



Showground Precinct East ESD Report

3 Andalusian Way, Castle Hill, 2150

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E-LAB Consulting

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Sustainability



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1 INTRODUCTION

1.1 EXECUTIVE SUMMARY

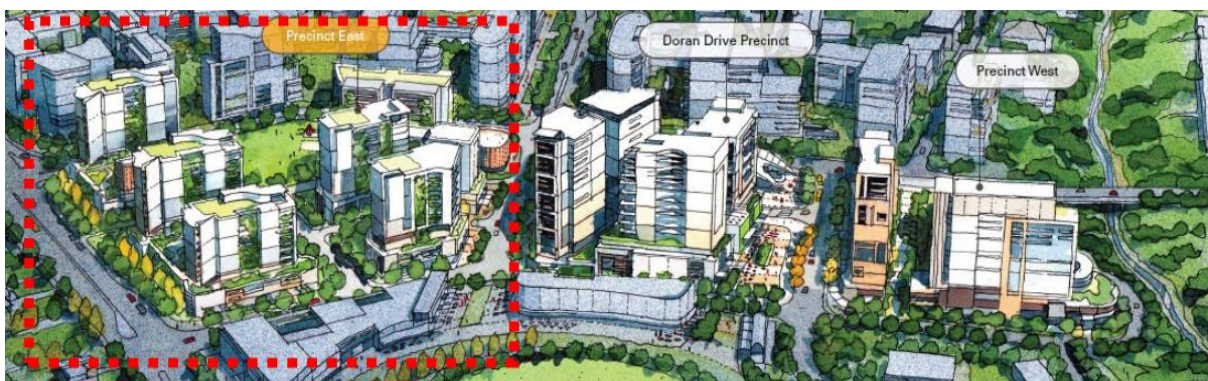
E-LAB Consulting has been commissioned by Deicorp Projects (Showground East) Pty Ltd to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development Application (SSD-62802207) for the proposed "Precinct East" development as part of the Hills Showground Station Precinct. The site address is 3 Andalusian Way, Castle Hill.

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.

As part of its commitment to sustainability, the development has committed to the following:

- Designed and constructed to achieve a Certified **5 Star Green Star rating, certified to Green Star Buildings v1, 2023, (GS-10761B)**
- Achievement of the sustainability commitments made under Section 8 and Appendix K
- Compliance with minimum **BASIX Energy, Water and Thermal Comfort Targets**
 - 60% Energy
 - 40% Water
- Exceeding compliance requirements for **NCC/BCA Section J 2022**, including a performance façade and shading devices
- **Onsite Renewables**, maximised where possible with the available roof areas.
- Provision of substantial **communal open space and biophilic design** for occupant amenity

The strategies and initiatives presented in this report demonstrate a strong commitment to sustainability in line with the Hills Shire Council development guidelines, Site Covenant and SEARs requirements and are to be further developed during subsequent stages of the project.



1.2 PROJECT OVERVIEW

The subject application seeks consent for the staged construction of the Showground Precinct East within the Hills Showground Station Precinct, comprising:

- Residential towers (3-16 storeys) over three lots;
- Construction of 873 apartments and associated basement car parking;
- Infrastructure upgrades, landscaping, civil and stormwater works; and
- Stratum subdivision.

The site is located at 3 Andalusian Way, Castle Hill, 2150, within the Hills Shire Local Government Area (LGA). The site is identified in the figure below.



Figure 1: Aerial photograph of site and locality (Source: Nearmaps)

2 SUSTAINABILITY FRAMEWORKS

The proposed development's sustainability outcomes are influenced by the following key frameworks:

- This development will be certified to a 5 Star Level by Green Star Buildings v1,
- Hills Shire Council Development Control Plan 2012
- Showground Precinct Development Control Plan 2012
- Hills Showground Station Concept Plan (SSD 9653) Dated January 2021
- State Environmental Planning Policy - Sustainable Buildings (SEPP) 2023
- Living Housing Australia Silver Certification
- Section 8 by Landcom, outlining the requirements for sustainability and placemaking.
- To have energy efficiency in the design and operation of development proposals. This is done by:
 - Promoting the use of energy efficient principles in the design of a facility; and
 - Ensuring the ongoing operations of the facility incorporates energy minimisation measures.

2.1 HILLS SHIRE DEVELOPMENT CONTROL PLAN (DCP) 2012

The Hills Shire DCP 2012 outlines the sustainable development objectives new developments in the Hills Shire Council LGA must consider. In particular, Part B Section 4 requires new mixed-use developments to meet the following objectives:

- To apply the precautionary principle where development is likely to cause short or long-term irreversible or serious threats to the environment.
- To allow for broad community involvement in respect to issues of concern throughout the development process.
- To ensure during the design, construction and operation of the development, that water is utilised efficiently and that water leaving the site is of a quality and quantity comparable to that which is received.
- To ensure that biodiversity and the integrity of ecological processes are not compromised by the development.
- To promote the following during the design, construction and operation of development:
 - the use of energy efficient materials and designs
 - utilisation of renewable energy & materials; and
 - energy efficient technology.
- To follow the principles of the 'Waste Hierarchy' (reduce, reuse, recycle) in the use of materials and the design of waste recovery and disposal systems throughout the development process.
- To protect neighbourhood amenity and safety in the design and construction and operation of the development.
- To encourage the long-term economic viability and health of the community in the development process.
- To encourage the use of public transport, bicycles and pedestrian trips in the development and design process.

These principals will be maintained throughout the development to ensure the best sustainability outcome for the site.



