

# Gillieston Public School redevelopment and new public preschool

**SUSTAINABLE DEVELOPMENT PLAN (SDP) – PHASE 3  
SCHEMATIC DESIGN**

JANUARY 2025



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## Sustainable Development Plan (SDP) – Phase 3 Schematic Design

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# CONTENTS

<b>CONTACT .....</b>	<b>1</b>
<b>Version Control.....</b>	<b>0</b>
<b>Contents .....</b>	<b>1</b>
<b>Glossary .....</b>	<b>3</b>
<b>Executive Summary.....</b>	<b>4</b>
<b>1 Background .....</b>	<b>5</b>
1.1 Introduction .....	5
1.2 Proposal.....	Error! Bookmark not defined.
1.3 Significance of Environmental Impacts .....	5
1.4 Site Description .....	5
1.5 Reference Documents .....	7
<b>2 Project Response to Planning Requirements .....</b>	<b>8</b>
2.1 Environmental Planning and Assessment Regulation – Clause 7(4).....	9
2.2 NSW SEPP (Sustainable Buildings) 2022 – Chapter 3.2 (1) .....	10
<b>3 Other Sustainability Drivers .....</b>	<b>11</b>
<b>4 Proposed Sustainable Design Initiatives .....</b>	<b>13</b>
4.1 Indoor Environment Quality .....	13
4.2 Water .....	14
4.3 Energy .....	14
4.4 Waste .....	15
4.5 Materials .....	15
4.6 Connection to Country .....	16
4.7 Climate Change.....	16

**5 Conclusion and Next Steps.....18**

**Appendix A – Green Star Scorecard .....19**

**Appendix B – ESD Schedule.....20**

# GLOSSARY

## Abbreviations

Term	Definition
EFSG	Educational Facilities Standards and Guidelines (NSW Department of Education school design guide)
EPD	Environmental Product Declaration
ESD	Environmentally Sustainable Development
ESG	Environmental, Social and Governance
GBCA	Green Building Council of Australia (Administer the Green Star buildings ratings system)
GHG	Greenhouse Gas
GREP	Government Resource Efficiency Policy (mandated policy for NSW Government agencies)
NCC	National Construction Code
SINSW	School Infrastructure NSW (NSW Department of Education directorate)

## Executive Summary

Arcadis was engaged by School Infrastructure NSW (SINSW) to develop a Sustainable Development Plan (SDP) for Gillieston Public School (formerly known as Maitland Public School). This SDP outlines key sustainability opportunities and sets clear sustainability targets in accordance with SINSW's requirements. The SDP has been prepared in line with the Department of Education's Educational Facilities Standards and Guidelines (EFSG), the Green Star Buildings Rating System, and the SINSW Design Framework for Sustainability. This report has also been prepared to respond to REF and other planning requirements.

In developing the SDP, the Arcadis sustainability team has been collaborating closely with designers and other consultants during the master planning, concept design and schematic design phases. This collaboration was essential to integrate sustainability early in the design process and identify potential opportunities to meet the sustainability targets established by SINSW. The SDP includes an ESD Schedule which defines the design and construction evidence requirements necessary to achieve the sustainability goals and will guide the implementation of sustainability measures throughout the activity process.

A critical aspect of the SDP is the requirement to achieve a minimum 4-star Green Star rating for schools located outside of Sydney, Wollongong, and Newcastle. Given that Gillieston Public School is situated outside these prescribed LGAs, it must attain at least this 4-star rating. We have prepared a preliminary Green Star scorecard that currently achieves 35 points, meeting the minimum score required for a 4-star rating with additional buffer points to ensure the required rating level is maintained. Table 1 presents a summary of the points breakdown.

**Table 1 - Green Star point summary**

Environmental Category	Points Available	4 star
RESPONSIBLE	17	5
HEALTHY	14	8
RESILIENT	8	2
POSITIVE	30	11
PLACES	8	3
PEOPLE	9	6
NATURE	14	0
SUB-TOTAL POINTS	100	35
LEADERSHIP	5	0
<b>TOTAL SCORE</b>	<b>105</b>	<b>35</b>

This SDP will evolve into a Sustainable Development Report (SDR) post-construction, capturing the final sustainability outcomes and ensuring that all ESD measures have been effectively implemented to meet the project's sustainability targets.

# 1 Background

## 1.1 Introduction

Arcadis has been engaged to develop a Sustainable Development Plan (SDP) for Gillieston Public School, located in Gillieston Heights, NSW, as part of the Phase 3 Schematic Design works. The purpose of this report is to identify key sustainability opportunities and address the sustainability objectives outlined by SINSW. The Schematic Design, prepared by SHAC Architects, aligns with SINSW's requirements and is supported by the preliminary Green Star scorecard (**Appendix A**) and the ESD Schedule (**Appendix B**).

## 1.2 Activity

The Gillieston Public School redevelopment and new public preschool have been identified by the NSW Department of Education (DoE) as requiring redevelopment. The Gillieston Public School redevelopment and new public preschool is driven by service need including increase in expected student enrolments and the and removing demountable structure and replacement with permanent teaching spaces.

The Gillieston Public School redevelopment and new public preschool comprises the following activity:

- Demolition and removal of existing temporary structures.
- Site preparation activity, including demolition, earthworks, tree removal.
- Construction of new:
  - 32 permanent general learning spaces and 3 support teaching spaces
  - Administration and staff hubs
  - Hall, canteen and library
  - Out of school hours care
  - Public preschool (standalone building for 60 places)
  - Covered Outdoor Learning Areas (COLAs)
  - Outdoor play areas, including games courts and yarning circle
  - New at-grade car parking
  - Extension of the existing drop-off / pick-up area and new bus bay
  - Realignment of the existing fencing
  - Associated stormwater infrastructure upgrades
  - Associated landscaping
  - Associated pedestrian and road upgrade activity

## 1.3 Significance of Environmental Impacts

Based on the identification of potential impacts and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that all potential impacts can be appropriately mitigated to ensure that there is minimal impact on the locality, community and/or the environment.

## 1.4 Site Description

The Site is identified as 100 Ryans Road and 19 Northview Street, Gillieston Heights, legally described as Lot 51 DP 1162489 and Lot 2 DP1308605. The Site is located within the Maitland Local Government Area (LGA) and is zoned RU2 Rural Landscape and R1 General Residential zone under the provisions of the Maitland Local Environmental Plan 2011 (MLEP2011).

Existing attributes of the subject site are noted as follows:



- The subject site exhibits an area of approximately 23,385m<sup>2</sup> and is located in the suburb of Gillieston Heights;
- The subject site has a frontage to Ryans Road to the east, Gillieston Road to the north, and Northview Street to the south;
- In its existing state, the subject site comprises the existing Gillieston Public School. Existing school buildings are primarily located in the west portion of the subject site with a large area of open space situated in the eastern portion. There are limited permanent structures located on the subject site with thirteen (13) existing demountable classrooms currently occupying the subject site. Permanent buildings consist of the Main Administration Building, Original Brick Cottage, Library and GLS building located in the centre of the subject site; and
- Carparking is provided from Gillieston Road for staff. Pedestrian access is available via this main entrance from Gillieston Road and via a separate pedestrian-only access gates on Northview Street and Ryans Road.

The existing site context is shown in Figure 1 and Figure 2 below.



Figure 1 – Cadastral Map (Source: NSW Spatial Viewer, 2024)



Figure 2 – Site Aerial Map (Source: Near Map, 2024)

## 1.5 Reference Documents

This report has been prepared based on the information and drawings shown below:

- Architectural drawings produced by SHAC Architects, dated 14/10/2024 (to be updated with the latest copy at the time of lodgement)
- Mechanical and Electrical Schematic Design report and drawings dated 17/10/2024
- Green Star Buildings v1 Submission Guidelines – Rev C, dated 18/10/2023
- NSW Sustainable Buildings SEPP – Technical Note, dated September 2023
- NCC 2022 Section J Energy Efficiency

## 2 Project Response to Planning Requirements

The project must meet the relevant planning and environmental requirements in accordance with the principles of Ecologically Sustainable Development (ESD). The table below outlines the applicable requirements and where the project responses can be found.

Criteria	Relevant Section/Report	Response
Identify how ESD principles (as defined in clause 7(4) of Schedule 2 of the EP&A Regulation) are to be incorporated in the design and ongoing operation of the development.	Refer to Section 3.1	Refer to Section 3.1
Outline how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards and integrate environmental design strategies in accordance with the Environmental Design in Schools Manual.	Section 4 Appendix A	<p>The project is committed to targeting a 4 Star Green Star Buildings v1 rating which is an industry recognised building sustainability tool.</p> <p>Passive design - Passive design measures will be implemented such that the building design demonstrates reduced heating and cooling loads when compared to the standard DTS building to maintain indoor thermal comfort.</p> <p>Energy efficiency – 10% reduction in energy consumption is targeted as a minimum. Moreover a solar array will be provided to reduce the operational energy further.</p>
Outline how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources	Section 4.3 Net Zero Statement	<p>In order to maximise the overall energy efficiency of the site, demand must first be reduced, then systems must be designed in the most efficient manner. On-site renewable energy will be sized to meet the energy generation on site, as much as practicable.</p> <p>The building fabric has been carefully designed using a combination of solid elements and glazing. Shading devices, overhangs and screens all serve to control heat gains through the façade in summer whilst maintaining good daylight and views</p> <p>An energy metering and monitoring system will be incorporated to measure and monitor the main energy uses within the development.</p>
<p>Where Chapter 3 of the SEPP (Sustainable Buildings) 2022 applies:</p> <ul style="list-style-type: none"> <li>demonstrate how the development has been designed to address the provisions set out in Chapter 3.2(1).</li> </ul>	Refer to Section 2.2	Refer to Section 2.2

Criteria	Relevant Section/Report	Response
<ul style="list-style-type: none"> <li>provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35B of the EP&amp;A Regulation.</li> </ul>	NABERS Embodied Emissions Report	The project has completed a NABERS Embodied Emissions Material Form based on the Cost plan provided by the Quantity Surveyor.
<ul style="list-style-type: none"> <li>provide a net zero statement (as defined in section 35C of the EP&amp;A Regulation) that includes               <ul style="list-style-type: none"> <li>evidence of how the development will either be fossil fuel-free after the occupation of the development commences or transition to be fossil fuel-free by 1 January 2035.</li> <li>details of any renewable energy generation and storage infrastructure implemented and any passive and technical design features that minimise energy consumption.</li> <li>estimations of annual energy consumption for the building and amount of emissions relating to energy use in the building (if information is available).</li> </ul> </li> </ul>	Net Zero Statement	The project has completed a Net Zero Statement which was certified by an engineer.

## 2.1 Environmental Planning and Assessment Regulation – Clause 7(4)

- The Precautionary Principle**

Serious or irreversible damage to the environment is being avoided by previously developed land for the site. A thorough site investigation was also conducted at early project phase to ensure that there are no serious and irreversible environmental impacts. The design principles within the Green Star Buildings tool are being applied to this site which will ensure that the risk of environmental damage is very low. An Environmental Management Plan is to be developed by the Head Contractor for the project to implement measures during construction to minimise impacts on the environment.

- Inter-Generational Equity**

The Project will maintain the health, diversity and productivity of the environment for future generations by minimising the consumption of energy and water, and waste generation. **Section 4** outlines the initiatives to be implemented.

- Conservation of biological diversity and ecological integrity**

The activity will be designed to ensure biological diversity and ecological value is improved for the site via careful landscape design. Special emphasis will be placed on the introduction of a diverse range of landscaping.

- **Improved valuation, pricing and incentive mechanisms**

The project will include a number of measures to internalise pollution and consider the life cycle cost of systems. Per the EFSG, all design considerations must take into account whole of life, including maintenance, access, quality, life span, future improvements and sustainability. An EMS will be in place throughout construction to ensure that pollution is prevented, and waste is minimised through effective waste stream handling, collection and recycling.

## 2.2 NSW SEPP (Sustainable Buildings) 2022 – Chapter 3.2 (1)

- **The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials**

During construction, the head contractors will aim to minimise waste associated with construction and demolition and will plan to target at least 80% of the construction and demolition waste from landfill.

- **A reduction in peak demand for electricity, including through the use of energy efficient technology**

Energy efficient strategies and technologies will be used in building services systems to reduce energy consumption and manage the operational demands on the systems

- **A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design**

Passive design measures such as efficient building fabric with thermal mass, well oriented shading systems, high performing glazing are included in the buildings design.

- **The generation and storage of renewable energy**

Rooftop photovoltaics are included in the buildings design.

- **The metering and monitoring of energy consumption**

Energy monitoring system will be installed to report on energy and water uses.

- **The minimisation of the consumption of potable water.**

Energy monitoring system will be installed to report on energy and water uses.

### 3 Other Sustainability Drivers

SINSW promotes the benefits of incorporating sustainable development concepts and approaches into building design, construction, and operation to meet current and future accommodation requirements. This commitment is guided by a range of guidelines and state regulations, including:

#### Education Facilities Standards and Guidelines (EFSG)

EFSG is as a comprehensive resource for planning, designing, and operating school facilities within the NSW Department of Education. SINSW takes a clear stance on environmentally sustainable development and outlines key sustainability principles within the EFSG and aligns with current Australian best practices. The EFSG sets essential standards for schools, emphasizing their role in creating eco-friendly and forward-looking educational environments. This has been captured in the ESD Schedule.

#### NSW Government Resource Efficiency Policy (GREP)

The NSW Government Resource Efficiency Policy (GREP) is a comprehensive strategy designed to align state projects with sustainability objectives, which all SINSW projects must comply with. GREP focuses on enhancing resource efficiency within NSW Government agencies, specifically targeting three key areas: energy, water, and waste management. Additionally, the policy aims to mitigate harmful air emissions resulting from government operations. By addressing the rising costs of energy, water, clean air, and waste management, GREP enables government agencies to leverage their purchasing power to promote the adoption of resource-efficient technologies and services. It also sets a strong example by embedding resource efficiency into decision-making processes.

#### Green Star Buildings

The Green Star Buildings Framework is a comprehensive rating system and certification program designed to assess and promote the sustainability of buildings and construction projects, primarily in Australia. It provides guidelines and performance criteria across various categories, including energy efficiency, water usage, indoor environmental quality, materials, and innovation, to evaluate a building's environmental performance. This framework encourages the integration of sustainable practices and technologies into building design and construction, fostering environmentally friendly and energy-efficient structures. In line with GREP requirements, Gillieston Public School must achieve a minimum 4-star Green Star rating as it is outside the Sydney, Wollongong, and Newcastle regions. Details of the scorecard can be found in **Appendix A**.

#### NSW Sustainable Buildings SEPP

The NSW Sustainable Buildings State Environmental Planning Policies aims to simplify, measure and report the way buildings are planned and designed in NSW. Sustainable Buildings SEPP was introduced to measure the performance of new buildings in NSW and to ensure that new buildings are in alignment with the Net Zero commitments set by the state government.

As per the requirements outlined in NSW Sustainable Buildings SEPP, all new commercial buildings >1,000 m<sup>2</sup> should measure and report on the embodied emissions for the building. Furthermore, all State Significant developments, such as educational buildings must produce a Net Zero Statement to show the developments does not use fossil fuels or can transition by 2035 in alignment with NSW government's net zero ambitions. Gillieston Public School meets the above criteria and must prepare a Embodied emissions report and Net Zero Statement as part of Design Development. (separate documents provided)

## City of Maitland – Environmental Sustainability Strategy

The City of Maitland's sustainability objectives focus on enhancing environmental quality, promoting economic resilience, and fostering social equity. Key goals include reducing greenhouse gas emissions and improving energy efficiency through initiatives such as increased use of renewable energy sources and retrofitting buildings. The city aims to promote sustainable transportation by developing bike-friendly infrastructure and supporting public transit.

