

Stephen Road Multi-level Warehouse

49-61 Stephen Road, Banksmeadow

REV 03

SSDA Sustainability Report



E-LAB Consulting
Where Engineering and Science Inspire Design.



DOCUMENT VERIFICATION

Stephen Road Multi-level Warehouse, 49-61 Stephen Road, Banksmeadow			P00980		
SSDA Sustainability Report			E-LAB Consulting		
ESR Developments (Australia) Pty Ltd					
Revision	Date				
01	6 th November 2024	Description	Draft Issue for Review		
			Prepared by	Checked by	Approved by
		Name	AM	HM	AK
02	11 th December 2024	Description	Issue for SSDA		
			Prepared by	Checked by	Approved by
		Name	HM	AK	AK
03	25 th March 2026	Description	Amended for New Scheme		
			Prepared by	Checked by	Approved by
		Name	AN	HM	AK
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Description			
			Prepared by	Checked by	Approved by
		Name			



Executive Summary

E-LAB Consulting has been commissioned by ESR Developments (Australia) Pty Ltd to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development Application (SSD-65924461) for the proposed construction and operation of two two-storey warehouse and distribution centre buildings at 49-61 Stephen Road, Banksmeadow.

This report presents a summary of the ESD strategies proposed and commitments made for the development. The developer is aiming to deliver an affordable, sustainable outcome for the project by demonstrating a strong commitment to sustainability in its design, construction, and operation.



Figure 1: Aerial Photograph (Source: Urbis)

The proposed sustainability elements include:

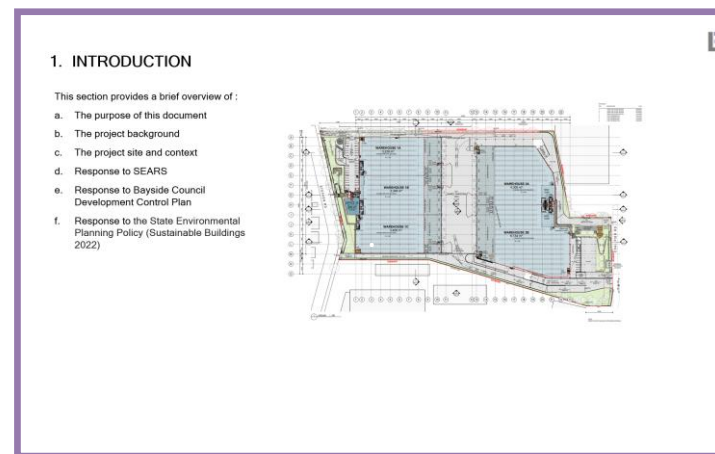
- Committed to achieving **5 Star Green Star Buildings v1 Certification** for the proposed warehouse;
- Committed to achieving **5.5 Star NABERS energy** and minimum **3 Star NABERS water rating** for the office components;
- Reporting on the embodied emissions;
- Committing to Net Zero (refer to project's Net Zero Statement);
- No gas on site to reduce fossil fuel consumption;
- Significant on-site energy generation through a major solar PV array on the roof to reduce operational energy and GHG emissions associated with the site;
- Water Sensitive Urban Design Principals being upheld;
- Water recycling through rainwater storage with excess discharged into bio-retention and detention areas;
- Targeting 90% of Construction and Demolition diverted from landfill;
- Providing parking capacity for electric vehicles to prepare for a decarbonised future;
- Urban heat island effect mitigation strategies; and
- Following a range of sustainability initiatives across the site spanning energy efficiency, thermal performance, indoor environment quality, waste management, and comfort.

The strategies and initiatives presented in this report demonstrate a strong commitment to sustainability in line with the Bayside Council Development Control Plan and the State Environmental Planning Policy (Sustainable Buildings) 2022 and are to be further developed during subsequent stages of the project.

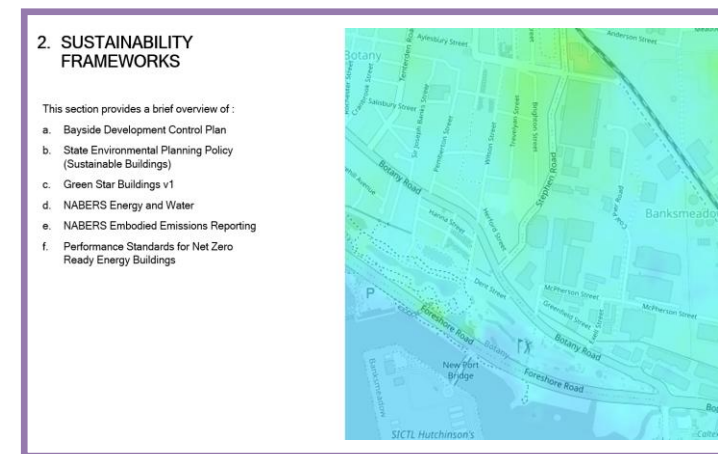
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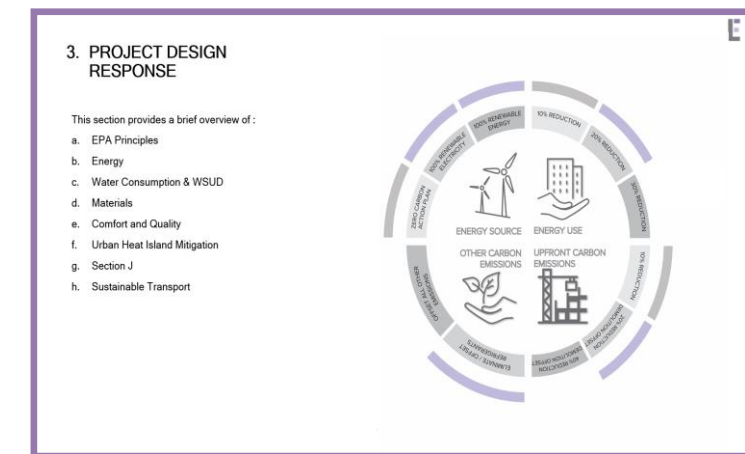
Introduction



Sustainability Frameworks



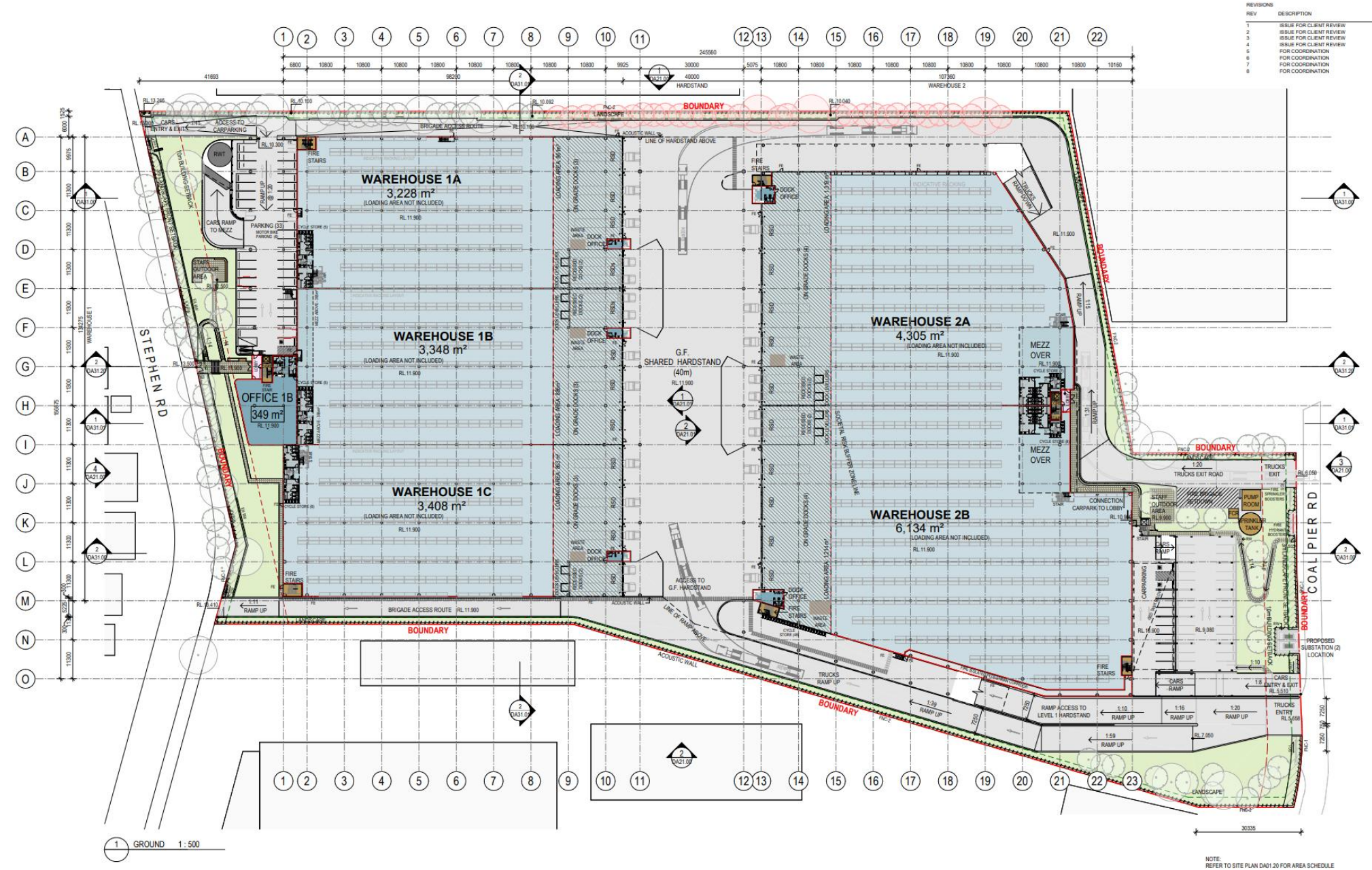
Project Design Response



1. INTRODUCTION

This section provides a brief overview of :

- The purpose of this document
- The project background
- The project site and context
- Response to SEARS
- Response to Bayside Council Development Control Plan
- Response to the State Environmental Planning Policy (Sustainable Buildings 2022)



1.1 Project Overview

The subject site is located at 49-61 Stephen Road, Banksmeadow, within the Bayside local government area (LGA). The site is legally described as Lot A in Deposited Plan 190526, Lot 1 Deposited Plan 1095110, and Lot 1 Deposited Plan 311767. The site is identified in the Ground Floor Plan on the preceding page.