2.2 SHOWGROUND STATION PRECINCT DEVELOPMENT CONTROL PLAN (DCP) 2012

The Hills Shire's Showground Station Precinct DCP 2012 outlines the sustainable development objectives new developments in the area of the Showground Precinct must consider. In particular, Section 48 requires new mixed-use developments to meet the following objectives:

- To ensure building design is innovative and sustainable to reduce the reliance on, and consumption of, fossil fuels and potable water supplies.
- Development adapts to climate change.
- Development contributes to improved quality of life, health and well-being of the community.
- The design, construction and operation of development minimises adverse impacts on the natural environment.
- Use landscape treatments to improve amenity for people using open space.

This is governed by the following controls:

CONTROL	MET
Residential flat buildings, townhouses and terraces built as a development lot should achieve a minimum 5 star NatHERS energy rating for each dwelling unit.	7 Star Average met
Development other than residential should achieve a minimum 5 star Green Star Design and as Built rating, respectively.	N/A but will be met
Building operation should achieve a minimum 4.5 star base building and tenancy NABERS Energy rating, where applicable.	NABERS is not required for this building classification. Available for multi-unit residential, but not required.
The incorporation of green walls and roofs into the design of commercial and residential buildings is encouraged. Where suitable, building facades should incorporate vertical landscaping features to soften the visual bulk of buildings and to improve streetscape appeal.	Greenery is incorporated throughout. Significant green space including the park.
Canopy trees are to be planted within street verges and medians to provide shade and reduce pavement surface temperatures. Understorey planting and permeable surfaces should also be provided where possible to reduce the extent of paved areas and to enhance the amenity of the streetscape environment.	Tree strategy has been developed to plan a tree canopy where available within the streetscape.
Buildings are encouraged to incorporate a tri-generation facility that provides energy-efficient power, heating and air conditioning for use on site.	Not achieved. This technology is at odds with the carbon neutral strategy for the project and prevailing philosophy. All-electric design is incorporated
Building designs are to: ▪ Maximise the use of natural light and cross ventilation;	Met through the design philosophies incorporated into the design.



▪ Reduce the reliance on mechanical heating and cooling through the use of eaves, awnings, good insulation and landscaping; ▪ Include energy efficient light fittings and water fittings; and ▪ Allow for separate metering of water and energy usage for commercial and multi-unit tenancies.	
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2.3 STATE ENVIRONMENTAL PLANNING POLICY (SUSTAINABLE BUILDINGS) 2022

The NSW Government has introduced the State Environmental Planning Policy (Sustainable Buildings) 2022 to ensure new and renovated buildings are sustainable and resilient for future climate and bring NSW towards net zero emissions. As part of the SEPP the following is required to be addressed for this development as minimum:

COMPONENT	REQUIREMENT
Residential	BASIX Energy Target 60% BASIX Water Target 40% BASIX Thermal Comfort • Individual dwellings: Heating 34.4, Cooling 21.4, Total 38.0 • Average all dwellings: Heating 28.1, Cooling 20.2, Total 30.0 Embodied Emissions reporting via BASIX materials inputs The above requirements will covered in the BASIX report when prepared
Non-residential (commercial office area <1000m2)	General Sustainability - reporting on general performance, including: ▪ The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials, ▪ A reduction in peak demand for electricity, including through the use of energy efficient technology, ▪ A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design, ▪ The generation and storage of renewable energy, ▪ The metering and monitoring of energy consumption, ▪ The minimisation of consumption of potable water, Embodied Emissions Reporting – disclose at development application and construction certificate the quantities of materials and associated emissions. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies).

Refer to the following table for the project responses to each SEPP requirement.

REQUIREMENT	RESPONSE
General Sustainability – reporting on general performance, including water conservation, waste minimization and use of renewable energy.	The report outlines the general sustainability principles and design responses that are included. Refer to Section 3.2 and the Green Star pathway to confirm the reporting of water and energy through metering and monitoring. Additionally, waste is aimed to be minimised and reported on for both operational and construction/demolition.
Embodied Emissions Reporting – disclose at development application and construction certificate the quantities of materials and associated emissions. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies).	The development will declare materials for embodied emissions reporting through the BASIX tool and the Embodied Emissions Reporting Form. Once this benchmarking has occurred, the project team will investigate methods of reducing embodied emissions through materials selections during design development.
The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials.	Refer to Section 3.4 which outlines minimisation of waste.
A reduction in peak demand for electricity, including through the use of energy efficient technology.	Refer to Section 3.2 which discusses reduction in electricity and energy through efficient systems and monitoring.
A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design.	Refer to Section 3.2 and 3.5 which outlines the design responses to reduce reliance on artificial lighting and mechanical systems to achieve visual and thermal comfort.
The generation and storage of renewable energy.	Refer to Section 3.2 which discusses the provision of a PV system and its associated generation and storage.
The metering and monitoring of energy consumption.	Refer to Section 3.2 which discusses energy metering and monitoring.
The minimisation of consumption of potable water.	Refer to Section 3.3 which discusses the efficient systems in place to minimise water use and the strategies in place to recycle and re-use water throughout the development.

2.4 GREEN STAR BUILDINGS V1

The development also aims to demonstrate creditable sustainability by achieving a 5 Star Green Star Rating, certified under Green Star Buildings v1. by achieving ESD in the 7 categories identified in the Green Building Council of Australia's benchmarking tool.

A 5 Star Green Star buildings pathway has been developed for the Showground East development. A summary of the points targeted is presented in the table below.