Maitland is committed to waste management and resource conservation, emphasizing recycling programs and reducing landfill dependency. Water conservation is also a priority, with efforts to improve water efficiency and manage stormwater sustainably.

Additionally, the city seeks to create green spaces and improve urban biodiversity, contributing to residents' quality of life and ecological health. Socially, Maitland aims to ensure equitable access to sustainability initiatives, engaging communities in environmental programs and promoting inclusive practices.

Economic sustainability is supported through fostering green jobs and supporting local businesses that align with environmental goals. Overall, Maitland's approach integrates environmental stewardship with economic and social development, striving for a balanced, resilient, and inclusive city for the future.



## 4 Proposed Sustainable Design Initiatives

Arcadis has identified potential sustainability opportunities based on key environmental criteria, aligning with the preliminary Green Star scorecard, relevant EFSG guidelines, and SINSW's overarching sustainability goals. These opportunities were initially developed during the Concept Design phase and have been updated and reviewed during the Schematic Design phase. As the project progresses into Detailed Design, these initiatives will be further refined and updated to ensure they continue to meet the project's evolving sustainability targets.

A summary of the initiatives is provided below, with further details on timing, evidence, and responsibilities outlined in the ESD schedule in **Appendix B**.

### 4.1 Indoor Environment Quality

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Use of Low VOC paints	Use low emissions paints of all internal flat and low-sheen areas, and water-based paints for all internal, gloss or semi-gloss finishes	Healthy – Exposure to Toxins (Credit 13)	Unlock Human Potential	DG 2.5.2 - Low VOC
Passive Design Solution – Optimising Building Insulation	Install optimum insulation in new/existing building fabric where possible i.e., floors or internal walls to improve energy efficiency and thermal comfort in all occupied spaces	Positive – Energy Use (Credit 22)	Act on Climate Change	DG 55 – Thermal Comfort and Indoor Air Quality Performance
Passive Design Solution – Improved Glazing	Replacing existing glazing with improved glazing i.e., low-e, double glazed systems to improve thermal comfort, energy efficiency and sealing.	Positive – Energy Use (Credit 22)	Act on Climate Change	DG 55 – Thermal Comfort and Indoor Air Quality Performance
Thermal Comfort	Predicted Mean Vote between +1 and -1 or all occupied areas	-	Unlock Human Potential	DG 55 – Thermal Comfort and Indoor Air Quality Performance
Passive Design - Ventilation	Incorporate natural ventilation in buildings, and artificial ventilation for spaces which	Healthy – Clean Air (Credit 10)	Unlock Human Potential	DG 57 - Thermal Comfort and Indoor Air Quality Performance



cannot be ventilated naturally.

## 4.2 Water

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Reduced potable water usage	Reduced potable water usage by using rainwater for irrigation.	Reducing Water Use (Credit	Act on Climate Change	DG 53 - Water
Low water use in landscaping	Use of Australian native plants and low water species plants for landscaping.	Nature – Biodiversity Enhancement (Credit 36)	Act on Climate Change	-
Water efficient fixtures	All fixtures and water-using appliances installed within the project's scope must, at a minimum, meet the prescribed WELS ratings.  4.0 star rated toilets, 5.0 star rated Kitchen Taps, 6.0 star bathroom taps	Positive – Water Use (Credit 25)	Consume Responsibly	DG 53 - Water

**As per SINSW's advice, toilet flushing will use potable water. Note that there is a risk that this will not be compliant with Green Star Credit-Reducing Water Use (15% reduction in potable water use). Measures must be taken to compensate for potable water use in toilet flushing.**

## 4.3 Energy

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Passive design solutions - Optimising building insulation	Install optimum insulation in new/existing building fabric where possible i.e., floors or internal walls to improve energy efficiency and thermal comfort in all occupied spaces. Refer to the Modelling Report for details on insulation.	Positive – Energy Use (Credit 22)	Act on Climate Change	DG02.03 – Energy Conservation
Passive design solutions – improved glazing	Replacing existing glazing with improved glazing i.e., low-e, double glazed systems to improve thermal comfort, energy efficiency and sealing. Refer to the <b>Modelling Report</b> for details on glazing requirements.	Positive – Energy Use (Credit 22)	Act on Climate Change	DG02.03 – Energy Conservation

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Monitoring Systems	Smart building technologies and intelligent controls for ventilation, air conditioning, and lighting controls, to optimize energy usage. HVAC Temperature Humidity and CO2 Sensors will be provided to measure ambient air conditions through the precinct BMS. Motion sensors are provided to deactivate HVAC systems when unoccupied. Lighting motion and timing sensors activate lighting and dimming sensitivity to reduce energy use.	Responsible – Verification and Handover (Credit 3)	Act on Climate Change	DG 55 Thermal Comfort DG 63 Lighting Design

#### 4.4 Waste

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Waste Management	Provide waste collection facilities that are labelled, easily to accessible, and evenly distributed throughout the buildings.	Responsible – Collection of Waste Streams (4)	Consume Responsibly	DG 02.7.1

#### 4.5 Materials

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Recycled and reused materials	Maximise recycled and reused material in the construction of buildings.	Responsible - Responsible Envelope (7.1), Responsible Systems (8.1-8.2) and Responsible Finishes (9.1-9.2)	Consume Responsibly	DG 02.05

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Material selection to reduce absorption of heat	Choose light-coloured and reflective materials for pavements, sidewalks, and buildings to reduce the absorption of solar heat.	Resilient – Heat Resilient (19)	Build Resilience	DG20

#### 4.6 Connection to Country

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
At least 80% of plants are indigenous, native plant species	Choose native plant species that are indigenous to the local area and provide habitat and food sources for native fauna.	Nature – Biodiversity Enhancement (36)	Foster Connections	DG02.06
Community use of facilities	Design facilities for use outside of school hours for activities such as weekend church groups, sport events and public meetings.	Community Resilience (18)	Foster Connections	DG16.08 Department of Education's Community Use of School Facilities Implementation Procedures

#### 4.7 Climate Change

A climate change risk and adaptation workshop was conducted on 24 March 2023, where stakeholders and consultants assessed how the project can respond to future expected environmental conditions as a result of climate change.

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Climate Change Risk Assessment	Conduct a CCRA to identify all extreme, high, medium, and low risks to the project.	Resilient – Climate Change (16)	Act on Climate Change	-

Initiative	Description	Green Star Credit	SINSW Sustainability Strategy Priority	EFSG Criteria
Prepare a climate change adaptation and resilience plan	Mitigate all high and extreme risks to the project and consider adaptation measures for most medium risks.	Resilient – Climate Change (16) Resilient – Operations Resilience (17) Resilient – Community Resilience (18)	Act on Climate Change	-

## 5 Conclusion and Next Steps

This ESD report outlines the sustainable design initiatives integrated into the proposed Gillieston Public School at 100 Ryans Road, Gillieston Heights, NSW at Phase 3 – Schematic Design. The following consolidated summary of the mitigation measures were identified throughout your report.

Project Stage <i>Design (D)</i> <i>Construction (C)</i> <i>Operation (O)</i>	Mitigation Measures	Relevant Section of Report
D / C / O	The project will contribute to NSW's Net Zero emissions goal by 2050.	Section 4 Net Zero Statement
D / C	The project is on track to achieve 4 Star Green rating. The project has been registered with GBCA and a draft scorecard has been prepared.	Appendix A
D	The project will be fossil fuel-free after the occupation of the activity commences	Section 4 Net Zero Statement
D	Renewable energy generation and any passive and technical design features were incorporated to minimise energy consumption.	Section 4 Net Zero Statement

As the project progresses to the next phases, these initiatives will be further evaluated and refined against the Green Star submission requirements, EFSG guidelines, and NCC Section J requirements, as specified in SINSW's scope provisions.

This report serves as a foundational document to further embed sustainability into the design process, aligning with SINSW's objectives to deliver a net-positive school building.

## **Appendix A – Green Star Scorecard**



Date	17/10/2024
Revision	1.0
Author	ST/AV
Tool	v1 Rev C
Project	Gillieston Public School

Credit Risk	Points	Minimum
Low	22	16
Medium	13	0
High	0	1
Total targeted	35	-

Credit Title	Aim of Credit	Credit Code	Criteria Title	Credit Requirements Summary <i>For full criteria refer to Green Star for Buildings Submission Guidelines</i>	Points Available	4 star pathway	Credit Risk Status	Corresponding EFSG Requirement
RESPONSIBLE								
Industry Development	The development facilitates industry transformation through partnership, collaboration and data sharing.	Credit Achievement; meet all three of the following criteria:						
		1.1	Green Star Accredited Professional	A Green Star AP must be contractually engaged as part of the core project team for the duration of the project.	1	1	Low	0.03 Sustainability Benchmarking
		1.2	Financial Transparency	The project team discloses the cost of sustainable building practices of the project, including design, construction and documentation to the GBCA.			Low	
		1.3	Marketing Sustainability Achievements	Information on the sustainability initiatives that the building targeted must be provided to enable it being featured on the GBCA's website. The project team must outline how the building will detail its sustainability achievements to its stakeholders (typical building occupants and visitors). The Green Star Certification achieved for the project must be prominently displayed in a location that is visible to the public.			Low	
Responsible Construction	The builder's construction practices reduce impacts and promote opportunities for improved environmental and social outcomes.	Minimum Expectation; meet all four of the following criteria:						
		2.1	Environmental Management System	Builder must have an Environmental Management System (EMS) certified to a recognised standard, such as AS/NZS ISO 14001, BS 7750 or the European Community's EMAS.	ME	ME	Low	N/A
		2.2	Environmental Management Plan	The Environmental Management Plan (EMP) must be project specific and cover the scope of construction activities. It must be implemented from the start of construction and include all works within the project scope.			Low	N/A
		2.3	Construction and Demolition Waste	Projects must divert at least <b>80%</b> of construction and demolition waste from landfill. A Disclosure Statement is required from waste contractors and processing facilities outlining how the company and their reporting aligns with the <i>Green Star Construction and Demolition Waste Reporting Criteria</i> .			Low	0.10 Construction and demolition waste
		2.4	Sustainability Training	The Builder must provide the following training to 95% of all contractors and subcontractors present on site for at least three (3) days: • Information on the sustainable building certification(s) sought, including: – the sustainability attributes of the building and their benefits; – the value of certification; and – the role site worker(s) play in delivering a sustainable building.			Low	N/A
		Credit Achievement; in addition to the Minimum Expectation, meet the following criteria:						
		2.5	Construction and Demolition Waste Diversion	Projects must divert at least <b>90%</b> of construction and demolition waste from landfill. A Disclosure Statement is required from waste contractors and processing facilities outlining how the company and their reporting aligns with the <i>Green Star Construction and Demolition Waste Reporting Criteria</i> .	1		Not targeted	

Verification and Handover	The building has been optimised and handed over to deliver a high level of performance in operation.	Minimum Expectation; meet all three of the following criteria:						
		3.1	Metering and Monitoring	The building must have accessible energy and water metering for all common uses, major uses, and major sources. The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters. The meters and monitoring systems must: <ul style="list-style-type: none"><li>• Provide continual information (up to 1-hour interval readings);</li><li>• Be commissioned and validated per the most current 'Validating Non-Utility Meters for NABERS Ratings' protocol, or National Measurement Institute (NMI) standards;</li><li>• Be capable of identifying inaccuracies in the meter network and producing alerts. Inaccuracies are defined as those over meter tolerances based on their metering accuracy class (e.g. 'Class 1' meters shall not have inaccuracies of more than 1% due to metering accuracy class); and</li><li>• Be sufficient to support future achievement of a NABERS rating.</li></ul>	ME	ME	Low	N/A
		3.2	Commissioning and Tuning	The project team must perform the following prior to construction: <ul style="list-style-type: none"><li>• Set environmental performance targets; and</li><li>• Perform a services and maintainability review;</li><li>• Design for airtightness;</li></ul> During construction and practical completion: <ul style="list-style-type: none"><li>• Commission the building; and</li><li>• Engage building tuning service provider;</li><li>• Test for airtightness;</li></ul> After practical completion: <ul style="list-style-type: none"><li>• Tune the building over the next 12 months.</li></ul>			Low	N/A
		3.3	Building Information	The project team must provide the following to the building owner: <ul style="list-style-type: none"><li>• Operations and maintenance information for all nominated building systems;</li><li>• A building log book developed in line with CIBSE TM31: Building Log Book Toolkit before practical completion of the project; and</li><li>• Building user information.</li></ul>			Low	N/A
		Credit Achievement; in addition to the Minimum Expectation, meet one or both (Building Services Value > \$20M) of the following criteria:						
		3.4	Soft Landings Approach	The Builder is to implement Stages 1 - 4 of the <i>Soft Landing Framework Australia and New Zealand</i> .	1		Not targeted	
		3.5	Independent Commissioning Agent	An ICA must be appointed to advise, monitor, and verify the commissioning and tuning of the nominated building systems throughout the design, tender, construction, commissioning and tuning phases.			Not targeted	
Responsible Resource Management	Operational waste is able to be recovered in a safe and easy manner.	Minimum Expectation; meet all three of the following criteria:						



		4.1	Collection of Waste Streams	<p>The building must provide bins or storage containers to building occupants to enable them to separate their waste. These bins must be labelled and easy to access, and evenly distributed throughout the building. They must also allow for separating the following as a minimum:</p> <ul style="list-style-type: none"> <li>• General waste going to landfill</li> <li>• Recycling streams to be collected by the building's waste collection service, including: <ul style="list-style-type: none"> <li>– paper and cardboard</li> <li>– glass</li> <li>– plastic</li> </ul> </li> <li>• One additional waste stream identified by the project team. This may include collecting any of the following waste types: organics, e-waste, batteries etc. Any other single waste stream (except food waste) that is expected to represent more than 5% of total annual operational waste and resources (by volume) must also be included.</li> </ul>	ME	ME	Low	0.10 Operational Waste
		4.2	Dedicated Waste Storage Area	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. The storage area(s) must have easy and safe access by collection vehicles.			Low	
		4.3	Signoff by Waste Specialist and/or Contractor	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. The storage area(s) must have easy and safe access by collection vehicles.			Low	

Responsible Procurement	The procurement process for all products, materials, and services follows best practice environmental and social principles.	Credit Achievement; meet both of the following criteria:						
		5.1	Risk and Opportunity Assessment	<p>Prior to appointment of the Head Contractor, the project team must undertake a risk and opportunities assessment of 10 or more key items in the project's supply chain (as selected by the project team) to identify environmental, social and human health risks, and opportunities following ISO 20400 Sustainable Procurement – Guidance. The assessment must be completed by the design team with input from the building owner. At least one of each of the following three areas must be represented in the 10 items:</p> <ul style="list-style-type: none"> <li>• Building Services</li> <li>• Plant &amp; Equipment</li> <li>• Materials</li> </ul> <p>The risk assessment must consider risks and opportunities further down the supply chain, such as in the extraction, manufacture, or transport of key materials. The risk and opportunity assessment must address at least the following issues:</p> <ul style="list-style-type: none"> <li>• Human rights</li> <li>• Labour practices</li> <li>• The environment</li> <li>• Fair operating practices</li> <li>• Consumer issues</li> <li>• Community involvement and development</li> </ul>	1		Not targeted	
		5.2	Responsible Procurement Plan	<p>The project team must develop a plan for how the project will responsibly procure 10 or more key items mitigating risks and implementing opportunities identified in the Assessment following ISO 20400 Sustainable Procurement – Guidance as a guide to developing the plan.</p> <p>The plan must:</p> <ul style="list-style-type: none"> <li>• Identify the potential trade packages in which the 10 or more items would be procured</li> <li>• Identify project-level environmental, social, economic objectives reflecting the risks and opportunities assessment</li> <li>• Outline mitigation principles and standards</li> <li>• Establish a governance process with roles and responsibilities for overseeing implementation of the procurement plan objectives</li> <li>• Outline requirements for data collection and impact measurement monitoring and reporting</li> <li>• Provide a framework for incentivising the achievement of the plan with relevant contractors and trades</li> </ul> <p>The plan must be embedded in tender documentation for the head contractor or relevant trades. It must be implemented in partnership with relevant contractors and trades throughout construction, demonstrating data collection, monitoring, and reporting has been carried out.</p>			Not targeted	
Responsible Structure	The building's structure is comprised of responsibly manufactured products.	Credit Achievement						
		6.1	Responsible Products Value	50% of all structural components (by cost) meet a Responsible Products Value of at least 10.	3	3	Medium	

