Full Circle
Design Services

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147 Burswood Road

Sustainable Design Assessment Report

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Title:	147 Burswood Road – Sustainable Design Assessment Report
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Client:	Rowe Group
Contact:	Declan Allcock
Description:	This report provides a brief summary of the proposed sustainable design strategy for the proposed commercial development at 147 Burswood Road . The report outlines overall intent and sustainable design features to be included within the design, as well as an overall assessment of the expected outcome for the project.

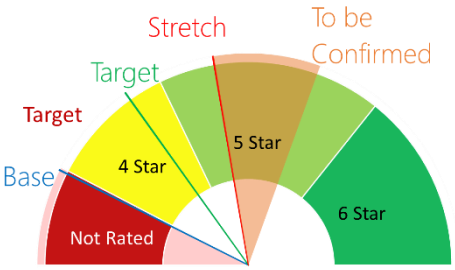
Revision	Date	Checked by		Transmitted by	
A	27th April 2025				GEA
B	4th May 2025		GEA		GEA

Distribution	Revision								
Receiver	**A**	**B**							
Rowe Group Design	X	X							
Elven Property	X	X							
Meyer Shircore	X	X							
Consultant Team		X							
Builder									

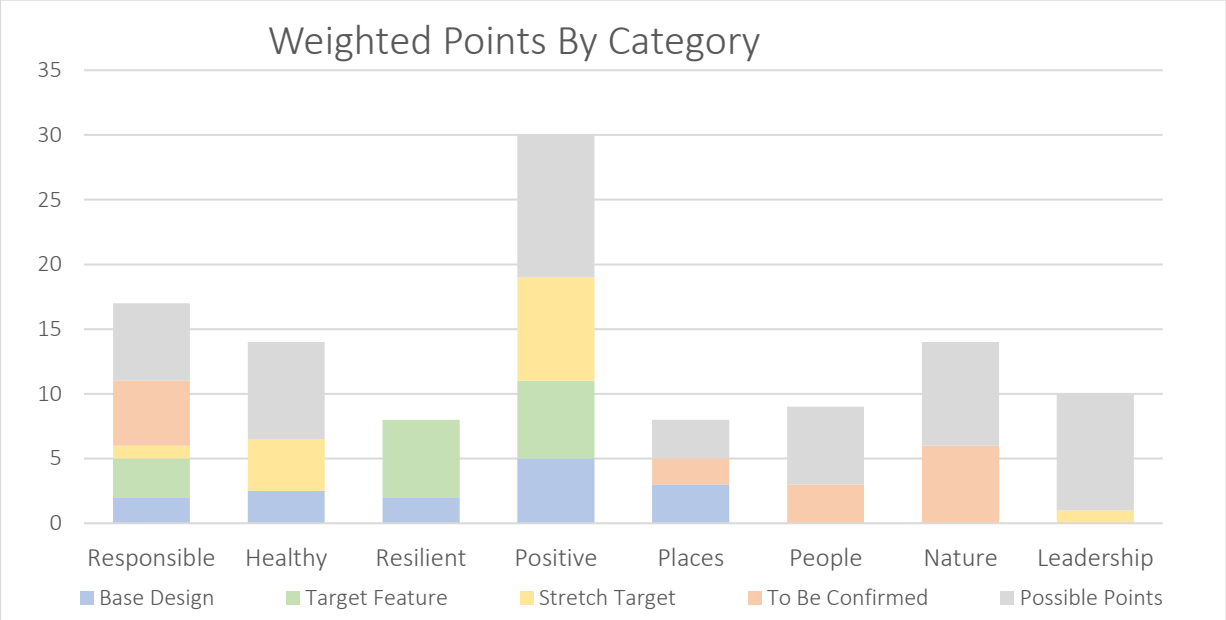
Executive Summary

FCDS have been commissioned to provide general sustainable design advice and briefing services for the proposed new commercial development at 147 Burswood Road.

The project is aiming to achieve at least 15 points (4 Star / Best Practice level) when self-assessed under the Green Star Buildings tool, in keeping with the Town of Victoria Park planning requirements. The project is considered too small for a formal certification, with likely certification and submission fees significantly more than the ESD budget and well in excess of sustainable design features.



FCDS assessment of the current project documentation indicates a minimum score of just under 15 points (4 Star) and an expected score of 29.5 points ~4.75 Star level.



Key features to be included to support a best practice outcome include:

- 20kW Peak Output Solar Array (nominal offset of more than 60 tonnes of $CO_{2(e)}$ per annum)
- Onsite battery to improve renewable energy utilisation
- Best Practice Operation and Maintenance Manuals
- Avoidance of fossil fuels on site
- Potential for nature plan
- Future flexible design change
- Ducted outside air provision to occupied spaces, with dedicated exhaust systems to manage indoor air quality.
- High efficiency services and appliances
- High performance building envelope – targeting 20% improvement over BCA minimum

As can be seen from the features and charts above, the project is placing a strong emphasis on management, energy efficiency and indoor environment quality, reducing operational costs and improving owner and occupant outcomes.

Contents

1. Introduction

FCDS have been commissioned to provide general sustainable design advice and briefing services for the proposed new commercial development at 147 Burswood Road.

The project is aiming to achieve at least 15 points (4 Star / Best Practice level) when self-assessed under the Green Star Buildings rating system in accordance with the local planning requirements.

FCDS note that, with a relatively small project, the cost of formal certification (consultant fees and registration costs) would far exceed the cost of actual sustainable design features and, as such, is not suitable for this project. In lieu, the project is completing self-assessment, with this report – and similar assessment and justification at Building License – demonstrating compliance.

1.1 Site Description

The proposed project is a commercial development in Burswood, including two small commercial tenancies and a childcare facility for around 85 children. The design also has flexibility potential for future change to residences.

The design includes on site renewable generation, with an intent to provide batteries to improve grid resilience and reduce site carbon emissions.

1.2 Sustainability Targets

The project is aiming to achieve at least 15 points (4 Star / Best Practice level) when self-assessed under the Buildings rating system. This is in no way equivalent to a formal certification, however, considering the size and nature of the building is considered a better balance between sustainable design features and performance verification.

Design features to prioritise energy efficiency and simplification of operations as well as improving occupant comfort are being prioritised.

Category	Target	Design Team Response
General Sustainability	Best Practice Design	The project is targeting a self-assessment to 15 points under the Green Star Buildings tool – representative of 4 stars – Best Practice.
	Operational Performance	Monitor and tune building performance in operation – targeting <60MWhrs per annum.
Energy Consumption	10% Envelope Improvement over BCA	R4.5 roofs, R2 wall insulation, high performance glazing.
	30% Overall Improvement over BCA	Energy efficiency services Automated controls
	Renewable Energy	The project should include a large solar photovoltaic array, up to around 20kW peak generation
Water Consumption	Low Flow Tapware	Ensure all taps, showers, WC's, urinals, dishwashers and washing machines provided are within 1 star of the best available WELS rating.
	Waterwise Irrigation	Utilise drought tolerant and native planting where possible. Utilise rain / moisture sensing and sub-soil drip irrigation for all planted areas.
Waste Targets	75%+ Recycling in operation	Design to facilitate capture of recyclable goods and use of comingled recycling. Minimum three waste streams to be collected.
	>90% Recycling in construction	Use of high efficiency resource recovery facility to sort waste in construction.
Durability	>10 Years for Common Area Finishes	Internal finishes shall target >10 year life spans, with minimal repair and maintenance rather than regular replacement.
Indoor Environment Quality	Mixed Mode Operation	Key spaces to be able to function in air conditioned or naturally ventilated modes.

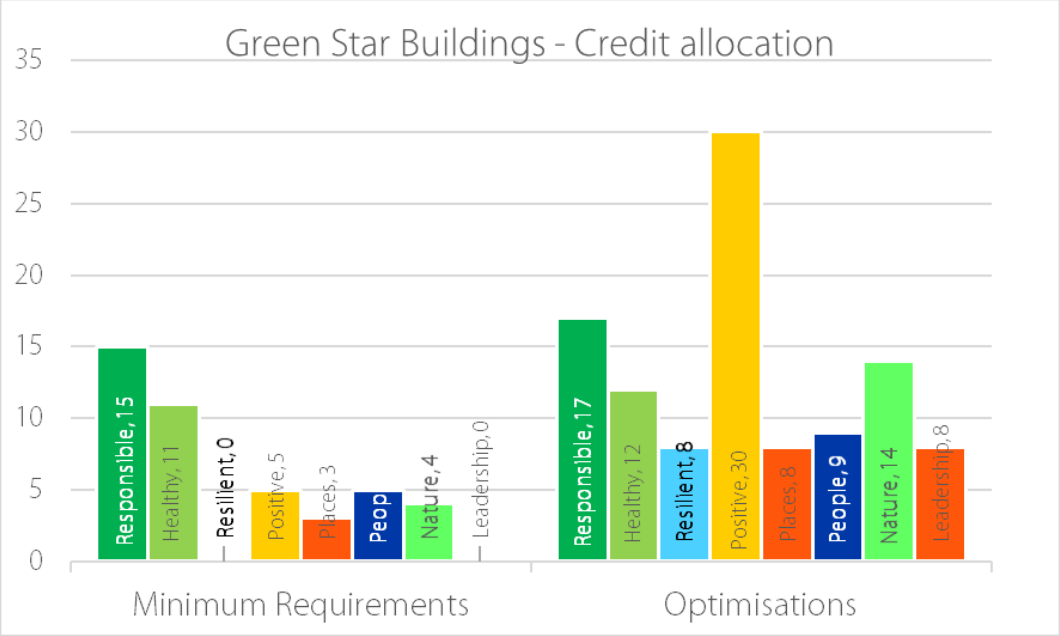
The project is aiming to undertake a self-assessment only, using the Green Star Buildings tool as a benchmark. Building modelling will be simplified and based primarily on recent experience rather than full reporting and performance justification.

1.3 Green Star Buildings

Green Star Buildings assesses proposed facilities for people against a number of sustainable design metrics, specifically, the tool requires that buildings:

- Protect of environmentally significant areas
- Reduce carbon emissions in construction and operations, aligning with a pathway to Net Zero by 2030
- Aare water efficient
- Provides a high quality indoor environment
- Promotes physical activity
- Consider and address climate change impacts
- Reduces environmental impacts during construction
- Embraces diversity
- Reduces operational waste
- Undergoes performance verification

Performance is assessed across a number of categories, as described below. Many credits have an emphasis of planning and consultancy:.



Projects have a relatively low percentage requirement to achieve certification as best practice as only 15% above minimum performance requirements, however, a 6-Star certification requires design team to achieve almost three quarters of all available optimisations.

Star Rating	Buildings
4 Star – Best Practice	15 Points
5 Star – Australian Excellence	35 points
6 Star – World Leadership	70 Points

1.3.1 Assessment Categories

Buildings	Sustainable Design Features
Responsible	Features which are intended to minimise ecological footprint by control of the design, construction and commissioning process. The features also include elements to optimise operational performance through design of effective spaces and measuring consumption.
Healthy	Features aiming to ensure the building provides a strong response to occupant health and wellbeing.
Resilient	Rewards projects preparing and for the imminent impacts of climate change, including provision of support to the surrounding community. Shocks to power infrastructure, ongoing weather pattern adjustment and the urban heat island effect
Positive	Design elements which contribute positively to the environment. Buildings must minimise harm as a starting point and also act as a restorative force for good to achieve points.
Places	Features which reflect outcomes that are linked to the location and nature of the development. Points are achieved by reducing the impacts of transport – on the environment and occupant health.
People	Features which improve social sustainability outcomes within the development and community.
Nature	Features and design solutions which prioritise and restore the natural environment around prospective developments
Leadership	The category for projects to demonstrate leadership beyond the scope of the current Green Star framework, addressing Challenges which have been developed by the GBCA or which break barriers and inspire others to follow.

1.4 Minimum Compliance Requirements

The Green Star Buildings Tool has a number of minimum requirements with respect design and delivery that are a mandatory requirement for certification. The table below provides a summary of the requirements and proposed approach. Refer specific sections of this document for additional information and contractor requirements to demonstrate delivery of minimum expectations:

Category / Credit		Project Approach	Contractor Requirements?
Responsible	Responsible construction.	The project will be delivered under a site specific environmental management plan (EMP) to best practice standards.	Main Contractor and All Sub-Contractors.
		The project will divert a minimum of 90% by mass of all construction and demolition waste on site.	
		Sustainability, health and well-being training and support shall be delivered on site as part of standard contractor practice.	
		The building envelope shall be detailed to avoid leakage. No testing undertaken to verify outcomes.	
		The main contractor shall implement a suitable environmental management system to oversee the delivery of the plans.	
	Verification and Handover	The building is to be commissioned to CIBSE Commissioning codes, including generation of detailed commissioning reports.	All trades.
		The building has a metering and meter monitoring system with remote access.	Electrical / EMS provider
		The building will utilise low toxicity products for finishes, adhesives and sealants.	Main Contractor
		The building will complete acoustic design review, targeting low noise levels, separation of quiet spaces and appropriate reverberation.	Main contractor, design team
		The building will undergo performance monitoring and tuning over the 12 month defect liability period.	Mechanical and Electrical.
	Responsible Resource Management	The building has been designed with a waste management strategy to minimise operational waste generation and divert from landfill.	Nil
Healthy	Clean Air	The project includes controlled outside air delivery systems at or above AS 1668.2 requirements. Naturally ventilated spaces comply with AS 1668.4.	Mechanical Builder
		Air conditioning systems control outside air provision and thereby control CO_2 in the space. No active control is provided.	Mechanical
		All systems are provided with relevant filtration.	Mechanical
		Point source pollutants are exhausted directly outside – kitchens, print rooms etc	Mechanical
	Light Quality	Glare is managed internally by fixed shading, blinds and / or spatial provisions for future installation of blinds.	Builder
		Artificial lighting levels are designed to match proposed space use. Light fittings manage glare and are of a high quality.	Electrical
	Acoustic Comfort	Internal noise levels are managed through plant selection and building fabric.	Builder, mechanical.
	Exposure to Toxins	All paints, adhesives, sealants and carpets are to be low VOC and the contractor is to obtain approval for the use of any such product in internal spaces prior to application on site.	All contractors
		Engineered Wood Products are to be low formaldehyde	Builder
		The building is to be free of all lead, asbestos and PCBs.	Demolition contractor.