CATEGORY	POINTS AVAILABLE	4 STAR - POINTS TARGETED
Responsible	17	3
Healthy	14	5
Resilient	8	3
Positive	30	14
Places	8	7
People	9	5
Nature	14	2
Total	100	41
Min Req	All preconditions + 35 points	



3 PROJECT DESIGN RESPONSE

3.1 EPA PRINCIPLES

The proposed development will follow the golden standard in sustainability principals 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. Refer to the Stormwater Management Report by Mott Macdonald and the Landscape package by Land and Form.

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

The only path to a low carbon economy and achieving a “2°C world”, where the average global temperature is kept to less than 2°C above pre-industrial levels, is 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 2. 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 provided this does not interfere with the reflectivity in relation to the Sydney Airport. Only after all the above steps have been completed should offsets be used to close the gap and achieve neutrality.

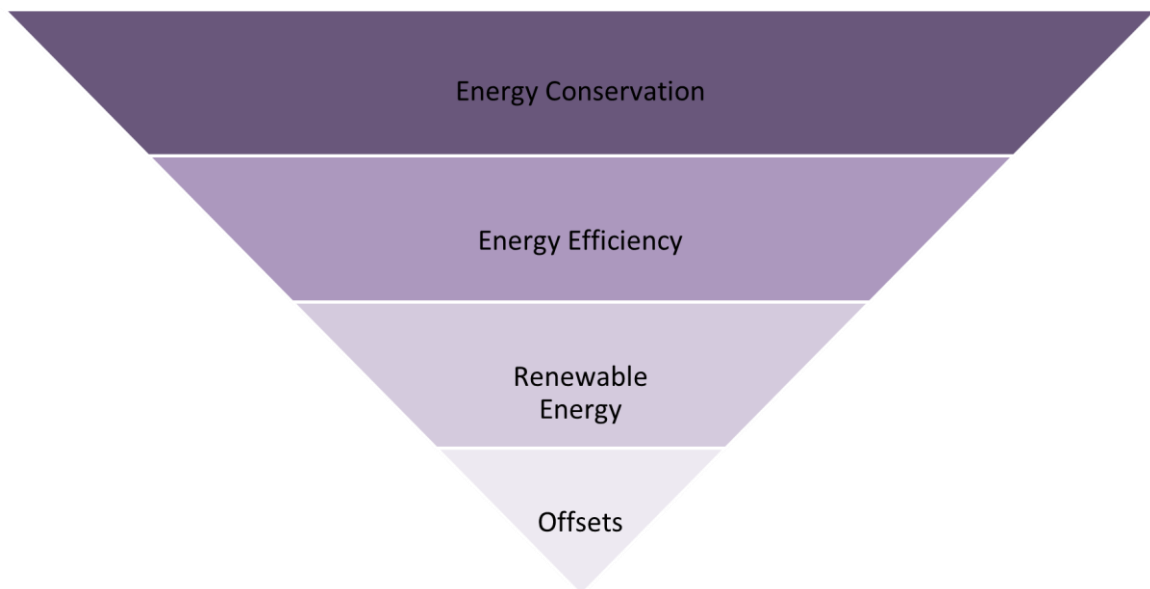
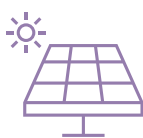


Figure 2. Energy efficiency pyramid: pathway to carbon neutrality.

To achieve the above, the following initiatives are proposed:



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. The development will also potentially look into providing onsite battery storage to further reduce reliance on the grid. This will allow the site to store generated energy throughout the day.



Efficient Lighting Systems – High efficiency LED lighting throughout, including in common areas with efficiency controls to meet the requirements of NCC 2022 Section J. 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 J8 requirements. Preference for natural ventilation and comfort through adaptive cooling and shading.



Facade – high performance façade systems and shading systems will 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 – 5 Star WELS

Toilets – 4 Star WELS

Urinals – 5 Star WELS (1.0 L per flush)

Showers – 3 Star WELS (<7.5 L/min)

Refer to the BASIX report for further details on residential water consumption measures.



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. The project is targeting an 80% native planting palette.



Recycled water and rainwater – Landscape irrigation needs will be supplied from the rainwater harvesting systems. Each stratum will be provided with a 20kL rainwater harvesting tank, for capturing roof water, prior to pumping and treating for landscape irrigation services.



WSUD – the development will include multiple On-site Detention (OSD) tanks for each building, as specified in Table 1. These tanks have been sized in accordance with the Hills Shire Council (THSC) Guidelines to achieve the required Permissible Site Discharge (PSD). The roof and podium drainage will be connected to the proposed rainwater tanks, with any overflow directed to the Water Quality Chamber (WQC) integrated within the On-site Detention system. To ensure that the development enhances the quality of stormwater leaving the site, a Water Sensitive Urban Design concept has been utilised to assess the effectiveness of the treatment train. The results, summarised in Table 2 and Table 3, demonstrate a reduction in gross pollutants, phosphorus, nitrogen, and total suspended solids below the THSC reduction targets for various catchment types, as detailed in Table 3. For more detailed information, please refer to the Stormwater Management Plan prepared by Mott MacDonald.