		Exceptional Performance						
		6.2	Minimum or Average Responsible Products Value	In addition to 6.1, one of the following must be met: • 10% of all products in the structure (by cost) meet a Responsible Products Value of at least 15 Or • 80% of all products in the structure (by cost) meet a Responsible Products Value of at least 10.	2		Not targeted	
Responsible Envelope	The building's envelope is comprised of responsibly manufactured products.	Credit Achievement						
		7.1	Responsible Products Value	30% of all building envelope components (by cost) meet a Responsible Products Value of at least 10.	2		Not targeted	
		Exceptional Performance						
		7.2	Minimum or Average Responsible Products Value	In addition to 7.1, one of the following must be met: • 10% of all products in the building envelope (by cost) meet a Responsible Products Value of at least 15 or • 60% of all products in building envelope (by cost) meet a Responsible Products Value of at least 10.	2		Not targeted	

Responsible Systems	The building's mechanical, electrical, hydraulic and transport systems are comprised of responsibly manufactured products.	Credit Achievement						
		8.1	Responsible Products Value	20% of all active building systems (by cost) meet a Responsible Products Value of at least 6.	1		Not targeted	
		Exceptional Performance						
		8.2	Minimum or Average Responsible Products Value	In addition to 8.1, one of the following must be met: • 5% of all active building systems (by cost) meet a Responsible Products Value of at least 11 or • 35% of all active building systems (by cost) meet a Responsible Products Value of at least 6.	1		Not targeted	
Responsible Finishes	The building's internal finishes are comprised of responsibly manufactured products.	Credit Achievement						
		9.1	Responsible Products Value	40% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7.	1	1	Low	
		Exceptional Performance						
		9.2	Minimum or Average Responsible Products Value	In addition to 9.1, one of the following must be met: • 10% of all internal building finishes (by cost) meet a Responsible Products Value of at least 12 or • 60% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7.	1		Not targeted	
RESPONSIBLE Total					17	5		0

HEALTHY										
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.	Minimum Expectation; meet all three of the following criteria:								
		10.1	Ventilation System Attributes	• Separation from pollutants: Non-residential building ventilation systems must be designed to comply with ASHRAE Standard 62.1:2013 or AS 1668:2012 (whichever is greater) regarding minimum separation distances between pollution sources and outdoor air intakes. If using ASHRAE Standard 62.1:2013, compliance is to be demonstrated in accordance with the distances specified in Table 5.5.1 of the Standard. Analytical solutions are also acceptable by following the example provided within Appendix F of ASHRAE Standard 62.1: 2013. Class 2 and Class 3 building ventilation systems must be designed to comply with the separation distances as outlined in Australian Standards 1668.2:2012 (table 3.4) • Cleaning ductwork: all ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised standard.			ME	ME	Low	
		10.2	Provision of Outdoor Air	Outdoor air is provided at a rate <b>50%</b> greater than the minimum required by AS1668.2-2012, or CO <sub>2</sub> concentrations are maintained below <b>800ppm</b> at all times during the occupancy period.					Low	
		10.3	Exhaust or Elimination of Pollutants	It must be demonstrated that pollutants from printing and photocopying equipment, cooking processes and equipment are limited from the nominated area by either: • Removing the source of pollutants; or • Exhausting the pollutants directly to the outside.					Low	
		Credit Achievement; in addition to the Minimum Expectation, meet both of the following criteria:								
		10.4	Ventilation System Attributes	Any mechanical ventilation system within the building must provide adequate access to both sides of all moisture and debris-catching components for maintenance within the air distribution system.			2		Not targeted	
		10.5	Provision of Outdoor Air	For mechanically ventilated or mix mode spaces, outdoor air is provided at a rate <b>100%</b> greater than the minimum required by AS1668.2-2012, or CO <sub>2</sub> concentrations are maintained below <b>700ppm</b> at all times during the occupancy period.					Not targeted	
		Minimum Expectation; meet all three of the following criteria:								
		11.1	Lighting Comfort	Lighting within the building must meet the following requirements: • All LED lighting installed across the whole project has no observable effect as per the standard IEEE 1789-2015 - IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers • 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 with a maintained illuminance that meets the levels recommended in AS/NZS 1680.1:2006 series applicable to the project type and including maintenance • The maintained Illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4 • All light sources must have a MacAdam Ellipse or a Standard Deviation Colour Matching (SDCM) of 3 or lower.					Low	0.06 Lighting and Daylight

Light Quality	The building provides good daylight and its lighting is of high quality.	11.2	Glare from Light Sources	Bare light sources must be fitted with baffles, louvers, translucent diffusers, ceiling design, or other means that obscures the direct light source from all viewing angles of occupants, including occupants looking directly upwards. Refer the Submission guidelines for more prescriptive pathways.	ME	ME	Low	0.06 Glare Control and shading
		11.3	Daylight	<p>The project team is required to show how the building's design:</p> <ul style="list-style-type: none"><li>• Maximises the number of occupants that are in or near daylit areas during their daily activities for all building types;</li><li>• Ensures regularly occupied spaces are in reasonable proximity to glazed façades, windows or skylights;</li><li>• Controls or mitigates glare in the daylit spaces;</li><li>• Maximises daylight to spaces that prioritise learning, healing, and living:<ul style="list-style-type: none"><li>– For schools, how all classrooms have access to a view and daylight;</li></ul></li><li>• Provides building occupants with unrestricted access to daylit indoor common spaces.</li></ul>			Low	0.06 Lighting and Daylight

		Credit Achievement; meet at least one criteria (2 points)   Exceptional Performance; meet both criteria (4 points)						
		11.4	Artificial Lighting	<ul style="list-style-type: none"><li>• 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. This requirement does not apply to green walls or to coloured/patterned/biophilic feature walls that make up less than 20% of the field of view of the occupants; and</li><li>• Vertical illuminance in workspaces: ensure that 50% of the horizontal task illuminance reaches the average eye height for 90% of primary spaces using a vertical illuminance calculation grid.</li></ul> The illuminance values must be calculated in accordance with AS/NZS 1680 series for the relevant task. Where unknown, a conservative estimate can be used.	4		Not targeted	
		11.5	Daylight	For non-residential buildings, at least 40% of the nominated area averaged across the building must receive high levels of daylight with no less than 20% on any floor or tenancy (whichever is smaller).		2	Medium	0.06 Lighting and Daylight
Acoustic Comfort	The building provides acoustic comfort for building occupants.	Minimum Expectation						
		12.1	Acoustic Comfort Strategy	<p>An Acoustic Comfort Strategy must be prepared describing how the building design will deliver acoustic comfort to the building occupants. It must address:</p> <ul style="list-style-type: none"><li>• Quiet enjoyment of space;</li><li>• Functional use of space;</li><li>• Control of intrusive or high levels of noise;</li><li>• Privacy;</li><li>• Noise Transfer; and</li><li>• Speech intelligibility.</li></ul> <p>The Acoustic Comfort Strategy is to include:</p> <ul style="list-style-type: none"><li>• A summary of the Standards, legislation, guidelines, and other requirements that apply to the project</li><li>• The proposed performance metrics for each of the Acoustic Comfort criteria relevant to the different uses within the building and whether this exceeds minimum legislative or best practice guidelines</li><li>• Description of how the design solution is intended to achieve the proposed performance metrics</li></ul> <p>The strategy must be prepared by a qualified acoustic consultant during the design stage and the design solutions described in the strategy must be incorporated into the Contract Documents.</p>	ME	ME	Low	
		Credit Achievement; in addition to the Minimum Expectation, meet 3 of 5 of the following criteria:						
		12.2	Maximum Internal Noise Levels	<p>In addition to the Minimum Expectation, the following are the applicable acoustic criteria assessable under this credit:</p> <ul style="list-style-type: none"><li>• Maximum Internal Noise Levels</li><li>• Minimum Internal Noise Levels</li><li>• Acoustic Separation</li><li>• Impact Noise Transfer</li><li>• Reverberation Control (non-residential spaces only)</li></ul> <p>Depending upon the project type, the project must comply with some, or all, of the above criteria</p>	2	2	Low	
		12.3	Minimum Internal Noise Levels	Internal ambient noise levels in the regularly occupied areas must be no less than 5 dB below the lower range value relevant to the activity type in each space as recommended in the current AS/NZS 2107:2016.			Low	

		12.4	Acoustic Separation	The project must address noise transmission between enclosed spaces within the nominated area demonstrated through privacy or sound insulation.		Low	
		12.5	Impact Noise Transfer	Impact noise transfer measured in accordance with ISO 16283-2 through a floor where: <ul style="list-style-type: none"> <li>Floors are located above nominated areas; or</li> <li>Adjacent spaces belonging to different tenancies which share a floor must not exceed dB LnT,w: <ul style="list-style-type: none"> <li>– 55 for floors above residential accommodation spaces; and</li> <li>– 60 for all other spaces.</li> </ul> </li> </ul>		Not targeted	
		12.6	Reverberation Control	Reverberation time in the regularly occupied area must be below the maximum stated in the 'Recommended Reverberation Time' provided in Table 1 of AS/NZ 2107:2016.		Not targeted	



Exposure to Toxins	The building's occupants are not directly exposed to toxins in the spaces they spend time in.	Minimum Expectation; meet all three of the following criteria:						
		13.1	Paints, Adhesives, Sealants & Carpets	At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) must meet stipulated 'Total Volatile Organic Compounds (TVOC) Limits' below. Compliance can be demonstrated in the following ways: • The product(s) are certified under a Recognised Product Certification Scheme listed in the 'Exposure to Toxins Product Certifications Schemes Index'. The certificate must be current at the time of purchase • The product(s) are tested in a laboratory • There are no paints, adhesives, sealants, and carpets in the building at practical completion	ME	ME	Low	0.08 Sustainable Materials
		13.2	Engineered Wood Products	Either no new engineered wood products are used in the building or at least 95% (by area) of all engineered wood products meet specified formaldehyde emission limits.			Low	
		13.3	Banned or Highly Toxic Materials	A comprehensive hazardous materials survey must be carried out. Asbestos, lead or PCBs have been stabilised or removed and disposed in accordance with best practice guidelines; or the survey concluded that no hazardous materials were found in any existing buildings or structures on the project site.			Low	
		Credit Achievement; in addition to the Minimum Expectation, meet the following criteria:						
		13.4	TVOC and Formaldehyde Levels	Onsite test meeting following limits: • TVOC = 0.27 ppm; • Formaldehyde = 0.02 ppm; and • At least three samples are to be taken per floor. These must be representative of where the occupants are likely to spend a majority of their time.	2	2	Low	0.08 Sustainable Materials
Amenity and Comfort	The building provides internal amenities that improve occupant experience of using the building.	Credit Achievement						
		14.1	Amenity Rooms	The building includes one or several rooms designed to promote either inclusivity, mindfulness or exercise for staff or occupants. For a room(s) to qualify, it must be classified as per below: • Parent room; • Relaxation, meditation or prayer room; or • Exercise room; and The room size to be provided must be as follows: • The size of the room is calculated at a ratio of 1m <sup>2</sup> per every 10 occupants or staff; and • The room must be no smaller than 10m <sup>2</sup>	2	2	Low	
Connection to Nature	The building fosters connection to nature for building occupants.	Credit Achievement; Views + either Plants and Nature-inspired design or Interaction with Nature   Exceptional Performance; all criteria						
		15.1	Views	At least 60% of the nominated area has a clear line of sight to a high quality internal or external view. All floor areas within 8m from a compliant view can be considered to meet this credit criterion.	2		Not targeted	
		15.2	Plants	Indoor plants must be provided in regularly occupied areas. One or more plants in pots with a soil surface area totalling at least 500cm <sup>2</sup> for every 15m <sup>2</sup> of the primary spaces is required. An ongoing maintenance plan must be established to ensure plant health is maintained.			Not targeted	
		15.3	Nature-inspired Design	Five additional nature-inspired design interventions must be provided in alignment with the following principles: • Elements that provide multiple natural sensory experiences; • Elements that reflect natural and cultural patterns and forms; • Using natural materials; and • Large scale and holistically incorporated natural motifs and art.			Not targeted	

		15.4	Interaction with Nature	<ul style="list-style-type: none"> <li>• Occupants can interact with nature either inside the building, or externally through a green façade (or wall) or garden;</li> <li>• At least 5% of the building's floor area/or site area (whichever is greater) must be planted area (either vertical or horizontal); and</li> <li>• The allocated area must be accessible and have the necessary infrastructure to allow the activity to occur.</li> </ul>			Not targeted	
HEALTHY Total					14	8		0

RESILIENT								
Climate Change Resilience	The building has been built to respond to the direct and indirect impacts of climate change.	Minimum Expectation						
		16.1	Pre-screening Assessment	Project team members must consider potential impacts from climate change when completing the checklist including, but not limited to: • Direct damage or failure of project components; • Accelerated deterioration of project components or reduced design life; • Reduced operating capacity; • Climate hazard impacts to surrounding areas (e.g. impacting access and egress); • Impacts to the health and wellbeing of building occupants and other relevant stakeholders; and • Indirect risks from impacts to other interdependent systems and services (e.g. transport networks, power, water, telecommunications).	ME	ME	Low	0.05 Climate Change Adaptation
		Credit Achievement; in addition to the Minimum Expectation, meet both the following criteria:						
		16.2	Climate Change Risk and Adaptation Assessment	A suitably qualified professional must undertake a climate change risk and adaptation assessment and author a report.	1	1	Low	0.05 Climate Change Adaptation
		16.3	Managing Risks	The project team must ensure risks are addressed as follows: • All risks rated as 'Extreme' must be addressed through specific design responses; • All risks rated as 'High' must be addressed through design or future operational responses; and • Regardless of risk rating, at least two risks identified in the assessment must be addressed by specific design responses.			Low	
Operations Resilience	The building can respond to acute shocks and chronic stresses that can affect its operations over time.	Credit Achievement; meet all three of the following criteria:						
		17.1	Comprehensive Risk Assessment	The suitably qualified professional authoring the operations resilience assessment must • Identify a set of clear resilience objectives and performance goals for the project and provide a diverse range of actions; • Collaborate with key internal and external project stakeholders to identify and confirm the relevant acute shocks and chronic stresses likely to impact the functionality of the project and its ability to meet performance goals; • Identify and confirm a range of interdependent infrastructure systems, networks, services and assets on which the project is likely to rely and interface with; • Identify key areas of system vulnerability, specifically how these may be affected by the identified shocks and stresses and as result may impact the project through reduced capacity and/or functionality; and • Outline emergency response procedures in the event of an identified shock event/natural disaster impacting the project and the local community. • Consult with relevant authorities with regards to evacuation procedures and emergency actions.	2		Not targeted	
		17.2	Managing Risks	• All risks rated as 'Extreme' must be addressed through specific design responses. • All risks rated as 'High' must be addressed through design or future operational responses. • Regardless of risk rating, at least two risks identified in the assessment must be addressed by specific design responses.			Not targeted	
		17.3	Addressing Power Loss	Project team must assess building's survivability in the case of a blackout, then designed to account for its design purpose and provide a measure of survivability.			Not targeted	
		Credit Achievement						