Category / Credit		Project Approach	Contractor Requirements?
Resilient	Climate Change Resilience	The project has addressed key risks associated with climate change and has implemented strategies to address them, including: - Building envelope exceeds minimum requirements of BCA Section J - The building has the capacity to accept energy generated on site and has batteries to improve on site utilisation. - Water consumption is monitored and efficient landscaping and tapware / appliances have been selected.	Nil
Positive	Upfront Carbon Emissions	The building has selected materials to reduce upfront carbon emissions by at least 10%, including: - Replacing a portion of cement within relevant concrete mixes - Sourcing steel from responsible manufacturers. - Prioritising sustainably certified products for finishes, insulation, plant and materials. - Implementing waste diversion practices on site - Implementing a site specific environmental management plan.	Builder LCA Modeller QS
	Energy Use	The building is to consume at least 10% less energy than a BCA compliant building, both in envelope and services. Design features include efficient plant, lighting, controls and building envelope.	Builder, all services contractors
	Energy Source	The building has been designed to eliminate the use of fossil fuels on site in future. Spatial allowance have been made for the use of heat pumps for hot water, cooking and heating. Solar hot water system is provided	Electrical and Hydraulic contractor
	Water Use	The building includes water efficient fixtures and appliances.	Hydraulic contractor and landscaper
Places	Movement and Place	The building includes showers, lockers and change areas suitable for occupants to undertake active transport, to and from the building as well as to participate in physical activities at other times. The design includes for visitor bike parking, including connection to local pedestrian infrastructure.	Builder, Landscaper and Hydraulic contractor
People	Inclusive Construction Practices	The construction process is to include gender appropriate facilities and personal protective equipment.	Builder
Nature	Impact to Nature	The development site has been selected, and the construction planned to avoid damage to ecologically sensitive sites and, as far as practical, act as a restorative force through the inclusion of native planting in landscaped areas	Builder and Landscaper

1.5 Project Approach

The design team are focusing on providing an efficient, durable and effective internal environment. As such, design features within the Healthy, resilient and positive categories are being prioritised.

Features within the Places, People and Nature categories are largely set by project location and nature.

The following sections present a summary of the project approach within the various categories.

2. Responsible Design Features

The Responsible category refers to credits which are intended to minimise ecological footprint by control of the design, construction and commissioning process. The features also include elements to optimise operational performance through design of effective spaces and measuring consumption.

The following section outlines FCDS expectation with respect the Responsible design elements intended to be included by the project team:

2.1 Marketing Excellence

The design team will produce documentation to describe sustainable design features of the development for key stakeholders – including prospective occupants of each dwelling.

2.2 Environmentally Responsible Construction

The main contractor will be expected to implement an environmental management system, using ISO 14001 practices to monitor its implementation on site.

The plan will include waste management and minimisation, targeting a minimum of 90% of construction and demolition waste diversion from landfill.

Contractors visiting site for more than 3 days will be required to undertake site familiarisation and sustainable design training covering design features for this development, as well as a wider overview of sustainability issues.

2.3 Commissioning, Verification and Handover

The design team have been provided clear design targets for environmental performance – refer to Section 1.2 above.

The designers and contractors will complete a constructability and maintainability review as part of the shop drawing process.

Commissioning will be in accordance with best practice international standards, including CIBSE, ASHRA and Airah. The building envelope will be designed to minimise air leakage. There is no intention to test prior to practical completion.

Building performance will be closely monitored over the first 12 months of operation to minimise performance issues and optimise operational efficiency against design targets.

The designers will include meters for each tenancy, utilising utility meter reading systems to monitor and report on performance.

Detailed handover documentation will be provided to building stakeholders in electronic format, including As Built drawings and functional control descriptions.


Green Building Council Australia

Green Building Council of Australia

certifies that

Graham Agar

has obtained the following qualification

Green Star® Accredited Professional

The Green Star® Accredited Professional qualification recognises advanced knowledge and experience in sustainability, and competency in the application of the Green Star® rating tools.

Jul 2010 – Jun 2021 (Continual Enrolment)

greenstar Accredited Professional

Davina Rooney

Davina Rooney
Chief Executive
Green Building Council of Australia

2.4 Sustainable Design Professional

The project team have included sustainable design considerations from schematic design phase and will continue through to practical completion and beyond.

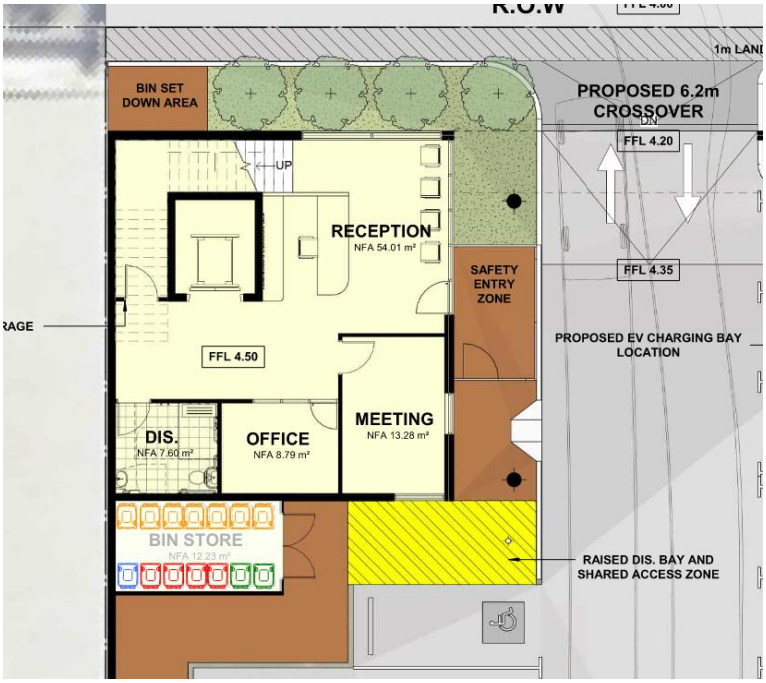
2.5 Operational Waste

The design team will be ensuring that the project is effectively designed to manage operational waste across metrics including sizing, segregation of waste streams and accessibility for waste contractors.

Based on the Randwick City Council guide for waste generation rates (referenced GBCA best practice guide), the development would be expected to generate around 3,050 L of waste and 3,500 L of recyclables per day;

Usage		Daily Generation Rate		Weekly Generation Rate	
		Waste	Recycling	Waste	Recycling
Education	85 Students	128	43	638	213
Office	76 m^2	8	19	38	95
Total		**137**	**63**	**677**	**320**
240 L Bins		**1**	**1**	**3**	**2**
660 L Bins		**1**	**1**	**2**	**1**

The site has a central waste store at ground floor level, located conveniently for all users and has level access to the bin collection point.



The store meets Green Star requirements, as follows:

Criteria	Requirement	
Distance of Travel	<10m between waste store and vehicle	Not Compliant – 35m
Path of Travel	Free from curbs and grade change.	Compliant
Clearance	Maintain >4m clearance for collection vehicles	Compliant

FCDS consider the bin store location to be a fair compromise for accessibility for staff and collection contractors.

2.6 Responsible Products & Procurement

The design will include sustainable procurement requirements across a range of products, including:

- Steel
- Concrete
- Refrigerant
- Floor Coverings
- Paints
- Adhesives and Sealants
- Blinds
- Glass
- Wood Products
- Insulation
- Landscape
- Solar Panels

FCDS note the interiors / finishes are expected to meet compliance levels through products such as:

• Armstrong Perforated Plasterboard	Low carbon, EPD
• Autex Acoustic Finishes	Green Tag – Level A
• Forbo Flooring	EPD, Green Tag – Level A, Declare Compliant
• Laminex Laminate	E0, FSC Certified, Green Tag Level A, E0 Rated
• Shaw Contract Carpet	Low VOC, Green Tag Compliant
• Dulux Paints EvirO2	Low VOC, EPD, product stewardship

3. Healthy Design Features

The Healthy credit category is about ensuring the building provides a strong response to occupant health and wellbeing. Features supporting air quality, views, access to light and noise contribute to point scoring within this category:

3.1 Ventilation System Attributes

Outside air and natural ventilation systems are to comply with the prescriptive requirements of AS 1668.2 (mechanical ventilation) and AS 1668.4 (natural ventilation) for air quantity, intake location and exhaust separation.

Compliance can be achieved either though outside air rates being increased by at least 50% over the minimum requirements of the Australian Standards, or are controlled by CO_2 detection systems to maintain low concentrations within the breathing zone or by meeting AS1668.4 for natural ventilation.

Local exhaust systems are to be provided to isolate occupied spaces from contamination such as kitchens.

3.2 Lighting Systems

Lighting systems are to be flicker free and provide a minimum Colour Rendering Index (CRI) average > 85 with a maximum of 3 MacAdam Ellipses.

The design will meet best practice illuminance levels for each task within each space type with a maintained Illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006

3.3 Glare Control

External shading systems will provide some coverage from direct solar penetration, however, the building orientation will require some internal blinds to provide full glare coverage. Translucent skylights are provided to reduce glare.

Lighting systems are to be provided with diffusers or other design features which maintain direct glare from the luminaries below the UGR (Unified Glare Rating) limit within AS 1680.1

3.4 Access to Daylight

All occupants have excellent access to natural lighting through strong passive design (north facing windows with overhangs) and relatively shallow plans. Skylights are provided to internal play areas:

3.5 Noise Levels

The use of high-quality mechanical plant and good architectural detailing will result in comfortable internal noise levels, generally matching AS 2107.

The design also includes walls and space layouts to limit noise carryover from loud to quiet spaces. Ceilings and finishes are expected to be detailed to limit reverberation within the space.

3.6 Connection to Nature

At least 60% (close to 100% for this project) of spaces are within 8m of a view to outside, including nature.

FCDS recommend the project team target the use of natural finishes and motifs to further promote the connection of users to nature.

3.7 Low Toxicity Products

The design team are expected to select finishes and composite wood products with low Volatile Organic Compound (VOC) and low formaldehyde content. This includes joinery, carpets, adhesives and sealants. Wall and ceiling paints will target a level <5 g/L for VOC content.

3.8 Amenity and Comfort

The project includes ample space for occupants and visitors to promote mindfulness, inclusivity and physical activity, including external play space and dedicated staff areas.

4. Resilient Design Features

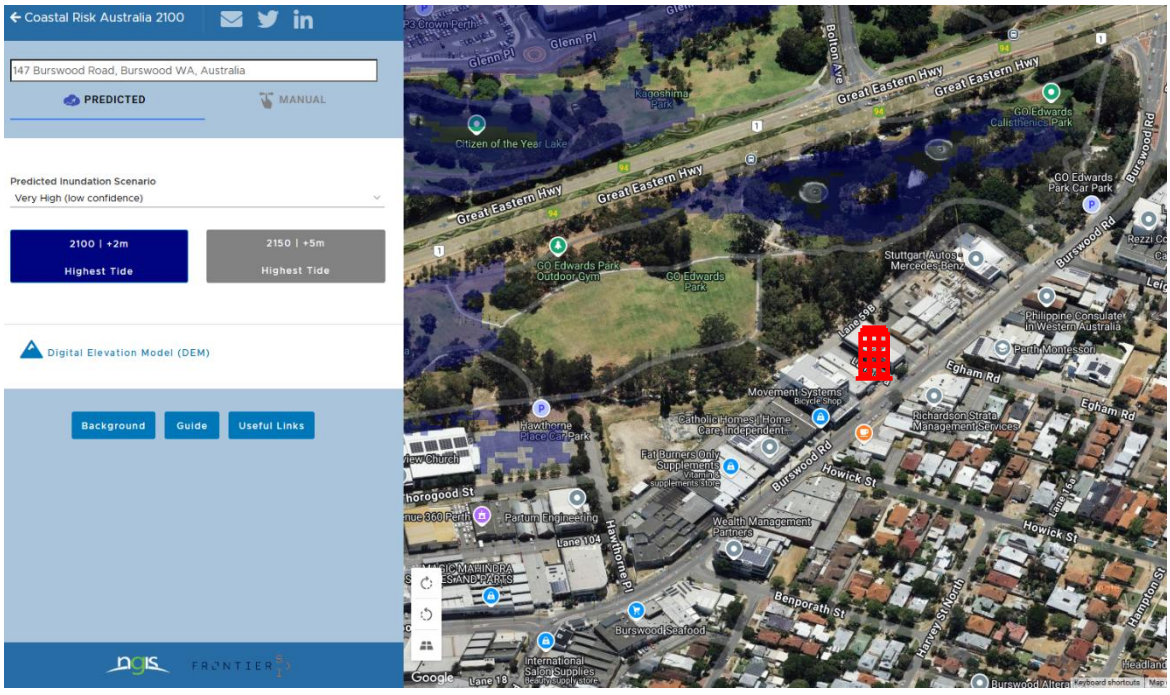
The Resilient category of credits highlight the need for projects to be ready for the imminent impacts of climate change and to provide a level of support to the surrounding community. Shocks to power infrastructure, ongoing weather pattern adjustment and the urban heat island effect are considered within the category.