Table 1: On-site Detention

	TOTAL SITE AREA	PERMISSIBLE SITE DISCHARGE	OSD FLOW RATE	BYPASS FLOW RATE	STORAGE VOLUME PROVIDED
	m ²	L/s	L/s	L/s	m ³
Building A	1,449	N/A	N/A	N/A	N/A
Building B	4,723	N/A	N/A	N/A	135
Building C	2,210	19	6	12	180
Building D_1	6,477	56	45	-	275
Building D_2	Included above	Included above	10	-	95
Building E	4,876	42	8	34	575

Table 2: Water Quality Treatment

BUILDING	WATER QUALITY TREATMENT MEASURES
A	1 x Oceanguard
	14 x 460mm Psorb Stomfilter Cartridges
B	2 x Oceanguard
	8 x 690mm Psorb Stomfilter Cartridges
C	2 x Oceanguard
	6 x 690mm Psorb Stomfilter Cartridges
D	2 x Oceanguard
	12 x 690mm Psorb Stomfilter Cartridges
E	3 x Oceanguard
	12 x 690mm Psorb Stomfilter Cartridges

Table 3: Pollutant Reduction Targets Required and Results

POLLUTANTS	COUNCIL DCP 2011	BUILDING A RESULTS	BUILDING B RESULTS	BUILDING C RESULTS	BUILDING D RESULTS	BUILDING E RESULTS
Gross Pollutants (GP)	90%	100%	100%	100%	100%	100%
Total Suspended Solids (TSS)	85%	85.1%	89%	85.7%	89.5%	92.2%
Total Phosphorus (TP)	65%	72.1%	70.7%	72.4%	73.1%	76.6%
Total Nitrogen (TN)	45%	49.6%	48.4%	48.6%	50.7%	53.1%

The development's design is deliberately working to reduce potable water consumption by in the first instance reducing water use, 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** – Less than 5kg of construction and demolition waste per square meter of GFA is going to 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.
- **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.
- **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. Inclusion of sufficient bins and appropriate separation systems to ensure waste is minimised and effective recycling.

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 living spaces, with views to the sky and nature where possible
- **Biophilic design** - Generous open spaces vegetated corridors and selective tree-planting to enhance the beauty of the site. Creation of a Green Heart to the development with an emphasis on tree Canopy, natural materials and sustainability.
- **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
- **Lighting Comfort** – Use of high colour rendering index (CRI > 80) LED lighting throughout the entire development. Low-glare lighting with baffles or louvres to limit UGR.
- **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 much hotter than Sydney's baseline, so reducing heat at the local scale is critical.

The site's baseline heatwave temperature experiences peaks approximately 7.0°C above the baseline, as defined by the NSW government for Urban Heat Island Effect (https://geo.seed.nsw.gov.au/Public_View).



Figure 3. Urban heat island effect at the site. (Source: SEED Database)

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

- Approximately 1,600m² of podium garden space
- Increased tree canopy from existing site condition by 40%
- Light coloured roof with solar PV panels
- Introduction of architectural treatments to foster façade shading.



Figure 4: Public domain plan, Source: Land and Form

3.7 SUSTAINABLE TRANSPORT

The development will provide easy access to bus stops and the upcoming Hills Showground metro station. From here, there is easy access to Sydney's extensive public transport network. The development will seek to minimise reliance on private vehicle use, including, dedicated parking space for car share vehicles, EOT facilities for occupants deciding to travel via bicycle use, etc.

The development is located within close proximity to amenities such as:

- Grocery stores including Woolworths and Coles
- Abundant dining and café options
- Banks
- Newsagents and post office
- Medical centres, chemists, childcares and hospitals
- Local parks and green spaces
- Etc

The proximity to essential amenities will significantly reduce residents and staff reliance on private vehicle use.

A Green Travel Plan supporting the improvement of sustainable travel will be prepared by JMT.

4 GREEN STAR

4.1 GREEN STAR RATING OVERVIEW

Green Star is a rating system that rates buildings, interiors, and communities against a range of environmental impact category that align with sustainable development goals. The rating system ranges from one to six stars with, four stars being the minimum threshold for certification.



Figure 5: Green Star rating Scale

4.2 BENCHMARKING TOOL

Green Star Buildings minimum expectations grow with time and are projected to continue to get more complex, based on when the project was registered. This project was conceived back in 2022, before the 2023 threshold was brought in. As such, if the project were to pursue a formal rating, it would be required to meet the 2020 standards. This pathway to 5 Star Green Star aligns itself with the Green Star Buildings requirements pre-2023 registration date.

This is shown in the table below from Green Building Council of Australia

Credits	Criteria	2020*	2023*	2026*	2030**
Energy source	Renewable electricity	6 star	5 star	All registrations	All certifications
	Renewable energy	6 star	5 star	All registrations	All certifications
Energy use Reductions over typical building	10% reduction	All ratings			All certifications
	20% reduction	6 star	5 star	All registrations	All certifications
	30% reduction				
Upfront carbon emissions Reductions over a typical building	10% reduction	All registrations			All certifications
	20% reduction	6 star	5 star	All registrations	All certifications
	40% reduction			6 star	All certifications
Other carbon emissions	Scope 1 eliminated or offset (refrigerants and fossil fuels)	6 star	5 star	All registrations	All certifications
	All remaining emissions offset (embodied carbon and other under control)		6 star	5 star	All certifications

* Denotes year of registration
** Denotes year of completion



4.3 CLIMATE POSITIVE PATHWAY

The Climate Positive Pathway is worth 15 points (plus one Leadership Point) and requires the following elements:

1. **Upfront Carbon Emissions:** Building upfront carbon emissions are at least 20% less than those of a reference building and demolition works are offset. A reference building is defined as an NCC 2022 minimum performance building. This will be assessed during Design Development.
2. **Energy Use:** The building's energy use is at least 20% less than a reference building
3. **Energy Source:** 100% of the building's energy comes from renewables (i.e. through onsite renewable energy and a renewable energy contract)
4. **Other Carbon Emissions:** Emissions from refrigerants are eliminated or offset



Figure 6: Climate Positive Pathway

Given the version of Green Star being proposed, this project will likely need to pursue this pathway as part of the 35 points pursued. It can also award a leadership point for following this pathway.