Community Resilience	The building contributes to improving the resilience of the community.	18.1	Community Resilience Plan	<p>The project team must develop a community resilience plan that:</p> <ul style="list-style-type: none"> <li>• Defines its surrounding local community, and the groups which rely on or interact directly or indirectly with the building. In addition to considering tenants and visitors, this must identify key vulnerable communities;</li> <li>• Identifies resilience objectives and goals associated with servicing the community;</li> <li>• Identifies social considerations affecting the community;</li> <li>• Identifies acute shocks and chronic stresses that impact the project's function and ability to service the community (including climate-related shocks and stresses if the Climate Change Resilience credit is not targeted);</li> <li>• Demonstrates how the development of actions (physical and non-physical responses) to manage the impact from shocks and stresses is in response to the outcomes of community engagement;</li> <li>• Shows how the two most significant impacts identified are dealt with specifically through the building's design; and</li> <li>• Identifies how material shocks and stresses identified for the building may impact on these stakeholders by considering a clear set of social indicators</li> </ul>	1		Not targeted	
Heat Resilience	The building reduces its impact on heat island effect.	Credit Achievement						
		19.1	Heat Island Reduction	<p>Design responses to mitigate urban heat island.</p> <p>75% of the site area to be one or a combination of:</p> <ul style="list-style-type: none"> <li>• Vegetation;</li> <li>• Green roofs;</li> <li>• Roofing materials, including shading structures, having the following: <ul style="list-style-type: none"> <li>– For roof pitched &lt;15°– a three-year SRI of minimum 64; or</li> <li>– For roof pitched &gt;15°– a three-year SRI of minimum 34.</li> </ul> </li> <li>• Unshaded hard-scaping elements with a three-year SRI of minimum 34 or an initial SRI of minimum 39;</li> <li>• Hardscaping elements shaded by overhanging vegetation; and</li> <li>• Water bodies and/or water courses.</li> </ul> <p>Area of site that is shaded by permanent structures during the summer solstice are also deemed compliant</p>	1	1	Low	
Grid Resilience	The building contributes to the functioning of the grid as it transitions to a higher level of renewable energy capacity.	Credit Achievement; meet one criteria or a combination of Active Generation and Storage Systems and Demand Response criteria:						
		20.1	Active Generation and Storage Systems	<p>The building has 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.</p> <p>The peak demand reduction can occur through</p> <ul style="list-style-type: none"> <li>• thermal storage solutions (such as chilled water storage systems);</li> <li>• electricity storage solutions (batteries); or</li> <li>• renewable on-site generation.</li> </ul> <p>Building management system (BMS) must include a demand management dashboard that shows the peak demand target, current, historical demand, alongside the critical performance characteristics. The BMS must also have the capacity to accept external control signals to enable signing up to current or future demand response programs</p>	3		Not targeted	
		20.2	Demand Response	<p>The demand response strategy must show how at least 10% of the building's annual peak electricity demand is being shed without affecting occupant amenity (comfort, lighting, movement) as outlined in credits Light Quality and Amenity and Comfort for at least 4 hours.</p>			Not targeted	

		20.3	Passive Design Solutions	<ul style="list-style-type: none"><li>• The building's facade demonstrates a 10% improvement over a reference building modelled to Section J requirements of the National Construction Code 2019, or the version of the code applicable to the building's construction, whichever is later. The calculation must follow either Method 2 in the wall/glazing calculator or use a JV3 model; and</li><li>• The building is mostly naturally ventilated (that is, the building has no mechanical cooling or heating for 80% of the building's occupiable area); and</li><li>• The building's occupiable area is less than 3,000m².</li></ul>			Not targeted	
RESILIENCE Total					8	2	0	
POSITIVE								
Upfront carbon emissions	The building's upfront carbon emission contributions from materials and products have been reduced and offset.	Minimum Expectation						
		21.1	Reducing Upfront Carbon Emissions	Emits 10% less upfront carbon emissions compared to a reference building	ME	ME	Low	N/A
		Credit Achievement; in addition to the Minimum Expectation, meet the following criteria:						
		21.2	Reducing Upfront Carbon Emissions	Emits 20% less upfront carbon emissions compared to a reference building. Demolition works are offset.	3	3	Medium	N/A
		21.3	Offsetting Demolition Works	Demolition works are offset			Medium	N/A
		Exceptional Performance; in addition to the Credit Achievement, meet the following criteria:						
21.4	Reducing Upfront Carbon Emissions	Emits 40% less upfront carbon emissions compared to a reference building	3		Not targeted			
Energy use	The building has low energy consumption.	Minimum Expectation						
		22.1	Reducing Energy Use	The building uses 10% less energy compared to a reference building.	ME	ME	Low	0.06 Energy Conservation
		Credit Achievement; in addition to the Minimum Expectation, meet the following criteria:						
		22.2	Reducing Energy Use	The building uses 20% less energy compared to a reference building.	3	3	Low	
		Exceptional Performance; in addition to the Credit Achievement, meet the following criteria:						
22.3	Reducing Energy Use	The building uses 30% less energy compared to a reference building.	3		Not targeted			

Energy source	The building's energy comes from renewables.	Minimum Expectation						
		23.1	Zero Carbon Action Plan	The project team must develop a Zero Carbon Action Plan for the building. The plan must be signed off by the building owner or developer and included in any operational documents for the building. The Zero Carbon Action Plan must include a target date by when the building is expected to operate as net zero carbon. The Zero Carbon Action Plan must cover all energy consumption, procurement, and generation and cannot rely on procuring renewable fuels as its only solution. It must also include infrastructure provided for tenants or future occupants such as gas installations for cooking.	ME	ME	Low	
		Credit Achievement; in addition to the Minimum Expectation, meet the following criteria:						
		23.2	Renewable Electricity	All <b>electricity</b> under the control of the building owner or operator must be accounted for and sourced from renewables.	3	3	Medium	
Other carbon emissions	The building's other carbon emissions, such as those from refrigerants, are eliminated or offset.	Exceptional Performance; in addition to the Credit Achievement, meet the following criteria:						
		23.3	Renewable Energy	All energy under the control of the building owner/operator and all non-electricity energy provided for uses that are not under the building owner's control must be sourced from renewables.	3		Not targeted	
		Credit Achievement						
		24.1	Eliminating or Offsetting Refrigerants	All refrigerants from building systems or domestic appliances provided by the building must be captured in the credit. There are two pathways available: • Eliminates high-GWP refrigerants from the building; or • Offsets 100% of carbon emissions from refrigerants.	2		Not targeted	
		Exceptional Performance; in addition to the Credit Achievement, meet the following criteria:						
		24.2	Other Emissions	The project must calculate and offset: • Emissions for refrigerants; • Emissions from the building's electricity use (as determined in the Energy Use credit) multiplied by the grid coefficient (unless the Energy Source Credit Achievement is met, in which case these emissions are zero); • Emissions from the building's energy use as determined in the Energy Use credit (unless the Energy Source Exceptional Performance is met, in which case these emissions are zero); • Upfront carbon emissions as determined in the Upfront carbon emissions credit; • Emissions from module A5 construction equipment use, and utilities during construction on site (unless the Life Cycle Impacts calculator was used for the Upfront Carbon Emissions credit); • Life cycle emissions from modules B and C as calculated in Life Cycle Impacts; • Construction waste emissions; and • Any other carbon emissions over 1% of the total carbon emissions profile for the building.	2		Not targeted	
		Minimum Expectation; meet one of the following criteria:						
		25.1	Sanitary Fixture and Appliance Efficiency	All fixtures and water-using appliances installed within the project's scope must, at a minimum, meet the prescribed WELS ratings.	ME	ME	Low	
		25.2	Reducing Water Use	Uses 15% less potable water compared to a reference building through the GBCA's Water Use Calculator.			High	
		Credit Achievement; in addition to the Minimum Expectation, meet both of the following criteria:						

Water use	The building has low water consumption.	25.3	Reducing Water Use	Uses 45% less potable water compared to a reference building through the GBCA's Water Use Calculator.	3		Not targeted	
		25.4	Recycled Water Infrastructure	Building must have infrastructure for recycled water in a district or location where local council or water authorities (or similar) have planned for installation of recycled water infrastructure.			Not targeted	
		Exceptional Performance; in addition to the Credit Achievement, meet the following criteria:						
		25.5	Reducing Water Use	Uses 75% less potable water compared to a reference building through the GBCA's Water Use Calculator.	3		Not targeted	
Life Cycle Impacts	The building has lower environmental impacts from key resources over its lifespan than a typical building.	Credit Achievement						
		26.1	Life Cycle Impacts	The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	2	2	Medium	
POSITIVE Total					30	11		0.0

PLACES								
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.	Minimum Expectation; meet both of the following criteria:						
		27.1	Changing Facilities	The project must provide adequate facilities for regular occupants (not for visitors), including: • Showers; and • Lockers.	ME	ME	Low	
		27.2	Accessible, Inclusive, and Located in a Safe and Protected Place	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.	ME	ME	Low	
		Credit Achievement; in addition to the Minimum Expectation, meet all four of the following criteria:						
		27.3	Bicycle Parking 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.	3	3	Low	
		27.4	Sustainable Transport	• The project team must prepare and implement a Sustainable Transport Plan. The requirements must be reflected in the design of the building's facilities and ongoing operational processes; and • Provide EV charging point to at least 5% of all car parking spaces, all car sharing parking spaces, infrastructure and load management plan for future 25% of all car parking spaces, and dedicated routes for future provision of electrical cabling.			Medium	
		27.5	Reducing Private Vehicle Use	Complete the Movement and Place Calculator and demonstrate at least: • Emission reduction: 40% • Active mode encouragement: 90% • VKT reduction: 20%			Low	
		27.6	Encouraging Walkability	Building's design and location must encourage walking to and from a number of amenities. This means designing roads within the site boundary to prioritise pedestrians, and either providing within, or being located close to, a number of amenities.			Low	
Enjoyable Places	The building provides places that are enjoyable and inclusive.	Credit Achievement; meet both of the following criteria:						
		28.1	Publically Accessible Places	The project provides new, publicly accessible spaces that are enjoyable and support community activity and interaction - 0.25 m <sup>2</sup> /occupant or 2.5% of GFA, whichever is greater.	2		Not targeted	
		28.2	Activation Strategy	An activation strategy must be provided to ensure placemaking continues after practical completion. The strategy must demonstrate how the future occupants and the wider community can contribute to the place activation.			Not targeted	
		Credit Achievement, meet one of the following criteria:						
		29.1	Urban Context Report	Provide an urban context report and demonstrate how building's design responds to it.			Not targeted	



Contribution to Place	The building's design makes a positive contribution to the quality of the public environment.	29.2	Independent Design Review	<p>Design reviews are held at key points in the development of the design. At a minimum, these must occur as follows:</p> <ul style="list-style-type: none"> <li>• Design Review during concept/schematic design stage, to ensure that proponents can take advantage of the advice offered at a time where the design is flexible enough to accommodate change without impacting on time and cost constraints;</li> <li>• A subsequent review when the design has been further progressed. This review session will typically occur during design development; and</li> <li>• At building permit stage (after development approval) a further check must take place by the Design Review Panel Chair or delegate, to ensure that the final design reflects approved development application and any relevant conditions related to design quality.</li> </ul>	2		Not targeted	
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Culture, Heritage and Identity	The building reflects local culture, heritage and identity.	30.1	Community led design response	The project team must show that they have undertaken local analysis to identify culture, heritage and identity unique to the project site and area. The project team must undertake community engagement as part of this local analysis, the project must reflect local identity, culture and heritage in the design of the building in a publicly demonstrable way. This can be achieved through: <ul style="list-style-type: none"><li>• Community art or placemaking projects;</li><li>• Selection of suppliers/designers of artwork or cultural elements;</li><li>• Building elements that tell stories of the past and heritage; and</li><li>• Spaces and uses that reflect the local identities</li></ul>	1		Not targeted	
		30.2	Independent Design Review	Design reviews are held at key points in the development of the design. At a minimum, these must occur as follows: <ul style="list-style-type: none"><li>• Design Review during concept/schematic design stage, to ensure that proponents can take advantage of the advice offered at a time where the design is flexible enough to accommodate change without impacting on time and cost constraints;</li><li>• A subsequent review when the design has been further progressed. This review session will typically occur during design development; and</li><li>• At building permit stage (after development approval) a further check must take place by the Design Review Panel Chair or delegate, to ensure that the final design reflects approved development application and any relevant conditions related to design quality.</li></ul>			Not targeted	
PLACES Total					8	3	0	
PEOPLE								
		Minimum Expectation						
		31.1	On-site Facilities, Policies and Training	The head contractor must ensure the following is provided, or available, on-site: <ul style="list-style-type: none"><li>• Separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy; and</li><li>• Diverse gender-specific fit-for-purpose personal protective equipment (PPE) for diverse body sizes and types.</li></ul> The head contractor must: <ul style="list-style-type: none"><li>• Implement policies to address issues of discrimination, racism, and bullying on-site;</li><li>• Introduce on-site redress procedures for any relevant breaches, and corrective measures to be put in place should any incident be identified;</li><li>• Empower a diverse lead team to manage these policies on-site, and</li><li>• Provide training to all contractors and sub-contractors on these policies (as per below).</li></ul> The head contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days: <ul style="list-style-type: none"><li>• Information on drug and alcohol awareness and mental health; and</li><li>• Information on policies implemented on discrimination, racism, and bullying on site.</li></ul>	ME	ME	Low	
		Credit Achievement: in addition to the Minimum Expectation, meet all three of the following criteria:						

Inclusive Construction Practices	The builder's construction practices promotes diversity and reduces physical and mental health impacts.	31.2	Needs Analysis	The responsible party should carry 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. • The programs must cover at least 80% of the workforce that have attended the site for more than three days from commencement on site to practical completion.	1		Not targeted	
		31.3	Physical and Mental Health Programs	The head contractor must show that they have introduced 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; • Finding fulfilment at work or mindful meditation; and • Other issues identified in the Needs Analysis.			Not targeted	
		31.4	Evaluating the Program's Effectiveness	The project must provide an evaluation report to the client and sub-contractors with the following information: • Information on the programs or initiatives that were delivered, including information on dates, attendance, and available languages; and • A review on whether the programs delivered the intended outcomes including recommendations for improving future delivery of these programs.			Not targeted	

Indigenous inclusion	The building celebrates Aboriginal and Torres Strait Islander people, culture and heritage.	Credit Achievement; meet one of the following criteria:						
		32.1	Reconciliation Action Plan	Project team must demonstrate that: • A key member of the Project Team is part of the organisational RAP Working Group; • At least 90% of the RAP targets have been met on the project; and • All implemented actions related to the RAP are publicly reported on the Project's website.	2		Not targeted	
		32.2	Inclusion of Indigenous design	The project team must demonstrate that the Australian Indigenous Design Charter guiding principles are incorporated in the design of the building including: • How local Aboriginal and Torres Strait Islander communities have been engaged throughout the design development; • How the project has been designed to acknowledge and recognise the Indigenous culture of the site; • How information on the reconciliation and cultural values of the project will be made available to the public, visitors and building tenants in the operational phase of the project's life.		2	Low	
Procurement and Workforce Inclusion	The building's construction facilitates workforce participation and economic development of disadvantaged and under-represented groups.	Credit Achievement; meet both of the following criteria:						
		33.1	Social Procurement Strategy	The project team must develop and implement a social procurement strategy or plan (this can be part of an overall project procurement plan/strategy) that directs at least <b>2%</b> of the building's total contract value to generate employment opportunities for disadvantaged and under-represented groups.	2	2	Low	
		33.2	Employment Opportunities	Generate employment opportunities for disadvantaged and under-represented groups either: • Directly, through workforce targets; or • Indirectly, through social procurement. A combination of these strategies can be used to achieve the credit, as long as the total dollar spend on the above activities is equal to or greater than the required <b>2%</b> value of the building's total contract value.			Medium	
		Exceptional Performance; meet both of the following criteria:						
		33.1	Social Procurement Strategy	The project team must develop and implement a social procurement strategy or plan (this can be part of an overall project procurement plan/strategy) that directs at least <b>4%</b> of the building's total contract value to generate employment opportunities for disadvantaged and under-represented groups.	1		Not targeted	
		33.2	Employment Opportunities	Generate employment opportunities for disadvantaged and under-represented groups either: • Directly, through workforce targets; or • Indirectly, through social procurement. A combination of these strategies can be used to achieve the credit, as long as the total dollar spend on the above activities is equal to or greater than the required <b>4%</b> value of the building's total contract value.			Not targeted	
		Credit Achievement						

