Sustainable transport & movement
	<b>Sustainable Food</b>				Access to fresh food Food production

	Impact	SEARs and SSD conditions	WMQ Design & Amenity Guidelines	Green Star Design & As Built v1.3	Green Star Communities
	<b>Climate Risk and Adaptation</b>		Reduce heat island effect	Management	Adaptation & resilience Heat island effect
	<b>Health and Wellbeing</b>		Noise control Solar amenity Air quality	Indoor Environment Quality	Liveability (recreation, active lifestyles, healthy places); Access to amenities, Safe places
	<b>Ethics and Equity</b>		Social housing Affordable housing	-	Community investment; Affordability; Employment & economic resilience; Education & skills development; Return on investment; Incentive programs; Digital infrastructure.
	<b>Community and Culture</b>				Engagement; Sustainability awareness; Community facility and programs; Community development; Enhancing local culture, heritage and identity.

## Appendix B: Green Star Communities Preliminary Pathway

This preliminary pathway is provided for information only and sets out one potential strategy to achieve a 6-star Green Star Communities rating for the whole Waterloo Metro Quarter site (covering Northern Precinct, Central Precinct, Southern Precinct and Basement Car Park combined).

The chart below summarises the points available and targeted in the preliminary pathway.



The final selection of credits to be pursued will be confirmed during the next design stage and will be sufficient to achieve the minimum requirements for a 6-star rating including meeting or exceeding the rating threshold of 75 points.

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	POINTS AVAILABLE	TARGET	TBC	COMMENT
<b>Governance</b>				<b>28</b>			
<b>Green Star Accredited Professional</b>	To recognise projects that engage a Green Star Accredited Professional to support the Green Star certification process.	1.0	Green Star Accredited Professional	1	1		Cundall engaged as Green Star Communities GSAP. Credit should be readily achievable.
<b>Design Review</b>	To encourage and recognise projects that undertake a design review process designed to facilitate sustainable urbanism.	2.1	Site Planning and Layout	4	4		Requires a comprehensive design review process, usually at client expense, with terms of reference and meetings/reporting as per the Green Star requirements.  - 2 points for in-house design review - 3 points for mixed design review - 4 points for fully independent design review
		2.2	Urban Design	4	4		See: Waterloo Metro Quarter Design and Amenity Guidelines, multiple parties prepared this document inc. City of Sydney
<b>Engagement</b>	To encourage and recognise projects that develop and implement a comprehensive, project specific stakeholder engagement strategy early in the planning process to inform the planning and design of the plan for development.	3.1	Stakeholder Engagement Strategy	3	3		Points will likely be achieved based on strategy outlined in the Preliminary Place Story
		3.2	Strategy Implementation	3	3		
<b>Adaptation and Resilience</b>	To encourage and recognise projects that are resilient to the impacts of a changing climate and natural disasters.	4.1	Climate Adaptation	2	2		Cundall to prepare Climate Adaptation Plan
		4.2	Community Resilience	2		2	Community Resilience Plan includes information about risks, emergency contacts, emergency shelter locations, information for occupants to develop their own emergency plan, communication channels, disaster prevention guidelines, and supporting checklists. Should be readily achievable and low cost points, offering value and risk mitigation. Can be in form of a website
<b>Corporate Responsibility</b>	To encourage and recognise projects with a project applicant that has corporate responsibility as a core value.	5.1	Corporate Responsibility	1	1		Mirvac's policy suffices, John Holland TBC. Policy can be prepared
		5.2	Sustainability Reporting	2		1	Mirvac is reporting based on GRI principles. John Holland TBC
<b>Sustainability Awareness</b>	To encourage and recognise those projects that enhance knowledge and understanding of its sustainability attributes.	6.1	Community Users' Guide	1	1		Develop a public Community Users' Guide describing the sustainability of the site.  Assumed readily achievable and low cost point. Can be in form of a website
		6.2	Sustainability Education Facilities	1	1		Can be integrated in wayfinding strategy or be part of community centre.
<b>Community Participation and Governance</b>	To encourage and recognise projects that establish mechanisms for community management arrangements for facilities and programs.	7.1	Community Facility Management	1	1		Community-led entity needs to be set up or supported. Can be part of the planned childcare, community hub or maker space on site.
		7.2	Community Program Management	1	1		Facility program will be based on the entity selected for Credit 7.1
<b>Environmental Management</b>	To encourage and recognise the adoption of formal environmental management practices.	8.1	Environmental Management System	1	1		Requirement for all contractors on contracts >AUD\$5m to have a valid ISO14001 Certification. Only includes public areas but can be a cross credit to Design & As Built Certifications Is typically standard practice.
		8.2	Environmental Management Plan	1	1		Head Contractors to develop an EMP and all subcontractors to adhere to it. Can also be a cross credit to Design & As Built. Is typically standard practice.
<b>Total</b>				<b>28</b>	<b>24.0</b>	<b>3.0</b>	