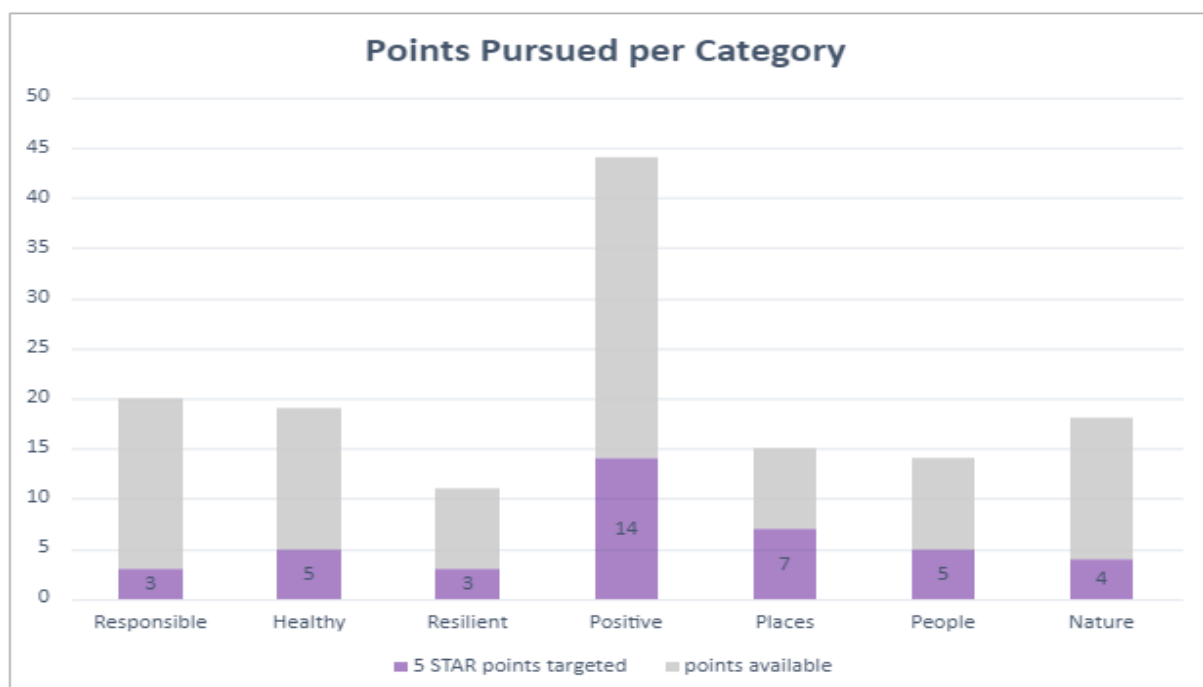


Figure 7: Green Star Buildings Pathway

4.4 GREEN STAR REQUIREMENTS

The following table summarises the pathway to 5 Star Showground Precinct East:

CATEGORY	CRITERIA
Industry Development 	- The building owner or developer appoints a Green Star Accredited Professional to be involved in the project from the time of project registration - The building owner or developer discloses the cost of sustainable building practices to the GBCA via the Green Star Financial Transparency Template. - The building owner or developer markets the building's sustainability achievements and provides information to the GBCA for a case study.
Responsible Construction 	- The head contractor has an environmental management system in place to manage its environmental impacts on site. For contracts above \$10 million, they must have an EMS certified for ISO 14001 or BS 7750. - The head contractor has a project specific environmental management plan (EMP) to cover the scope of construction activities. - The head contractor diverts at least 90% of construction and demolition waste from landfill. Waste contractors must provide disclosure statements or compliance verification summaries. - The head contractor provides training on the sustainability targets of the building to 95% of all contractors and subcontractors on site for at least 3 days.
Verification and Handover 	- The building has accessible energy and water metering for each unit, major uses, and major sources. Meters must have accuracy declarations or certificates. - The meters must be connected to a monitoring system capable of producing up to 1 hour interval readings and be commissioned to NABERS protocols. The system must be capable of raising an alarm when the energy or water use increases beyond certain parameters and automatically issue an alert to the FM - A monitoring strategy is to be developed in accordance with a recognised standard (e.g., CIBSE TM39) - The building set environmental performance targets via a DIR - Prior to construction, the project team must conduct a services and maintainability review of the building with the Head Contractor, Owners Representative, Design Consultants, and the Facilities Manager. - All building systems must be commissioned to CIBSE or ASHRAE commissioning guidelines. A commissioning plan must be developed. All tender documentation must list the commissioning requirements. - Air tightness must be considered in design including air barrier continuity. The building must undertake air tightness testing by a suitably qualified practitioner. - The owner is to contractually commit to a tuning process including quarterly adjustments and measurements for at least the first 12 months after occupation. The Building Tuning Team must include the FM, Head Contractor, and services design professionals. Operations and maintenance information must be developed and provided to the facilities management team at the time of handover. A building logbook is to be developed. Building user information is to be developed and made available to the relevant stakeholder groups.