Design for Inclusion	The building is welcoming to a diverse population and is welcoming to their needs.	34.1	Inclusive Design	The building's design and construction must be able to be navigated and enjoyed by stakeholders of diverse ages, genders, and abilities. This applies to common spaces, bathroom facilities and amenities provided within the building. This must include: <ul style="list-style-type: none"><li>• 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;</li><li>• Diverse wayfinding: Introduce visual, physical, olfactory, and auditory solutions to help individuals navigate the site in a safe and enjoyable manner; and</li><li>• 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.</li></ul>	2	2	Low	
		Exceptional Performance; in addition to the Minimum Expectation, meet the following criteria:						
		34.2	Needs Analysis	A Needs Analysis is conducted, meeting the following requirements: <ul style="list-style-type: none"><li>• The project team must consult with distinct community types to develop a needs analysis that will influence the project during the design phase;</li><li>• Consultation must be undertaken early in the design process and include a balanced cross-section of representation of the target group;</li><li>• Consultation must be considerate and relevant to the project; and</li><li>• The consultation process must generate a report that is then used to influence the design of the project.</li></ul> As a result of the needs analysis, the building must show how it aligns with best practice guidelines, such as the Design for Dignity Guidelines: Principles for Beyond Compliance Accessibility in Urban Regeneration.	1		Not targeted	
PEOPLE Total					9	6	0	

NATURE								
Impacts to Nature	Ecological value is conserved and protected	Minimum Expectation; meet all three of the following criteria:						
		35.1	Ecologically Sensitive Sites	At the date of purchase or option contract, land clearing does not occur on the site as a result of the building, infrastructure, or construction works on the following: • Old-growth forest; • Prime agricultural land; • Any wetland listed as being of 'High National Importance'; • Aspects considered 'Matters of National Environmental Significance' listed under the Environmental Protection and Biodiversity Conservation Act (1999).	ME	ME	Low	
		35.2	Managing Light Pollution Impacts	• Light pollution to neighbouring bodies: all outdoor lighting on the project complies with AS 4282:1997 Control of the obtrusive effects of outdoor lighting. • Light pollution to night sky: one of the following specified reductions in light pollution must be achieved by the project: - Control of upward light output ratio (ULOR); or - Control of direct illuminance.			Low	
		35.3	Wetland Management Plan	The site-specific Wetland Management 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. The plan must be exhibited to the public on the applicant's website, or the local council's offices or library, for a minimum of 24 months.			Low	
		Credit Achievement; in addition to the Minimum Expectation, meet both of the following criteria:						
		35.4	Protecting Ecological Values	• Context report: understand the site's historical and current ecological context by documenting the site's current ecological values by type and biomass. • Protecting ecology: show how ecological values will be protected.	2		Not targeted	
Biodiversity Enhancement	The building's landscape enhances the biodiversity of the site and off site	35.5	Retaining High Biodiversity Values	If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.			Not targeted	
		Credit Achievement: meet all three of the following criteria:						
		36.1	Landscape Area	At a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of the GFA, whichever is larger. Vertical or horizontal landscapes are acceptable.	2		Not targeted	
		36.2	Diversity of Species	• Landscape must be shown to be diverse and include multiple species/genus/etc. • Greater than 60% of plants must be indigenous and the site must include at least one significant (nesting) tree or equivalent habitat provision per 500m <sup>2</sup> of landscaped area. • No invasive species are allowed, as per the Australian Weeds Strategy 2017 to 2027.			Not targeted	
		36.3	Biodiversity Management Plan	A suitably qualified professional must prepare the plan must outline key actions that need to be undertaken in order to maintain the ecological integrity of biodiversity on the site, whether this is existing or that created as part of the development.			Not targeted	
		Exceptional Performance; in addition to the Minimum Expectation, meet both of the following criteria:						
		36.4	Landscape Area	As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 30% of the site area or at a ratio of 1:300 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable.			Not targeted	

		36.5	Diversity of Species	<ul style="list-style-type: none"> <li>• Landscape must be shown to be diverse and include multiple species/genus/etc.</li> <li>• An ecologist must review, assess and verify how the choice of landscaping and biodiversity is diverse and resilient to climate change impacts, thereby increasing the longevity of the landscape.</li> <li>• Greater than 80% of plants must be indigenous and the site must include at least one significant (nesting) tree or equivalent habitat provision per 250m<sup>2</sup> of landscaped area.</li> <li>• No invasive species are allowed, as per the Australian Weeds Strategy 2017 to 2027.</li> <li>• The site must preserve, restore and/or support vulnerable ecosystem through planting critically endangered and/or endangered plant species which are native to the bioregion.</li> </ul>	2		Not targeted	
		Credit Achievement						
Nature Connectivity	Wildlife movement is facilitated within and adjacent to the site.	37.1	Species Connectivity	<p>The site may include any of the following strategies:</p> <ul style="list-style-type: none"> <li>• Landscaping: Where connectivity is being achieved through landscaping, this must be 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 be eligible, this must be at least 182m<sup>2</sup>; or</li> <li>• Infrastructure: 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, which are either existing, restored or new.</li> </ul>	2		Not targeted	

Nature Stewardship	Biodiversity is restored beyond the building site.	Credit Achievement; meet all four of the following criteria:			2		Not targeted	
		38.1	Area of Restoration or Protection	The area of restoration must be equivalent to the total GFA of the development, or site area, whichever is greater.				
		38.2	Location of Restoration or Protection Activities	Land for restoration must be in Australia and restored to equivalent ecological value of the site before any development occurred. The location of the land designated for the offsite restoration must not be in the development boundary.				
		38.3	Activities to Protect or Restore	Achieving the credit can be done by either: • The project owner protecting or restoring an area offsite themselves; or • The project owner supports an organisation that restores an area on their behalf.				
		38.4	Legislated Requirements	Where the project is required to purchase biodiversity offsets, invest in land restoration, restore land, or similar, as part of an EPBC action, development approval, or other legislated requirements, these actions cannot be used to demonstrate compliance with this credit.				
Waterway Protection	Local waterways are protected, and the impacts of flooding and drought are reduced	Credit Achievement; meet both of the following criteria:			2		Not targeted	
		39.1	Stormwater Volume	Demonstrate a reduction in average annual stormwater discharge (ML/yr) of 40% across the whole site.				
		39.2	Pollution Reduction Targets	All stormwater discharged from site meets: Total Suspended Solids 85%; Gross Pollutants 90%; Total Nitrogen 45%; Total Phosphorus 65%				
		Exceptional Performance; in conjunction with the Minimum Expectation, meet both of the following criteria:			2		Not targeted	
		39.3	Stormwater Volume	Demonstrate a reduction in average annual stormwater discharge (ML/yr) of 80% across the whole site.				
		39.4	Pollution Reduction Targets	All stormwater discharged from site meets: Total Suspended Solids 90%; Gross Pollutants 95%; Total Nitrogen 60%; Total Phosphorus 70%				
NATURE Total					14	0		0
LEADERSHIP								
Market Transformation	Celebrates initiatives or outcomes that are deemed new and break barriers, and in turn inspire others to follow.	Credit Achievement, up to 5 points available			5		Not targeted	
		40.1	Innovative Initiatives	To claim points, the project team must show that an initiative is innovative by demonstrating that the technology or process is not commonly used within Australia's building industry globally, depending on the context of the innovation claimed. Projects must demonstrate these initiatives align with the following GBCA scoring metrics: • Control of outcome: the initiative delivers a guaranteed outcome • Length of impact: the initiative delivers long-lasting impacts • Scale of impact: the scale of impact is significant. For example, the outcome may satisfy multiple UN Sustainable Development Goals • Transformation potential: the initiative has the potential to transform an industry or sector • Value generation: the initiative can deliver benefits to both stakeholders (e.g. building owner or occupants) as well as the general public				
		Credit Achievement						



Leadership Challenges	Promotes achievements that are considered leading practice in Australia.	41.1	Leadership Challenges	Projects teams can target as many Leadership Challenges as they wish. Leadership Challenges will be uploaded to the GBCA website as they are developed. All criteria as listed on the Leadership Challenge must be met to claim reward.	Unlimited		Not targeted	
<b>LEADERSHIP Total</b>					<b>5</b>	<b>0</b>		<b>0</b>

Environmental Category	Points Available	4 star
RESPONSIBLE	17	5
HEALTHY	14	8
RESILIENT	8	2
POSITIVE	30	11
PLACES	8	3
PEOPLE	9	6
NATURE	14	0
<i>SUB-TOTAL POINTS</i>	<i>100</i>	<i>35</i>
LEADERSHIP	5	0
<b>TOTAL SCORE</b>	<b>105</b>	<b>35</b>
<b>Minimum Expectations met</b>		<b>Yes</b>
<b>4 Star - 15-34 points</b>   <b>5 Star - 35-70 points</b>   <b>6 Star - 70+ points</b>		

## **Appendix B – ESD Schedule**

PROJECT: REVISION AUTHOR	Selveston Public School A David Thomas - Arcadia									
Sustainability Strategy Priority	<b>Sustainability initiatives / requirements</b> Where applicable, this is an extract only from the relevant EFSG. For full requirements refer to <a href="https://efsg.dett.nsw.edu.au/">https://efsg.dett.nsw.edu.au/</a>	Project stage	Basis for initiative	Crossover with Green Star	Recommended evidence to demonstrate compliance	Has this been implemented in the project? Y or N or NA	Contractor's ESD consultant comments	Actual evidence This evidence needs to show that the requirement from column C has been met	Responsibility (Identify party responsible to provide evidence)	
Act on climate change	<b>Improvement over NCC</b> All new facilities must be designed and built so that energy consumption is predicted to be at least 10% lower than if built to minimum compliance with National Construction Code requirements.  Each building's system and facade must comply with the corresponding Section 1 requirements in the National Construction Code. That is, the building cannot show that their facade, or any system, performs worse than the reference building.  The energy consumption reduction must be achieved without including renewable energy generation in the calculation.	Ph 2-5: Architectural Design	DG02.03 GEP	DAB c15.0 GHG Emissions Reduction - Conditional Requirement	1. Energy modelling report / Predictive energy modelling and thermal comfort assessment. Report needs to show at least 10% improvement of building over minimum NCC requirements; and 2. As-built evidence that model is an accurate representation of the building, e.g. drawings; and 3. Specifications / calculations supporting modelling inputs, e.g. window energy rating scheme certificates, calculated R-values of walls, roofs, etc.	Y		Phase 3 - Energy modelling report completed	ESD	
	<b>Passive design</b> The need for active cooling and heating shall be minimised by employing passive / sustainable design principles listed in DG 55, DG 65.02 and DG 27.12 as well as the GA NSW Environmental Design in Schools Guidelines.  This includes: - Window size and shading to prioritise passive cooling in summer and heating in winter - Orientation - Thermal mass - building fabric colour and performance shading	Ph 2-5: Architectural Design	DG55 DG65.02 DG27.12 GA NSW Environmental Design in Schools	DAB c15 GHG Emissions Reduction	1. Thermal modelling report 2. As-built evidence demonstrating measures implemented to reduce need for active cooling / heating 3. Passive design report by Architect listing all passive design initiatives implemented	Y		Phase 2 - Architectural design drawings with passive design principles included. Sun hood in North facing windows Phase 3 - Thermal modelling report completed. Minimal walls to E, W. Cross ventilation. Perforated screens to northern windows considered	ESD/Architect	
Act on climate change	<b>Energy efficient lighting design and modelling</b> - LED lighting must be installed - The design of the lighting systems and the selection of fittings is to be undertaken based on a Whole of Life approach, such as diodes and control gear with a long life - Section 1 part 6 maximum illumination power density provisions must be adhered to, along with all other elements of part 6 - System must support sustainable design principles including reducing energy consumption, such as timed or sensor feedback functionality - Lighting designs should be carried out utilising industry standard lighting design software such as AGI32, Dialux or Relux.	Ph 2-5: Services Design	DG2.3.1 DG63.01 DG63.04 DG63.05 DG63.03.02	DAB c15 GHG Emissions Reduction	1. Lighting drawings 2. Lighting specifications / schedules 3. Lighting modelling report showing compliant power densities	NA		Phase 3 - N/A at this stage. It will be developed at Phase 4	Lighting designer	
Act on climate change	<b>Lighting control and switching</b> - The use of lighting controls will assist in substantially improving energy efficiency on sites, and should be considered for all new lighting systems, in new build or site refurbishments. - Lighting control should be simple to operate and adhere to all requirements of DG 63.06 - Constant Light Output and Daylight Harvesting systems are recommended given their ability to reduce lighting energy whilst maintaining comfortably lit spaces. Consideration should be given to these strategies as stipulated in DG 63.06 - Including daylight sensors in rooms to reduce light output or turn off light when sufficient daylight is provided within the space - When the space is large and perimeter lighting is adjacent to windows, perimeter lighting is on a separate zone to make maximum use of daylight - Local switching should be provided where it is identified that the users can benefit from manual operation of the lighting and other lighting automation technology is considered cost prohibitive. The switching should be clearly marked and robust. Provisions for energy efficient switching in Schools are outlined within DG63 and DG65.	Ph 2-5: Services Design	DG63.06 DG63.07 DG65.03.01	DAB c15 GHG Emissions Reduction DAB c4 Building Information	1. Electrical & lighting drawings showing switching groups and automatic controls 2. Lighting modelling report showing compliant power densities 3. Lighting operations and maintenance manual	Y		Phase 3 - Added as notes and it will be included in the schematic drawings at Phase 4	Electrical	
Act on climate change	<b>Energy efficient appliances &amp; equipment</b> Electrical equipment must be at least 0.5 stars above the market average star rating or comply with high efficiency standards specified in the GEP HVAC system must have timed or sensor feedback functionality for energy conservation Systems shall be designed to minimise energy consumption. System design / equipment selection is to be based on whole of life cost analysis. Specific requirement are outlined in the EFSG.	Ph 2-5: Services Design	DG2.3.3 DG55	DAB c15 GHG Emissions Reduction	1. Schedule of appliances and equipment with their star ratings or performance standards, signed by head contractor or architect. All appliances and equipment required in the GEP must be listed, incl air conditioning equipment, electric motors, transformers, etc. 2. As-built mechanical drawings / statement	NA		Phase 3 - N/A at this stage.	Mechanical/Electrical	
Act on climate change	<b>Heat loss/gain</b> The design must take steps to control heat loss from the building during cooler winter months and heat gain during the warmer months. Refer to HVAC Design considerations in DG04.01	Ph 2-5: Services Design	DG04.01	DAB c15 GHG Emissions Reduction	2. As-built evidence demonstrating that model is an accurate representation of the building 3. Specifications/ calculations supporting	NA		Phase 3 - Thermal modelling report	ESD	
Act on climate change	<b>Indoor environment controls</b> Both the thermal comfort and indoor air quality shall be controlled automatically within specified parameters. Controls shall be simple and intuitive to use. A 'traffic light' light system (described in DG 55.03 Thermal Comfort and Indoor Air Quality Policy) should be used to inform users of the suitability of outdoor conditions to utilise natural ventilation.	Ph 2-5: Services Design	DG55 DG 55.01 Thermal Comfort and Indoor Air Quality Policy	DAB c15 GHG Emissions Reduction	1. As-built evidence demonstrating controls have been installed as required. 2. Commissioning report / statement by head contractor confirming controls have been set as required	Y		Phase 3 - Mechanical schematic design report and drawings	Mechanical	
Act on climate change	<b>Renewable energy</b> A grid connected solar PV system must be installed in line with DG66 requirements Where feasible, PV systems shall be installed to offset as much of the electricity consumed by the school as is practicable	Ph 2-5: Services Design	DG2.3.4 DG55	DAB c15 GHG Emissions Reduction; DAB c16 Peak Electricity Demand Reduction	1. As installed drawings of PV system 2. Energy modelling report showing renewable energy generation	Y		Phase 3 - the option for 99kW (to consider additional 12 classrooms) under evaluation. At the moment, electrical drawings are showing 99kW in accordance with SNW standard for PV Systems. This will be reviewed and updated at Phase 4.	Architect/Electrical	
Act on climate change	<b>Battery Energy Storage System</b> A battery energy storage system shall only be designed in consultation with SNW Sustainability sustainability.enquiries@det.nsw.edu.au	Ph 2-5: Services Design	DG66.8.3	DAB c15 GHG Emissions Reduction; DAB c16 Peak Electricity Demand Reduction	As installed drawings of battery storage system	N		Phase 3 - N/A	Electrical	
Act on climate change	<b>Heaters</b> Electric heating must be preferred over gas heating. Where gas heating is considered, it must be approved by SNW Sustainability  Heating equipment must be designed from a whole of life perspective and: - Support sustainable design principles including reducing energy consumption and carbon emissions - Be accessible and serviceable - easy to maintain with minimal impact on school use when maintenance is being performed	Ph 2-5: Services Design	DG56	DAB c15 GHG Emissions Reduction	1. If reverse cycle air conditioning is installed, confirmation that gas heaters are not installed, OR 2. Evidence that the gas heaters installed are energy efficient	Y		Phase 3 - No gas heating - it will be all electrical. Captured in Schematic mechanical design report and drawings	Mechanical	
Act on climate change	<b>Water heaters</b> Hot water and tempered water generation for schools must be carefully considered to ensure that a Whole of Life assessment is undertaken to minimise life cycle costs and carbon emissions Environmentally friendly options such as solar heating (if viable) and heat pumps are preferred energy sources to minimise energy consumption.	Ph 2-5: Services Design	DG53.09	DAB c15 GHG Emissions Reduction	1. WOL cost assessment for hot water systems 2. Hydraulic drawings/schematics showing installed DHW systems	N		Phase 4 - The hot water systems will be instantaneous electric, meaning no stored water is required. Solar heating is not an option, and heat pumps have not been selected to avoid the need for additional flow and return pipework, circulating pumps, and electric boosters for hot water units (HWU). This approach minimises both life cycle costs and carbon emissions. The Whole of Life (WOL) assessment will be completed during the Action Revolution phase.	Hydraulics	
Build resilience	<b>Site investigations for resilience</b> The following detailed reports/ surveys/ information should be considered in developing the business case: - Slope, drainage and erosion issues including flood risks (if any) - Geotechnical and soil conditions - Airborne pollutants - Bushfire risks - Appraisal of available services infrastructure Climate change risk assessment must be undertaken considering at least two different climate change scenarios  An environmental risk report will be required for developments proposed within sensitive natural environments or sites subject to natural risks (i.e. flood prone sites, bush fire areas).	Ph 1: Site Selection and Masterplan	DG03.02	DAB c3 Adaptation and Resilience	1. Detailed reports or surveys developed 2. Environmental risk report 3. Evidence demonstrating recommendations have been implemented and risks addressed through design responses.	N		Phase 3 - N/A	Surveyor	