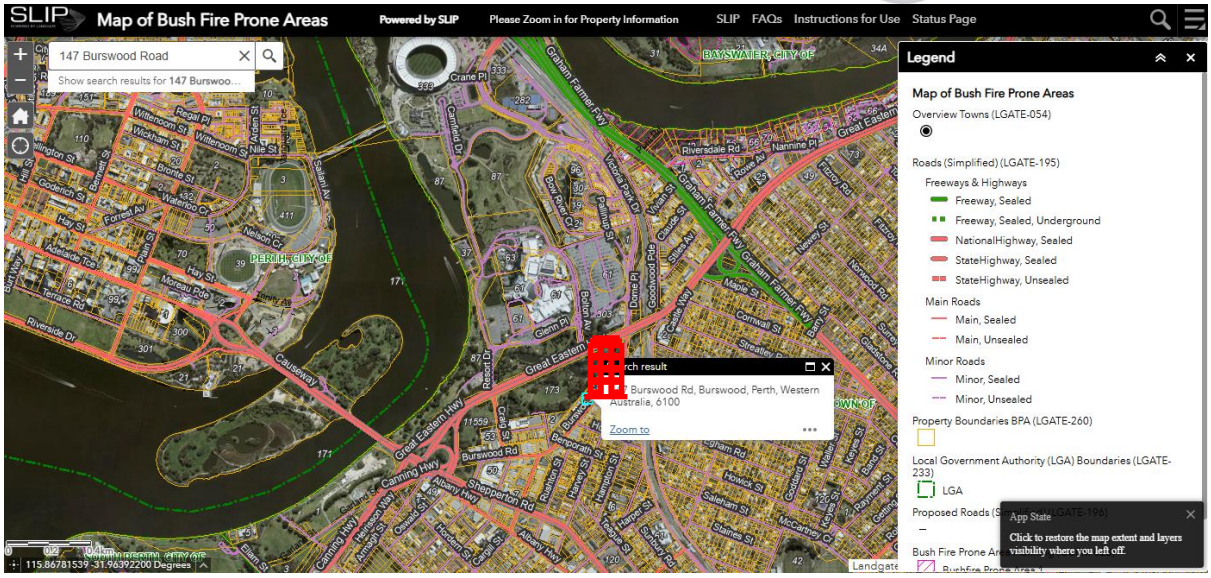
4.1 Climate Change Resilience

FCDS have undertaken a base review of the project and the potential likely impacts of climate change on the site, based on the following likely impacts of climate change in South West WA – RCP 8.5 to 2090:

Variable	Current	Predicted	Expected Change	Possible Range
Annual Average Temperature (°C)	25.8 °C	29.3 °C	+3.5°C	28.4 – 30°C
Number of days over 35°C	28	63	+35	50-72
Annual Average Rainfall (mm)	851.7mm	698mm	-18%	536 – 809mm
Summer	40.5mm	38.5mm	-5%	27.9 – 55.1mm
Autumn	144.1mm	135.4mm	-6%	98 – 162.8mm
Winter	398.2mm	282.7mm	-29%	223 – 338.5mm
Spring	147.5mm	94.4mm	-36%	60.5 – 126.8mm
Annual Average Potential Evaporation	1800mm	1836mm	+2%	1818-1872mm
Annual Relative Humidity	55%	54.4%	-0.6%	53.7 – 55%

The site not considered susceptible to flooding under climate change scenarios:





The site is low risk of bushfire.

4.2 Climate Change Risk Management

Following the base risk review above, the design team have included the following features to mitigate risks and provide an improved outcome for occupants and the local community:

Climate Change Impact	Risk	Proposed Response
Increased temperatures lead to increased bushfire risk and intensity.	Low due to current classification of site.	Consider provision of air filtration on air conditioning systems.
Rising sea levels and increased flood risk.	Very low.	Avoid construction below ground level. Ensure structure can adapt to changing water levels.
Reduced rainfall	Increasing requirement for irrigation, increased cost of scheme water.	Utilise smart irrigation, including moisture detection and prioritise drought tolerant planting. Utilise native grass for turfed areas.
Increased temperatures lead to increased reliance on air conditioning.	Building is unable to provide comfortable environment for extended periods.	Provide high efficiency air conditioning systems with automatic controls. Upgrade building envelope in excess of BCA minimum requirements.
Increased temperatures lead to increased power demand.	Operating cost increases as electrical prices increase. Power security becomes questionable.	Good control systems and energy efficient design. Installation of solar photovoltaics for renewable generation.

4.3 Operations Resilience

Whilst the project team have identified no significant risks in terms of operation under the loss of power, the design includes features which improve operational resilience under major shocks to electrical infrastructure including:

- Strong solar passive design
- Building envelope upgrade above minimum compliance
- Onsite renewable generation

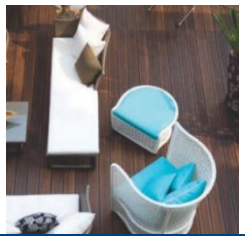
4.4 Grid Resilience:

The building will be designed to reduce its electricity peak demand by 10% of the annual peak electricity demand for at least a one-hour period through a variety of features, some of which include:

- Improved building envelope
- Outside air management and control
- High efficiency systems
- On site renewable generation and battery.

4.5 Heat Resilience

The project should include the selection of light colours to external finishes as well as shaded area (from fixed building shading and planting) and landscape integrated into the site to minimise the impacts of urban heat island on the site. The following table shows the recommended colour palettes with respect colours and solar absorbance:

Usage	Initial SRI	3 Year SRI	Sample Product
Metal Roof > 15° Pitch			
Hardscape	>34	>39	Bamboo (35-48)  Grey Limestone (54) 
Metal Roof < 15° Pitch	>82	>64	  White Concrete (86)

5. Positive Design Features

The Positive category refers to design elements which contribute positively to the environment. Buildings must actively reduce their harm, but also act as a restorative force for good in order to achieve credits. The category assesses energy use, energy source, water consumption and refrigerant emissions, aligning with the National Standard for carbon neutral assessment and certification (Climate Active).

Material	PER embodied energy MJ/kg
Air dried sawn hardwood	0.5
Stabilised earth	0.7
Concrete blocks	1.5
In situ concrete	1.9
Precast tilt-up concrete	1.9
Kiln dried sawn hardwood	2
Precast steam-cured concrete	2
Clay bricks	2.5
Gypsum plaster	2.9
Kiln dried sawn softwood	3.4
Autoclaved aerated concrete (AAC)	3.6
Plasterboard	4.4
Fibre cement	4.8
Cement	5.6
Local dimensioned granite	5.9
Particleboard	8
Plywood	10.4
Glue-laminated timber	11
Laminated veneer lumber	11
MDF (medium density fibreboard)	11.3
Glass	12.7
Imported Dimensioned Granite	13.9
Hardboard	24.2
Galvanised steel	38
Acrylic paint	61.5
PVC (polyvinyl chloride)	80
Plastics — general	90
Copper	100
Synthetic rubber	110
Aluminium	170

5.1 Upfront Carbon Emissions

The design team will target material selections which reduce the embodied energy by a minimum of 10%. Features to support this include the use of natural finishes, cement replacement, sustainably sourced steel and structural efficiency as part of the proposed solution.

5.2 Energy Use

The design team will ensure low energy use by improving performance against BCA Section J minimum, across building envelope, air conditioning and ventilation systems and lighting. Overall performance for the envelope is expected to be >10% improvement and – including services and renewable generation - >30%.

5.3 Energy Source

Ideally, the design will omit all fossil fuels from site.

5.4 Water Use

The development is targeting a minimum 15% reduction in water consumption against benchmarks, including the provision of low flow fixtures are being provided for sanitary uses in accordance with the table below:

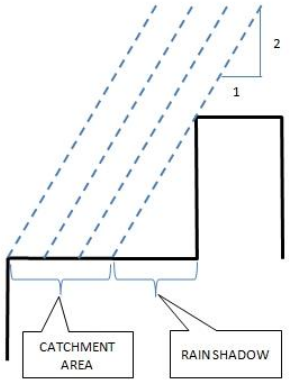
Fixture Type	Target WELS rating	Maximum Flow Allowable
Taps	5 stars	4.5-6 L/min
Urinals	5 stars	1.0 L / Flush + Smart demand flush device
Toilets	4 stars	<3.5 L average flush, <4.7L full flush <3.2 half flush
Showers	3 stars	6.0 – 7.5 L/min
Clothes Washing Machines	4 stars	
Dishwashers	5 stars	

5.5 Overall Footprint Reduction

The design team are confident that the proposed design features will result in a net life cycle emissions reduction of at least 30% if assessed by an LCA practitioner.

5.6 Rainwater Reuse

Rainfall reuse generally does not provide good economic returns in Perth. The highly seasonal nature of our rainfall along with potential health risks associated with long-term storage of untreated water makes rainfall reuse outside of domestic applications highly problematic and, generally, uneconomic.

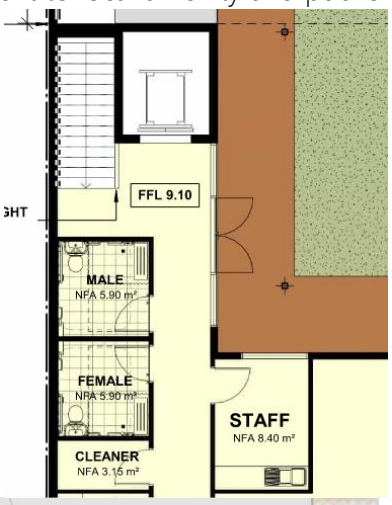


Rainwater can be captured to improve the viability of landscaped areas which would otherwise be in 'rain shadows' from built form or which have relatively limited deep soil for water retention.

For this development, the design team reviewed the potential for small systems serving toilet flushing, but decided against it due to cost and risk of contamination.

6. Places Design Features

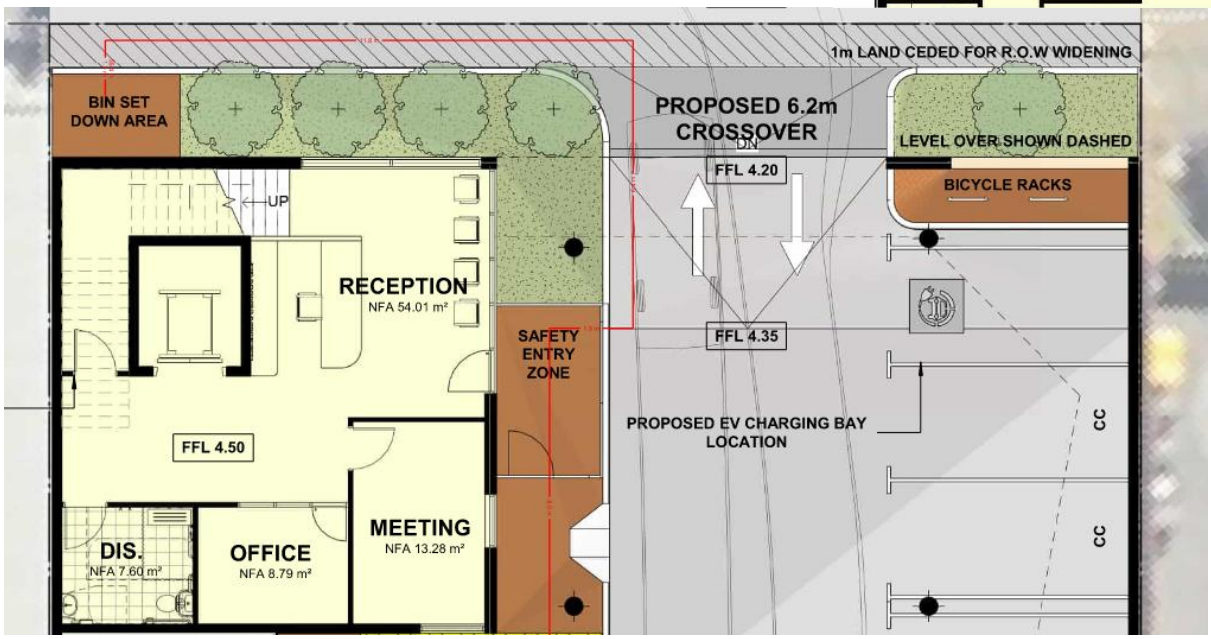
The places category reflect outcomes that are linked to the location and nature of the development. Design features which reduce the impacts of transport – on the environment and occupant health – are rewarded with credits. In addition, proximity of the development to local amenity and public transport which can promote walking and reduce reliance on vehicles is also recognised.



Within the site, the category considers the provision of communal spaces and their potential beneficial impacts on the occupants. Externally, project teams are encouraged to engage with, consult and justify their design to the local community as well as their shareholders.

6.1 Active Transport

The design currently includes end of trip facilities for staff of the child care, with bike parking, showers and change facilities.



6.2 Sustainable Transport

Green Star Buildings requires project teams to make provision for car sharing as well as EV Parking and future charging.

Considering the location of the development, strong consideration has been given to EV charging facilities, including potential for paid fast charging, the design will comply with BCA 2022 as a minimum for EV provisions:

BCA 2022 Requirements – Part J9D4	
A carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging—	
in accordance with Table J9D4 in each storey of the carpark; and	~1 DB
labelled to indicate use for electric vehicle charging equipment.	
Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must—	
be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and	
when associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily; and	NA
when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and	
when associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00 pm to 7:00 am daily; and	NA
be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in— 100% of the car parking spaces associated with a Class 2 building; or 10% of car parking spaces associated with a Class 5 or 6 building; or 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and	One provided initially.
contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and	
be labelled to indicate the use of the space required above is for the future installation of metering equipment.	

The Green Star thresholds are slightly different:

Attribute	Green Star Target	Design Requirement	Met?
Ready to charge EV Parking	5% of all parking spaces	1 Bay	Yes
Future car share parking spaces with potential for EV	Additional 5% of bays	1 Bays nominated for car share	Future Provision
Load management and infrastructure	Cater for 25% of all car parking spaces.		Met
Cater for 7kW and 22kW charging points	Design team to confirm mix		Met
Cable paths for future provision	Potential to provide charging to all bays		

Summarising, the design team should be providing:

- One electrical DB covering parking bays on the north west and south side of the site
- Electrical infrastructure to provide charging control in relation to overall site demand
- At least 12kWhrs power provision between 9AM and 5PM for each charging bay
- Potential to delivery 7kW (32A type 2) electric vehicle charger to at least 20% of all bays
- Space for electrical metering for each car charging circuit – including future circuits
- Labelling for all EV charging infrastructure, including future space provision.