CATEGORY	CRITERIA
Responsible Finishes 	▪ 40% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7. Internal finishes include flooring, plasterboard, paints, ceilings, partitions, doors, internal windows or similar. Joinery used as part of a wall finish may be counted, e.g., wall panelling or fixed shelving/cupboards that make up a partition. Sealants and adhesives used for finishes are also included. Loose furniture is not included.
Operational Waste 	▪ The building is designed for the collection of separate waste streams, including general, paper and cardboard, glass, plastic and one additional waste stream (e.g., organics, e-waste, batteries) ▪ The building provides a dedicated and adequately sized waste storage area based on third-party best practice guidelines (e.g., City of Sydney Guidelines for Waste Management in New Developments is the recommended standard, but local Canberra guidelines will comply) ▪ The building ensures safe and efficient access to waste storage areas for both occupants and waste collection contractors.
Clean Air 	▪ Ventilation systems to be designed to AS 1668:2012 with regards to minimum separation distances between pollution sources and outdoor air intakes ▪ All new and existing ductwork must be cleaned prior to occupation ▪ Building must be provided with 50% improvement of outdoor air required by AS 1668.2:2012 ▪ Emissions from kitchen stoves or vehicles must be compliant with minimum emissions standards or not be present within regularly occupied areas
Light Quality 	▪ All LED lighting must have no observable effect as per IEEE 1789-2015 ▪ Light sources must have CRI > 85 ▪ Best practice illuminance and maintained illuminance levels must be met for each task as per AS/NZS 1680.1:2006. Uniformity must be achieved as per Table 3.2 of AS/NZS 1680.1:2006 ▪ All light sources must have minimum 3 MacAdam Ellipses ▪ Light sources must be fitted with diffusers to obscure the direct light source. For LED, the UGR must not exceed the maximum values in Table 8.2 of AS/NZS 1680.1:2006. Alternatively, the UGR for a representative floor must not exceed the maximum values in Table 8.2 of AS/NZS 1680.1:2006 ▪ Building provides adequate daylight access, mitigates external glare through the installation of blinds ▪ 40% of primary areas receive high levels of natural daylight
Acoustic Comfort 	▪ An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.

CATEGORY	CRITERIA						
Exposure to Toxins 	- At least 95% of internally applied paints, adhesives, sealants, and carpets must meet stipulated 'Total Volatile Organic Compounds (TVOC) Limits': - At least 95% of all engineered wood products meet specified formaldehyde emission limits: - A comprehensive hazardous materials survey must be carried out on any existing buildings or structures on the project site, in accordance with the relevant Environmental and Work Health and Safety (WHS) legislation. Where the survey identified asbestos, lead, or PCBs in any existing buildings or structures, the materials must be stabilised or removed and disposed of in accordance with best practice guidelines. - On-site tests verify the building has low Volatile Organic Compounds (VOC) and formaldehyde levels <table border="1"> <thead> <tr> <th>Element</th><th>Concentration</th></tr> </thead> <tbody> <tr> <td>TVOC</td><td>0.27 ppm</td></tr> <tr> <td>Formaldehyde</td><td>0.02 ppm</td></tr> </tbody> </table> - Testing must be conducted: - Under designed project conditions. For example, for naturally ventilated spaces, the windows should be open during testing - At a minimum, the lowest (that is, the ground floor entrance) and highest floors must have measurements taken, as well as floor with the highest estimated occupants - In areas representative of the regularly occupied areas on the floor Testing must take place after practical completion and prior to occupants moving into the building.	Element	Concentration	TVOC	0.27 ppm	Formaldehyde	0.02 ppm
Element	Concentration						
TVOC	0.27 ppm						
Formaldehyde	0.02 ppm						
Connection to Nature 	- The building provides views. - 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. Met through views in each apartment.						
Resilience 	- The project team develops a project-specific climate change risk and adaptation assessment for the building. - All extreme and high risks are addressed through specific design responses or future operational responses. At least two risks must be addressed through specific design responses, regardless of risk level.						

CATEGORY	CRITERIA
Upfront Carbon Emissions 	- The building's upfront carbon emissions are at least 20% less than those of a reference building. This can be achieved through use of low carbon materials such as cross laminated timber, green concrete, GRC sunshades instead of aluminium - Where an existing building less than 30 years old has been fully or partly demolished for construction, an embodied carbon calculation must be done for the demolished portion and these emissions offset. Where the existing building is between 30 to 50 years old, the contribution must be calculated and discounted at 10% for every two additional years past year 30. Beyond 50 years, there are no requirements.
Energy Use 	The building's energy use is at least 20% less than a reference building.
Energy Source 	- The building provides a Zero Carbon Action Plan, including a target date by when the building is expected to operate as fossil fuel free. 100% of the building's electricity comes from renewable electricity. 100% of the building's energy comes from renewables
Other Carbon Emissions 	- The building owner offsets 100% of carbon emissions from refrigerants. Or - The building owner eliminates emissions from refrigerants. High-GWP refrigerants must be eliminated from the building. The use of refrigerants with a GWP of 10 or less is considered to comply with the credit. Natural refrigerants in most cases comply with this criterion
Water Use 	- The building installs water efficient fixtures: 5 Star taps 5 Star urinals 4 Star toilets 3 Star showers 4 Star clothes washing machines 5 Star dishwashers
Inclusive Construction Practices 	- The Head contractor is to provide gender inclusive bathroom facilities and changing amenities with a high degree of privacy - Diverse gender-specific fit-for-purpose PPE to be provided - Implement policies to address issues of discrimination, racism and bullying on site - Provide training to 95% of all contractors and subcontractors present on site for at least 3 days for drug and alcohol awareness, policies for discrimination, racism, bullying on site etc.