Key features of the site are as follows:

- The site is bounded by Stephen Rd and Coal Pier Rd.
- The site has been developed and currently accommodates the Allnex Resins manufacturing site. The site presents a two-storey office building towards the Stephen Road frontage, with 20 warehouse and ancillary use buildings as well as numerous chemical storage tanks.

Key features of the locality:

The site is located in the Banksmeadow Industrial Precinct, approximately 10km from Sydney CBD, 1.5 kilometres from Port Botany and 3km from Sydney Airport. The site is located in close proximity to existing employment and industrial areas including the Botany Port and Sydney Domestic and International Airports

The site is surrounded predominantly by a mix of industrial and warehouse and distribution uses to the north, east and south, and residential land uses to the west.

Due to the existing and current use of the site and the handling and manufacturing of chemical products, a stormwater retention/remediation treatment pond is located along the Coal Pier Road frontage along the eastern boundary.

Existing planted vegetation is located along the site's boundaries predominately along the western and northern setback areas assisting in screening the development from Stephen Road and the Southgate Industrial Estate development to the north. A cleared grassed area is located to the rear of the site beside a stormwater retention and treatment pond

1.2 Project Description

The proposed SSDA seeks approval for the following:

- Site establishment works, including demolition of all existing built form, tree removal, minor excavation / bulk earthworks and remediation of the site.
- Construction and operation of two two-storey warehouse and distribution centre buildings including the following key components:
 - Approximately 45,896m² of total GFA comprising:
 - 41,702m² of warehouse area.
 - 4,024m² of office area.
 - 170m² of lobby space.
 - Two warehouse buildings of two storeys containing:
 - Six (6) units within Warehouse 1 (2 levels).
 - Four (4) units within Warehouse 2 (2 levels).
- Total of 240 car and 16 motorbike parking spaces
- End of trip facilities.
- Site landscaping works totalling 5,566.1m² (10.2% of the site), and
- Provision of building/business identification signage

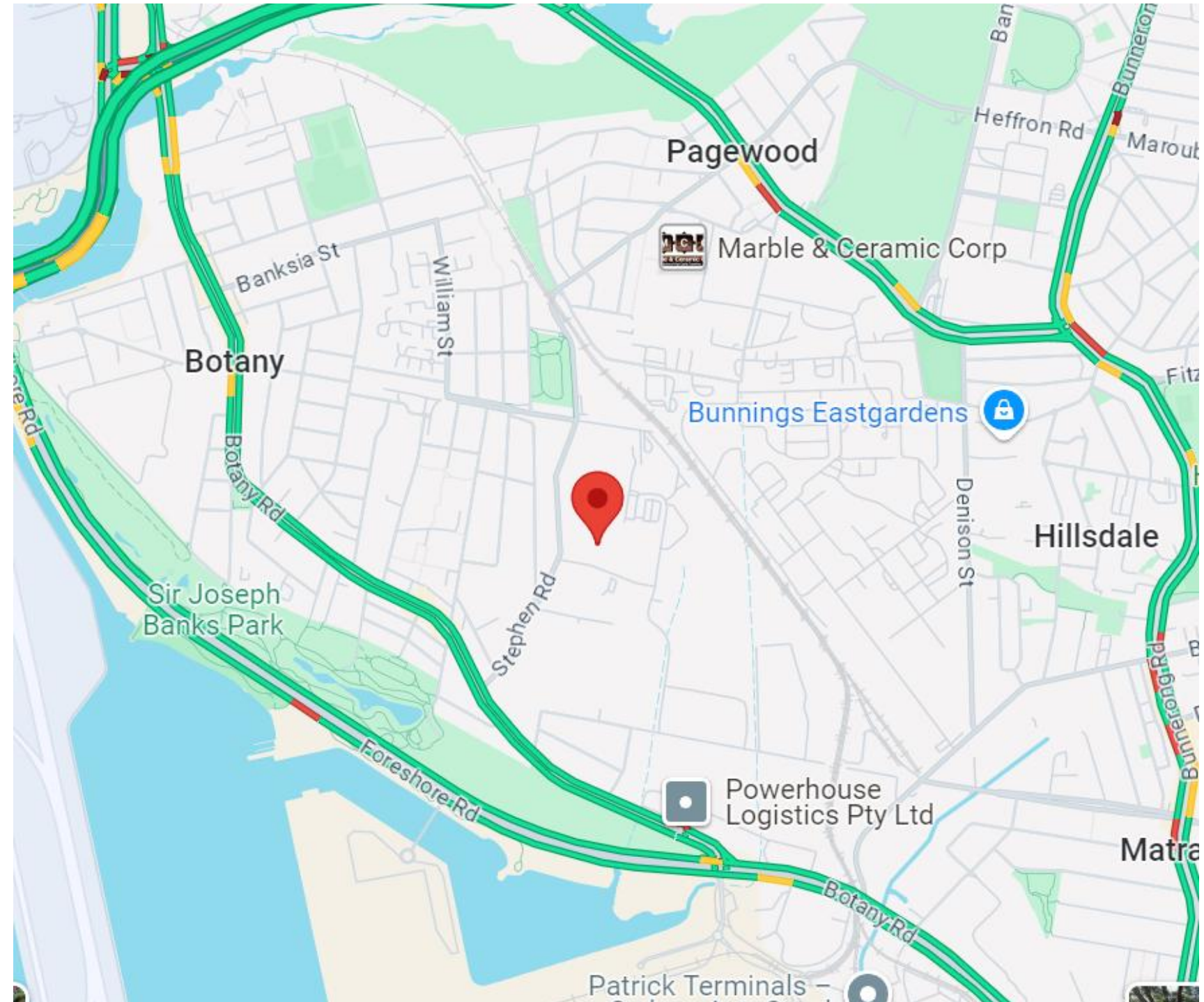


Figure 2: Subject Site (Source: Google Maps)



1.3 Response to the Secretary’s Environmental Assessment Requirements (SEARS)

Requirement	Response
Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	This report outlines how ESD Principles (as defined in clause 7(4) of Schedule 2 of the EPA) are incorporated in the design and ongoing operations of the development.
Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.	Section 3.2 of this report outlines the substantial energy efficiency measures to minimise the development’s greenhouse gas emissions including carbon emissions.
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.	Sections 3.2, 3.3 and 3.4 of this report outline how the development minimises its environmental impact through sustainable design and operation.
If Chapter 3 of SEPP (Sustainable Buildings) 2022 applies: • demonstrate how the development has been designed to address the provisions set out in in Chapter 3.2(1). • provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35BA of the EP&A Regulation.	Chapter 3 of SEPP (Sustainable Buildings) 2022 is applicable for this project since the office area > 1000m². Section 1.5 of this report outlines the requirements of Chapter 3.2(1) and the projects response. Section 2.5 of this report outlines the NABERS Embodied Emissions Form.



1.4 Response to the Bayside Development Control Plan 2022

This section outlines how the development will address the Bayside DCP controls. These are:

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.1 General

Requirement	Response
Areas of glazing are located to avoid energy loss and unwanted energy gain.	Designed for, demonstrated through Section J and NABERS Commitments. Refer to Architectural documentation submitted as part of this SSDA package.
Development provides appropriate sun protection during summer for glazed areas facing north, west and east, whilst allowing for penetration of winter sunlight.	Designed for. Refer to Architectural documentation submitted as part of this SSDA package.
Extensive areas of glazing that are unprotected from sun during summer are not permitted. Shading devices include eaves, awnings, balconies, pergolas, external louvers, and projecting sunshades. Unprotected tinted windows are not acceptable.	Design has considered glazing ratios. Refer to Architectural documentation submitted as part of this SSDA package.
Lighting for streets, parks and any other public domain spaces provided as part of a development should use energy efficient lighting such as LED lighting.	Refer to Section 3.2 Energy.
Ensure the location of windows, doors and internal layout of the building promotes air movement for cooling.	Refer to Architectural documentation submitted as part of this SSDA package.
For all developments where BASIX is not applicable, the following water efficiency design elements must be included and demonstrated on the plans: a. new or altered showerheads are to have a flow rate of no greater than 9 litres per minute or a 3 star or greater rating b. new or altered toilets are to have a flow rate no greater than 4 litres per average flush or a 3 star or greater rating c. new or altered taps must have a flow rate no greater than 9 litres per minute or 3 star or higher water rating	Refer Section 3.3 Water Consumption and WSUD.



1.4 Response to the Bayside Development Control Plan 2022

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.1 Non-Residential Development

Requirement			Response
Development is to be designed and constructed to reduce the need for active heating and cooling by incorporating passive design measures including design, location and thermal properties of glazing, natural ventilation, appropriate use of thermal mass and external shading, including vegetation.			Refer to Section 3.2 Energy.
Rainwater tanks are to be installed for all non-residential developments, including major alterations and additions that have access to a roof form from which rainwater can be feasibly collected and plumbed to appropriate end uses.			Refer to Section 3.3 Water Consumption and WSUD.
Development is to be designed and constructed to meet the rating systems shown in Table 1			Refer to Section 2.4 NABERS Energy and Water (required for the office component of the development only). Committed to achieving 5 Star Green Star Buildings v1 Certification. Refer to Section 2.3 for Green Star pathway.
Development type	Energy	Water	
Hotels (new hotels only)	Minimum 4.5-star NABERS rating or equivalent	Minimum 4-star NABERS rating or equivalent (new hotels only)	
Office development over 1,000sqm NLA (including within mixed use schemes and significant alterations and additions valued at over \$5m)	Base building to achieve a minimum 5-star NABERS rating or equivalent (140kgCO2e/sqm/year)	Base building to achieve minimum 4-star NABERS rating or equivalent (0.65kL of water use/sqm/year)	
Shopping centres/retail development over 15,000sqm GLAR	Base building to achieve minimum 5-star NABERS rating or equivalent (100kgCO2e/sqm/year)	Base building to achieve minimum 4-star NABERS rating or equivalent (0.95kL/sqm/year)	
Industrial development over 20,000sqm GFA	Minimum 5-star Green Star rating or equivalent	Minimum 5-star Green Star rating or equivalent	



1.4 Response to the Bayside Development Control Plan 2022

This section outlines how the development will address the Bayside DCP controls. These are:

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.2 Natural Daylight and Ventilation

Requirement			Response
Buildings must comply with the following minimum ceiling heights to facilitate adequate natural lighting and ventilation:			Refer to Architectural documentation submitted as part of this SSDA package.
Development Type	Habitable Rooms	Non-Habitable Rooms	
Residential	2.7m	2.4m	
Retail & Commercial	3.3m	2.4m	
First Floor & Above of Mixed-Use Building	3.3m	2.4m	
Buildings must be designed to maximise opportunities for cross flow ventilation by providing clear breeze paths and shallow building depths. The maximum internal plan depth of a residential apartment should be 18m from glass line to glass line. Developments that propose greater than 18m must demonstrate how satisfactory daylight and natural ventilation is achieved.			Refer to Architectural documentation submitted as part of this SSDA package.
Windows that can open and which are designed to provide controlled air flow should be installed.			Refer to Architectural documentation submitted as part of this SSDA package.
Buildings must have an adequate number of openings at each level to allow natural light and ventilation, including lift lobbies and entries.			Refer to Architectural documentation submitted as part of this SSDA package.
Office premises must be designed to receive natural light and ventilation. Office floor plates are to have a depth of no greater than 20m if dual aspect, or 10m if single aspect. Office spaces should be designed, through orientation and the inclusion of environmental control devices, to achieve maximum daylight without compromising the internal amenity through glare or heat gain from direct sunlight.			Refer to Architectural documentation submitted as part of this SSDA package.