The design team will also provide a sustainable transport plan which addresses:

Plan Element	Comment
Typical mode share of development, considering location and type	Staff parking, short term drop off, commercial tenancies. Most staff will need to park.
Target mode share, prioritising active and public transport.	Improve pedestrian and cyclist access.
Design features to facilitate mode share shift away from private use:	
Car Pool	Community noticeboard and engagement
Electric Vehicles	EV charging to BCA 2022
Active Transport	Staff EoT and visible bike parking.
Drop Off Points	Burswood Road or Right of Way
Potential future projects and upgrades, including delivery timeline	Future extension of EV systems.
Roles and Responsibilities during operation:	
Implementation:	Tenant
Monitoring:	Tenant
Audit and Review:	Tenant

6.3 Contribution to Place, Culture Heritage and Identity

The design provides an important public service supporting the local community.

7. People Design Features

The People category of credits provides an increased emphasis on social sustainability outcomes within the Green Star system. Projects are required to consider gender inclusivity and provide staff support around issues such as mental and physical health as part of their impact on the people building the project as well as the people who will use it long term.

The category also rewards projects that deliver strong outcomes for Indigenous or disadvantaged and under-represented social groups.

7.1 Minimum Requirements

The main contractor will be required to provide gender specific bathrooms and PPE on site and provide policies and training on discrimination, racism, bullying, drug and alcohol awareness and mental health. This will include introducing programs and solutions to address at least five current health issues such as suicide prevention, healthy eating and depression.

7.2 Needs Analysis

The contractor will be required to complete a needs analysis of site workers and contractors to inform the programs and policies implemented.

7.3 Accessible Navigation

The design team will ensure the building's design and construction must be able to be navigated and enjoyed by stakeholders of diverse ages, genders, and abilities (for example physical, sight, sound, mind, spectrum). The design will provide equal access to the building, diverse wayfinding and inclusive spaces.

8. Nature Design Features

The Nature category is based on providing design solutions which prioritise and restore the natural environment around prospective developments. Features consider biodiversity, previous site usage, site emissions and waterway protection. Projects are requried to demonstrate best practice performance across the range of local impact areas considered.

8.1 Minimum Requirements

- The site is not an old growth forest, prime agricultural land or within 100m of a nationally significant wetland.
- The external lighting will comply with AS 4282 – Control of the obtrusive effects of Outdoor Lighting
- No external light fitting will have an Upward Light Output Ratio (ULOR) of more than 5%.

8.2 Ecological Value

The current and future ecological value of the site will be retained through the use of primarily native planting, with green spaces across the site.

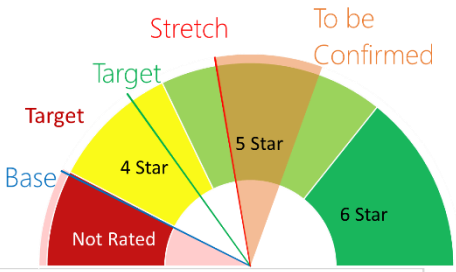
8.3 Stormwater

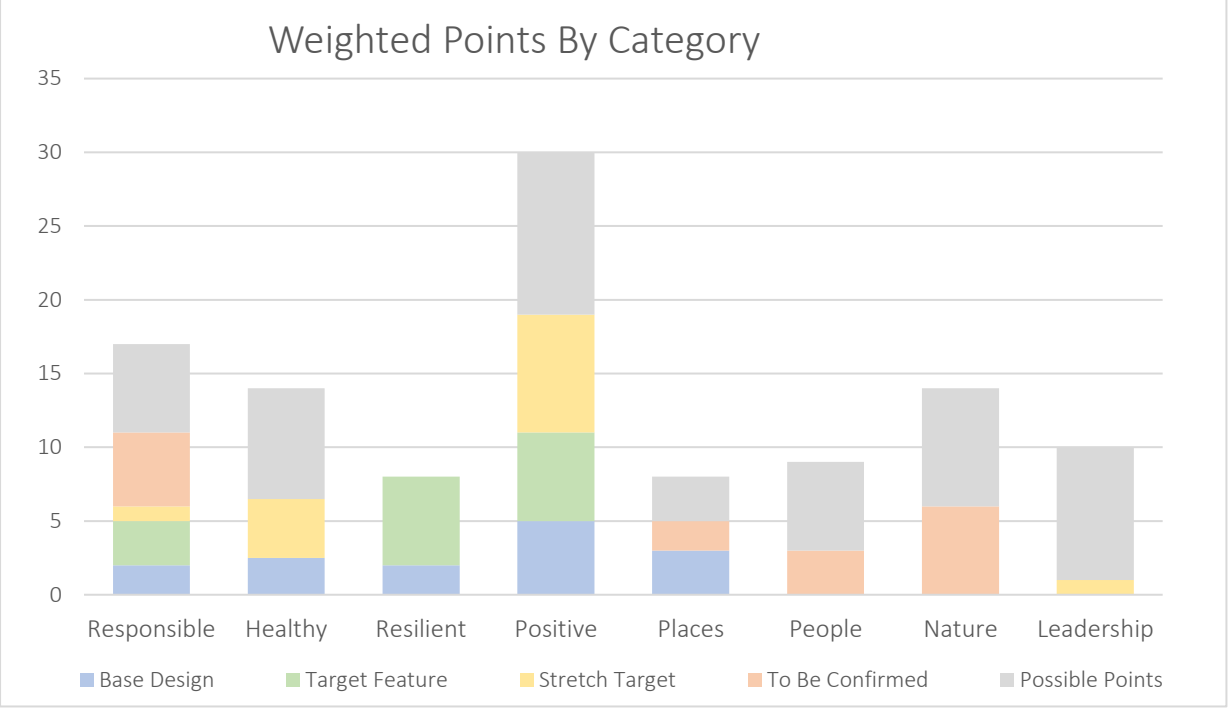
The design is to infiltrate a proportion of stormwater into local ground water, aiming to minimum outflow and achieve pollution reduction matching the performance below:

Pollutant	Contaminant Reduction
Total Suspended Solids (TSS)	90%
Gross Pollutants	95%
Total Nitrogen	60%
Total Phosphorus	70%

9. Assessment Review

FCDS assessment of the current project documentation indicates a minimum score of just under 15 points (4 Star) and an expected score of 29.5 points ~4.75 Star level.





Key features to be included to support a best practice outcome include:

- 20kW Peak Output Solar Array (nominal offset of more than 60 tonnes of $CO_{2(e)}$ per annum)
- Onsite battery to improve renewable energy utilisation
- Best Practice Operation and Maintenance Manuals
- Avoidance of fossil fuels on site
- Potential for nature plan
- Future flexible design change
- Ducted outside air provision to occupied spaces, with dedicated exhaust systems to manage indoor air quality.
- High efficiency services and appliances
- High performance building envelope – targeting 20% improvement over BCA minimum

9.1 Items for Close Out

The following elements are required to be addressed as part of the ongoing design phase:

- Meter data provision to occupants
- Potential for additional solar on site, available project budget / client appetite for installation as part of this scope to be confirmed
- Sustainable building management practices
- Finishes and furniture selections
- Building sustainability committee and / or building tuning interfaces

Appendix A – Design Assumptions and Actions

In completing the initial assessment, FCDS have used the following elements as the basis for our predicted costs and design team actions:

Building Owner:

FCDS have assumed the Builder Owner will Create a formal building policy / operational intent including:

- Commitment to maintaining common area finishes for a minimum of 10 years, barring repair for minor wear and tear.
- Commitment to 12 months of building tuning, including monitoring energy and water consumption in operation and targeting performance in keeping with design intent.
    - Tuning to involve FCDS, the main contractor and a facilities management representative.
- Commitment to achieving a NABERS Energy and NABERS Water rating in operation,
- Ensure all tenancies undertake design review by design team prior to commencement of fit-out
- Development and implementation of green procurement, groundskeeping and cleaning plans and policies on site

FCDS have also assumed the Building Owner will appoint a qualified professional to review ongoing ESD performance throughout the design and construction phases.

Main Contractor:

FCDS have assumed the main contractor will:

- Provide high quality and electronic operations and maintenance manuals for user and building management.
- Maintain ISO 14001 EMS,
- Provide a site-specific Construction Management Plan
- Provide a site-specific Waste Management Plan to divert >90% of waste, by mass, from landfill.
- Provide high quality staff and sub-contractor support, including running programmes through the duration of construction to address three distinct issues with workplace programs and policies which go beyond minimum OH&S requirements and extend to wellbeing promotion, including both mental and physical health support services.
- Provide general training and education on sustainable design outcomes.
- Undertake, and facilitate sub-contractors undertaking, a thorough review of design for servicing and maintainability issues prior to construction. The design team are to assist in rectifying issues where found.

Architectural:

- Designer will participate in a design review with main contractor and redocument to address major servicing or maintainability issues.

- Designer will complete a tenancy design review for all proposed tenancies, including consideration of coordination with base building services and integration with land-lord requirements
- Design will consider the implications of climate change by ensuring all building envelope elements exceed BCA minimum requirements by at least 10%.
- Design will include a waste store sized sufficiently to capture at least three waste streams
- The design will use low toxicity products for adhesives, sealants, paints, carpets, composite wood products.
- The design will include electric induction cook tops and electric, heat pump hot water systems
- The design will include highly durable (>10 year expected life) products for common areas

Mechanical:

FCDS have assumed the following as the initial basis for the mechanical systems design brief:

- Air cooled DX style plant.
- Designer will participate in a design review with main contractor and redocument to address major servicing or maintainability issues.
- Designer will complete a tenancy design review for all proposed tenancies, including consideration of coordination with base building services and integration with land-lord requirements
- Provision of exhaust to limit exposure of occupied spaces to pollutants, including car parks and kitchens.

Electrical – Renewable Energy, Lighting and Power:

FCDS have assumed the following as the initial basis for the electrical systems design brief:

- Designer will participate in a design review with main contractor and redocument to address major servicing or maintainability issues.
- Designer will complete a tenancy design review for all proposed tenancies, including consideration of coordination with base building services and integration with land-lord requirements
    - High quality basic internal lighting provision, including:
    - CRI > 80 and < 3 Macadam Ellipses for residential spaces.
    - Diffusers on all lights to prevent occupants from having direct line of sight to any bare light source.
    - Task lighting for work surfaces and vanity basins
- Achieve a minimum 10% improvement over BCA requirements for energy efficiency.
- Power points in living areas and bedrooms to facilitate reading lamps
- Sophisticated building metering, monitoring and billing system, including electricity and water meters to each separate dwelling, with separate metering for common area water and power supplies. Include a utility check meter directly downstream of incoming supply.

Hydraulic:

FCDS have assumed the following as the initial basis for the hydraulic design brief:

- Designer will participate in a design review with main contractor and redocument to address major servicing or maintainability issues.
- Designer will complete a tenancy design review for all proposed tenancies, including consideration of coordination with base building services and integration with land-lord requirements
- Individual dwelling electric heat pump hot water systems. Achieve a minimum 10% improvement over BCA requirements for energy efficiency.
- Embedded meter network, including:
    - Metering of cold water to each individual dwelling and common area.
    - Utility check meter and all immediate downstream uses to permit leak detection and self-reconciliation

Civil / Structural:

FCDS have assumed that stormwater will generally be retained on site, with limited treatment provided. Water will generally be infiltrated to local ground water via storm-cells up to a 1:100 year ARI, with emergency flow overland to council systems.

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Please Contact: Graham Agar

0412475819

Graham.agar@fcds.com.au

Project Name	147 Burswood Road		
Project Number	2025_026		
Version	Buildings V1.1		
Target Rating	4 Stars	15 Points	
Buffer	5%	**Formal Certification?**	Self Assessed
Client	Meyer Shircore		
Local Council	Town of Victoria Park		
Contract Value	~ <$10M		
Building Owner	Elven Property		
Building Tenant	Childcare + Commercial		

ESD Consultant	FCDS	**GFA (m^2)**	821
Project Manager	Rowe	**Site Area (m^2)**	1,186
Architect	MSA	**Type**	Commercial
Quantity Surveyor	QS	**UFA (m2)**	666.7
ICA	ICA	**Car Bays**	26
Building Surveyor	Surveyor	**Staff**	25

Project Team		
Main Contractor	Builder / Main Contractor	
Discipline	**Consultant**	**Contractor**
Mechanical	Mechanical	Mechanical
Electrical	Electrical	Electrical
Fire	Fire	Fire Contractor
Hydraulic	Hydraulic	Plumber
Civil	Civil	Civil
Structural	Structural	Structure
Façade	Facade	Façade
Lift	Lift	Lift
Landscape	Lanscape	Landscape
Specialists		
Acoustic Engineer	Acoustic	
Waste Consultant	Waste	
Transport Planner	Transport	
Life Cycle Modeller	FCDS	
Climate Change	FCDS	

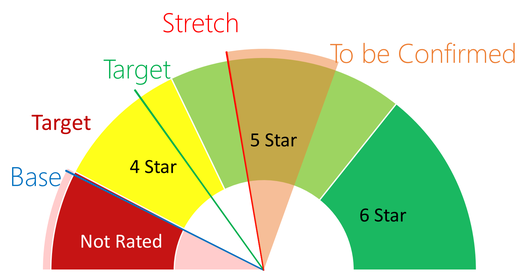
Green Star Credit List

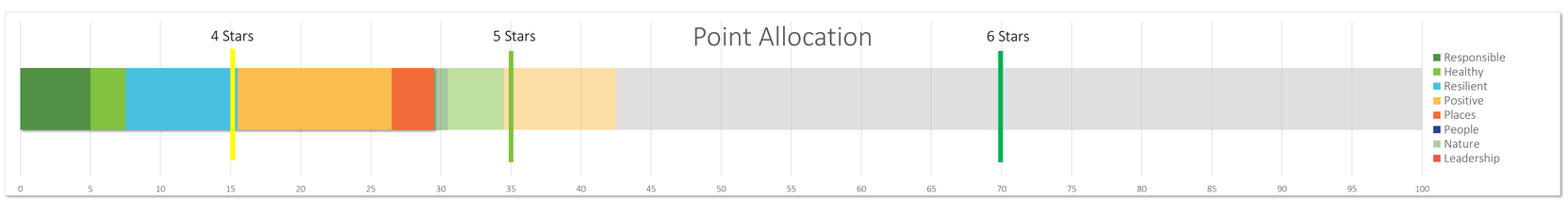
This is FCDS self-assessment of the proposed redevelopment of 147 Burswood Road. This scorecard is in no way equivalent to a formal review or certification by the Green Building Council. The scorecard is presented as a means to demonstrate how the design team intends to meet their target of 'Best Practice' sustainable design.
Credits are classified as follows:
Base Design refers to features inherent in the current planning.
Target Feature are design inclusions which are intended to be delivered as part of the project delivery.
Stretch Targets are features which could be attempted by the project team, but are currently outside of intended approoach. These elements would be used to replace other features if requied to meet target.