CATEGORY	CRITERIA
Movement and Place 	▪ The building's access prioritises cycling and includes bicycle parking facilities. ▪ A Sustainable Transport Plan 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.
Impacts to Nature 	▪ Land clearing of old growth forest, prime agricultural land, wetlands must not occur ▪ If the site is adjacent or within 100m of protected areas, the construction and future site operations must take measures to reduce their impact ▪ All outdoor lighting to comply with AS/NZS 4282:2019 to boundaries ▪ No external luminaires have a ULOR > 5% or calculations demonstrate that the maximum initial point illuminance value is no greater than 0.5 lux at the site boundary and 0.1lux to 4.5m beyond the site into the night sky ▪ A wetland management plan is developed, exhibited to the public and implemented
Procurement and Workforce Inclusion 	▪ 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.
Design for Inclusion 	▪ The building is designed and constructed to be inclusive to a diverse range of people with different needs.
Biodiversity Enhancement 	▪ 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. Greater than 60% of plants must be indigenous and the site must include at least one significant (nesting) tree or equivalent habitat provision per 500m² of landscaped area. ▪ The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative.

5 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:

- Compliance with BASIX Energy, Water and Thermal Comfort Targets (TBC with Windtech BASIX report)
 - 60% Energy
 - 40% Water
- Designed to achieve a certified 5 Star Green Star rating, certified for Buildings v1,
- Commitment to meeting the new requirements of SEPP 2023;
- 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;
- Exceeding compliance requirements for NCC/BCA Section J 2022, including a performance façade and shading devices
- Provision of substantial communal open space and biophilic design for occupant amenity
- 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 A **Preliminary Green Star Pathway**



Points Pursued	41
Points Required	35
Outcome	5 Star



Credit		Points Available	5 Star Points Targeted	Detailed Credit Requirements	Responsible Party
Responsible		19	3		
1	Industry Development	1	1	Credit Achievement - The building owner or developer appoints a Green Star Accredited Professional. - The building owner or developer discloses the cost of sustainable building practices to the GBCA. - The building owner or developer markets the building's sustainability achievements.	PRINCIPAL
2	Responsible Construction	.	.	Minimum Expectation - The builder or head contractor has an environmental management system in place to manage its environmental impacts on site. - The builder or head contractor 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 head contractor provides training on the sustainability targets of the building.	HEAD CONTRACTOR
		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.	HEAD CONTRACTOR
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.	ELECTRICAL MECHANICAL HYDRAULIC BMS HEAD CONTRACTOR ARCHITECT AIR TIGHTNESS PRINCIPAL
		1	0	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. or - The project uses a soft landings approach that involves the future facilities management team. For large projects (Building Services Value > \$20m), both must occur.	
4	Responsible Resource Management	.	.	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
5	Responsible Procurement	1	0	Credit Achievement - The building's design and construction procurement processes follow ISO 20400 Sustainable Procurement – Guidance. - At least one identified supply chain risk and opportunity is addressed.	
6	Responsible Structure	3	0	Credit Achievement 50% of all structural components (by cost) meet a Responsible Products Value of at least 10.	
		2	0	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.	
		2	0	Credit Achievement 30% of all building envelope components (by cost) meet a Responsible Products Value of at least 10.	

7	Responsible Envelope	2	0	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	0	Credit Achievement • 20% of all active building systems (by cost) meet a Responsible Products Value of at least 6.	
		1	0	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.	
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 HEAD CONTRACTOR
		1	0	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	5		
10	Clean Air	•	•	Minimum Expectation • Levels of indoor pollutants are maintained at acceptable levels. • A high level of fresh air is provided (50% above AS1668.2:2012) • Pollutants entering the building are minimised	MECHANICAL
		2	0	Credit Achievement In addition to the Minimum Expectation: • The building's ventilation systems allow for easy maintenance. • High levels of outdoor air are provided (100% above AS1668.2:2012)	
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	ELECTRICAL ARCHITECT
		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 (40% receive high levels of daylight)	ELECTRICAL ARCHITECT
		2	0	Exceptional Performance In conjunction with the Credit Achievement: • The building provides best practice artificial lighting. • The building provides best practice access to daylight.	
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.	ACOUSTIC
		2	0	Credit Achievement In addition to the Minimum Expectation: • The building achieves maximum internal noise levels. and/or • The building achieves minimum internal noise levels. and/or • The building provides acoustic separation. and/or • The building minimises impact noise transfer. and/or • The building is designed with reverberation control.	ACOUSTIC

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 HEAD CONTRACTOR
		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.	HEAD CONTRACTOR
14	Amenity and Comfort	2	0	Credit Achievement The building has dedicated amenity rooms to act as a parent room, relaxation room, or an exercise room.	
15	Connection to Nature	1	1	Credit Achievement - The building provides views. - 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 LANDSCAPE
		1	0	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	3		
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 applicant.	SUSTAINABILITY
		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	SUSTAINABILITY
17	Operations Resilience	2	0	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.	
18	Community Resilience	1	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.	DEICORP
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.	SUSTAINABILITY LANDSCAPE
20	Grid Resilience	3	0	Credit Achievement - The building provides active generation and storage systems. and/or - The building has the infrastructure to deliver an appropriate demand response strategy. and/or - The building has reduced its electricity consumption through passive design.	