1.4 Response to the Bayside Development Control Plan 2022

This section outlines how the development will address the Bayside DCP controls. These are:

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.2 Natural Daylight and Ventilation

Requirement	Response
Each industrial unit within an industrial complex must have a reasonable size window at each level to allow natural light and ventilation.	Refer to Architectural documentation submitted as part of this SSDA package.
On deep sites, courtyards and light wells should be provided on the lower levels of mixed use and commercial buildings to achieve natural lighting of every level and cross ventilation and/or stack effect ventilation.	Refer to Architectural documentation submitted as part of this SSDA package.



1.4 Response to the Bayside Development Control Plan 2022

This section outlines how the development will address the Bayside DCP controls. These are:

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.2 Reflectivity

Requirement	Response
A Reflectivity Report that analyses potential solar glare from the proposed building design may be required for tall buildings.	Refer to Architectural documentation submitted as part of this SSDA package.
For buildings in the vicinity of arterial roads/major roads and Sydney Airport, proof of light reflectivity is required and is to demonstrate that light reflectivity does not exceed 20%.	Refer to Architectural documentation submitted as part of this SSDA package.
The placement, orientation and configuration of new buildings and facades must not result in glare that produces discomfort or endangers safety of pedestrians or motorists.	Refer to Architectural documentation submitted as part of this SSDA package.
Materials must be durable and can be easily cleaned and are graffiti resistant.	Committed to and will be incorporated into the design
National Airports Safeguarding Framework Guideline E - Managing Pilot Lighting Distraction should be referred to where relevant. This is available to view at: https://www.infrastructure.gov.au/infrastructure-transport-vehicles/aviation/aviation-safety/aviation-environmental-issues/national-airports-safeguarding-framework/national-airports-safeguarding-framework-principles-and-guidelines .	Refer to Architectural documentation submitted as part of this SSDA package.



1.4 Response to the Bayside Development Control Plan 2022

This section outlines how the development will address the Bayside DCP controls. These are:

1.4.1 Section 3.3 Energy and Environmental Sustainability - 3.3.5 Energy Assessment

Requirement	Response
A report on energy and water efficiency is to be submitted with a development application for any building works with a construction cost of \$1,000,000 or more. The report must address how the principles of this DCP Part have been incorporated which should include but not necessarily be limited to: a. Whether the building has achieved a NABERS or Green Star rating. b. Passive solar design principles used to avoid the need for additional heating and cooling. c. How energy efficiency has been incorporated into the design in general, such as the incorporation of building articulation to allow daylight into ground and first floor levels. d. Justification of hot water systems selection. e. Overshadowing of adjoining properties. f. Total anticipated energy consumption. g. Water efficient fixtures and water conservation measures. h. How demand for water and discharge of wastewater will be minimised. i. Incorporation of renewable energy types such as solar hot water heating. j. Use of recycled building materials and materials with low embodied carbon. k. Use of materials that are non-polluting in manufacture, use and in disposal. l. Use of roof lights and vents to internal service rooms at roof top level to minimise reliance on artificial light and ventilation. m. Use of advanced air conditioning systems and new technologies such as chilled beam air conditioning and waste heat recovery systems for larger buildings. n. Incorporate water conservation measures as referred to in this DCP.	Refer to Section 2.4 NABERS Energy and Water (required for the office component of the development only). Committed to achieving 5 Star Green Star Buildings v1 Certification. Refer to Section 2.3 for Green Star pathway.



1.5 Response to the State Environmental Planning Policy (Sustainable Buildings) 2022

This section outlines how the development will address the State Environmental Planning Policy. These are:

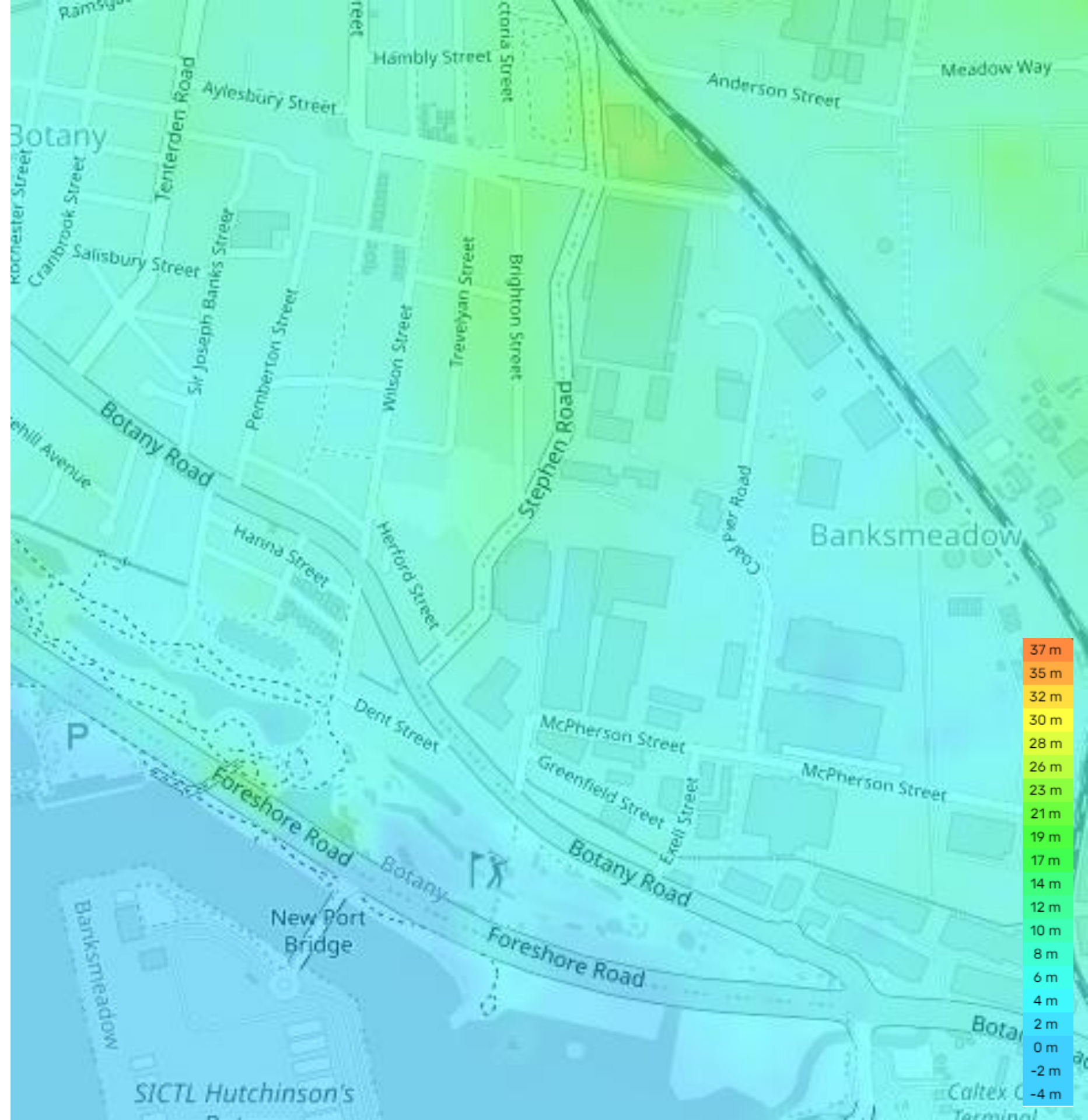
1.5.1 Chapter 3 Standards for Non-Residential Development

Requirement	Response
To ensure minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,	Refer to Section 3.4 Materials.
Ensure a reduction in peak demand for electricity, including through the use of energy efficient technology,	Refer to Section 3.2 Energy.
Ensure a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,	Refer to Section 3.2 Energy.
Ensure generation and storage of renewable energy,	Refer to Section 3.2 Energy.
Ensure strategy is in place for metering and monitoring of energy consumption,	Under Green Star Pathway, refer to Appendix.
Ensure strategy is in place for the minimisation of the consumption of potable water.	Refer to Section 3.3 Water Consumption & WSUD.
Ensure the embodied emissions attributable to the development have been quantified.	Refer to Section 2.5 NABERS Embodied Emissions Reporting.
Ensure the use of on-site fossil fuels is minimised, as part of the goal of achieving net zero emissions in New South Wales by 2050.	Refer to Section 2.6 Performance Standards for Net Zero Ready Energy Buildings and Net Zero Statement provided separately.
Ensure the development is capable of achieving the standards for energy and water use specified in Schedule 3 of the SEPP.	Refer to Section 2.4 NABERS Energy and Water (required for the office component of the development only).
For the purposes of the above requirement, ensure development is capable of achieving a standard specified in Schedule 3 if there is a NABERS commitment agreement in place to achieve the standards.	Refer to Section 2.4 NABERS Energy and Water (required for the office component of the development only).