Revision	Date	Reason for Issue
A	28th April 2025	Initial Review
B	4th May 2025	DA Submission

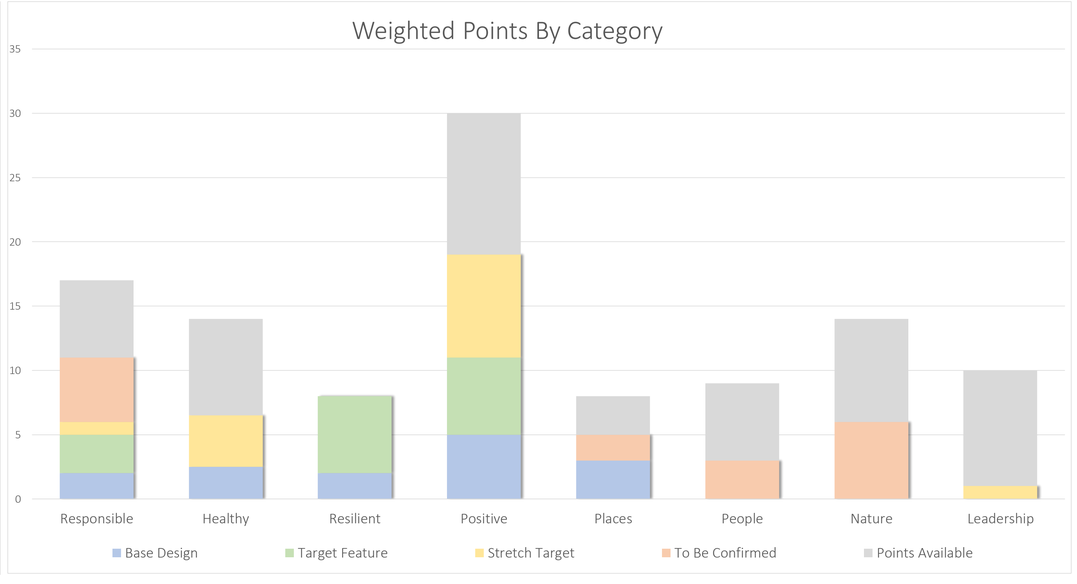
Category	Available Points	Base Design	Target Feature	Stretch Target	To Be Confirmed	Not Achieved	Total Cost
Responsible	17	2	3	1	5	6	$36,000
Healthy	14	3	0	4	0	8	$31,400
Resilient	8	2	6	0	0	0	$22,100
Positive	30	5	6	8	0	11	$41,500
Places	8	3	0	0	2	3	$10,000
People	9	0	0	0	3	6	$0
Nature	14	0	0	0	6	8	$0
Leadership	10	0	0	1	0	9	$0
Sector Specific		0	0	0	0		$0
	110	15	15	14	16	51	$141,000
		14.5	29.5	43.5	59.5		

Rating Achieved





Credit	Cost	Cumulative Points	Cumulative Cost
R17.1 - Comprehensive Risk Assessment	$0	17	$10,000
R2.4 - Construction and Demolition Waste Diversion - Exceptional	$0	18	$10,000
R9.1 - Responsible Finishes	$0	19	$10,000
R9.2 - Responsible Finishes - Exceptional	$0	20	$10,000
R16.2 - Climate Change Risk and Adaptation Assessment	$0	21	$10,000
P22.2 - Net Zero Path	$15,000	24	$25,000
P22.3 - Emissions Reduction	$15,000	27	$40,000
R20.1 - Active Generation and Storage Systems	$22,100	30	$62,100
H11.1 - Minimum lighting comfort	$700	30	$62,800
H11.2 - Glare	$700	30	$63,500
R3.2 - Services and Maintainability Review	$2,500	30	$66,000
R3.4 - Building Systems Tuning	$6,000	30	$72,000
H10.1 - Provision of Outdoor Air	$10,000	30	$82,000
R3.3 - Building Commissioning	$12,500	30	$94,500
M41.1 - Net Zero	*$0*	*31*	*$94,500*
P23.2 - 100% Renewable Electricity	*$1,750*	*34*	*$96,250*
P23.3 - 100% Renewable Energy	*$1,750*	*37*	*$98,000*
P24.1 - Net Zero Path	*$8,000*	*39*	*$106,000*
H13.4 - On Site Toxicity Testing	*$10,000*	*41*	*$116,000*
H12.3 - Impact Noise Transfer	*$5,000*	*42*	*$121,000*
H12.4 - Reverberation	*$5,000*	*43*	*$126,000*
R3.9 - Soft Landings Approach	*$15,000*	*44*	*$141,000*



Full Circle Design Services

	Ref No.	Title	Aim of Credit	Sub-Element	Credit Criteria Summary	Design Team Actions	Key Stakeholder	Points Available	Minimum Compliance?	Net Zero Pathway	Base Design	Target Feature	Stretch Target	To Be Confirmed	Unlikely Points	Comments	Cost
Responsible	R1.1	Industry Development	The development facilitates industry transformation through partnership, collaboration and data sharing	Green Star Accredited Professional	The building owner or developer appoints a Green Star Accredited Professional, discloses the cost of sustainable building practices to the GBCA, and markets the building's sustainability achievements.	Appoint a GSAP as part of the project team.	FCDS	1	No		1					The design team will include an ESD professional	
	R1.2			Financial Transparency		The project team must complete, and include in the submission, the Green Star Financial Transparency Disclosure Template. The template assists the project team to submit the cost of sustainable building practices of the project including design, construction and documentation to the GBCA	FCDS		No							Cost analysis will be undertaken and optimised for the site.	
	R1.3			Marketing Excellence		* Complete Green Star Case Study * Detail Sustainability Achievements to Stakeholders * Display Green Star Certification Prominently	FCDS, MSA, Elven Property & Rowe		No							The design will provide information on ESD features for the tenants.	
	R2.1	Responsible Construction	The builder's construction practices promote the reduction of impacts and opportunities for improved environmental outcomes.	Environmental Management System	The builder's construction practices reduce impacts and promote opportunities for improved environmental and social outcomes.	The builder or head contractor (responsible party) must have a formalised systematic and methodical approach to planning, implementing and auditing in place during construction. From the start of construction the builder or head contractor must implement an Environmental Management Plan (EMP) which must be project specific and cover the entire project scope including all construction activities.	Builder / Main Contractor	0	Yes		Met					Contractors will be required to have a documented approach to sustainable construction	
	R2.2			Construction and Demolition Waste Diversion		Projects must divert at least 80% of construction and demolition waste from landfill.	Builder / Main Contractor	0	Yes		Met					Waste to be colelcted and sorted off site.	
	R2.3			ESD Training		The head contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days.	Builder / Main Contractor	0	Yes		Met					Training material will be provided by project GSAP.	
	R2.4			Construction and Demolition Waste Diversion - Exceptional		Projects must divert at least 90% of construction and demolition waste from landfill.	Builder / Main Contractor	1	No			1				Contractors generally achieve this in the metro area. Performance will be specified by GSAP.	$0
	R3.1	Verification and Handover	The building has been optimised and handed over to deliver a high level of performance in operation.	Environmental Performance Targets	The building has been commissioned and will be tuned. The building was set up for optimum ongoing management due to its appropriate metering and monitoring systems. 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	Set environmental performance targets prior to construction and document them within an OPR (Owners Project Requirements)	FCDS	0	Yes		Met					Performance targets set as part of DA submission.	
	R3.2			Services and Maintainability Review		Complete a services and maintainability review prior to construction.	ICA	0	Yes			Target				Design review will be carried out by project team and GSAP	$2,500
	R3.3			Building Commissioning		Commission the building in accordance with recognised best practice international standards, including a building envelope test. A specific building envelope pressure test plan and schematic are to be developed.	ICA & Mechanical	0	Yes			Target				Child Care envelope to be tested as part of PC process.	$12,500
	R3.4			Building Systems Tuning		Engage a building tuning service provider and tune the building for at least 12 months.	Elven Property, FCDS & Rowe	0	Yes			Target				Ongoing building tuning and optimisation to be carried out with tenant.	$6,000
	R3.5			Metering and Monitoring		Provide accessible energy and water metering for all common uses, major uses, and major sources, connected to a monitoring system capable of capturing and processing the data produced by the meter	FCDS, Mechanical, Hydraulic & Electrical	0	Yes		Met					Utility metering will meet this requirement due to small size of project.	
	R3.6			Operation and Maintenance Information		Provide operations and maintenance information for all nominated building systems to the building owner (or designated representative).	FCDS, Mechanical, Hydraulic & Electrical	0	Yes		Met					O+M documentation will be provided.	
	R3.7			Building Log Book		Develop a building log book to present to the building owner (or designated representative) before practical completion of the project	FCDS, Mechanical, Hydraulic & Electrical	0	Yes		Met					Project GSAP will document relevant information for building occupamts.	
	R3.8			Building User Information		All building user information must be available to the building owner and facilities management team at the time of practical completion.	Builder / Main Contractor, FCDS, Mechanical, Hydraulic & Electrical	0	Yes		Met					BUG will be produced by GSAP prior to handover.	
	R3.9			Soft Landings Approach	An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent, or through a soft landings approach that involves the future facilities management team. For large projects (>$20M) both must occur.	Deliver Soft Landings Approach for the project, including involving the FM team and/or Owners Representative across commissioning and handover, development of the Operations and Maintenance Manuals, Sign off on Operations and Maintenance Manuals and be trained before handover.	Elven Property, ICA & Rowe	1	No				1			Project is too small for significant value from an ICA.	$15,000
	R3.10			Independent Commissioning Agent		Appoint an independent commissioning agent (ICA) to act an advocate for and reports directly to the project owner.	Elven Property, ICA & Rowe		No								