Build resilience	<p><b>Bushfire protection</b></p> <p>Development applications on bush fire prone land must be accompanied by a Bush Fire Assessment Report demonstrating compliance with the aim and objectives of Planning for Bush Fire Protection and the specific objectives and performance criteria for the land use proposed.</p> <p>Local Authorities and the Rural Fire Service can provide advice on the design of buildings in bush fire prone areas.</p> <p>The Building Code of Australia and AS3959 "Construction of buildings in bushfire-prone areas" set out the requirements for buildings which are within close proximity to a defined bush fire zone.</p> <p>Mandatory landscape management strategies:</p> <ul style="list-style-type: none"> <li>Keep the amount of fuel (leaves, twigs, logs, dead grass) in the vicinity of buildings to a minimum.</li> <li>Ensure trees are located at a way from buildings to avoid branches overhanging and leaves collecting on roofs.</li> <li>Do not plant shrubs against buildings.</li> <li>The crowns of trees planted on the hazard side of the development should not be contiguous.</li> <li>Plant fire resistant trees and shrubs on the hazard side of the development to reduce the potential impact of wind, fire intensity, radiant heat, and rate of spread as well as intercepting burning embers.</li> <li>Avoid combustible fencing materials.</li> <li>Provide irrigation and garden sprinklers to water areas near the buildings (subject to water authority approval).</li> </ul>	Ph 1: Site Selection and Masterplan	DG13.01	DAB c3 Adaptation and Resilience	<ol style="list-style-type: none"> <li>1. Bush fire assessment report</li> <li>2. Statement by Architect / fire consultant outlining building strategies implemented in line with BCA and AS3959.</li> <li>3. Bush fire management plan outlining management strategies implemented</li> <li>4. Landscape plans detailing bush fire management measures implemented</li> </ol>	N	Phase 3 - N/A	Fire Consultant
Build resilience	<p><b>Climate change adaptation</b></p> <p>Sites and school communities must be able to withstand natural and urban hazards and adaptively respond to climate change over time, especially for projects involving vulnerable communities e.g. climate generating exacerbated flood, storm surge, inundation, heatwaves, bush fires, extreme storms and other weather events. School facilities must be able to withstand natural hazards and adapt to shocks and stresses to avoid social and economic costs of interrupted operation and repairing or replacing damaged assets. To achieve this, increasing resilience to natural hazards must be considered in the business case development so that associated costs are budgeted.</p> <p>An initial assessment of natural hazards and project vulnerability must be carried out, in consultation with resilience experts, to inform the business case and identify hazards where further analysis is required.</p> <p>The assessment must report on at least two different timescales (2050 and 2070) and consider high emissions scenarios consistent with 2C and 4C for each timescale. The Intergovernmental Panel on Climate Change (IPCC) endorsed emissions scenarios should be used to dictate the assessed scenarios.</p> <p>Where significant risks are identified in the initial assessment, a comprehensive climate change risk assessment must be undertaken. Any high or extreme risks identified must be addressed through design measures.</p>	Ph 1: Site Selection and Masterplan	DG02.08	DAB c3 Adaptation and Resilience	<ol style="list-style-type: none"> <li>1. Climate risk assessment, and</li> <li>2. Climate adaptation plan</li> <li>3. Emergency management plan</li> </ol>	Y	Phase 3 - CCRA report completed at Phase 1	ESD
Build resilience	<p><b>Weather protection</b></p> <p>Circulation areas provided between administrative, staff and all student spaces (except Agriculture), should be protected from sun, rain and unfavourable winds.</p>	Ph 2-5: Architectural Design	DG08.05	Not covered in Green Star	As built drawings showing circulation areas are protected as required	Y	Phase 3 - Architectural drawings	ESD
Build resilience	<p><b>Urban Heat Island Mitigation - Roof Colour</b></p> <p>The roof colour will also have an impact on the thermal performance of the roof, therefore the product's Solar Reflectance Index (SRI) should be considered to mitigate the heat island effect.</p> <p>The product selected must meet the following three-year Solar Reflectance Index (SRI) requirements:</p> <ul style="list-style-type: none"> <li>For roof pitch &gt; 15, minimum SRI of 64</li> <li>For roof pitch &gt; 15, minimum SRI of 34</li> </ul> <p>Where a three-year SRI is not available, the following requirements must be met:</p> <ul style="list-style-type: none"> <li>For roof pitch &lt; 15, minimum SRI of 82</li> <li>For roof pitch &gt; 15, minimum SRI of 39</li> </ul>	Ph 3-4: Product and Material Selection	DG20 Fabric	DAB c25 Heat Island Effect	<ol style="list-style-type: none"> <li>1. Site Plan highlighting all relevant areas as referenced within the area schedule;</li> <li>2. Area Schedule listing the areas of each of the relevant site elements and where relevant, the SRI values and referencing plan drawings for the site; and</li> <li>3. Supplier Documentation material data sheet for compliant roofing and hardcape materials.</li> </ol>	Y	Phase 3 - As per NCC requirements, light colour roofs will be specified.	Architect
Consume responsibly	<p><b>Building User's Guide</b></p> <p>Produce a Building User's Guide to enable the client to understand the building systems and operate systems to maximise efficiency. This must:</p> <ul style="list-style-type: none"> <li>Clearly and concisely describe the operation of building and its services</li> <li>Detail a reasonable maintenance program</li> <li>Advise the user of the most suitable replacements for consumables</li> </ul>	Ph 7-9: Construction, Commissioning Post Occupancy and Operation	DAS c4 Building Information		<ol style="list-style-type: none"> <li>1. Building user's guide</li> </ol>	NA	Phase 3 - N/A	Contractor
Consume responsibly	<p><b>Stormwater management</b></p> <p>Must aim to minimise the transportation of toxicants to waterways and other off-site environments, and maintain the existing hydrological regimes. Due diligence for flooding must be done early in infill building and landscaping design.</p>	Ph 1: Site Selection and Masterplan	DG2.4.3	DAB c26 Stormwater	<ol style="list-style-type: none"> <li>1. Stormwater modelling report showing stormwater pollution and flows.</li> <li>2. Civil / Hydraulic drawings showing management measures.</li> <li>3. Modeler certificate, carbon, design, approval etc.</li> </ol>	Y	Phase 3 - Modelling is progressing on the site, with pollutant reductions targeted in accordance with Maitland City Council Guidelines.	Civil
Consume responsibly	<p><b>Drinking water catchment protection</b></p> <p>For developments within drinking water catchment areas, a water cycle management study is to be included with the Development Application for Education Facility developments involving:</p> <ul style="list-style-type: none"> <li>Agriculture facilities</li> <li>Biocides and effluent re-use schemes</li> <li>Sewerage systems or works (including package sewerage treatment plants)</li> <li>Stormwater or works involving the disposal of untreated runoff</li> </ul>	Ph 1: Site Selection and Masterplan	DG51.07	ESC c24 Integrated Water Cycle	<ol style="list-style-type: none"> <li>1. Water cycle management study</li> <li>2. Evidence that recommendations in the study have been followed / implemented</li> </ol>	N	N/A	
Consume responsibly	<p><b>Hazardous materials</b></p> <p>Where a new school is to be developed a Hazardous materials study is to be conducted, including:</p> <ul style="list-style-type: none"> <li>Asbestos Containing Materials (ACM)</li> <li>Synthetic Mineral Fibres (SMF)</li> <li>Polychlorinated Biphenyl's (PCB)</li> <li>Lead Paint</li> <li>Other Dangerous Substances</li> </ul> <p>Any existing structures and all parts of the site should be examined in order to determine the presence of hazardous materials before commencement of any renovation or demolition.</p> <p>Inspection should be conducted in accordance with DG48.</p> <p>Where hazardous materials are found a Hazardous Materials Management Plan should be prepared</p>	Ph 1: Site Selection and Masterplan	DG48.01	DAB 24.2 Contamination and Hazardous Material	<ol style="list-style-type: none"> <li>1. Hazardous materials study / site inspection report / survey</li> <li>2. Management plans for hazardous materials identified</li> <li>3. Remediation strategies implemented</li> <li>4. Environmental auditor certificates / clearance certificates</li> </ol>	Y	Phase 3 - Contamination report	Contam specialist
Consume responsibly	<p><b>Operational waste</b></p> <p>A waste storage area must be included in all new school sites. The provision of space must include source separation including bin stations and appropriate signage of waste and receptacles for multiple waste streams, including:</p> <ul style="list-style-type: none"> <li>Organics</li> <li>Commingled containers</li> <li>Paper &amp; cardboard</li> <li>Container deposit scheme</li> <li>Soft plastic</li> <li>General waste</li> </ul> <p>Designers must refer to AS 4123.7 Mobile waste containers - Colours, markings, and designation requirements for further guidance on bin colour, waste stream and waste type.</p> <p>Safe methods for vehicle access and the transfer of waste must also be considered.</p> <p>For new and refurbished schools, an operational waste management plan (OWMP) must be developed to establish operational waste targets, identify opportunities for reuse and recycling in the operation of the facilities and make adequate provision for the facilities to accommodate for the OWMP. The OWMP must address all requirements from DG 2.7.2</p>	Ph 2: Concept Design - Space planning	DG02.7.1	DAB c8 Operational Waste	<ol style="list-style-type: none"> <li>1. Operational waste management plan</li> <li>2. Operational waste reports showing diversion rates</li> </ol>	Y	Phase 3 - Working on waste management consultant to be engaged. Arch drawings will be marked up to show the waste collection area	Architect
Consume responsibly	<p><b>Building flexibility</b></p> <p>Position structural members considering the future flexibility of the structure. Avoid ad hoc placing of columns internally, giving preference to uniformity in layout. Design all internal walls as non-load bearing to enable future flexibility.</p>	Ph 2: Concept Design - Space planning	DG21.1.16	Not covered in Green Star	As built drawings or statement by relevant professional	Y	Phase 3 - Traditional layout. Layout is similar to MACC - large spans, can increase areas	Architect
Consume responsibly	<p><b>Hydraulic services</b></p> <p>Hydraulic services should:</p> <ul style="list-style-type: none"> <li>Support sustainable design principles including reducing water consumption and waste production.</li> <li>Appropriately treat any trade waste to ensure minimal environmental impact</li> <li>Be accessible and serviceable - easy to maintain with minimal impact on school use when maintenance is being performed</li> <li>Use products with a long life span - many hydraulic services are concealed so durability is essential</li> </ul>	Ph 2-5: Services Design	DG51.01	DAB c18 Potable Water	<ol style="list-style-type: none"> <li>1. Hydraulic report showing sustainability initiatives implemented to reduce potable water consumption</li> <li>2. As built drawings showing trade waste arrestors</li> </ol>	Y	Phase 3 - - Water-saving fixtures selected by the architect are expected to meet a minimum Green Star 4-star rating. - Trade waste will be treated by a grease arrestor, as required by authorities, and will be positioned for easy servicing. - Copper will be used for water plumbing.	Hydraulics / Architect
Consume responsibly	<p><b>Water sub-metering</b></p> <p>In addition to the main water meter for the site provide sub meters for the following:</p> <ul style="list-style-type: none"> <li>Mixed irrigation systems</li> <li>Laboratory buildings</li> <li>Amenities blocks</li> <li>Canteens</li> <li>Any other major water use on the site</li> </ul>	Ph 2-5: Services Design	DG53.04	DAB c6.0 Metering	<ol style="list-style-type: none"> <li>1. As built hydraulic drawings</li> </ol>	Y	The landscape team to advise on any specific irrigation requirements, a point of connection and a sub-meter adjacent to the water storage tanks for potential future use have been included into the design. Sub-meters will be installed for amenities and canteens. We assume that the method of measurement for these meters will be	Hydraulics / Landscape