2. SUSTAINABILITY FRAMEWORKS

This section provides a brief overview of :

- a. Bayside Development Control Plan
- b. State Environmental Planning Policy (Sustainable Buildings)
- c. Green Star Buildings v1
- d. NABERS Energy and Water
- e. NABERS Embodied Emissions Reporting
- f. Performance Standards for Net Zero Ready Energy Buildings



2.1 Bayside Development Control Plan 2022

The Bayside Development Control Plan 2022 outlines the requirements for the development in accordance with the principles of green building design, which include:

- Use energy efficiently
- Minimise the use on non-renewable energy
- Reduce the peak demand on energy supply systems
- Reduce greenhouse gas emissions
- Reduce the use of potable water
- Make buildings more comfortable for occupants all year round
- Reduce energy bills and the lifecycle cost of energy services

2.2 State Environmental Planning Policy (Sustainable Buildings)

In NSW there are currently no consistent sustainability provisions for that consent authorities can refer to when assessing non-residential buildings. To address this, the new Sustainable Buildings State Environmental Planning Policy (SEPP) asks consent authorities to consider how the building will address the following sustainability requirements:

- Minimise waste from associated demolition and construction, including choice and reuse of building materials,
- Reduce in peak demand for electricity, including through the use of energy efficient technology,
- Generate and store renewable energy,
- Reduce reliance on artificial lighting and mechanical heating and cooling through passive design;
- Meter and monitor energy consumption,
- Minimise consumption of potable water.
- Report on the embodied emissions
- Prepare a Net Zero Statement
- Achieve 5.5 Star NABERS energy (for the office component only)
- Achieve 3 Star NABERS water (for the office component only)

2.3 Green Star Buildings v1

The development also aims to meet and exceed industry best practice sustainability requirements within its design as part of the sustainability commitments associated with construction and operation. The development is recommended to will be targeting at minimum a **5 Star Green Star Buildings v1 rating**, by achieving ESD in the seven categories (+ leadership) identified in the Green Building Council of Australia’s benchmarking tool:



Responsible

Recognises activities that ensure the building is designed, procured, built and handed over in a responsible manner.



Healthy

Promotes actions and solutions that improve the physical and mental health of occupants.



Resilient

Encourages solutions that address the capacity of the building to bounce back from short-term shocks and long-term stresses



Positive

Encourages a positive contribution to key environmental issues of carbon, water and the impact of materials.



Places

Supports the creation of safe, enjoyable, integrated and comfortable places.



People

Encourages solutions that address the social health of the community.



Nature

Encourages active connections between people and nature and rewards creating biodiverse green spaces in cities.



Leadership

Recognises projects that set a strategic direction, build a vision for industry or enhance the industry’s capacity to innovate.

2.3 Green Star Buildings v1 - Climate Positive Pathway

The Climate Positive Pathway is worth 15 points (plus one Leadership Point) and from 2023 onwards, all 5-star project will be required to achieve the climate positive pathway. The following elements are required:

- Upfront Carbon Emissions: Building upfront carbon emissions are at least 20% less than those of a reference building and demolition works are offset
- Energy Use: The building's energy use is at least 20% less than a reference building, or for office buildings, its energy use is modelled to perform at a 5.5 star NABERS Energy with 25% modelling margin
- Energy Source: 100% of the building's energy comes from renewables (i.e. through onsite renewable energy and a renewable energy contract for ESR scope of energy)
- Other Carbon Emissions: Emissions from refrigerants are eliminated or offset





A 5 Star Green Star Buildings v1 pathway has been developed for this development. A summary of the points targeted is presented in the table below.

Category	Points Available	5-star Pathway
Responsible	17	6
Healthy	14	9
Resilient	8	2
Positive	30	16
Places	8	3
People	9	1
Nature	14	4
Leadership	5	3
Total	105	44
Min. Required for 5-star	-	(35)

Please refer to the Green Star Buildings v1 Pathway in the Appendix for more detail into the credit requirements and responsible parties.

2.4 NABERS Energy and Water

For compliance with the Sustainable Buildings SEPP, large commercial developments that must obtain a NABERS Energy and Water rating include offices over 1000m².

Thus, the office component of this development is required to achieve the following NABERS Energy and Water ratings:

- 5.5 star NABERS energy rating and
- 3 star NABERS water rating.

The proposed strategy to achieve these ratings are as follows:

- Energy and water initiatives are detailed in the following sections of the report: Section 3.2 Energy and 3.3 Water Consumption & WSUD.
- To meet the energy and water standard application requirements, the development must identify preferred Section J energy reporting pathway, effective water-saving measures and submit [NABERS Energy and NABERS Agreement to Rate](#) with development application.

Office
Buildings
(>1000m²)

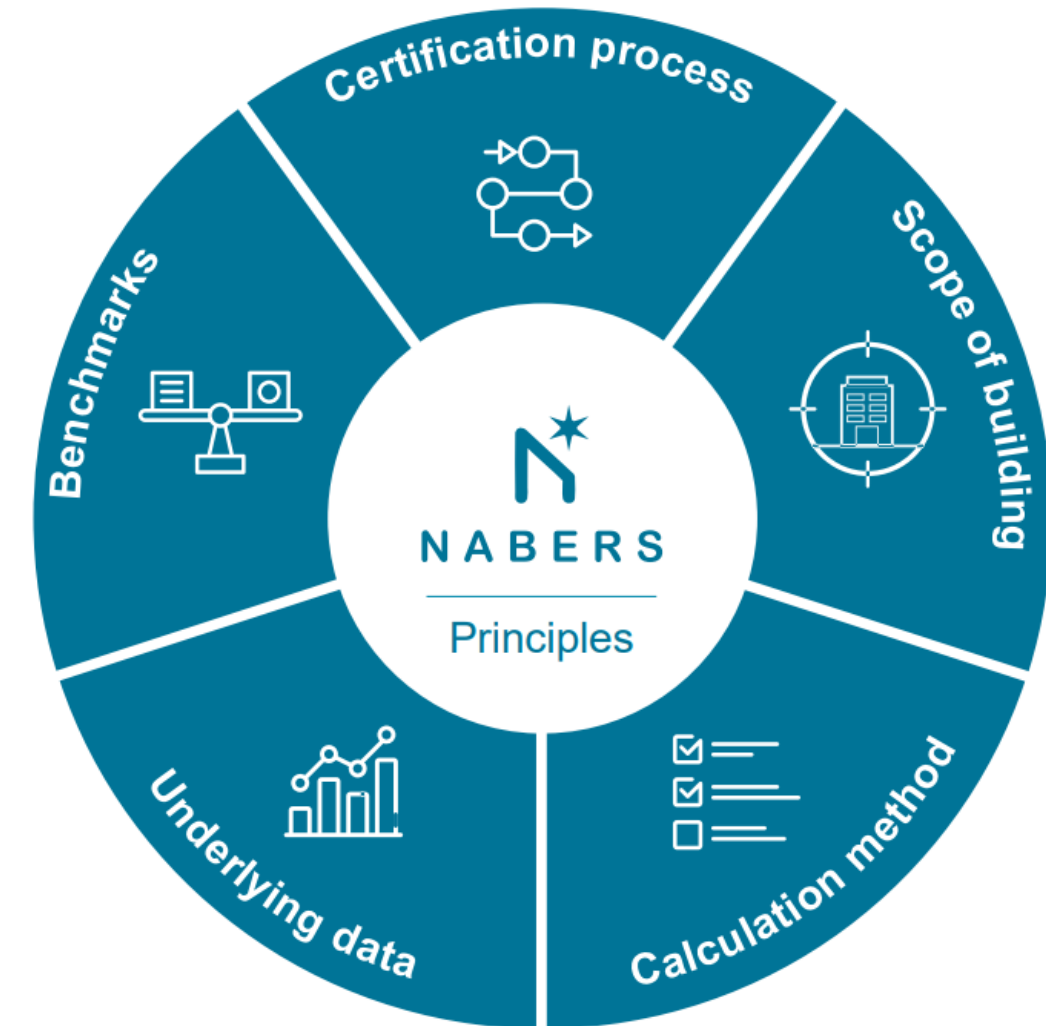


2.5 NABERS Embodied Emissions Reporting

For compliance with the Sustainable Buildings SEPP, reporting of the embodied emissions of non-residential building are required. Disclosure of embodied emissions will be via the NABERS embodied emissions material form. This interim form will be in used until the NABERS embodied emissions framework and related emissions factors comes into effect in 2024.

In alignment with best practice, we've identified the key initiatives to help reduce the embodied emissions of the development:

- Use salvaged and/or recycled materials
- Optimise systems for material efficiency
- Specify low carbon concrete
- Specify materials that naturally sequester carbon
- Specify materials manufactured with renewable energy
- Design for durability
- Get to know the supply chain for your specified project.



2.6 Performance Standards for Net Zero Ready Energy Buildings

In alignment with best practice, the development's commitment to sustainability, the project proposes to be ready for net zero carbon emissions.

This includes the following strategies:

- Preparing a Net Zero Statement
- Reducing energy loads and usage;
- At least 90% of C&D waste is diverted from landfill;
- On-site renewable energy through a large photovoltaic array; and
- Eliminating gas to remove fossil fuel consumption and prepare for a decarbonised grid.
- Committing to become Carbon Neutral in operation by 2035 under ESR's sustainability strategy