Liveability		25				
Healthy and Active Living	To encourage and recognise projects that promote healthy and active living.	9.0	Minimum Requirement - Footpaths	-	Complies	Roads and pedestrian areas to be designed to AMCORD requirements.
		9.1	Active Lifestyle	2	2	Requires well designed walking paths, cycling facilities, etc. Will should be achieved
		9.2	Recreational Facilities	2	2	Raglan basketball courts and park and Alexandria Park with tennis courts is nearby (within 400/800m walking distance to a park/sports facility)
		9.3	Healthy Places	1	1	Checklist to be completed, based on credits 9.0-9.3
Community Development	To encourage and recognise projects that engage in and facilitate the development of the project's community.	10.0	Minimum Requirement - Community Development Plan	-	Complies	Community consultation and The Place Story developed
		10.1	Community Development Officer	1	1	One person being engaged for one day per week for 30% of the project time for community development. Likely to be achieved.
		10.2	Community Group	1	1	Can be connected to Credit 7
		10.3	Community Events	1	1	Will be based on Credits 10.0-10.2 and Credit 7
		10.4	Community Information	1	1	Will be based on Credit 10.3
Sustainable Buildings	NatHERS and Livable Housing Australia	11.1	Certified Non-Residential Buildings	-		
		11.2	NatHERS and Livable Housing Australia	4	4	All buildings will be Green Star certified. TQ may be required with the GBCA to approve the Green Star Certification Strategy for residential buildings.
Culture, Heritage and Identity	To encourage and recognise projects that celebrate and incorporate the heritage, culture and historical context of the project site, supporting communities and places with the development of a sense of place and identity.	12.1	Understanding Culture, Heritage and Identity	1	1	Heritage assessment is part of the Place Story. Report to be prepared.
		12.2	Enhancing Community Culture, Heritage and Identity	2	2	Will be part of placemaking, wayfinding, naming and other initiatives.
Walkable Access to Amenities	To encourage and recognise projects that have walkable access to a diverse number of amenities that reflect the predicted demographic of the project's community.	13.1	Walkable Access to Amenities	2	2	Wide range of amenities are in walking distance. Credit should be achieved.
Access to Fresh Food	To encourage and recognise projects that have access to fresh food locally.	14.1	Access to Fresh Food	1	1	Woolworths Redfern less than 800m from site
		14.2	Local Food Production	1	1	100m2 productive landscape per 1000 residential occupants. To be confirmed
Safe Places	To recognise projects in which the activity of planning and detailed design for land use, development and redevelopment takes into consideration designing out crime principles.	15.0	Minimum Requirement - Visibility	-	Complies	All tunnels and underpasses must have end-to-end visibility. May require a TQ with the GBCA given the type of project with underground development. Should be achievable.
		15.1	Design for Safety	2	2	A CPTED assessment will be undertaken.
<b>Total</b>				<b>22</b>	<b>22.0</b>	<b>0.0</b>