Consume responsibility	<p><b>Rainwater collection</b></p> <p>Include roof water harvesting and tank storage in new schools and where practical in existing schools to reduce the demand on drinking water supplies.</p> <p>Tank water can connect to drip irrigation systems for adjacent landscape/gardens with the major preference being for gravity fed supply to minimise ongoing maintenance.</p> <p>The rainwater tanks must be connected to toilets for toilet flushing. If this is not feasible, approval must be granted by SWSW.</p>	Ph 2-5: Services Design	D053.14 D02.4.2 D053.01	DAB c180.2 Rainwater Reuse	1. As built hydraulic drawings showing tank connection to end uses and capacity	Y		Phase 3 - TBC The current design includes recommendations for rainwater harvesting as a value engineering exercise. However, connecting a rainwater tank to toilets for flushing may not be feasible due to the current design constraints and considering that the toilets are equipped with low-flush systems which already contribute to water efficiency. This requires confirmation from SWSW.	Hydraulics / SWSW
Consume responsibility	<p><b>Fire system water reuse</b></p> <p>Where schools are required to install a sprinkler system for fire safety, it is recommended to install a closed loop system must be installed to capture and reuse fire systems testing and maintenance water, or by using an alternative non-potable water source.</p>	Ph 2-5: Services Design	D02.4.2	DAB c180.5 Fire System Test Water	Fire engineering report	N/A		Phase 3 - N/A at this stage. It will be developed at Phase 4	Fire Consultant
Consume responsibility	<p><b>Ground water</b></p> <p>Where ground water is available for use for irrigation purposes in drought affected locations, enquiries must be undertaken with the Department of Planning, Industry and Environment to determine the suitability of a ground water system.</p>	Ph 2-5: Services Design	D053.03	DAB c18 Potable Water	1. Relevant due diligence report / investigation	NA		Phase 3 - N/A at this stage. It will be developed at Phase 4	Hydraulic
Consume responsibility	<p><b>Trade waste</b></p> <p>Arrestors for acid, grease, plaster and clay of adequate capacity must be installed to treat wastewater from science laboratories, kitchens, art rooms and canteens as required in D052.</p>	Ph 2-5: Services Design	D052	Not covered in Green Star	1. As built drawings showing trade waste arrestors on 2. Letter by Hydraulic Engineer confirming arrestor have been installed as required	NA		Phase 3 - N/A at this stage. It will be developed at Phase 4	Hydraulics
Consume responsibility	<p><b>Water Fixture efficiency</b></p> <p>All products must be rated to AS 6400 to the following minimum WELS ratings:</p> <ul style="list-style-type: none"> <li>Tapware to 5 star flow rating requirements</li> <li>Showers to have 3 star flow rating requirements</li> <li>Water Closet Pans to 4 star flow rating requirements</li> <li>Urinals to 5 star flow rating requirements</li> </ul> <p>Flow restrictors can be used to minimise water usage and wastage for staff amenities.</p> <p>Taps with timed flow can be used to minimise water usage and wastage in student amenities.</p> <p>New and replacement urinals must use manual in lieu of automatic flushing mechanisms. A microwave-actuated urinal flushing system may be used as an alternative.</p> <p>In any case, all new water-using appliances must be at least 0.5 stars above the average WELS star rating by product type, except toilets and urinals, which must be purchased at the average WELS star rating. Where WELS rating is not available, use the alternative WaterMark rating scheme.</p>	Ph 3-4: Product and Material Selection	D053.02 D02.4.1	DAB c180.1 Potable Water Sanitary Fixture Efficiency	1. Schedules of materials, fixtures, fittings and equipment with WELS/WaterMark ratings, demonstrating compliance and identifying those with flow restrictors and timed flow.	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	Architect
Consume responsibility	<p><b>Life cycle assessment (environmental)</b></p> <p>Environmental impacts of products and materials has been assessed and inform material selection</p>	Ph 3-4: Product and Material Selection	D052.03	DAB c15A - Life cycle assessment	Life cycle assessment report	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	ESD
Consume responsibility	<p><b>Whole of life costing (WOLC)</b></p> <p>Total cost of ownership (TCO) assessment / Analysis of direct and indirect costs and benefits / Life cycle costing analyses</p> <p>When calculating the whole of life cost for the different materials / building elements or systems, the following must be considered:</p> <ul style="list-style-type: none"> <li>the total initial capital cost of the system/s – including design, project management, builder and building services works in connections etc.</li> <li>resources (energy and where applicable water) consumption.</li> <li>Maintenance: the replacement of component parts.</li> <li>disposal costs</li> <li>ecological sustainable options</li> <li>durability</li> <li>ventilation</li> <li>safety</li> </ul> <p>The whole of life cost shall be calculated over the estimated life of the asset/s.</p>	Ph 3-4: Product and Material Selection	D001	All design guides for selection of materials and building systems	Life cycle costing report for relevant system	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Sustainable materials</b></p> <p>Construction materials must be selected based on the following:</p> <ul style="list-style-type: none"> <li>Adequately and economically perform their intended functions, and also have lower adverse environmental impacts throughout their life cycle (refer to DG 3)</li> <li>Contain reduced or no hazardous substances (e.g. low VOC) to ensure effective indoor environmental quality.</li> <li>Reduce the demand for rare or non-renewable resources.</li> <li>Have low embodied energy and water.</li> <li>Are made from or contain recycled materials or can be reused or recycled at the end of their useful life.</li> </ul>	Ph 3-4: Product and Material Selection	D002.05	DAB c31 Sustainable Products	1. Environmental Product Declarations of products / materials used; Product certificates (like GECA, FSC, etc) 2. Suppliers' declarations confirming recycled contents in products 3. Bill of quantities	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Sustainable timber</b></p> <p>No untreated timbers, or timbers from high conservation forests, are to be used unless plantation grown. Use only recycled timber, engineered and glued timber composite products, or timber from plantations or from sustainably managed regrowth forests that is FSC, AS5 or PEFC certified.</p> <p>All timber used is to be termite (white ant) resistant or treated to be termite resistant to the appropriate standard.</p>	Ph 3-4: Product and Material Selection	D02.5.1 D021.05.01	DAB c30.2 Responsible Building Materials - Timber	1. Evidence of chain of custody 2. Bill of quantities	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Built for disassembly</b></p> <p>Consider the use of building materials which are able to be disassembled for re-use, in conjunction with considerations for the addition and removal of accommodation over time.</p>	Ph 3-4: Product and Material Selection	D002.07			NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Concrete</b></p> <p>Use materials complying with AS based on the Whole of Life approach to materials selection.</p> <ul style="list-style-type: none"> <li>Do not use breccia or disperse in concrete mixes.</li> <li>Fly ash is a manufacturing by-product that can be used as a cement replacement but should be limited to a maximum of 20% by weight of cement content.</li> </ul>	Ph 3-4: Product and Material Selection	D021.02	DAB c190.1	1. Structural specifications and drawings 2. Structural Engineer's report showing % cement replacement	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Construction waste</b></p> <p>Targets must be established to increase diversion of waste sent to landfill, with a minimum diversion rate target of 90%.</p> <p>Consider opportunities for re-use and recycling of materials in the construction phase</p>	Ph 3-5: Construction, Commissioning Post Occupancy and Operation	D002.07	DAB c22 Construction and Demolition Waste	Construction waste reports showing percentage (minimum 90%) of waste re-used and recycled (diverted from landfill)	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Consume responsibility	<p><b>Maintainability</b></p> <p>All systems and equipment that is installed within a school is to be provided with suitable access to ensure that this equipment is safely and efficiently maintainable.</p> <p>In order to ensure that maintenance is available, on the completion of all buildings, drawings are to be provided showing the completed (As Built) building including all equipment and equipment access arrangements.</p> <p>Any mechanical ventilation system within the building must be designed to provide adequate access for maintenance, to both sides of all moisture and debris catching components, within the air distribution system. Moisture producing and debris-catching components include items such as cooling coils, heating coils, fan coil units, humidifiers and filters in the air handling system.</p> <p>The project team should demonstrate that there is a project level review process in place to ensure that the building has been designed as per the ESG, that any issues identified have been closed out and that the outcomes can be communicated to the relevant facilities/operations teams</p> <p>Maintenance required and cost of this maintenance are to be considered in assessment of the project's life cycle cost.</p> <p>Operation and Maintenance manuals (O&amp;M Manuals) are to be provided, written in clear, concise English covering the various building elements, assemblies, equipment, service installations and systems incorporated into the works.</p>	Ph 2-5: Services Design	D016.10 DG D1.04	DAB c2.1 Services and Maintainability Review DAB c9.1.2 Ventilation System Attributes DAB c4 Building Information	1. As built drawings including all equipment access arrangements for maintenance	Y		Phase 3 - Mechanical schematic design report and drawings O&MM Manuals to be provided after Construction stage and will be provided by the contractor	Mechanical / Contractor
Footer connections	<p><b>Site investigations for place making / community connections</b></p> <p>The following detailed reports/ surveys/ information should be considered in developing the business case:</p> <ul style="list-style-type: none"> <li>Local environment/ character</li> <li>Climate and microclimate</li> <li>Heritage significance / impact</li> <li>Appraisal of physical and visual factors affecting site development</li> </ul> <p>Available transport/ road infrastructure servicing the site</p> <p>Geo-technical and Soil reports will be required for each site to investigate the suitability of the topsoil and anticipated sub-grade materials for horticultural purposes.</p> <p>Testing for toxic residues must be undertaken in all areas identified as being a possible risk - i.e. filled or dumped ground.</p>	Ph 1: Site Selection and Masterplan	D003.02	ESC c12 Culture, Heritage and Identity DAB 24.2 Contamination and Hazardous Material	1. Relevant reports/surveys developed (these ideally include recommendations for further development stages) 2. Evidence demonstrating recommendations / best practice solutions have been implemented/addressed.	Y		Phase 3 - Heritage report (European and non-European). First nations consultant involved geo tech report, contamination investigation, Aboriginal reports	Architect

Foster connections	<p><b>Ecological conservation</b></p> <p>Schools sites must conserve for future generations, the biological diversity of genetic materials, species and ecosystems on that site and consider the surrounding natural environment.</p> <p>An Ecological Assessment Report must be prepared for the site in order to understand the existing conditions and future conservation strategies.</p> <p>The design of the facilities must provide unique and valuable environmental conservation learning opportunities and effective environmental modelling to the wider community. Schools must connect with nature and incorporate biophilic design principles. Open space must allow for exploration, and biodiversity and earth education to enhance the site's outdoor learning potential.</p>	Ph 1: Site Selection and Masterplan	DG02.06	DAB C3 Ecological Value (ISC C29 Ecological Value Incl Biodiversity Enhancement)	<p>1. Biodiversity or ecological assessment / local flora and fauna survey</p> <p>2. Ecological Assessment Report which documents the following:</p> <ul style="list-style-type: none"><li>- ecological values (current, future, and past) identified for the site and their protection measures</li><li>- ecological impacts from light and noise pollution and water quality and their mitigation requirements</li><li>- existing vegetated areas and biodiversity values being retained how biodiversity has been considered within the project's material supply chain</li><li>- list of management strategies to protect the integrity of ecological values throughout project planning, construction, and occupancy</li><li>- community and local stakeholder expectations including Aboriginal or Torres Strait Islander groups and environmental groups</li></ul> <p>3. Adequate due diligence must be conducted where an area of biodiversity or high ecological value is identified on the site, where at least 50% of this area must be retained.</p> <p>4. Biodiversity management plan describing measures for the conservation and protection of threatened species or communities, biodiversity enhancement, tree protection, etc.</p>	N		Ecologist	
Foster connections	<p><b>Productive landscape</b></p> <p>Consider including opportunities for development of community garden within the site and relationships with community groups for this to occur.</p>	Ph 1: Site Selection and Masterplan	DG2.06	ISC C14.2 Local Food Production	Site plan demonstrating location and size of community garden	Y		Phase 2 - Plan could be implemented after construction accessed after hours. Grounds open to the community weekends/after hours. Architects have designed for this to be incorporated but it is not a requirement with SHAC.	Architect/NSW
Foster connections	<p><b>Bicycle storage</b></p> <p>Provide 1 space for every 20 students to AC2890.3 standard</p>	Ph 2: Concept Design - Space planning	GS52 4.36	DAB C17 Sustainable Transport		Y		Phase 3 - Bicycle storage in architectural drawings. Further developed in other phases, SHAC to check if this is incorporated in drawings	Architect
Foster connections	<p><b>Community use of facilities</b></p> <p>Some school facilities are used out of hours for activities such as weekend church groups, sport events and public meetings. Liaise with the Project Director to gain an understanding of any shared use, or community use arrangements that are being considered for the site.</p> <p>New schools should be designed so that direct access to the open play space, fields, hall and gym can be achieved without the public gaining access to the buildings.</p>	Ph 2: Concept Design - Space planning	DG16.08	DAB C38 Community Benefits	<p>1. Commenced by SHAC to ensure direct access has been provided to open space and any other facilities that could be shared with the community.</p> <p>2. A list of community engagement activities undertaken to develop a community benefits strategy.</p> <p>3. Plans clearly outlining how the outcomes from the community benefits strategy have been implemented in the project.</p>	Y		Phase 3 - Schematic design report by SHAC will have potential use for community eg. library located in another entrance can be used after hours. BB court at the side - gates open policy for community to use it.	Architect
Foster connections	<p><b>Open play space</b></p> <p>Open play space must be provided for students to access during recess, lunch breaks and for outdoor learning. Open play space can be comprised of:</p> <ul style="list-style-type: none"><li>- Paved and grassed areas</li><li>- Rooftops and terraces</li><li>- Covered outdoor areas</li></ul> <p>The designated open play space must be easily monitored and managed by school staff. Where a joint use agreement can be negotiated with a local council or land owner, the required play space can be located off-site, providing the facilities are in close proximity to the school.</p> <p>Easily accessible</p> <p>Safe and secure</p> <p>Designs must aim to achieve a minimum of 10m<sup>2</sup> per student. Where this figure is not achievable the proposed m<sup>2</sup> per student of the completed project must not be less than the existing m<sup>2</sup> per student currently on the site.</p>	Ph 2: Concept Design - Space planning	DG10.03	Not covered in Green Star	Plan view drawings showing provision of open space	Y		Phase 3 - 10m <sup>2</sup> per student open space/play space	Architect
Foster connections	<p><b>Staff room</b></p> <p>Staff rooms should adequately accommodate staff work and recreation, and focus on indoor environment quality, enjoyment and interaction through provision of the following:</p> <ul style="list-style-type: none"><li>• Daylight</li><li>• Ventilation</li><li>• Views</li><li>• Landscaping/Indoor Plants</li><li>• Acoustic Comfort</li></ul>	Ph 2: Concept Design - Space planning	EPFG Staff Unit	GS1 c Amenity Space	<p>1. Extracts from the EPFG requirements for staff rooms</p> <p>2. Evidence of staff room delivered accordingly</p>	Y		Phase 3 - Standard configuration	Architect
Foster connections	<p><b>Reconciliation action plan (RAP)</b></p> <p>The project should adopt formalised steps to provide opportunities for Aboriginal and Torres Strait Islander peoples</p> <p>Projects must implement strategies, during design, construction and operation that contribute positively towards reconciliation with Australia's first people and address social inequalities within Australia is between Indigenous and non-Indigenous Australians.</p> <p>The project demonstrate a relationship to, and a role in delivering the action items within the Department of Education's RAP.</p> <p>This could include incorporation of Indigenous design strategies and Indigenous designers, celebration of Indigenous culture on the site through art or landscape, and procurement from Indigenous suppliers and workers. Refer to the GA NSW 'Designing with Country' Discussion paper for guidance and examples.</p> <p>The project must adopt all relevant requirements within the NSW Government's Aboriginal Procurement Policy (January 2023)</p>	Ph 2-5: Architectural Design	Department of Education's Reconciliation in Action Plan NSW Government Aboriginal Procurement Policy GANDW 'Designing with Country' discussion paper x	DAB C30D Reconciliation Action Plan	1. Evidence of the project's relationship with the RAP e.g. actions implemented in line with RAP, etc.	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	Architect
Foster connections	<p><b>Security</b></p> <p>Safety in Design and Crime Prevention Through Environmental Design (CPTED) principles are to be implemented in project planning stage</p> <p>Advice on the electronic surveillance systems can be sought early in the design phase.</p> <p>CCTV systems are required in several locations where indicated in the Rooms and Spaces Technical Data table, including:</p> <ul style="list-style-type: none"><li>- Secondary clinic</li><li>- Primary sick bay</li><li>- Library</li></ul>	Ph 2-5: Services Design	DG14.10 DG65.08 DG65.10	ISC C15 Safe Places	<p>1. Crime risk assessment or equivalent</p> <p>2. Evidence of designing out crime principles implemented</p> <p>3. Security services plans, schedules and forms by School Security Unit (SSU)</p> <p>4. SSU specification and evidence of input on project specification</p>	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Foster connections	<p><b>Digital infrastructure</b></p> <p>New buildings and refurbishments are required to provide a common wireless solution compatible across the school, providing a consistent user experience and support mechanism. This involves the replacement of existing legacy wireless equipment, such as wireless access points and site switches</p>	Ph 2-5: Services Design	DG64.12.02	ISC C23.2 Digital Infrastructure	1. Contracts describing the network infrastructure specification and operational requirements	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Foster connections	<p><b>Sustainable Transport Planning / Transport Assessment</b></p> <p>Transport planning must prioritise the delivery of feasible, connected networks and rectify transport deficiencies.</p> <p>The <b>School Transport Assessment</b> process must prioritise critical transport infrastructure to satisfy community expectations and statutory planning obligations. The assessment seeks to address school travel demand efficiently, safely and sustainably by maximising the most active and sustainable transport modes and reducing car parking capital expenditure and/or travel demand.</p> <p>The School Travel Plan must be developed to inform the design response, construction traffic management, travel plan and post-occupancy operations to meet daily travel demand to school</p>	Ph 1: Site Selection and Masterplan	Schools Transport Practice Note	DAB C17 Sustainable Transport	<p>1. Transport assessment, which must address:</p> <ul style="list-style-type: none"><li>• A review of the school's travel demand;</li><li>• The establishment of transport modes to promote during construction and post-occupancy;</li><li>• Identification of transport improvements required to meet school travel demand;</li><li>• Actions to inform the site design, master plan, Construction Traffic and Pedestrian Management Plan and Travel Plan;</li><li>• Actions to address road safety concerns;</li></ul>	N		Phase 3 - N/A	Transport Planner
Unlock human potential	<p><b>Green cleaning</b></p> <p>Designs should support the implementation of a Green Cleaning policy for the school, this may include:</p> <ul style="list-style-type: none"><li>- Appropriate cleaning areas are to be provided to safely store chemicals and equipment.</li><li>- Hand washing stations</li><li>- Use of HEPA filtration in vacuum equipment</li><li>- Use of materials and surfaces that are easily cleaned</li><li>- Consideration of operational waste procedures and the safe and simple transfer of waste throughout the school</li></ul>	Ph 7-9: Construction, Commissioning Post Occupancy and Operation	W06 Facilities	OSP 66 Green Cleaning	<p>1. WEB Clean School User Guide</p> <p>2. Green Cleaning specifications</p>	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	