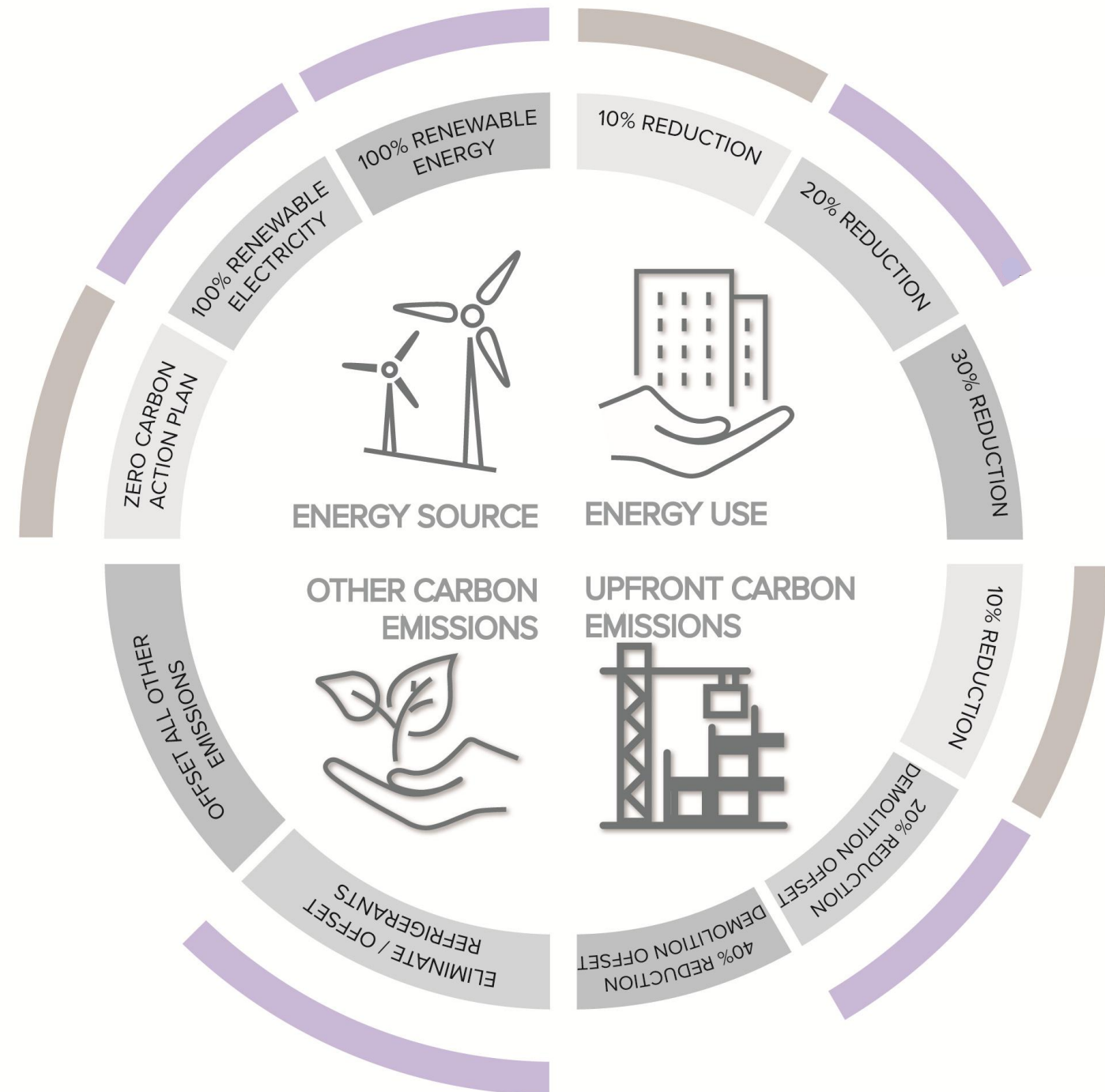


Figure 3: Net Zero (Source: Energy Matters)

3. PROJECT DESIGN RESPONSE

This section provides a brief overview of :

- a. EPA Principles
- b. Energy
- c. Water Consumption & WSUD
- d. Materials
- e. Comfort and Quality
- f. Urban Heat Island Mitigation
- g. Section J
- h. Sustainable Transport



3.1 EPA Principles

The proposed development will follow the golden standard in sustainability principles throughout the development. This includes the design, construction, and operational elements of the project. The key overarching principals are aligned with the definition of Ecologically Sustainable Development as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2021. These include:

The Precautionary Principle:

Philosophy: Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Project Response: The project is committed to incorporating elements to minimise impacts on the environment, as outlined below in this section of this report. A commitment to improvement on minimum benchmarks demonstrates the development's commitment to sustainability.

The Principle of Inter-generational Equity:

Philosophy: The present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations.

Project Response: The project is committed to incorporating careful selections into the project design. The design team will address key elements such as energy, potable water, and material consumption to do what is within the project's control to allow each following generation to have an opportunity for ecological equality.

The Principle of the conservation of biological diversity and ecological integrity:

Philosophy: Conservation of biological diversity and ecological integrity should be a fundamental consideration

Project Response: The project is committed to planting native vegetation and using integrated landscaping to enhance the overall ecological and biodiversity of the site. Rainwater and stormwater will be carefully managed and controlled to minimise impacts on surroundings.

3.1 EPA Principles

Principles relating to improved valuation, pricing, and incentive mechanisms:

Philosophy: Environmental factors should be included in the valuation of assets and services. The users of goods and services should pay prices based on the full life cycle costs of providing goods and service.

Project Response: The project will target a construction waste diversion target of 90%, as well as developed specific project waste management strategies. These combine to ensure the project pays for the waste and damage it creates. Further, it is designed to be low-energy and low-water consumption, which provides an incentive for residents through lower utility bills.

The Principle of Waste Minimisation:

Philosophy: All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.

Project Response: The project will target a construction waste diversion target of 90%, as well as developed specific project waste management strategies. Construction materials are chosen to be low impact in their manufacture, including best practice PVC and FSC/PeFC timber throughout where possible. This impacts waste both created by the site, as well as upstream and downstream waste categories.

The above principles are addressed by 5 key themes, being Sea, Land, Water, Air and People. These 5 key themes are centred around reducing harm as far as practicable across the practice of buildings and infrastructure, both in their construction and operation.

3.2 Energy

ESR's Net Zero Carbon Policy outlines ESR's commitment to achieving net zero emissions by 2050 align with the 1.5°C pathway. This is to be achieved through comprehensive and complete consideration of how the development consumes resources, including energy, water, and material efficiency.

The energy efficiency strategy generally follows the energy efficiency pyramid of design in Figure 4. In the first instance demand for greenhouse gases should be reduced. Consideration should be to remove the need for energy to be consumed where possible. Beyond this, energy can be more efficient, through efficient lighting, mechanical systems, and appropriate services.

Once the system has reduced all available energy-consuming elements and made the remaining systems as efficient as possible, renewable energy sources will be considered. PV will be installed at a rate that maximises the coverage of the non-trafficable roof area. Only after all the above steps have been completed should offsets be used to close the gap and achieve neutrality.

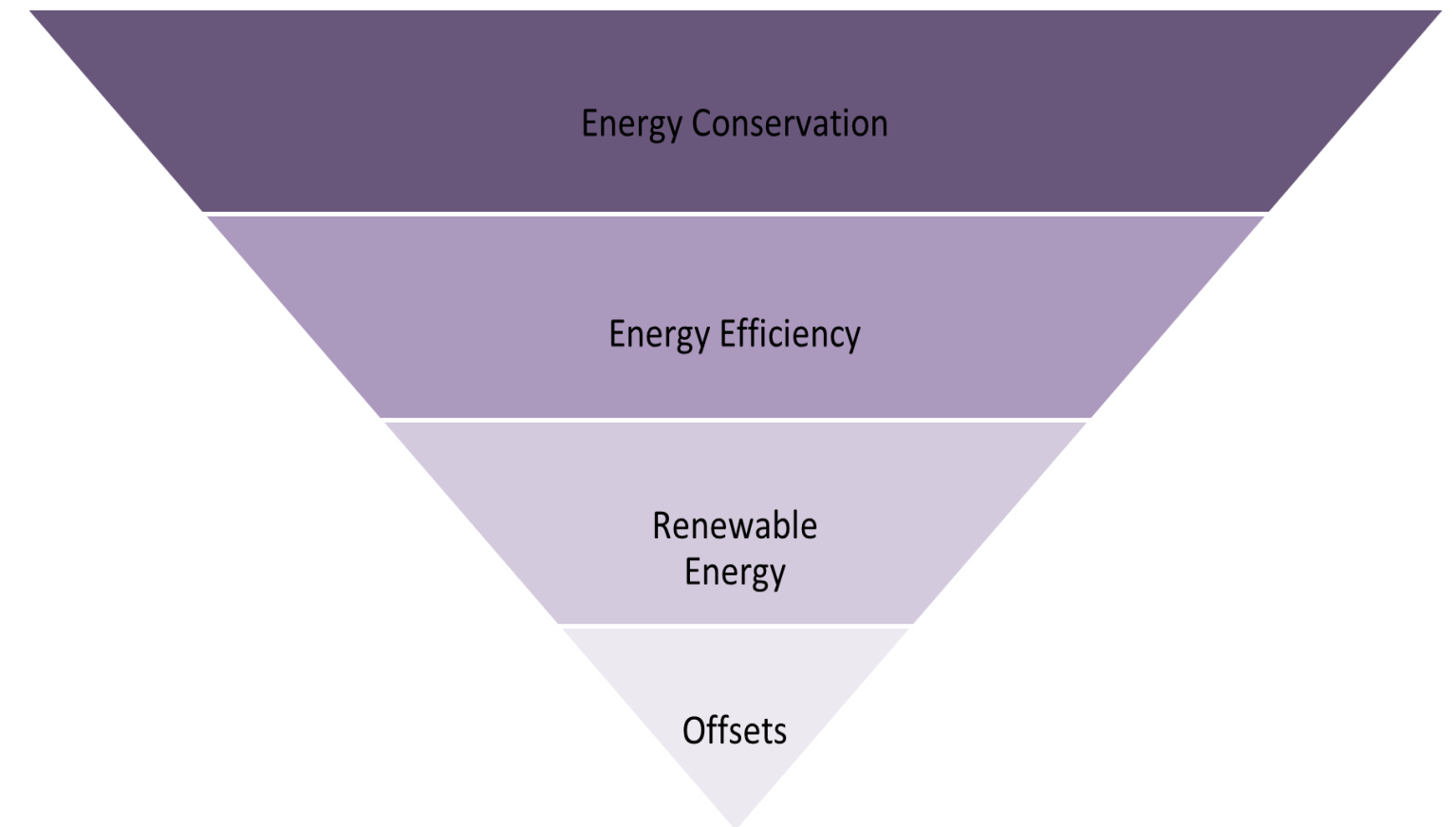
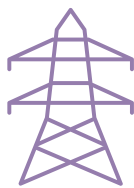


Figure 4. Energy efficiency pyramid: pathway to carbon neutrality

3.2 Energy



Electrification - No gas will be used on site, enabling the development to be ‘net zero ready’ and allow the benefits of decarbonisation of the grid to be realised.



Renewable Energy - The roof area provides an excellent opportunity for installation of a solar photovoltaic system. The sizeable system will generate renewable electricity to offset grid use and minimise stress on the grid at peak times. PV will be installed at a rate that maximises the coverage of the non-trafficable roof area. Further consideration will be required to appropriately size the number of photovoltaic panels.



Efficient Lighting Systems - High efficiency low-flicker LED lighting throughout, including in common areas with efficiency controls to meet the requirements of NCC 2022 Section J Part J7. Controls will include motion sensors, time clocks and zoned switching.