Economic Prosperity				21		
<b>Community Investment</b>	To encourage and recognise projects investing in infrastructure within the development for community benefit.	16.1	Community Infrastructure Investment	4	4	Community Centre & Child Care Centre (\$4000 per residential dwelling or \$32 / m2 of non-residential). Using non-resi pathway means \$32 * 40,000m2 = \$1.3m
<b>Affordability</b>	Residential Affordability Strategies	17.1	Residential Affordability Strategies	4	4	Residential GFA is larger than non-residential. Affordable and Social Housing is provided on site.
		17.2	Non- Residential Affordability Strategie	-		
<b>Employment and Economic Resilience</b>	To encourage and recognise projects with local and diverse employment opportunities.	18.1	Net Percentage Increase of Local Jobs	1	1	New retail and commercial premises will likely provide an increase in jobs. An economic study to be prepared.
		18.2A	Diverse Local Employment – Performa	-		
	Proximity to Major City – Prescriptive Pathway	18.2B	Proximity to Major City – Prescriptive P	1	1	Within 5km of Sydney CBD
		18.2C	NCC Class mix – Prescriptive Pathway	-		
<b>Education and Skills Development</b>	To encourage and recognise projects that have access to further education and/or provide a skills and industry capacity development opportunities.	19.1	Higher Education Facilities	1	1	University of Sydney and Charles Darwin University are only 500m away.
		19.2	Skills Development Programs	1	1	Can be a training program as part of Mirvac's RAP or other initiatives
		19.3	Industry Capacity Development	1		Training and awareness in sustainability - e.g Australian Sustainable Supply Chain School
<b>Return on Investment</b>	To encourage and recognise holistic methods to assess the return on investment in response to the sustainability goals for the project.	20.1	Analysis of Direct Costs and Benefits	1	1	Economic assessment of the project
		20.2	Analysis of Indirect Costs and Benefits	1	1	SROI assessment of indirect costs and benefits from the project
<b>Incentive Programs</b>	Residential Incentives	21.1	Residential Incentives	2	2	For two points, \$750 per dwelling on incentives need to be provided. To be confirmed.
		21.2	Non-residential Incentives	-		
<b>Digital Infrastructure</b>	To encourage and recognise projects that use digital infrastructure to create greater efficiencies in the connection of individuals with other people, goods, services, and information.	22.1	High-speed Broadband	1	1	Connect to NBN
		22.2	Wireless Local Area Network	1	1	Provide WiFi in activity centres
<b>Peak Electricity Demand</b>	Reduced Peak Electricity Demand - Performance Pathway	23A	Reduced Peak Electricity Demand - Performance Pathway	2	1	1 point is possible, but will need to check heat pumps impact
		23B.i	On-site Generation – Prescriptive Pathway	-		Won't achieve 30%
		23B.ii	Energy Storage – Prescriptive Pathway	-		25% peak demand shift unachievable
<b>Total</b>				<b>21</b>	<b>13.0</b>	<b>6.0</b>