	Ref No.	Title	Aim of Credit	Sub-Element	Credit Criteria Summary	Design Team Actions	Key Stakeholder	Points Available	Minimum Compliance?	Net Zero Pathway	Base Design	Target Feature	Stretch Target	To Be Confirmed	Unlikely Points	Comments	Cost
Responsible	R4.1	Operational Waste	Operational waste can be separated and recovered in a safe and easy manner.	Separation of Waste Streams	The project team must demonstrate the building is designed to allow effective management of operational waste by: • Separating waste streams; • Providing a dedicated and adequately sized waste storage area; and • Ensuring easy and safe access to waste storage areas for both occupants and waste collection contractors.	The building must provide labelled and accessible bins or storage containers to building occupants to enable them to separate their waste. At least four waste streams are to be collected, each at >1% of annual operational waste, with any waste stream over 5% (other than food) of the annual volume provided with dedicated collection points.	Elven Property, Waste & MSA	0	Yes		Met					Design includes bin store at ground level offering ample area for waste segregation. Bin provision within tenancy part of fitout design.	
	R4.2			Dedicated Waste Storage		A dedicated area, or areas, for the storage and collection of the applicable waste streams must be provided. The storage area must be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle.	Waste & MSA	0	Yes		Met					Waste store at ground level is provided for all tenants.	
	R4.3			Access to Waste Storage Area		The storage area(s) must have easy and safe access by collection vehicles and cleaning staff	Elven Property, Waste & MSA	0	Yes		Met					All users have safe and convenient access to waste store.	
	R4.4			Qualified Waste Auditor		A waste specialist and/or contractor must sign-off on the designs to confirm they are adequately sized and located for the safe and convenient storage and collection of the waste streams identified	Elven Property, Waste	0	Yes		Met					Architectural design considered to meet the intent of this element.	
	R5.1	Responsible Procurement	The procurement process for all products, materials, and services for the building's design and construction follows best practice environmental and social principles.	Risk and Opportunity Assessment	The building's design and construction procurement process follows ISO 20400 Sustainable Procurement - Guidance and at least one identified supply chain risk and opportunity is addressed.	Undertake a risk and opportunities assessment of its supply chain to identify environmental and social risks and opportunities **and**	Builder / Main Contractor, FCDS & MSA	1	No		1					Project team will select key products sustainably to meet Green Star targets.	
	R5.2			Responsible Procurement Plan		Develop and implement a plan to mitigate and manage identified risks and drive implementation of identified opportunities.	Builder / Main Contractor, FCDS & MSA		No								
	R6.1	Responsible Structure	The building's structure is comprised of responsibly manufactured products.	Responsible Structure	50% of all structural components (by cost) meet a Responsible Products Value score of at least 10	• Industry specific environmental product declarations (EPD) - 2 Points • Product specific environmental product declarations (EPD) - 4 Points • ISO14001 certification - 3 Points • Reused Product - 15 Points • FSC Certified - 10 Points • Best Practice PVC Certified - 5 Points • Living Product Challenge • Declare	Structural & MSA	3	No					3		Product specifications to be reviewed with contractor.	
	R6.2			Responsible Structure - Exceptional	In addition, one of the following is met: • 10% of all products in the structure (by cost) meet a Responsible Products Value score of at least 15; OR • 80% of all products in the structure (by cost) have an average Responsible Products Value score of at least 10.		Structural & MSA	2	No								
	R7.1	Responsible Envelope	The building's envelope is comprised of responsibly manufactured products.	Responsible Envelope	30% of all building envelope components (by cost) meet a Responsible Products Value score of at least 10.	• Industry specific environmental product declarations (EPD) - 2 Points • Product specific environmental product declarations (EPD) - 4 Points • ISO14001 certification - 3 Points • Reused Product - 15 Points • FSC Certified - 10 Points • Best Practice PVC Certified - 5 Points	Structural, Facade & MSA	2	No					2		Product specifications to be reviewed with contractor.	
	R7.2			Responsible Envelope - Exceptional	In addition, one of the following is met: • 10% of all products in building envelope (by cost) meet a Responsible Products Value score of at least 15. OR • 60% of all products in the building envelope (by cost) have an average Responsible Products Value score of at least 10.		Structural, Facade & MSA	2	No								
	R8.1	Responsible Systems	The building's mechanical, hydraulic, transportation and electrical systems are comprised of responsibly manufactured products.	Responsible Systems	20% of all active building systems (by cost) meet a Responsible Products Value score of at least 6.	• Industry specific environmental product declarations (EPD) - 2 Points • Product specific environmental product declarations (EPD) - 4 Points • ISO14001 certification - 3 Points • Reused Product - 15 Points • FSC Certified - 10 Points • Best Practice PVC Certified - 5 Points • Climate Active Carbon Neutral Certification	Mechanical, Electrical, Fire, Hydraulic, Civil & Lift	1	No							Credit not likely to be achieved	
	R8.2			Responsible Systems - Exceptional	In addition, one of the following is met: • 5% of all active building systems (by cost) meet a Responsible Products Value score of at least 11. OR • 35% of all active building systems (by cost) have an average Responsible Products Value score of at least 6.		Mechanical, Electrical, Fire, Hydraulic, Civil & Lift	1	No							Additional credit not considered likely.	
	R9.1	Responsible Finishes	The building's internal finishes (flooring, plasterboard, paints, ceilings, partitions, doors, internal windows etc.) are comprised of responsibly manufactured products and materials.	Responsible Finishes	40% of all internal building finishes (by area) meet a Responsible Products Value score of at least 7.	• Industry specific environmental product declarations (EPD) - 2 Points • Product specific environmental product declarations (EPD) - 4 Points • ISO14001 certification - 3 Points • Reused Product - 15 Points • FSC Certified - 10 Points • Best Practice PVC Certified - 5 Points	MSA & FCDS	1	No			1					$0
	R9.2			Responsible Finishes - Exceptional	In addition, one of the following is met: • 10% of all internal building finishes (by area) meet a Responsible Products Value score of at least 12. OR • 60% of all internal building finishes (by area) have an average Responsible Products Value score of at least 7.		MSA & FCDS	1	No			1				Finishes selections to be reviewed as design progresses. Compliance is considered likely.	$0

	Ref No.	Title	Aim of Credit	Sub-Element	Credit Criteria Summary	Design Team Actions	Key Stakeholder	Points Available	Minimum Compliance?	Net Zero Pathway	Base Design	Target Feature	Stretch Target	To Be Confirmed	Unlikely Points	Comments	Cost
Healthy	H10.0	Clean Air	Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels.	Ventilation System Attributes	Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels. Compliance is to be demonstrated for > of regularly occupied area	Ventilation systems are to comply with AS 1668.2 2012 and ASHRAE Standard 62.1:2013 for minimum separation between openings, outdoor intakes and sources of pollution. All new and existing ductwork is to be cleaned prior to occupation.	Mechanical	0	Yes		Met					Basic requirement for mechanical design. No issues with this requirement.	
	H10.1			Provision of Outdoor Air		Provide outdoor air to each space in the nominated area at a rate greater than the minimum required by AS 1668.2:2012 by 50% **or** Monitor and control CO_2 levels <800ppm during design occupancy **or** Residential Buildings demonstrate best practice approach to outside air and prevention of mould.	Mechanical	0	Yes			Target				Mechanical design will include additional capacity for occupants to increase outside air rates	$10,000
	H10.2			Exhaust or Elimination of Pollutants		Select and utilise low emissions equipment; printers, stoves, vehicles etc. **and/or** Exhaust sources of pollutants directly to outside and physically separate them from occupants.	Elven Property, Rowe, MSA & Mechanical	0	Yes		Met					Exhaust is provided for spaces with contaminant generation.	
	H10.3			Ventilation System Attributes	The building's ventilation systems allow for easy maintenance, and high levels of outdoor air are provided.	Provide adequate access to both sides of all moisture and debris-catching components for maintenance within the air distribution system **and**	Mechanical	2	No							Credits not targeted due to increase in capital cost	
	H10.3			Provision of Outdoor Air		Provide outdoor air to each space in the nominated area at a rate greater than the minimum required by AS 1668.2:2012 by 100% or Monitor and control CO2 levels <700ppm during design occupancy or Provide 0.04m2 ventilation per apartment + 0.015m2 per habitable room.	Mechanical		No							Credit not targeted due to increased energy requrieemnts.	
	H11.1	Light Quality	The building provides good daylight and its lighting is of high quality.	Minimum lighting comfort	The building provides adequate levels of daylight and good lighting levels suitable for the typical tasks in each space.	• All lighting must be flicker-free; • Light sources must have a minimum Colour Rendering Index (CRI) 85 or higher, in all internal and external applications; • Light sources must meet best practice illuminance levels for each task within each space type • The maintained Illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006 • All light sources must have a maximum of 3 MacAdam Ellipses.	Electrical	0	Yes			Target				Electrical consultant to select compliant fittings.	$700
	H11.2			Glare		Glare from light sources must be limited within the nominated area. Bare light sources must be fitted with baffles, louvers, translucent diffusers, ceiling design, or other means **or** Unified Glare Rating (UGR), as estimated from the manufacturers data sheets for a standard room, must not exceed the maximum values listed in Table 8.2 of AS/NZS 1680.1:2006. Where the nature of the tasks, layout and surface reflectance in a space are not known (e.g. shell and core) the lighting system must comply with the Luminaire selection system as detailed in Clause 8.3.4 of AS/NZS 1680.1:2006.	MSA & FCDS	0	Yes			Target				Design includes low UGR for fittings.	$700
	H11.3			Daylight		• Maximise the number of occupants that are in or near daylit areas during their daily activities for all building types; • Ensure regularly occupied spaces are in reasonable proximity to glazed façades, windows or skylights; • Control or mitigates glare in the daylit spaces; • Maximise daylight to spaces that prioritise learning, healing, and living: • Provide building occupants with unrestricted access to daylit indoor common spaces.	MSA & FCDS	0	Yes		Met					Design includes excellent access for natural lighting for occupied spaces.	
	H11.4			Daylight - Credit	The building provides either or both best practice Artificial Lighting and best practice access to daylight.	For non-residential buildings, at least 40% of the principle averaged across the building must receive high levels of daylight with no less than 20% on any floor or tenancy (whichever is smaller).	MSA & FCDS	2	No		2					Design would be expected to achieve these points. Modelling not required.	
	H11.5			Artificial Lighting		• The walls within the field of view of occupants in regularly occupied spaces must have an average surface reflectance value of 0.70 and an average surface illuminance of at least 50% of the horizontal illuminance levels required for task. • Vertical illuminance in workspaces: ensure that 50% of the horizontal task illuminance reaches the average eye height for 90% of primary spaces using vertical illuminance calculation grid.	Electrical	2	No							Credit compliance is considered difficult.	
	H12.1	Acoustic Comfort	The building provides acoustic comfort for building occupants.	Internal Noise Levels	An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.	Internal ambient noise levels in the nominated areas must be no greater than the upper range value *and (Schools and Commercial Tenancies) no less than 5 dB below the lower range value* relevant to the activity type in each space as recommended in AS/NZS 2107.	Acoustic, Mechanical & MSA	0	Yes		Met					Acoustic consultant will provide acoustic strategy. Design team to meet AS 2107 noise levels as well as target impact noise transfer and reverberation within occupied space as a stretch target.	
	H12.2			Acoustic Separation	The building is designed and tested to achieve minimum acoustic performance requirements aligned with the Acoustic Comfort Strategy. * Residential - 2 Additional Features * Healthcare - 3 Additional Features * Schools - 3 Additional Features * Tenancies - 3 Additional Features * Shell and Core - 2 Additional Features * Sports - 2 Additional Features * Industrial - Separation Only	Address noise transmission between enclosed spaces within the nominated area either by sound privacy or insulation.	Acoustic & MSA	2	No							Design is expected to provide good noise separation. Onsite performance verification to be specified	
	H12.3			Impact Noise Transfer		Floors above nominated areas or adjacent spaces belonging to different tenancies which share a floor must not exceed dB LnT,w 60 for all non-residential spaces	Acoustic & MSA		No				1			Noise separation between levels is important for project success.	$5,000
	H12.4			Reverberation		The reverberation time in the nominated area must be not exceed the maximum for the intended use recommended in AS/NZS2107. This does not apply for residential spaces.	Acoustic & MSA		No				1			Reverberation time control is critical for educational outcomes.	$5,000

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Healthy	H13.1	Exposure to Toxins	The building's occupants are not directly exposed to toxins in the space they work, play, or live in.	Paints, Adhesives, Sealants and Carpets	The building's paints adhesives, sealants, carpets, and engineered wood products are low or non-toxic. Occupants are not exposed to banned or highly toxic materials in the building.	Use low toxicity paints, adhesives, sealants and floor coverings.	MSA, Mechanical, Electrical, Fire, Hydraulic, Civil & Lift	0	Yes		Met					ESD Specification to confirm performance requirements	
	H13.2			Engineered Wood products		Use low emission formaldehyde composite or engineered wood products	MSA	0	Yes		Met					ESD Specification to confirm performance requirements	
	H13.3			No Lead, Asbestos and PCBs		Undertake comprehensive site survey for Lead, PCB's and asbestos. Take appropriate remediation action where relevant.	Elven Property	0	Yes		Met					No requirement, no existing buildings are being reused.	
	H13.4			On Site Toxicity Testing	On-site tests verify the building has low Volatile Organic Compounds (VOC) and formaldehyde levels.	Undertake performance testing on site at completion to confirm building meets target toxicity levels - TVOC < 0.27 ppm and Formaldehyde < 0.02ppm	FCDS & Elven Property	2	No				2			Performance verification considered a stretch target.	$10,000
	H14.1	Amenity and Comfort	The building provides internal amenities that improve occupant experience of using the building.	Amenity and Comfort	The building has dedicated amenity rooms to act as parent room, a relaxation room, or an exercise room	Provide at least 10m^2 and 1m^2 per 10 regular occupants or staff dedicated room(s) to promote either inclusivity, mindfulness or exercise for regular occupants. Room must be classified as either parent room, relaxation / meditation / prayer room or exercise room. Room must meet light quality, acoustic comfort and Design for Inclusion (where targeted) credits.	MSA - Requires ~10 m2 dedicated occupant wellness space	2	No							Credit not feasible for commercial spaces.	
	H15.1	Connection to Nature	The building fosters connection to nature for building occupants.	Views	The building provides views, includes indoor plants, and incorporates nature-inspired design.	>60% of primary occupied spaces are within 8m of a compliant view **and**	MSA	1	No		Met					Design easily complies with the requirement for views.	
	H15.2			Plants		Indoor plants must be provided in the nominated spaces. One or more plants in pots with a soil surface area totalling at least 500cm² for every 15m² of the primary spaces is required. Plants are to be supported by an ongoing 2 year maintenance plan **or**	MSA & Elven Property		No							Considered a tenant action.	
	H15.3			Nature-Inspired Design		Five additional nature-inspired design interventions must be provided in alignment with the following principles: • Elements that provide differing natural sensory experiences; • Elements that reflect natural and cultural patterns and forms; • Using natural materials; and • Natural motifs and art.	MSA		No							Considered a tenant action.	
	H15.4			Interaction	5% of the building's floor area/ or site area (whichever is greater) is allocated to nature in which occupants can directly engage with	Occupants can interact with nature either inside the building, or externally through a green wall or roof garden. At least 5% of the building's floor area/ or site area (whichever is greater) must be allocated to this opportunity. The allocated area must be accessible and have the necessary infrastructure to allow the activity to occur (for example water source/taps for irrigation, storage area for tools and equipment).	Elven Property & MSA	1	No		0.5					Large external play space considered to meet the intent of this credit.	