Controls, Energy Metering and Monitoring - Energy meters and monitoring systems will be provided to comply with NCC 2022 Section J Part J9 requirements. Preference for natural ventilation and comfort through adaptive cooling and shading. Mechanical ventilation including heating and cooling to be controlled effectively with bespoke controls and systems reducing energy consumption when not required.



Hot Water - Hot water is likely to be provided by energy efficient heat pump systems. These systems are highly efficient and can be run off the solar PV system to reduce the operational carbon of the development.



Integration of Cool Roofing - roofing with a high albedo will reduce Urban Heat Island effect and reduce load on the HVAC system.

3.3 Water Consumption & WSUD

To achieve responsible water consumption and water sensitive urban design, best practice water-saving initiatives will need to be implemented throughout the project. The following initiatives will be explored to achieve the potable water targets:



Sanitary Fixtures - By implementing low-flow water fixtures, the consumption will be significantly reduced. All sanitary fixtures are to be provided with the minimum WELS ratings identified below:

Taps - 6 Star WELS

Toilets - 5 Star WELS

Urinals - 6 Star WELS (0.8 L per flush)

Showers - 3 Star WELS (<9 L/min)



Landscape Irrigation - Efficient irrigation systems will be considered, including underground surface drip systems, moisture sensors, and the use of native plants in the landscaping plan. Native plants have evolved to thrive in the Australian environment and are typically more resilient than their exotic counterparts. They typically require less water and are more likely to survive the predicted increase in extreme drought conditions due to climate change. Native vegetation also stores a significant amount of carbon, helping to mitigate climate change.



Recycled water and rainwater - the development will supply most of the toilet flushing, irrigation, and washdown needs from a minimum 100kL on-site rainwater tank. Rainwater will be captured from the roof of the buildings to reduce potable water demand. Additionally, stormwater re-use to be considered where possible to maximize usage which can be incorporated into landscape irrigation as well.

The development’s design is deliberately working to reduce potable water consumption by in the first instance reducing water use by implementing low-flow water fixtures and efficient irrigation system, then offsetting it through rainwater tanks. The rainwater tanks are designed to meet as much of the site irrigation needs as possible.

3.4 Materials

In line with the principals of sustainability outlined in the EPA, the project will have a significant focus on materiality. The scope of consideration includes the following action items within the project response:

- **Construction Waste** - At least 90% of construction and demolition waste is diverted from landfill. This diverts and ensures reuse or recycling of a high portion of site waste.
- **Low VOC and Low Formaldehyde Materials** - paints, adhesives, sealants, floor coverings, carpets and engineered wood will be selected appropriately to provide a healthier and low-impact environment. Such efforts provide a cleaner and better environment for all.
- **Best-Practice PVC** - cables, pipes, flooring, and blinds will be selected and specified to be Best Practice PVC. This ensures upstream performance will be met and has significant benefit for the overall environment during the construction process.
- **Best Practice Steel** - Where possible, steel will come from a sustainable steel manufacturer, who has an action plan.
- **FSC/PeFC Timber throughout** - where possible, timber, including virgin and engineered timber through construction and fitout elements under the builder's control will be specified as FSC/PeFC. This ensures the timber provided to site is of the highest standard and sourced from sustainable sources.
- **Sustainable Concrete** - where possible deemed practical from the LCA, concrete to implement sustainable mixtures of cement such as fly ash or blast slag to reduce embodied carbon.
- **Waste Management Plan** - Development of an ongoing Waste Management Plan so waste can be sorted, separated, and recycled. This will assist ongoing diversion from landfill for the development. Operational waste to be managed to ensure diversion continues during operations and ensure ample recycling storage is provided along which will aid in reducing landfill waste.

3.5 Comfort and Quality

To ensure the best quality for users and visitors inside the space, the development will commit to the following key initiatives:

- **Visual Comfort** - Maximising high-quality light into the office spaces, with views to the sky and nature where possible.
- **Acoustic Excellence** - Designing the building layout to be protected from noise from external sources. Delicate material selection, acoustic attenuation, and designing the shape of the building and openings accordingly achieves the performance.
- **Thermal Comfort** - Appropriate mix of vernacular design, overhangs, adaptive comfort and high levels of insulation in the roof and facades. Adaptive cooling will be integrated into the design based on tenant needs and high-occupancy spaces. Section J modelling will capture the benefits.
- **Lighting Comfort** - Use of high colour rendering index (CRI > 85) LED lighting throughout the entire development. Low-glare lighting with baffles or louvres to limit UGR.
- **Glazing Requirement** - ensuring external glass does not to exceed 20% reflectivity to minimize discomfort from glare and reflected heat.

- **Generous Natural Planting** - Greenery through natural planting throughout the development assists in a connection to nature for users and passers-by. It also has a cooling effect, reducing the Urban Heat Island burden on the project.

The above combine to ensure the development is responsible, efficient, beautiful, and in the best interest of not just the developers, but the residents, community, and society as a whole.

3.6 Urban Heat Island Mitigation

The site experiences the urban heat island effect warmer than Sydney’s baseline, so reducing heat at the local scale is recommended.

In response to the fact Sydney is getting hotter, the site’s baseline heatwave temperature experiences peaks approx. 6-9°C above the baseline, as defined by the NSW government for Urban Heat Island Effect (<https://www.seed.nsw.gov.au/>).

To minimise the urban heat island effect and provide a more comfortable environment for occupants, the development is to consider the following initiatives:

- Implement native landscaping throughout the site, particularly around satellite office spaces where occupants are likely to spend extended periods.
- Incorporate green walls and roofs where appropriate.
- Extensive tree planting with wide canopies throughout the above ground car park
- Introduction of architectural treatments to foster façade shading.

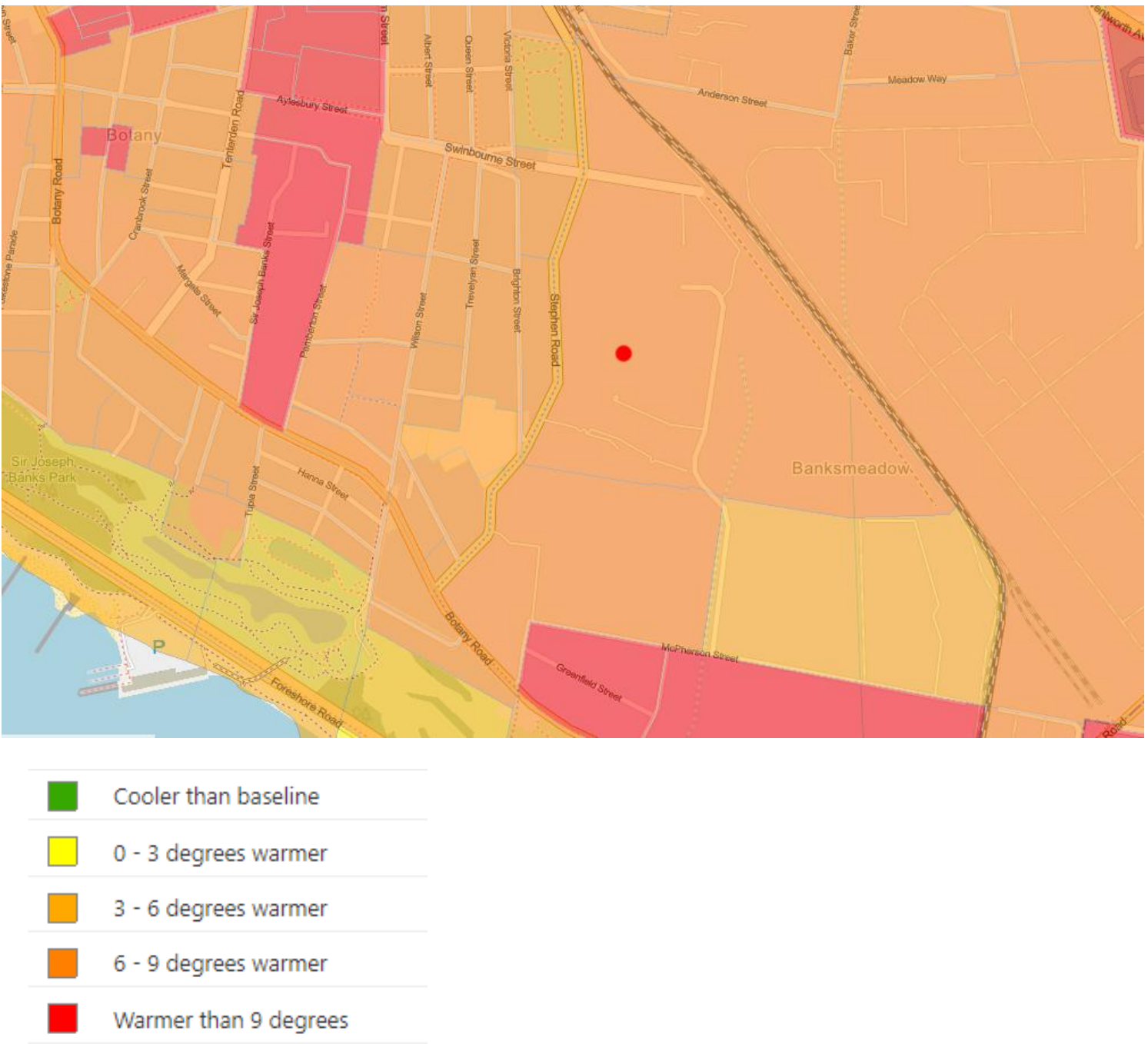


Figure 5. Urban heat island effect at the site. (Source: SEED Database)

3.7 Section J

The proposed development will be subject to compliance with Section J under the NCC 2022 code. This code places strict environmental performance requirements on the building envelope and services within the building.

The project will demonstrate compliance via verification method J1V3 - verification using a reference building (energy modelling). The design of the building fabric will need to demonstrate compliance with this clause through dynamic modelling of the building against a reference case.

The scope of the Section J compliance is limited to areas that meet both of the following criteria:

- Non-Residential areas
- Conditioned Spaces

As such, this includes most areas within the development. This modelling will highlight the passive design elements that the warehouse has in place to reduce energy loss and unwanted energy gain through glazing which includes appropriate placement according to orientation, shading elements such as eaves, balconies and sunshades. Deemed-to-satisfy conditions will be tested in terms of orientation through NCC calculators.