Environment		29					
Integrated Water Cycle	Water Sensitive Urban Design – Performance Pathway	24A.1	Stormwater – Performance Pathway	2	1	1	Civil engineers to confirm
		24A	Water Sensitive Urban Design – Performance Pathway	5	2	1	Large set of water saving measures will be implemented. Modelling will be required to confirm number of points achieved.
		24B.1	Alternative Water Sources - Public Open Spaces	-			
		24B.2	Alternative Water Sources - Buildings	-			
		24B.3	Stormwater Peak Discharge	-			
		24B.4	Stormwater Quality	-			
Greenhouse Gas Strategy	Greenhouse Gas Strategy – Performance Pathway	25A	Greenhouse Gas Strategy – Performance Pathway	6	1	2	2 points for 21% improvement. 3rd point for 37% improvement
		25B.1	Energy Efficiency - Infrastructure Lighting	-			
		25B.2	Energy Efficiency - Existing Buildings	-			
		25B.3	Renewable Energy Production	-			
		25B.4	District Heating and Cooling	-			
Materials	Life Cycle Assessment (LCA) – Performance Pathway	26A	Life Cycle Assessment (LCA) – Performance Pathway	5	2		An LCA required to be undertaken. Can be carried out for the whole site including buildings and used as cross credit for Design & As Built
		26B	Life Cycle Impacts – Prescriptive Pathway	-			
Sustainable Transport and Movement	Sustainable Transport and Movement: Performance Pathway	27A	Sustainable Transport and Movement: Performance Pathway	3	3		Built on top of Sydney Metro station. Lots of cycling facilities.
		27B	Sustainable Transport and Movement: Prescriptive Pathway	-			
Sustainable Sites	To encourage projects that avoid or minimise impacts on environmentally sensitive sites while recognising projects that reuse previously developed land and reclaim contaminated land using best practice remediation.	28	Conditional Requirement	-	Complies		
		28.1	Previously Developed Land	1	1		Land was previously developed.
		28.2	Best Practice Site Decontamination	1		1	Assume achieved - TBC
Ecological Value	To encourage and recognise projects that enhance the ecological value of the project site.	29.1	Change of Ecological Value	1		1	20% improvement may be possible due to green roofs. To be confirmed. Existing site had no ecology.
		29.2	Biodiversity Enhancement	1			Unlikely to be achieved.
Waste Management	To encourage and recognise projects that reduce the environmental impact of waste.	30.1	Construction, and Demolition Waste	1	1		minimum of waste to be 60% recycled or reused. Should be standard practice. 90% is targeted for buildings.
		30.2	Operational Waste	1	1		Public place and residential recycling schemes are in place. Project allows for composting/green waste scheme
Heat Island Effect	To encourage and recognise projects that implement measures to reduce heat island effect.	31.1	Heat Island Effect	1	1		Green roofs, PV and reflective roof surfaces for more than 50% of site area in plan view
Light Pollution	To encourage and recognise projects that minimise the adverse impact of light emissions.	32.1	Light Pollution	1	1		95% of external light fittings on public ground point downwards.
<b>Total</b>				<b>29</b>	<b>14.0</b>	<b>6.0</b>	

Innovation strategies and points to be confirmed during later stages.

## **Appendix C: Embodied Emissions Form**

Step 1: About the building

Fill out blue cells

Building location and site data	Value	Unit	Note	Comment
Building address	150 Cope Street, Waterloo Central Precinct B2			
Postcode	2017		Required	Postcode of building
Town/city	WATERLOO + 3 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	
<b>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 is commonly used for that building classification.</b>					
Class 1a: Detached residential buildings			m <sup>2</sup>	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			m <sup>2</sup>	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			m <sup>2</sup>	Required for Class 2: Multi-unit residential, including apartment buildings	
Class 3: Other residential buildings		14,480	m <sup>2</sup>	Required for Class 3: Other residential buildings	
Class 4: Residential inside non-residential			m <sup>2</sup>	Required for Class 4: Residential building inside a non-residential building, e.g., caretaker residence	CP: Student + Communal spaces
Class 5: Office buildings			m <sup>2</sup>	Required for Class 5: Office building	
Class 6: Retail buildings		634	m <sup>2</sup>	Required for Class 6: Retail building, e.g., shop, restaurant, café	
Class 7a: Carparks		3,141	m <sup>2</sup>	Required for Class 7a: Carparks	
Class 7b: Warehouse-type buildings			m <sup>2</sup>	Required for Class 7b: Warehouses, wholesalers and storage facilities	
Class 8: Industrial buildings			m <sup>2</sup>	Required for Class 8: Industrial buildings, e.g., factories and workshops	
Class 9a: Healthcare buildings			m <sup>2</sup>	Required for Class 9a: Healthcare, e.g., hospitals, clinics, day surgeries	
Class 9b: Civic buildings		2,315	m <sup>2</sup>	Required for Class 9b: Civic buildings, e.g., theatres, civic centres, train stations	CP: Childcare + 61m <sup>2</sup> of Community
Class 9c: Aged care and personal care buildings			m <sup>2</sup>	Required for Class 9c: Aged care and personal care	
Class 10a: Non-habitable buildings			m <sup>2</sup>	Required for Class 10a: Non-habitable buildings including sheds, carports and private garages	
Class 10b: Miscellaneous structures			m <sup>2</sup>	Required for Class 10b: Miscellaneous structures, including fences, masts, antennas, retaining walls and swimming pools	
Class 10c: Bushfire shelters			m <sup>2</sup>	Required for Class 10c: Bushfire shelters not attached to a Class 1a building	
<b>Total</b>	0	20,570	m <sup>2</sup>	Required: Sum of m <sup>2</sup> inputs must be more than 0.	