Positive		34	14		
			•	Minimum Expectation The building's upfront carbon emissions are at least 10% less than those of a reference building.	SUSTAINABILITY ARCHITECT STRUCTURE

21	Upfront Carbon Emissions	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 those of a reference building. • Demolition works are offset.	SUSTAINABILITY ARCHITECT STRUCTURE
		3	0	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 • The building's energy use is at least 10% less than a reference building. or • The building's energy use is modelled to perform at a 5.5 Star NABERS Energy rating	SUSTAINABILITY ARCHITECT MECHANICAL ELECTRICAL HYDRAULIC
		3	3	Credit Achievement – Climate Positive Pathway – In conjunction with the Minimum Expectation: • 7 Star NatHERS Average • 4 of 9 Residential pathway items	SUSTAINABILITY ARCHITECT MECHANICAL ELECTRICAL HYDRAULIC
		3	0	Exceptional Performance In conjunction with the Credit Achievement: • 7 Star NatHERS Average • 6 of 9 Residential pathway items	
23	Energy Source		•	Minimum Expectation • The building provides a Zero Carbon Action Plan.	PRINCIPAL
		3	3	Credit Achievement In conjunction with the Minimum Expectation: • 100% of the building's electricity comes from renewable electricity.	PRINCIPAL ELECTRICAL HYDRAULIC
		3	3	Exceptional Performance – Climate Positive Pathway – In conjunction with the Credit Achievement: • 100% of the building's energy comes from renewables.	PRINCIPAL
24	Other Carbon Emissions	2	2	Credit Achievement – Climate Positive Pathway – • The building owner eliminates emissions from refrigerants. or • The building owner offsets emissions from refrigerants.	PRINCIPAL
		2	0	Exceptional Performance In addition to the Credit Achievement: • All other emissions not captured in the Positive category are eliminated or offset.	
25	Water Use	•	•	Minimum Expectation • The building installs efficient water fixtures. or • The building uses 15% (10% for Class 2 and Class 3 buildings) less potable water compared to a reference building.	HYDRAULIC ARCHITECT
		3	0	Credit Achievement In conjunction with the Minimum Expectation: • The building uses 45% (40% for Class 2 and Class 3 buildings) less potable water compared to a reference building. • The building has infrastructure for recycled water connection.	
		3	0	Exceptional Performance In conjunction with the Credit Achievement: • The building uses 75% (60% for Class 2 and Class 3 buildings) less potable water compared to a reference building	
26	Life Cycle Impacts	2	0	Credit Achievement • The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	

27	Movement and Place	•	•	Minimum Expectation - The building includes showers and changing facilities for building occupants. - The facilities are accessible, inclusive, and located in a safe and protected space.	ARCHITECT
		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 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.	ARCHITECT
28	Enjoyable Places	2	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.	ARCHITECT
29	Contribution to Place	2	2	Credit Achievement - The building's design contributes to the liveability of the wider urban context and enhances the public realm. or - Independent reviews are held during the development of the design.	ARCHITECT DEICORP
30	Culture, Heritage and Identity	1	0	Credit Achievement - The building's design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities. or - This outcome was arrived through meaningful engagement with community groups early in the design process.	ARCHITECT DEICORP

People		9	5		
31	Inclusive Construction Practices	•	•	Minimum Expectation During the building's construction, the head contractor provides gender inclusive facilities and protective equipment. The head contractor also installs policies on-site to increase awareness and reduces instances of discrimination, racism, and bullying.	HEAD CONTRACTOR
		1	1	Credit Achievement In addition to the Minimum Expectation: - Policies and programs implemented are relevant to construction workers on site. - The head contractor 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.	HEAD CONTRACTOR
32	Indigenous Inclusion	2	0	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	
33	Procurement and Workforce Inclusion	2	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.	HEAD CONTRACTOR
		1	0	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	2	Credit Achievement The building is designed and constructed to be inclusive to a diverse range of people with different needs.	DDA ARCHITECT
		1	0	Exceptional Performance In addition to the Credit Achievement: Engagement with target groups has informed the inclusive design.	

Nature		14	2		
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. - There is ongoing monitoring, reporting, and management of the site's wetland ecosystem.	LANDSCAPE ELECTRICAL
		2	0	Credit Achievement In addition to the Minimum Expectation: - The building's design and construction conserves existing natural soil, hydrological flows, and vegetation elements. - If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.	
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.	LANDSCAPE
		2	0	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.	
37	Nature Connectivity	2	0	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.	SUSTAINABILITY LANDSCAPE ARCHITECT
38	Nature Stewardship	2	0	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	
39	Waterway Protection	2	0	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/STORMWATER
		2	0	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		2			
40	Market Transformation	1	0	1 Point - 5% Affordable Housing	SUSTAINABILITY HEAD CONTRACTOR PRINCIPAL
41	Leadership Challenges		2	1 Point - Climate Positive Pathway 1 Point - Supply Chain School	SUSTAINABILITY HEAD CONTRACTOR PRINCIPAL

Appendix D Green Star Registration

Project Details	Contact Details	Invoices	Resource Files	Related Requests
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Project details

Edit

Project name	Showground Precinct East
This will appear on your Green Star Certificate.	
Project number	GS-10761B
Please quote this when contacting the GBCA.	
Rating tool	Green Star Buildings v1
Please select the required rating tool for certification.	
Certification type	Single
The type of certification this project is registered under.	
Primary status	Processing
This is the primary certification status of the project.	
Project description	Proposed residential development and associated carparking including public park.
Brief description of your project including interesting attributes, innovations, amenities, tenants.	
Project size	75000 GLA
Total contract value	\$261,900,000.00
Desired rating	5 Star Green Star
Green Star rating you aiming to achieve.	