3.8 Sustainable Transport

The development at 49-61 Stephen Road, Banksmeadow, will offer convenient access to nearby bus stops and the Botany Road transport corridor. From here, there is easy access to Sydney's comprehensive public transport network, ensuring straightforward travel across the city.

A Green Travel Plan is to be developed to indicate innovative solutions to minimise reliance on private vehicle use, which will accompany the Green Star strategies, including, dedicated parking space for fuel efficient vehicles, EV infrastructure, carpooling/car sharing facilities, EOT facilities for occupants deciding to travel via bicycle use etc.

The development shall provide the provisions to support the shift away from fossil fuel transport by providing the infrastructure for electric vehicle (EV) charging in the carpark including electric trucks to support the warehouse.

The development should consider a minimum of 25% car parking spaces be equipped with future EV charging capacity. This also supports the development's commitment to transitioning to a carbon neutral economy.

4. CONCLUSION

This report provides an outline of the proposed development's Ecologically Sustainable Design initiatives and commitments. The ESD strategies proposed will assist the development in achieving high levels of sustainability and environmental performance. These strategies include:

- Committed to a **5 Star Green Star Buildings v1 Certification** for the development;
- Committed to achieving **5.5 Star NABERS energy** and **3 Star NABERS water rating** for the office components;
- Reporting on the embodied emissions;
- Committing to Net Zero (refer to project's Net Zero Statement);
- No gas on site to reduce fossil fuel consumption;
- Significant on-site energy generation through a major solar PV array on the roof to reduce operational energy and GHG emissions associated with the site;
- Water Sensitive Urban Design Principals being upheld;
- Water recycling through rainwater storage with excess discharged into bio-retention and detention areas;
- At least 90% of Construction and Demolition are diverted from landfill;
- Low VOC and formaldehyde finish to improve air quality
- Providing parking capacity for electric vehicles to prepare for a decarbonised future;
- Urban heat island effect mitigation strategies; and

- Following a range of sustainability initiatives across the site spanning energy efficiency, thermal performance, indoor environment quality, waste management, and comfort.

The strategies and initiatives presented in this report demonstrate a strong commitment to sustainability which meet and exceed expectations for the development. Further opportunities for optimisation of the building's performance will be developed during subsequent stages of the project.



APPENDIX

Green Star Pathway



49 Stephend Rd, Banksmeadow

Rev 01 | 6.11.2024 | Green Star Buildings v1 rev C | For SSDA

Rating	5 star
Core	41
At Risk	10
Leadership	3
Total	44
Required	35

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
Responsible		17	6				
1	Industry Development	1	1	Credit Achievement - The owner appoints a Green Star Accredited Professional. - The owner discloses the cost of sustainable building practices to the GBCA. - The owner markets the building's sustainability achievements.	ESR	No	- ESD Consultant fees - ELAB fee - Nominal project costs to support financial transparency and marketing excellence requirements (< \$10k) - Green Star certification fees (depending on contract value)
2	Responsible Construction			Minimum Expectation - The builder has an environmental management system in place to manage its environmental impacts on site. - The builder has an environmental management plan to cover the scope of construction activities. - The builder diverts at least 80% of construction and demolition waste from landfill. - The builder provides training on the sustainability targets of the building.	Builder	No	- Builder to incorporate Green Star requirements - Waste reporting requires a reputable waste contractor and reporting
		1	1	Credit Achievement In addition to the Minimum Expectation: 90% of construction and demolition waste is diverted from landfill, and waste contractors and facilities comply with the Green Star Construction and Demolition Waste Reporting Criteria.	Builder	No	
3	Verification and Handover			Minimum Expectation - The building is set up for optimum ongoing management due to its appropriate metering and monitoring systems. - The building has set environmental performance targets, designed and tested for airtightness, been commissioned, and will be tuned. - The project team create and deliver operations and maintenance information to the facilities management team at the time of handover. Information is available to building users on how to best use the building.	Architect Building Services E-LAB Builder ESR	No	- Exceeds metering and monitoring system provisions of NCC 2022 Part J9D3; advanced system requirements BMS - ELAB will coordinate DIR, Building User Information - Builder to conduct a services and maintainability review and prepare a Services and Maintainability Report; - Carry out building commissioning - Airtightness testing professional to be engaged early on, ELAB can provide a fee
		1		Credit Achievement In addition to the Minimum Expectation: - An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent. AND - The project uses a soft landings approach that involves the future facilities management team. For large projects (Building Services Value > \$20m), both must occur.	ICA ESR	No	ICA engagement fee; and soft landings framework (assumes BSV > \$20m)

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
4	Operational Waste	•	•	Minimum Expectation • The building is designed for the collection of separate waste streams. • The building provides a dedicated and adequately sized waste storage area. • The building ensures safe and efficient access to waste storage areas for both occupants and waste collection contractors.	Architect Waste Consultant ESR	No	• Business as usual • Is a WMP available?
5	Responsible Procurement	1		Credit Achievement • The building's design and construction procurement processes follow ISO 20400 Sustainable Procurement - Guidance. • A responsible procurement plan is developed to mitigate risks. • At least one identified supply chain risk and opportunity is addressed.			• Not targeted
6	Responsible Structure	3	3	Credit Achievement • 50% of all structural components (by cost) meet a Responsible Products Value of at least 10.	Structural Architect E-LAB	No	• Steel to be certified to Steel Stanadard v2 (International Standard) or GECA certified or • Concrete and steel procured to carry recognised initiatives including EPDs, Climate Active Carbon Neutral Certification and other third-party product certification schemes • QS expected to manage Bill of Quantities (BOQ) derived from Cost Plan - Additional project costs to procure good /best practice responsible structural products (< \$250k)
		2		Exceptional Performance In addition to the Credit Achievement: • 10% of all products in the structure (by cost) meet a Responsible Products Value of at least 15. or • 80% of all products in the structure (by cost) have an average Responsible Products Value of at least 10.			
7	Responsible Envelope	2		Credit Achievement • 30% of all building envelope components (by cost) meet a Responsible Products Value of at least 10.			• Not targeted
		2		Exceptional Performance In addition to the Credit Achievement: • 10% of all products in building envelope (by cost) meet a Responsible Products Value of at least 15. or • 60% of all products in the building envelope (by cost) have an average Responsible Products Value of at least 10.			
8	Responsible Systems	1		Credit Achievement • 20% of all active building systems (by cost) meet a Responsible Products Value of at least 6.			• Not targeted
		1		Exceptional Performance In addition to the Credit Achievement: • 5% of all active building systems (by cost) meet a Responsible Products Value of at least 11. or • 15% of all active building systems (by cost) have an average Responsible Products Value of at least 8.			• Not targeted

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
9	Responsible Finishes	1	1	Credit Achievement 40% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7.	Architect	No	• Extensive options available for responsible building finishes products in Australia - Additional project costs to procure good /best practice responsible finishes products (< \$250k)
		1	Exceptional Performance In addition to the Credit Achievement: • 10% of all internal building finishes (by cost) meet a Responsible Products Value of at least 12. or • 60% of all internal building finishes (by cost) have an average Responsible Products Value of at least 9.				
Healthy		14	9				
10	Clean Air	•	•	Minimum Expectation • Levels of indoor pollutants are maintained at acceptable levels. • The building must provide a 50% improvement of outdoor air required by AS 1668.2:2012 to each space in the regularly occupied areas. • Pollutants entering the building are minimised.	Building Services	No	• Business as usual
		2	2	Credit Achievement In addition to the Minimum Expectation: • The building's ventilation systems allow for easy maintenance. • The building must provide a 100% improvement of outdoor air required by AS 1668.2:2012 to each space in the regularly occupied areas.	Building Services	Yes	• +100% above code outdoor air provision - mechanical to confirm
11	Light Quality	•	•	Minimum Expectation • Lighting within the building meets minimum comfort requirements. • Good lighting levels suitable for the typical tasks in each space are available. • The building provides adequate levels of daylight.	Building Services Architect	No	• Good practice
		2	2	Credit Achievement In addition to the Minimum Expectation: • The building provides best practice artificial lighting. or • The building provides best practice access to daylight: - For non-residential buildings, at least 40% of the regularly occupied areas across the building must receive high levels of daylight with no less than 20% on any floor or tenancy (whichever is smaller).	E-LAB	No	• Daylight criteria targeted - 40% of the regularly occupied areas to achieve daylight • sDA compliance modelling required to confirm point
		2		Exceptional Performance In conjunction with the Credit Achievement: • The building provides best practice artificial lighting. • The building provides best practice access to daylight.			• Not targeted
12	Acoustic Comfort	•	•	Minimum Expectation • An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.	Acoustics	No	• Business as usual
		2	2	Credit Achievement In addition to the Minimum Expectation, • For Industrial Projects - achieve two (2) of the following two (2) criteria: - The building achieves maximum internal noise levels. and - The building provides acoustic separation.	Acoustics	Yes	• Acoustic Separation may be difficult to achieve in industrial buildings tbc by acoustic engineer • Project costs are subject to acoustic design impacts; to be qualified

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
13	Exposure to Toxins	•	•	Minimum Expectation • The building's paints adhesives, sealants, and carpets are low in TVOC or non-toxic. • The building's engineered wood products are low in TVOC or non-toxic. • Occupants are not exposed to banned or highly toxic materials in the building.	Architect Building Services Builder	No	• Business as usual
		2	2	Credit Achievement In addition to the Minimum Expectation: • On-site tests verify the building has low Volatile Organic Compounds (VOC) and formaldehyde levels.	Air Quality Consultant Builder	No	• Engage air tightness testing consultant for on-site IEQ testing.
14	Amenity and Comfort	2		Credit Achievement • The building has dedicated amenity rooms to act as a parent room, relaxation room, or an exercise room.			• Not targeted
15	Connection to Nature	1	1	Credit Achievement • The building provides views. and • The building includes indoor plants and incorporates nature-inspired design. or • 5% of the building's floor area or site area (whichever is greater) is allocated to nature in which occupants can directly engage with.	Architect Landscapes E-LAB	Yes	• Views to be provided to regularly occupied spaces • At least 5% of the building's regularly occupied areas must be planted area (applicable to office regularly occupied areas only)
		1	Exceptional Performance In conjunction with the Credit Achievement: • The building provides views. • The building includes indoor plants and incorporates nature-inspired design. • 5% of the building's floor area or site area (whichever is greater) is allocated to nature in which occupants can directly engage with.				
	Resilient	8	2				
16	Climate Change Resilience	•	•	Minimum Expectation • The project team completes the climate change pre-screening checklist. The project team communicates the building's exposure to climate change risks to the developer.	E-LAB	No	• Good practice
		1	1	Credit Achievement In addition to the Minimum Expectation: • The project team develops a project-specific climate change risk and adaptation assessment for the building. • Extreme and high risks are addressed.	E-LAB	Yes	• ESD Consultant fees will included to develop climate change risk and adaptation plan
17	Operations Resilience	2		Credit Achievement • The project team undertakes a comprehensive review of the acute shocks and chronic stresses likely to influence future building operations. • The building's design and future operational plan addresses any high or extreme system-level interdependency risks. • The building's design maintains a level of survivability and design purpose in a blackout.			• Not targeted
18	Community Resilience	1		Credit Achievement • The project team undertakes a needs analysis of the community, identifies shocks and stresses that impact the building's ability to service the community, and develops responses to manage these.			• Not targeted
19	Heat Resilience	1	1	Credit Achievement • At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect.	Architect Landscapes Building Services	No	• Integration of cool roofing as well as landscaping