Project information	Value	Unit	Note	
Total cost of project	111,712,731	AUD excl. GST	Required	Include labour, materials, transport, plant, equipment and professional fees. Exclude GST, land, finance, escalation and other costs. May change
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	2,733	m <sup>2</sup>	Required	Total area of site to external boundary.
Shared services or infrastructure	Yes		Required	Indicate if there are shared services that the building utilises, or shared foundations, basement or podium
Building footprint area	1,104	m <sup>2</sup>	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)	810	m <sup>2</sup>	Only needed if different to row above	CP: L05 Floor plate
Typical floor perimeter	137	m	Required	CP: L05 perimeter
Area of external carpark (not included in GFA)	0	m <sup>2</sup>	Required. Enter 0 if not applicable.	
Area of external hardstand (not included in GFA)	0	m <sup>2</sup>	Required. Enter 0 if not applicable.	
Area of other hard landscaping (not included in GFA)	2,357	m <sup>2</sup>	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	26	no.	Required	
Number of floors/storeys below ground	2	no.	Required. Enter 0 if not applicable.	
Number of floors/storeys of car parking	2	no.	Required. Enter 0 if not applicable.	
Total height above ground	83	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	Raft		Required	
Frame type (dominant)	Reinforced concrete		Required	
Suspended floor type (typical)	Post-tensioned 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 and reinforcement bars		Required	
Describe recycled content specified in your building (e.g. recycled steel)	To be confirmed during detailed design		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	AIQS ACMM Code	ICMS3 (Level 3 Codes)
<b>Structure</b>								
<p>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.</p> <p>It excludes external areas such as hardstands, car parks, patios, etc.</p>								
Coverage of structural material spend	-	-	-	81	%	Required. Coverage of <u>spend</u> for structural elements entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Concrete in-situ	≤10 MPa	-	-		m <sup>3</sup>	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	-	-		m <sup>3</sup>	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	-	-		m <sup>3</sup>	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	-	-	4,976.0	m <sup>3</sup>	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	-	-		m <sup>3</sup>	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	-	-	2,177.0	m <sup>3</sup>	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	-	-		m <sup>3</sup>	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	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	>100 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete pre-cast panel	-	-	-		m <sup>3</sup>	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. Enter as <u>cubic metres</u> , calculated as (area in m <sup>2</sup> ) * (thickness in mm / 1000).	01_SB or 02-11	02 or 03
Concrete block	Hollow core	-	-		m <sup>3</sup>	Please include all block fill concrete and all reinforcing steel in relevant line items above/below	01_SB	02 or 03
Concrete block/brick	Solid	-	-		m <sup>3</sup>	Enter as <u>cubic metres</u> , calculated as (area in m <sup>2</sup> ) * (thickness in mm / 1000)	01_SB	02 or 03
Concrete block/brick	Solid AAC	-	-		m <sup>3</sup>	Solid Aerated Autoclaved Concrete (AAC) block. Enter as <u>cubic metres</u> , calculated as (area in m <sup>2</sup> ) * (thickness in mm / 1000).	01_SB	02 or 03
Mortar	-	-	-		kg		01_SB	02 or 03
Reinforcing steel	Bar & mesh	-	-	5,299,958	kg	<b>include all reinforcing steel bar/mesh in the building's structure in this row.</b> Usually this is calculated as kg/m <sup>3</sup> per concrete element and then summed. Example: 10 m <sup>3</sup> of 40 MPa concrete @ 100 kg/m <sup>3</sup> + 5 m <sup>3</sup> of 50 MPa concrete @ 150 kg/m <sup>3</sup> = 1,750 kg reinforcing steel	01_SB or 02-11	02 or 03
Reinforcing steel	Fibre & strand	-	-		kg	<b>include all steel fibre reinforcing and steel strand in the building's structure in this row</b>	01_SB or 02-11	02 or 03
Structural steel	Hot rolled structural	-	-	21	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	-	-		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
Stainless steel	-	-	-		t	Primarily for engineered timber structure connections	02_11	02 or 03
Reinforced concrete piles	Concrete	-	-		m <sup>3</sup>	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
Reinforced concrete piles	Steel reinforcing	-	-		kg	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	-	-	-		m <sup>3</sup>	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber (solid)	Sawn softwood	-	-		m <sup>3</sup>		02_11	02 or 03