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Resilient	R16.1	Climate Change Resilience	The building has been built to respond to the direct and indirect impacts of climate change.	Climate Change Resilience	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.	Complete climate change risk review checklist and issue to the building applicant.	FCDS	0	Yes		Met					Climate risk analysis has been carried out for this asset as part of DA.	
	R16.2			Climate Change Risk and Adaptation Assessment	The project team develops a project-specific climate change risk and adaptation assessment for the building. Extreme and high risks are addressed.	Complete a detailed risk assessment and Mitigation strategy using an appropriately qualified professional . Ensure at least two and all Extreme and High risks are addressed.	Whole Design Team	1	No			1				Formal CCAR not being provided, design will address major risks.	$0
	R17.1	Operations Resilience	The building can respond to acute shocks and chronic stresses that can affect its operations over time.	Comprehensive Risk Assessment	The project team undertakes a comprehensive review of the acute shocks and chronic stresses likely to influence future building operations.	Appoint a suitably qualified professional to undertake a detailed review of operations resilience including key shocks and stresses, such as infrastructure failure, health pandemic, water security, increasing energy costs and rising cyber dependency **and**	FCDS	2	No			2				Operations risk review undertaken as part of project feasibility.	$0
	R17.2			Managing Risks	The building's design and future operational plan addresses any high or extreme system-level interdependency risks.	Provide design solutions to address at least two and all high and extreme risks **and**	FCDS supported by Whole Deign Team		No							Design team have provided a strong response to community risks and stresses.	
	R17.3			Addressing Power Loss	The building's design maintains a level of survivability and design purpose in a blackout.	Complete building performance assessment in black out conditions and provide appropriate design solutions to meet building purpose and provide a measure of survivability for occupants.	FCDS supported by Whole Design Team		No							Design includes solar and batteries to mitigate black out risk.	
	R18.1	Community Resilience	The building contributes to improving the resilience of the community.	Community Resilience	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.	Appoint a qualified professional to develop a community resilience plan that identifies local community groups which rely on or interact (directly or indirectly) with the building. The plan must identify and address at least 2 and all high and extreme risks identified.	FCDS supported by Whole Design Team	1	No		1					Design considered to meet this requirement as a community childcare facility.	
	R19.1	Heat Resilience	The building reduces its impact on heat island effect.	Heat Island	At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect.	Ensure >75% of site area is covered by materials which reduce heat island effect, including: * Vegetation and Green Roofs * Light Roofs (3 Year SRI>64 (flat roof) >34 (Pitched Roof) * Shaded or Light Hardscaping (3 Year SRI > 34) * Water bodies and/or water courses * Permanently Shaded site area	MSA & Lanscape	1	No		1						Design can achieve compliance with the use of light paving / building roofs for all paved areas.	
	R20.1	Grid Resilience	The building contributes to the functioning of the grid as it transitions to a higher level of renewable energy capacity.	Active Generation and Storage Systems	The building meets one or several of the following: • Provides active generation and storage systems; • Has the infrastructure to deliver an appropriate demand response strategy; or • Has reduced its electricity consumption through passive design.	Design the building to have the capacity to reduce its electricity peak demand by 10% of the building's annual peak electricity demand for at least a one-hour period. The peak demand reduction can occur through thermal storage solutions (such as chilled water storage systems), by electricity storage solutions (batteries), or through renewable on-site generation.	Mechanical & Electrical	3	No			3				Design includes solar and batteries with simple load management system.	$22,100
	R20.2			Demand Response		Develop a strategy and systems to automatically shed 10% of a buildings peak electrical demand without affecting occupant amenity for at least 4 hours. Requires the BMS to have predictive capabilities and a demand management dashboard and automatic load shedding, including acceptance of external control signals. Strategy is to be commissioned and demonstrated as functional.	Mechanical & Electrical		No						Battery systems are expected to have demand control capacity for the site.	
	R20.3			Passive Design Solutions		Deliver a naturally ventilated building which exceeds BCA requirements for building envelope performance. Alternatively, discuss options with the GBCA for alternate compliance.	FCDS & MSA		No							Building is provided with air conditioning and cannot achieve compliance with this pathway.	

Full Circle Design Services

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Positive	P21.1	Upfront Carbon Emissions	The building's upfront carbon emissions from materials and products have been reduced and offset.	Minimum Expectation	Reduce the building's upfront carbon emissions reductions through good design and material selection.	Complete the LCA Calculator and demonstrate that the building's upfront carbon emissions are at least 10% less than those of a reference building.	QS, FCDS & MSA	0	Yes		Met					ESD DA report provides guidance to achieve 10% target.	
	P21.2			Net Zero Path		Employ an LCA professional to demonstrate the building's upfront carbon emissions are at least 20% less than those of a reference building - including any demolition works.	FCDS, Elven Property&MSA	3	5 Star	3						No formal LCA to be undertaken	
	P21.3			Emissions Reduction		Employ an LCA professional to demonstrate the building's upfront carbon emissions are at least 40% less than those of a reference building - including any demolition works and all remaining emissions from Modules A1 – A5 are offset.	FCDS, Builder / Main Contractor, Elven Property&MSA	3	6 Star								
	P22.1	Energy Use	The building has low energy consumption.	Minimum Expectation	Reduce the building's energy consumption in comparison to BCA Section J minimum requirements. All systems and elements must exceed BCA minimum performance, irrespective of overall performance.	Complete building modelling and demonstrate that the building's energy use is at least 10% less than a reference building, excluding renewable generation on site. . For residential buildings, no individual apartment can be less than the larger number of: – The minimum NatHERS rating stated in the code, or – 6.5 star NatHERS rating.	FCDS	0	Yes		Met					Energy performance in excess of BCA requirements not considered onerous. Expect building to exceed minimum requirements by 15-20%.	$0
	P22.2			Net Zero Path		Complete building modelling and demonstrate that the building's energy use is at least 20% less than a reference building, including renewable generation on site. .	FCDS	3	5 Star	3		3				Performance is expected with proposed 20kW array	$15,000
	P22.3			Emissions Reduction		Complete building modelling and demonstrate that the building's energy use is at least 30% less than a reference building.	FCDS	3	5 Star			3				Performance is expected with proposed 20kW array	$15,000
	P23.1	Energy Source	The building's energy comes from renewables.	Zero Carbon Action Plan	Ensure the building does not require fossil fuels to operate and develops a detailed plan to achieve net carbon neutrality in operation.	Develop a zero carbon action plan and have it endorsed by the building owner. The plan is to address all Scope 1 and 2 emissions, including refrigerants on site and provide design requirements, including additional spatial and infrastructure upgrade required. The plan is to include a cost analysis including potential savings to design as net zero from practical completion.	FCDS, Hydraulic, Fire, Mechanical, Rowe & Elven Property	0	Yes	0	Met					Design excludes all fossil fuels on site. No significant value in a formal Zero Carbon action plan.	
	P23.2			100% Renewable Electricity		The building is to ensure all electricity under the control of the building owner or operator must be accounted for and sourced from renewables. Tenant electricity can be excluded. Where this is achieved by off-site renewables, a 5 Year contract must be presented.	FCDS, Hydraulic, Fire, Mechanical, Rowe & Elven Property	3	5 Star	3			3			Budget based on 10c per kWhr premium and 80% solar utilisation on site. No intent to offset.	$1,750
	P23.3			100% Renewable Energy		In addition to the above, where the building includes infrastructure which can use fossil fuels to power building systems, the applicant must demonstrate how it will not use fossil fuels during the building operation.	FCDS, Hydraulic, Fire, Mechanical, Rowe & Elven Property	3	5 Star	3			3			Cost split from the above	$1,750
	P24.1	Other Carbon Emissions	The building's emissions from refrigerants and remaining carbon sources are eliminated or offset.	Net Zero Path	Ensure the building's emissions from refrigerants and all other categories are eliminated or offset.	Utilise refrigerants with a GWP<10 or offset the GWP. Maintenance access must be provided to access and replace refrigerants.	Mechanical	2	5 Star	2			2			Refrigerant offset can be included in project approach.	$8,000
	P24.2			Emission Elimination		Eliminate all other emissions, including elements above plus; • Life-cycle emissions from modules B and C as calculated in Life Cycle Impacts; • Emissions from construction equipment use, and utilities during construction on site; and • Construction waste emission Alternatively, purchase offsets for 5 years of operational energy use at the current grid emissions coefficient.	Elven Property	2	6 Star							Cost for additional offsets excluded from project scope.	
	P25.1a	Water Use	The building has low water use.	Water Reduction - Prescriptive	Ensure the building meets minimum water performance requirements through a simple, prescriptive approach.	Provide low flow fixtures and appliances	FCDS	0	Yes		Met					Previous modelling shows ~50% reduction possible with low flow tapware and limited area of native planting.	$0
	P25.1b			Water Reduction - Performance	Ensure the building meets minimum water performance requirements through a modelled approach.	Demonstrate a 15% performance improvement over minimum compliance using the Green Star Potable Water Calculator	FCDS, Hydraulic & MSA									FCDS have completed the water calculator.	
	P25.2			Improved Water Performance	The building uses 45% less potable water compared to a reference building. Multi-unit residential buildings use 40% less potable water compared to a reference building.	Complete water modelling and demonstrate a 40 / 45% performance improvement in water consumption for the proposed development.	FCDS, Hydraulic & MSA	3	No		3					Perth does not have non-potable wateer infrastructure.	
	P25.3			Exceptional Water Performance	The building uses 75% less potable water compared to a reference building. Multi-unit residential buildings use 60% less potable water compared to a reference building.	Complete water modelling and demonstrate a 60 / 75% performance improvement in water consumption for the proposed development.	FCDS, Hydraulic & MSA	3	No							Provision of grey water not recommended for childcare. Rainwater may be considered for toilet flushing, unlikely to reach 75%.	
	P26.1	Life Cycle Impacts	The building has lower environmental impacts from resource use over its lifespan than a typical building.	Life cycle Impacts	The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	Appoint an LCA practitioner and demonstrate an overall 30% performance improvement against all categories with no more than 10% increase in any category.	FCDS	2	No		2					Credit points are targeted on the basis of energy efficiency and upfront carbon. No detailed LCA being undertaken.	

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Places	P27.1	Movement and Place	The building's design and location encourages occupants and visitors to use active, low carbon, and mass transport options instead of private vehicles.	Showers	The building includes showers and changing facilities for building occupants that are accessible, inclusive and located in a safe and protected space.	Provide showers at a rate of 1 per 50 occupants (1 per 200 occupants over 200)	MSA - Requires 1 Showers for Occupants	0	Yes		Met					Design includes showers within the disabled toilets at ground and first floor level.	$5,000
	P27.2			Lockers		One locker must be provided for every eight staff occupants. The lockers must be secure and located in the changing rooms.	MSA - Requires 4 Lockers for Occupants	0	Yes		Met					Staff area within the child care can provide staff space to leave belongings.	$5,000
	P27.3			Accessibility and Inclusivity		Upon accessing, pedestrians and cyclists must be protected from the elements and other vehicles. Access must be safe, with consideration given to avoiding steep gradients, surface grip levels and visibility around tight corners. Access to the facilities must be well lit between entryway to bike parking, all amenities and lift lobbies and main access points to the building. All regular building occupants must have easy access to lockers, showers, and building entry. Occupants must be able to find the facilities thanks to clear signage throughout the building and access points.	MSA	0	Yes		Met					Design includes good pedestrian connections to Burswood Road.	
	P27.4			Cyclist Facilities	The building's access must prioritise walking and cycling options. This means the building's access must be well lit, weather protected, and separated from vehicles. The building must also include access to cyclist facilities that are separated from the primary vehicle entrance to ensure safety.	Provide good access for cyclists and pedestrians: * Well lit * Weather Protected * Separated from Vehicles * Signposted * Secure * Access connected to relevant cyclist storage **and**	Elven Property & MSA	3	No		1					Design includesbike parking under cover within the car park.	
	P27.5			Sustainable Transport	Prepare a sustainable transport plan which seeks to change the mode of transport away from single use vehicles.	Include: * Car share parking schemes * Infrastructure for future EV charging and parking * EV load management system **and**	Elven Property & Electrical		No		1					Design includes EV charging.	
	P27.6			Reducing Private Use	The building's design and location prioritises walking, cycling, and transport options that reduce the need for private fossil fuel powered vehicles.	Appoint a professional to provide a transport plan to reduce emissions associated with private vehicle use in comparison to a reference building. Includes reduced vehicle emissions, increase active transport and reduction in trip kilometres. **And**	Rowe & Transport		No							Sustainable transport guidance to be provided to users as part of BUG.	
	P27.7			Walkability		Provide at least 10 amenities across at least five categories within 400m of the project site. Prioritise pedestrians over cars with strict speed limits on site.	FCDS		No		1					Project has more than 12 amenities within 500m.	
	P28.1	Enjoyable Places	The building provides places that are enjoyable and inclusive.	Publicly Accessible Spaces	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	For non-residential spaces, provide 0.25m^2/ occupant or 2.5% of GFA (whichever is greater). For residential spaces provide 1.75m^2 per dwelling, with a minimum of 250m^2. **and**	MSA - Requires 63m2 Public Access Space	2	No							Design does not include public space.	
	P28.2			Activation Strategy		Develop and fund an activation strategy to ensure placemaking continues after practical completion. The strategy must address target activities, funding, timing of activation, facilitators/suppliers, encouragement, future implementation.	MSA & Elven Property		No								
	P29.1	Contribution to Place	The building's design makes a positive contribution to the quality of the public environment.	Urban Context Analysis	The building's design contributes to the liveability of the wider urban context and enhances the public realm.	Provide an urban content report that considers economic, physical, social and cultural factors and considers planned changes to the local area. The plan should identify challenges which the building can contribute to solving and demonstrate appropriate design responses **or**	MSA	2	No					2		Project provides amenity for the community.	
	P29.2			Independent Design Review		Utilise an independent design review panel - such as the OGA - to undertake design reviews at key points in the design. As a minimum this includes at concept / schematic phase, design development phase and at building permit stage.	MSA & Elven Property		No								
	P30.1	Culture Heritage and Identity	The building reflects local culture, heritage and identity	Community Led Design Response	The building's design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities. This celebration was arrived through meaningful engagement with community groups early in the design process.	Produce a report detailing the community engagement activities undertaken and resultant design responses through features such as: • Community art or placemaking projects; • Selection of suppliers/designers of artwork or cultural elements; • Building elements that tell stories of the past and heritage; and • Spaces and uses that reflect the local identities. **or**	MSA & Elven Property	1	No							Design does not address local cultural or heritage values.	
	P30.2			Independent Design Review		Utilise an independent design review panel - such as the OGA - to undertake design reviews at key points in the design. As a minimum this includes at concept / schematic phase, design development phase and at building permit stag	MSA & Elven Property		No								