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
20	Grid Resilience	3		Credit Achievement • The building provides active generation and storage systems. and/or • The building has the infrastructure to deliver an appropriate demand response strategy.			• Not targeted
Positive		30	16				
21	Upfront Carbon Emissions		•	Minimum Expectation • The building's upfront carbon emissions are at least 10% less than a reference building.	Structural Building Services Architect E-LAB	No	•Climate positive pathway required for 5 Star registering from 2023 onwards • Early stage LCA input required to set performance benchmark
		3	3	Credit Achievement - Climate Positive Pathway - In conjunction with the Minimum Expectation: • The building's upfront carbon emissions are at least 20% less than a reference building. • Demolition works are offset.			
		3		Exceptional Performance In conjunction with the Credit Achievement: • The building's upfront carbon emissions are at least 40% less than those of a reference building.			
22	Energy Use		•	Minimum Expectation • Reference building pathway - The building uses 10% less energy than a reference building.	Building Services Architect E-LAB	No	•Climate positive pathway required for 5 Star registering from 2023 onwards • Reference building pathway - Glazing and insulation requirements to achieve at least a 20% improvement above the minimum NCC provisions. - High-efficiency heating and cooling system. - High-efficiency LED lighting with at least 20% improvement above the maximum illumination power density in NCC Section J7. - High-efficiency electric heat pump hot water system - PV array to be installed (sizing TBC with electrical)
		3	3	Credit Achievement - Climate Positive Pathway - In conjunction with the Minimum Expectation: • Reference building pathway - The building uses 20% less energy than a reference building.			
		3		Exceptional Performance In conjunction with the Credit Achievement: • Reference building pathway - The building uses 30% less energy than a reference building.			• Not targeted

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
23	Energy Source			Minimum Expectation The building provides a Zero Carbon Action Plan.	E-LAB Building Services Architect	Yes	Consultant fees will be included in ESD scope
		3	3	Credit Achievement In conjunction with the Minimum Expectation: - The building is fossil fuel free for cooking, heating and domestic hot water - The building has been future-proofed for fossil fuel free energy sources to all process loads - The building has capacity for electric fleet for the building's onsite operations	ESR	No	- All-electric building; fossil fuel-free 100% renewable electricity supply - Green Power Purchase agreement by ESR
		3	3	Exceptional Performance - Climate Positive Pathway - In conjunction with the Credit Achievement: 100% of the electricity under the building owner's control comes from renewables. - The building owner engages with tenants to source renewable energy			
24	Other Carbon Emissions	2	2	Credit Achievement - Climate Positive Pathway - - The building eliminates emissions from refrigerants. or - The building offsets emissions from refrigerants.	Building Services	Yes	- Low GWP Refrigerant selection or refrigerant offset - quantities to be provided by Mechanical - Greenfleet carbon offset purchase estimates \$18-22 per tonne of CO2-e
		2		Exceptional Performance In addition to the Credit Achievement: All other emissions not captured in the Positive category are eliminated or offset.			Not targeted
25	Water Use			Minimum Expectation The building installs efficient water fixtures.	Building Services Architect E-LAB	No	Low flow fittings to be selected: Taps - 6 star Toilets - 4 star Showers - 3 Star 6L/min Clothes Washing Machine - 4 Star Dishwashers - 5 Star
		3		Credit Achievement In conjunction with the Minimum Expectation: - The building uses 45% less potable water compared to a reference building. - The building has infrastructure for recycled water connection.			Not targeted
		3		Exceptional Performance In conjunction with the Credit Achievement: The building uses 75% less potable water compared to a reference building.			
26	Life Cycle Impacts	2	2	Credit Achievement The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	E-LAB	No	- Additional costs for LCA, ESD Consultant fees included. - Early stage LCA input required to set performance benchmark

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
	Places	8	3				
27	Movement and Place			Minimum Expectation (Classes 5, 6, 7b and 8 are required to comply for regular occupants, not for visitors) • The building includes showers and changing facilities for building occupants. • The facilities are accessible, inclusive, and located in a safe and protected space.	Architect	Yes	• Showers and changing facilities to be provdied for buidling occupants
		3	3	Credit Achievement In addition to the Minimum Expectation: • The building’s access prioritises cycling and includes bicycle parking facilities. • A Sustainable Transport Plan (STP) has been prepared and implemented. • The building has EV charging capabilities. • Transport options that reduce the need for private fossil fuel powered vehicles are prioritised. • The building’s design and location encourage walking.	ESR Collective Transport	Yes	• Green Travel Plan to be prepared by Transport Consultant • Bike parks to be provided to support active travel • 5% carparking with dedicated EV infrastructure and make allowed for 25% future installation. • Amenities are provided within a 400m radius.
28	Enjoyable Places	2		Credit Achievement • The building delivers memorable, beautiful, vibrant communal or public places where people want to gather and participate in the community. • The spaces are inclusive, safe, flexible, and enjoyable.			• Not targeted
29	Contribution to Place	2		Credit Achievement • The building’s design contributes to the liveability of the wider urban context and enhances the public realm.			• Not targeted
30	Culture, Heritage and Identity	1		Credit Achievement • The building’s design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities.			• Not targeted

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
People		9	1				
31	Inclusive Construction Practices			Minimum Expectation During the building’s construction, the builder provides gender inclusive facilities and protective equipment. The builder also installs policies on-site to increase awareness and reduces instances of discrimination, racism, and bullying.	Builder	No	• Business as usual
		1	1	Credit Achievement In addition to the Minimum Expectation: - Policies and programs implemented are relevant to construction workers on site. - The builder provides high quality staff support on-site to reduce at least five key physical and mental health impacts. - The effectiveness of the interventions is evaluated.			
32	Indigenous Inclusion	2		Credit Achievement - The project team plays an active role in the organisational Reconciliation Action Plan. or - The building’s design and construction incorporates design elements using the Indigenous design and planning strategies and principles			• Not targeted
33	Procurement and Workforce Inclusion	2		Credit Achievement - The project implements a social procurement plan. - At least 2% of the building’s total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.			• Not targeted
		1		Exceptional Performance In conjunction with the Credit Achievement: - The project implements a social procurement plan. - At least 4% of the building’s total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.			
34	Design for Inclusion	2		Credit Achievement The building is designed and constructed to be inclusive to a diverse range of people with different needs.			• Not targeted
		1		Exceptional Performance In addition to the Credit Achievement: Engagement with target groups to conduct a needs analysis has informed the inclusive design.			
Nature		14	4				
35	Impacts to Nature			Minimum Expectation - The building was not built on, or significantly impacted, a site with a high ecological value. - The building’s light pollution has been minimised.	Generate ESR Building Services	No	• Sensitive sites - compliant • Light pollution - business as usual
		2		Credit Achievement In addition to the Minimum Expectation: The building’s design and construction conserves existing natural soil, hydrological flows, and vegetation elements.			• Not targeted

No.	Credit	Points Available	5 star	Detailed Credit Requirements	Responsible Party	Spatial Impact	Comments
36	Biodiversity Enhancement	2	2	Credit Achievement • The building’s site includes an appropriate landscape area (15% of site area) • The landscaping includes a diversity of species and prioritises the use of climate-resilient and indigenous plants. • The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative.	Architect Landscapes Ecologist	Yes	• Landscaping to be provided to 15% of site area, TBC if feasible for this type of development (current site plan indicates ~10% of landscaping is provided)
		2		Exceptional Performance In addition to the Credit Achievement: • A greater area of landscaping is provided (30% of site area) • The landscaping includes critically endangered and/or endangered plant species native to the bioregion.	Architect Landscapes Ecologist	Yes	
37	Nature Connectivity	2		Credit Achievement • The site must be built to encourage species connectivity through the site, and to adjacent sites. If the project sits within a blue or green grid strategy it must contribute to the goals of the strategy.			• Not targeted
38	Nature Stewardship	2		Credit Achievement • Areas of restoration or protection are provided. • Restoration or protection activities are beyond the development’s boundary. • The building owner, as part of the project’s development, undertakes activities that protects or restores biodiversity at scale. • These actions occur beyond legislated requirements			• Not targeted
39	Waterway Protection	2	2	Credit Achievement • The project demonstrates a reduction in average annual stormwater discharge (ML/yr.) of 40% across the whole site. • Specified pollution reduction targets are met (TSS 85%, GP 90%, TN 45%, TP 65%)	Civil	Yes	• Civil to confirm whether the 40% flow reduction can be achieved as well as meeting the pollution reduction targets
		2		Exceptional Performance In conjunction with the Credit Achievement: • The project demonstrates a reduction in average annual stormwater discharge (ML/yr.) of 80% across the whole site. • Specified pollution reduction targets are met (TSS 90%, GP 95%, TN 60%, TP 70%)			
	Leadership	5	3				
40	Market Transformation						• Not targeted
41	Leadership Challenges	5	1	• 5 star and 6 star Climate Posiitive Pathway (1 point)	-	No	• Inherent in 5 and 6 star pathway if climate positive pathway requirements are met
			2	• Fossil Fuel Free Construction Site (Credit Achievement; 2 points) - 50% of high emitting construction equipment is fossil fuel-free - Site offices are powered by 100% renewable electricity - All electricity used by the construction site is 100% renewable electricity	E-LAB Builder	No	• Fossil Fuel Free Construction Site - additional project costs to be confirmed by Builder