Timber (solid)	Sawn hardwood	-	-		m <sup>3</sup>		02_11	02 or 03
Timber (engineered)	CLT	-	-		m <sup>3</sup>		02_11	02 or 03
Timber (engineered)	Glulam	-	-		m <sup>3</sup>		02_11	02 or 03
Timber (engineered)	LVL	-	-		m <sup>3</sup>		02_11	02 or 03
Timber (engineered)	OSB	-	-		m <sup>3</sup>	Enter as <u>cubic metres</u> , calculated as (area of wall in m <sup>2</sup> ) * (thickness in mm / 1000)	02_11	02 or 03
Brick	Heat cured	-	-		m <sup>3</sup>	Enter as <u>cubic metres</u> , calculated as (area of wall in m <sup>2</sup> ) * (thickness in mm / 1000)	02_11	02 or 03
Structural Insulated Panel (SIP)	Steel outer	-	-		m <sup>2</sup>		01_SB	02 or 03
Structural Insulated Panel (SIP)	Aluminium outer	-	-		m <sup>2</sup>		01_SB	02 or 03
Structural Insulated Panel (SIP)	Engineered timber outer	-	-		m <sup>2</sup>		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	-	-		m <sup>2</sup>		01_SB	01 or 02 or 0
Waterproofing membrane	Polyethylene	-	-	2,103	m <sup>2</sup>		01_SB	01 or 02 or 0
PT bars		-	-	118.0	t	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	-	-	-	82	%	Required. Coverage of <u>spend</u> for the envelope items you have entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Roof cladding	Profiled steel	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> 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	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> 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	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> 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	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of roof area. Exclude allowances for overlap in the membrane sheets.	05_RF	03 or 04
Roof cladding	Tiles (traditional clay)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Tiles (concrete)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Other (Please describe >>)		-		m <sup>2</sup>	Please enter a description for any roofing that does not fit a predefined classification	05_RF	03 or 04
Wall cladding	Bricks (heat cured)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> 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)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Air-dried bricks are cured using ambient temperature.	06_EW	03 or 04
Wall cladding	Bricks (under fired)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area.	06_EW	03 or 04
Wall cladding	Bricks (concrete)	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area	06_EW	03 or 04
Wall cladding	Mortar and render	-	-		kg		06_EW	03 or 04
Wall cladding	Profiled steel	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, 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	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, etc. This row also includes pre-painted aluminium sheets.	06_EW	03 or 04