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People	P31.1	Inclusive Construction Practices	The builder's construction practices promotes diversity and reduces physical and mental health impacts	Minimum Requirement	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.	The main contractor shall provide gender specific bathrooms and PPE on site and provide policies and training on discrimination, racism, bullying, drug and alcohol awareness and mental health.	Builder / Main Contractor	0	Yes		Met					ESD Specification to address this requirement.	
	P31.2			Needs Analysis	The head contractor provides high quality staff support on-site to reduce at least five key physical and mental health impacts relevant to construction workers. They must also evaluate the effectiveness of their interventions.	The contractor must complete a needs analysis of site workers and contractors to determine appropriate actions. The policies and programs should be relevant to all construction workers on site for the full duration of construction. A mix of programs is acceptable throughout the duration of construction period. **and**	Builder / Main Contractor	1	No					1			
	P31.3			Physical and Mental Health Impacts		The head contractor must introduce programs and solutions to address at least five of the following: • Suicide prevention; • Healthy eating and active living; • Reduce harmful alcohol and tobacco consumption and avoid drug use; • Increased social cohesion, community and cultural participation; • Understanding depression; • Preventing violence and injury; • Decreased psychological stress; and • Finding fulfilment at work or mindful meditation. **and**	Builder / Main Contractor		No							Compliance will be reviewed with the contractor. Standard OH&S provisions for some builders achieve compliance with the credit intent.	
	P31.4			Evaluating Effectiveness		Provide an evaluation report to the client and sub-contractors including programs and initiatives delivered and whether they delivered the intended outcomes.	Builder / Main Contractor		No								
	P32.1	Indigenous Inclusion	The building celebrates Aboriginal and Torres Strait Islander people, culture and heritage.	Reconciliation Action Plan	The building's design and construction celebrates Aboriginal and Torres Strait Islander people, culture and heritage by undertaking one or both of the following: • Playing an active role in the organisational Reconciliation Action Plan; and • Incorporating design elements using the Indigenous Design and Planning principles.	Ensure that the project team includes a member of the organisation RAP Working Group. In addition, at least 90% of the project RAP targets are to have been met and all implemented actions related to the RAP are publicly reported on the Project's website. Any design element must be informed by consultation undertaken with the local Aboriginal and Torres Strait Islander community or through nominated representatives. **or**	MSA & Elven Property	2	No							Project team are not working within an existing RAP.	
	P32.2			Inclusion of Indigenous Design		Demonstrate that the Australian Indigenous Design Charter are incorporated within the design. As a minimum, ensure the following are addressed: • Indigenous Led: Ensure Aboriginal and Torres Strait Islander representation in the creation of the design; • Community Specific: Ensure respect for the diversity of Aboriginal and Torres Strait Islander culture by following community specific cultural protocols; • Impact of Design: Always consider the reception and implications of all designs so that they are respectful to Indigenous culture; and • Shared Knowledge (collaboration, co-creation, procurement): Develop and implement respectful methods for all levels of engagement and sharing of Indigenous knowledge (collaboration, co-creation, procurement).	MSA & Elven Property		No								
	P33.1	Procurement and Workforce Inclusion	The building's construction facilitates workforce participation and economic development of disadvantaged and under-represented groups.	Social Procurement Strategy	Through the implementation of a social procurement strategy, at least 2% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.	Create a strategy which includes a description of project objectives, needs and targets, a demographic survey of the local region, description of roles and responsibilities, data collection tools and templates and reporting requirements.	Elven Property	2	No							Outside of the scope of this project.	
	P33.2			Employment Opportunities Strategies		Direct 2% of project's contract value to generate employment opportunities for disadvantaged and under-represented groups either directly, through workforce targets; or indirectly, through social procurement.	Elven Property		No								
	P33.3			Exceptional Performance	Through the implementation of a social procurement strategy, at least 4% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.	Direct 4% of project's contract value to generate employment opportunities for disadvantaged and under-represented groups either directly, through workforce targets; or indirectly, through social procurement.	Elven Property	1	No								
	P34.1	Design for Inclusion	The building is welcoming to a diverse population and is welcoming to their needs.	Accessible Navigation	The building is designed and constructed to be inclusive to a diverse range of people with different needs.	Ensure the building's design and construction must be able to be navigated and enjoyed by stakeholders of diverse ages, genders, and abilities (for example physical, sight, sound, mind, spectrum), including: • Equal access to the building: Provide equitable, appealing, safe, and secure access in a manner that does not segregate or stigmatise users through all principal entrance points and main thoroughfares inside and outside the building; • Diverse wayfinding: Introduce visual, physical, olfactory, and auditory solutions to help individuals navigate the site in a safe and enjoyable manner; and • Inclusive spaces: Introduce internal and external spaces for a diverse range of users, including parents, family restrooms, emergency rooms, quiet rooms and social interaction rooms. These rooms must be accessible to all users.	MSA	2	No					2		Green Star has recently reduced benchmark to allow for reduced outcomes. Provision of lifts and UATs may achieve outcome, to be reviewed as design progresses.	
	P34.2			Design for Dignity	Engagement with target groups has informed the inclusive design.	Ensure the design aligns with best practice guidelines, such as the Design for Dignity Guidelines: Principals for Beyond Compliance Accessibility in Urban Regeneration. Building solutions that are expected to be included would be assistive technologies, emotional health spaces, acoustic treatments, adaptive strategies, gender, size, and physical appropriate facilities.	MSA	1	No								

Full Circle Design Services

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Nature	N35.1	Impacts to Nature	Ecological value is conserved and protected.	Impacts to Nature - Minimum Requirements	The building was not built on, or significantly impacted, a site with a high ecological value.	Ensure site preparation and construction works do not clear: – Old-growth forest, – Prime agricultural land, – Any area within 100m of a wetland listed as being of 'High National Importance', – Aspects considered 'Matters of National Significance' listed under the Environmental Protection and Biodiversity Conservation Act (1999)	FCDS	0	Yes		Met					No major issue for this project. Site is compliant.	
	N35.2			Light Pollution to Neighbouring Bodies		Demonstrate that all outdoor lighting on the project complies with AS 4282:1997 Control of the obtrusive effects of outdoor lighting.	Electrical		Yes		Met					Project will minimise light spill.	
	N35.3			Light Pollution to Night Sky		Demonstrate that no external luminaire on the project has a ULOR that exceeds 5%, relative to its actual mounted orientation **or** that the direct illuminance from external luminaires on the project produce a maximum initial point illuminance value no greater than 0.5 Lux to the Site Boundary and 0.1 Lux to 4.5m beyond the site into the night sky.	Electrical & Lanscape		Yes		Met					Electrical consultant to design to avoid light spill.	
	N35.4			Wetland Management Plan		Where the building is within 100m of a wetland, generate and make public a site-specific Wetland Management Plan. The plan must be prepared by a qualified Ecologist or other qualified professional and include requirements for ongoing quarterly monitoring, annual reporting and management of the wetland ecosystem for a minimum of five years.	Elven Property & Lanscape		Yes		Met					Not applicable for this site.	
	N35.5			Ecological Value	• The building's design and construction conserves existing natural soil, hydrological flows and vegetation elements; and • If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.	Demonstrate to current, future and past ecological values of the site are to be protected. Including assessment of local and regional threats and mitigation requirements and engaging with the local community **and**	Elven Property & Lanscape	2	No					2		Project meets this requirement. Existing site is developed building and hard stand.	
	N35.6			Diversity Protection		Where an ecologist has assessed the area as high ecological value the project must retain at least 50% of the site area and manage impacts of light and noise pollution, habitat connectivity, water quality, migration and two other local issues.	Elven Property & Lanscape		No							Project is not considered high ecological value.	
	N36.1	Biodiversity Enhancement	The building's landscape enhances the biodiversity of the site.	Landscape Area	• The building's site includes an appropriate landscape area; • The landscaping includes a diversity of species and prioritises the use of climate-resilient and indigenous plants; and • The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative.	Provide landscaping over 15% of the site area or 0.2% of the GFA - whichever is Greater.	Lanscape - Requires ~178m2 Landscaped Area	2	No							Design has planting on structure.	
	N36.2			Diversity of Species		Landscape must be > 60% indigenous and achieve diversity of: * 10% Plant Species * 20% plant genus * 30% plant family. Provide 1 nesting tree per 500m^2 of landscaped area.	Lanscape		No							To be reviewed with landscape designer, considered difficult with turf.	
	N36.3			Biodiversity Management Plan		An ecologist must assess and verify that the choice of landscaping and biodiversity is diverse and resilient to climate change impacts, thereby increasing the longevity of the landscape. An Ecologist must provide this narrative.	Lanscape		No							No biodiversity plan is to be produced.	
	N36.4			Increased Landscape Area	• A greater area of landscaping is provided; and • The landscaping includes critically endangered and/or endangered plant species native to the bioregion.	Provide landscaping over 30% of the site area or 0.333% of the GFA - whichever is Greater.	Lanscape - Requires ~395m2 Landscaped Area	2	No							Design does not achieve 30%	
	N36.5			Increased Diversity of Species		Landscape must be > 80% indigenous and achieve diversity of: * <10% Plant single species * <20% Plants single genus * <30% Plants single family. Provide 1 nesting tree per 250m^2 of landscaped area.	Lanscape		No								
	N37.1a	Nature Connectivity	Wildlife movement is facilitated within and adjacent to the site	Landscaping	The site must be built to encourage species connectivity through the site, and to adjacent sites - through either landscaping **or** Infrastructure. If the project sits within a blue or green grid strategy it must contribute to the goals of the strategy.	Provide landscape which is contiguous with existing, restored and new habitats. As a minimum requirement for habitat connectedness, the conservation area must make up at least 25% of the total external area within the building's site boundary to a minimum of 182m²	Lanscape	2	No							Design does not connect green spaces across site.	
	N37.1b			Infrastructure		Include design features such as a canopy bridge, wildlife tunnels, green roofs, amphibian tunnels and green infrastructure are used to connect nature on site to adjacent natural areas	Lanscape & Civil		No								
	N38.1	Nature Stewardship	Biodiversity is restored beyond the building site.	Offsite Restoration	The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity at scale beyond the development's boundary.	Achieve "Impacts to Nature" credit and restore an area at least equivalent to the GFA of the project.	Elven Property	2	No							Outside of project team scope.	
	N39.1	Waterway Protection	Local waterways are protected, and the impacts of flooding and drought are reduced.	Run Off Volume	The building demonstrates an annual average flow reduction (ML/yr.) of 40% compared to pre-development levels and meets specified pollutants targets.	The development must demonstrate an annual average flow reduction (ML/yr.) of 40% compared to pre-development levels **and**	Civil	2	No					2		Design expected to infiltrate stormwater on site - avoiding external stormwater systems.	
	N39.2			Water Pollution		Total Suspended Solids (TSS) 85% Gross Pollutants 90% Total Nitrogen 45% Total Phosphorus 65%	Civil		No								
	N39.3			Run Off Volume	The building demonstrates an annual average flow reduction (ML/yr.) of 80% compared to pre-development levels and meets specified pollutants targets.	The development must demonstrate an annual average flow reduction (ML/yr.) of 80% compared to pre-development levels **and**	Civil	2	No					2		Design expected to infiltrate stormwater on site - avoiding external stormwater systems.	
	N39.4			Water Pollution		Total Suspended Solids (TSS) 90% Gross Pollutants 95% Total Nitrogen 60% Total Phosphorus 70%	Civil		No								

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Leadership	M40.1	Market Transformation	Celebrates initiatives or outcomes that are deemed new and break barriers, and in turn inspire others to follow.	Inclusive Construction Practices	The project is seeking to remove physical barriers to participation in the construction workforce for different groups, particularly women who represent less than 2% of the construction and building workforce	Women in construction represent more than 2% of construction and building workforce		1	No							Credits currently under review	
	M41.1	Leadership Challenges	The project meets a Leadership Challenge developed by the GBCA	Net Zero	Where all Net Zero Pathway credits are met, a bonus credit is awarded			1	No				1			Stretch tagrts would achieve this outcom.	$0
	M41.2			Fossil Fuel Free Construction Site	The project minimises the use of fossil fuels, such as diesel, petrol or LPG, for powering construction machinery, equipment and site offices during on-site construction activities. **High Emitting** Activities are defined as: - Excavation - Demolition - Earthworks - Concrete Pumping - Piling and Drilling - Generators - Cranes	The project has achieved **Responsible Construction** Credit • **20%** of high emitting construction equipment on high emitting construction activities is fossil fuel free • The site offices are powered by **100%** renewable energy • All **electricity** used by the construction site is 100% renewable.		1	No							Requires discussion with contractor. Considered difficult.	
	M41.3					• **50%** of high emitting construction equipment on high emitting construction activities is fossil fuel free		1	No								
	M41.4					• **100%** of all construction equipment is fossil fuel free		1	No								
	M41.5			Responsible Products	The building's products are comprised of responsibly manufactured products.	The building has both Best Practice Products and a high amount of Good Practice Products for structure, envelope, systems and/or finishes		1	No								
	M41.6					The building has both Best Practice Products and a high amount of Good Practice Products for structure, envelope, systems and/or finishes		1	No								
	M41.7					The building has both Best Practice Products and a high amount of Good Practice Products for structure, envelope, systems and/or finishes		1	No								
	M41.8					The building has both Best Practice Products and a high amount of Good Practice Products for structure, envelope, systems and/or finishes		1	No								
	M41.9			Circular Economy	The project team has identified and implemented circular economy initiatives to increase the circularity of material/s/product/s within the supply chain/s of the project.	• The project team identifies and implements circular economy principles and initiatives • The project team demonstrates an increased circularity of 10% (weighted by cost)		2	No								
	M41.10					The project team demonstrates an increased circularity of 20% (weighted by cost)		1	No								