Wall cladding	Profiled zinc	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, etc. This row also includes pre-painted zinc sheets.	06_EW	03 or 04
Wall cladding	GRC cladding	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. GRC = Glass Reinforced Concrete.	06_EW	03 or 04
Wall cladding	Timber weatherboards	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for overlap between weatherboards, offcuts, etc.	06_EW	03 or 04
Wall cladding	Fibre cement board	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding	Terracotta	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding	Brick tiles / veneers	-	-	2,719	m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding	Plasterboard	-	-	766	m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for offcuts, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding	Plywood	-	-		m <sup>2</sup>	Enter as m <sup>2</sup> of wall area. Exclude allowances for offcuts, 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 >>)		-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-	433	m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	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	-		m <sup>2</sup>	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Single glazed	-		m <sup>2</sup>	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Double glazed	-		m <sup>2</sup>	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Triple glazed	-		m <sup>2</sup>	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Other (Please describe >>)		-		m <sup>2</sup>	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		m <sup>2</sup>	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	8,643	m <sup>2</sup>	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		m <sup>2</sup>	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	8,406	m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	GRC cladding		m <sup>2</sup>	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Insulated shadow box		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Brick cladding		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Stone cladding		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Single glazed		m <sup>2</sup>	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		m <sup>2</sup>	Include all single glazing, including standard, toughened, laminated and low-E. 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	Glazed panel	Triple glazed		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Aluminium cladding		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	GRC cladding		m <sup>2</sup>	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Insulated shadow box		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Brick cladding		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Stone cladding		m <sup>2</sup>		06_EW	03 or 04
Curtain wall	Other (Please describe >>)		-		m <sup>2</sup>	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		m <sup>2</sup>	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		m <sup>2</sup>	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		m <sup>2</sup>	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		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	GRC cladding		m <sup>2</sup>	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Insulated shadow box		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Brick cladding		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Stone cladding		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Single glazed		m <sup>2</sup>	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		m <sup>2</sup>	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		m <sup>2</sup>	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		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	GRC cladding		m <sup>2</sup>	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Insulated shadow box		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Brick cladding		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Stone cladding		m <sup>2</sup>		06_EW	03 or 04
Stick-framed wall system	Other (Please describe >>)		-		m <sup>2</sup>	Please enter a description for any wall system that does not fit a predefined classification	06_EW	03 or 04
Wall louvre system	Aluminium	-	-		36 m <sup>2</sup>		06_EW	03 or 04
External shading system	Aluminium frame	Aluminium cladding	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	GRC cladding	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000). GRC = Glass-fibre Reinforced Concrete.	06_EW	03 or 04
External shading system	Aluminium frame	Terracotta cladding	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Stone cladding	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Pre-cast concrete	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Timber	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Glass (opaque)	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Steel	-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Other (Please describe >>)		-		m <sup>2</sup>	Please enter as m <sup>2</sup> of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
Roller doors	Steel profile	-	-		m <sup>2</sup>	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors	Hardwood over steel	-	-		m <sup>2</sup>	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors	Softwood over steel	-	-		m <sup>2</sup>	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Revolving doors	Glass/aluminium/steel	-	-		no.		08_ED	03 or 04
Fire-rated doors	Engineered timber	-	-		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2	08_ED	03 or 04
Fire-rated doors	Steel	-	-		no.	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	-	-	10	no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2	08_ED	03 or 04
Insulation	Glass wool / fibreglass	-	-		m <sup>2</sup>	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Stone wool	-	-		m <sup>2</sup>	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Polyester	-	-		m <sup>2</sup>	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Expanded polystyrene	-	-		m <sup>2</sup>	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation	Other (Please describe >>)		-		m <sup>2</sup>	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				82 %	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)	-	-	t		09_NW	03 or 04
Interior wall (permanent)	Timber framing	-	-	m³		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., Sneedpanel	09_NW or 12_WF	03 or 04
Interior wall (permanent)	Plasterboard	-	-	32,047 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	-	-	31,023.0 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 >>) <b>Blockwork Wall</b>	-	-	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	-	-	no.	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	-	-	520 no.	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	-	-	500 no.	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	-	-	235 no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2	11_ND	03 or 04
Internal door (permanent)	Steel	-	-	no.	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 >>)	-	-	no.	Please enter a description for any internal door that does not fit a predefined classification	11_ND	03 or 04
Ceiling Finishes	Plasterboard	-	-	11,522.0 m²	Please enter a description for any material that does not fit a predefined classification		
Floor Finishes	Vinyl/Carpet	-	-	11,078.0 m²	Please enter a description for any material that does not fit a predefined classification		
Floor Finishes	Tiles	-	-	917.0 m²	Please enter a description for any material that does not fit a predefined classification		

## Services

Unit of measure

Building services included within the main building contract. 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	-	-	-	10,078,613	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Vertical transportation	-	-	-	1,493,102	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Electrical services	-	-	-	6,044,287	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_LPGP	05
Plumbing/hydraulic services	-	-	-	4,917,188	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	-	-	-	2,527,348	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	25_FPSS04 or 39 X 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	-	-	-	83 %	Required. Coverage of <u>spend</u> for external works (excluding soft landscaping) entered below.		
Asphalt	-	-	-	t	Minimum requirement = 80%. Exclude head contractor preliminaries and margins.	33_XR	07

Concrete in-situ	≤10 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Concrete in-situ	>10 MPa to ≤20 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Concrete in-situ	>20 MPa to ≤32 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Concrete in-situ	>32 MPa to ≤40 MPa	-	-	66.0	m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Concrete in-situ	>40 MPa to ≤50 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Concrete in-situ	>50 MPa	-	-		m <sup>3</sup>	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 07
Pavers, bricks and blocks	Concrete	-	-	489	m <sup>2</sup>	Concrete pedestrian pavement Permeable Concrete paving (trihex concrete unit)	33_XR 07
Pavers, bricks and blocks	Clay	-	-		m <sup>2</sup>		33_XR 07
Reinforcing steel	Bar & mesh	-	-	5,000	kg	<b>Include all reinforcing steel bar/mesh in the external works in this row.</b> Usually this is calculated as kg/m <sup>3</sup> per concrete element and then summed. Example: 10 m <sup>3</sup> of 40 MPa concrete @ 100 kg/m <sup>3</sup> + 5 m <sup>3</sup> of 50 MPa concrete @ 150 kg/m <sup>3</sup> = 1,750 kg	33_XR or 34_XN or 07
Reinforcing steel	Fibre & strand	-	-		kg	<b>include all steel fibre reinforcing and steel strand in the external works in this row</b>	33_XR or 34_XN or 07
Structural steel	-	-	-		t		02_11 07
Structural aluminium	-	-	-		t	Includes structures, louvre systems, etc.	35_XB 07
External roof/wall cladding	Polycarbonate	-	-		m <sup>2</sup>	Enter as profiled polycarbonate sheet that would ordered, including allowance for overlap	35_XB 07
External roof/wall cladding	PVC	-	-		m <sup>2</sup>	Enter as profiled PVC sheet that would ordered, including allowance for overlap	35_XB 07
External roof/wall cladding	Bitumen sheet	-	-		m <sup>2</sup>	Enter as bituminous sheet that would ordered, including allowance for overlap	35_XB 07
External roof/wall cladding	Steel profile	-	-		m <sup>2</sup>	Enter as profiled steel sheet that would ordered, including allowance for overlap	35_XB 07
Fill	-	-	-		t	Include purchased material only. Exclude site-won material.	33_XR or 34_XN or 07
Sand & gravel	-	-	-		t	Include purchased material only. Exclude site-won material and sand/gravel in concrete	33_XR or 34_XN or 07
Timber (solid)	Sawn softwood	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Timber (solid)	Sawn hardwood	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Timber (engineered)	CLT	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Timber (engineered)	Glulam	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Timber (engineered)	LVL	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Timber (engineered)	OSB	-	-		m <sup>3</sup>		33_XR or 34_XN or 07
Fabric (awning/sunshade)		-	-	89.0	m <sup>2</sup>		35_XB or 36_XL 07
Seating	Timber	-	-	26.0	m	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	
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	Note
Name	Lisa Teang	Required
Company	Mirvac Limited	Required
ABN	92003280699	
Profession	Cost Planner	Required
Qualification or registration	Bachelor of Construction Project Management	Required

Person that certified the details in this form	Value	Note
Name	Lisa Teang	Required
Company	Mirvac Limited	Required
ABN	92003280699	
Profession	Cost Planner	Required
Qualification or registration	Bachelor of Construction Project Management	Required

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

Additional comments from data provider
n/a
Additional comments of certifier
n/a