Unlock human potential	<b>Healthy canteen policy</b> The NSW Healthy School Canteens Strategy applies to all NSW Government schools (primary, secondary and central schools) with a canteen. The school should play a role in encouraging healthy dietary options in an effort to help reduce childhood obesity through food provided in the school canteens. As such, School canteens should be designed to encourage onsite preparation, storage, display and promotion of healthy 'everyday' foods.	Ph 2: Concept Design - Space planning	Department of Education's Healthy Canteen Policy	DAB C300 Integrating Healthy Environments	1. Research report behind Healthy Canteen Policy 2. Evidence that policy initiative has been incorporated into the school under assessment.	NA		Phase 3 - N/A at this stage Achievable, TBC in other phases	SNSW
Unlock human potential	<b>Daylight glare control</b> Discomforting glare and brightness contrasts must be avoided. Designers must seek to: 1. Exclude direct sunlight from all learning spaces, libraries, administrative offices and staff studies for the period of 9.0am to 3.30pm including Eastern Daylight Saving Time between 21st September to 21st March (equinoxes). 2. Exclude direct sunlight from desk level in all learning spaces between 9am and 3.30pm. Sun exclusion and glare control can be achieved by the use of elements such as sun shades, eave extensions, tinted glazing, screens, vertical blinds and the like! Glare must only be controlled by blinds as a last resort. Designers must prepare sun diagrams in the design phase as a minimum requirement.	Ph 2-5: Architectural Design	DC12 D007.01	DAB C12.0 Glare Reduction	1. Daylight glare modelling report / sun diagrams showing direct sunlight has been excluded as required. 2. Drawings supporting inputs of model, showing location of blinds and any other glare control device	Y		Phase 2 - External perforated screens to cut glare out. Phase 3 - Daylight modelling report	ESD/Architect
Unlock human potential	<b>Acoustic Performance</b> Design of internal spaces must address the following Acoustic outcomes: <b>Internal Noise Levels:</b> An internal noise level assessment must be carried out for all new buildings to ensure comfortable acoustic conditions for the spaces occupied. The internal noise levels within the space must meet the limits stipulated in Table 11.06.1 of Section 11.06 Acoustic Performance Guidelines or be within the range stipulated in Table 1.4 of the AS/NZS 2107:2016 standard. The more stringent of the two should be met.	Ph 2-5: Architectural Design	D6 11.06 D6 11.09 D6 11.02	DAB C10 Acoustic comfort	1. Report by qualified acoustics consultant demonstrating noise measurements are compliant. 2. Detailed Drawings indicating sound insulation details and other relevant acoustic design features.	Y		Phase 3 - N/A at this stage. It will be developed at a later stage	Acoustics
Unlock human potential	<b>Noise emission (to the environment)</b> Generally noise emission to the environment from mechanical services sources (such as air conditioners) are the subject of a development consent conditions. In NSW the development consent conditions will refer to the Industrial Noise Policy (INP) or Local Council requirement. Where no condition regarding noise sources exists for a school development, noise emission from such sources should be designed, in principle, to satisfy the requirements of the Industrial Noise Policy.	Ph 2-5: Architectural Design	D611.04	Not covered in Green Star	1. Report by qualified acoustics consultant	Y		Phase 3 - N/A at this stage. It will be developed at a later stage	Acoustics
Unlock human potential	<b>Fly free indoors</b> Fly screening must be provided in all schools to the doors, windows and other openings in food preparation, biology, and non-water closet toilet spaces or where specifically nominated in the EPFS. Schools in localities where fly incidence constitutes a health hazard (especially trachoma or other nuisance) will require fly screens to all opening sashes.	Ph 2-5: Architectural Design	D631.01	Not covered in Green Star	As-built drawings showing fly screening has been provided as required	NA		Phase 3 - N/A at this stage. It will be developed at a later stage	
Unlock human potential	<b>Accessibility</b> All new facilities must meet current DTS provisions of the NCC and the associated standards. Generally AS 1428.1 is the minimum design standard for access and mobility. However, it is DoE's policy that any enhanced requirements noted to AS 1428.2 be incorporated in any new design. Additionally, DoE have enhanced circulation requirements as noted in DG / CIRCULATION Provide hearing augmentation system for areas that have amplification, generally within Gymnasium, libraries, movement studios and Communal Halls, provide a system to assist the aurally challenged to hear music and speech within the main auditorium and on the stage Provide the international Symbol for Deafness to indicate that an assistive hearing device is installed.	Ph 2-5: Architectural Design	D018.01 D065.14	DAB 300 Universal design	1. Accessibility plan 2. As-built drawings or other evidence demonstrating that minimum and enhanced accessibility requirements have been provided for walkways, corridors, ramps, etc. 3. Photographic or other evidence of signage installed	Y		Phase 3 - Standard EPFS requirements. Accessibility report and consultative engaged	Architect/Accessibility Consultant
Unlock human potential	<b>Access to Views</b> Building design must ensure that at least 60% of primary occupied spaces have a clear line of sight to high quality internal or external views. The space must be within 8m from the view.  High quality views include: External views: vegetation, body of water, sky, or frequent outdoor movement (people, vehicles, animals) Internal views: landscaped area, water features, artium!  Note: Primary Spaces are defined as spaces that where students or staff are expected to work, or remain for an extended period of time, typically longer than 2 hours. This includes classrooms, laboratories, computer labs and office/administration areas.	Ph 2-5: Architectural Design	D62.10	DAB C12.2 Views	1. Views Calculations and Mark-up This must be done in accordance with the GRC/AV Daylight and Views Hand Calculation Guide: <a href="https://www.grcs.org.au/uploads/79/793919/Grcs%20Daylight%20and%20Views%20Hand%20Calculation%20Guide%20May%202015%20RELEASE.pdf">https://www.grcs.org.au/uploads/79/793919/Grcs%20Daylight%20and%20Views%20Hand%20Calculation%20Guide%20May%202015%20RELEASE.pdf</a>	Y		Phase 3 - Northern/Southern windows overlook play spaces refer to GS guide	Architect
Unlock human potential	<b>Access to Daylight</b> Designers must seek to maximise natural daylight in all learning and administration spaces to improve indoor amenity and create a pleasant environment and reduce energy usage through windows and skylights Access to high levels of daylight must be ensured for at least 40% of primary occupied spaces per floor. A space is considered to have high levels of daylight if: the space has minimum 160 lux due to daylight during 80% of the nominated hours OR the following requirements are met: No overshadowing - external shading should not impinge on the direct 25 degree line from centre of the window Minimum 40% Visual Light Transmittance (VLT) for building glazing'  Note: Primary Spaces are defined as spaces that where students or staff are expected to work, or remain for an extended period of time, typically longer than 2 hours. This includes classrooms, laboratories, computer labs and office/administration areas.	Ph 2-5: Architectural Design	D62.3.1 D612	DAB C12 Visual Comfort	1. Daylight modelling report demonstrating how natural daylight has been maximised in all habitable spaces; and 2. As built drawings demonstrating that the model accurately represents the building (i.e. window size and location; skylights installed, etc.); and 3. Specifications supporting inputs used in modelling (e.g. skylights and glass specs)	Y		Phase 2 - Concept design drawings demonstrate access to daylight. This will be further explored through daylight modelling in next phases Phase 3 - Daylight modelling	ESD/Architect
Unlock human potential	<b>Ventilation and Indoor Air Quality</b> The maximum CO2 concentration must not exceed <b>1,500ppm</b> for more than 20 consecutive minutes in each day  A ventilation strategy must be developed to ensure that sufficient ventilation is provided to all spaces to meet the requirements of the BCA/NCC and associated standards. Specifically ventilation equipment must be designed from a whole-of-life perspective and support healthy indoor environments, energy efficiency and ease of maintenance.  This must also meet requirements for: Natural ventilation mode and cross ventilation in line with D65.01 Mechanically Assisted cross ventilation: In two storey blocks where cross flow ventilation is not possible to the lower floor, mechanically assisted cross ventilation is to be provided to the lower floor learning spaces nominated in the EPFS, the design must adhere to D657.1.6. Roof ventilator control: in line with D665.16 Wind powered roof ventilators: Designed to suit local ambient climatic conditions to ensure correct sizes, locations and numbers as detailed in D657.14 Sanitary Spaces sufficient natural ventilation or mechanical ventilation, to disperse odours and /or humidity in line with Cross ventilation is to be used where possible. Provide mechanical ventilation to all Disabled Toilets. Ventilation in storage spaces in line with D65.05 Ventilation in permanent learning spaces and libraries in line with D655 Outdoor air requirements and control of indoor CO2 levels: designs must adhere to D655.02 Ventilation in printing rooms: The ventilation system is to be designed to serve the whole room and is not intended to provide localised exhaust at equipment. Adhere to ventilation requirements set out in D657.03. Chemical store ventilation: Provide mechanical exhaust system with high and low level exhaust points to all chemical stores, with a minimum of 15 air changes per hour flow rate. Adhere to ventilation requirements set out in D657.09.	Ph 2-5: Services Design	D657.01 D605.04 D605.05 D657.16 D605.01 D657.18 D605.02 D637 D605.16	DAB C15 GHG Emissions Reduction  Thermal Comfort and Indoor Air Quality - Performance Brief	1. Cooling system strategy including WOL analysis 2. Concept plans 3. Construction drawings 4. Trade-based specification 5. As built drawings, including indication of windows and cross ventilation	Y		Phase 3 - Will comply with Green Star 3.0 2 Credit which is more stringent than 1500ppm. Refer to Mechanical schematic design report and drawings. We don't have roof ventilator	Mechanical

Unlocks human potential	<p><b>Lighting comfort</b></p> <p>Consider the furniture layouts to determine the orientation of luminaires. Especially when positioning luminaires in Materials Technology spaces to ensure adequate illumination on machines and work surfaces; avoid potential stroboscopic effects and avoid shadows from ductwork</p> <p>Mount luminaires as high as possible, but generally no higher than 4000mm AFL (excluding Gymnasiums and Halls), to improve luminance uniformity and reduce direct glare in the direction of normal view</p> <p>The standard lamp colour temperature is 4000K, except in certain toilet areas where the Design Guide requires the use of blue colours</p> <p>The Colour Rendering Index (CRI) for light sources must be minimum 80 or higher</p> <p>Compliance with the uniformity requirements stipulated in Table 3.2 of the AS/NZS 1680 standard should be demonstrated by the presentation of the output from lighting design software</p> <p>The Unified Glare Rating (UGR) must be calculated in accordance with the procedure outlined in Clause 8.3.3 of AS/NZS 1680-1:2006 standard, and the calculated value must not exceed the maximum values specified in Table 6.2 of the standard</p> <p>The maintained illuminance levels must meet the recommended levels as specified in the AS/NZS 1680 standard, and the maintained illuminance values achieve a uniformity of no less than the values given in Table 3.2 of AS 1680-1:2006, with an assumed standard maintenance factor of 0.8</p> <p>To ensure flicker-free lighting, the following luminaire requirements should be considered: LED lighting – electronic drivers with 120 Hz or greater resolution</p> <p>Modelling must provide output that clearly demonstrates that the proposed design is compliant with the standards including but not limited to the parameters listed in DG 63.03.02</p>	Ph 2-5: Services Design	DG63.03	DAB c11 Lighting Comfort DAB c11.1 General Illuminance and Glare Reduction	1. Lighting drawings 2. Architectural drawings 3. Lighting specifications / schedules 4. Product data sheets 5. Isometric drawings 6. Lighting modelling report showing compliant uniformity and UGRs	NA	Phase 3 - N/A at this stage. It will be developed at Phase 4	Lighting designer
Unlocks human potential	<p><b>Thermal comfort</b></p> <p>The inclusion of active cooling within school facilities is directed by the Department's Air Cooling policy:</p> <p>2.1 Schools with a long term average mean maximum January temperature of 33 °C and above: Generally, air conditioning is to be provided to all school buildings.</p> <p>2.2 Schools with a long term average mean maximum January temperature of below 23°C: Air conditioning is to be installed in all permanent learning spaces and libraries forming part of each project's scope</p> <p>Thermal modelling is undertaken to demonstrate that learning spaces and libraries have been designed to achieve a predicted mean vote (PMV) of +1 for 95% of occupied hours</p>	Ph 2-5: Services Design	DG66.03 DG55.01 DG55.02	DAB c14 Thermal Comfort	2. Confirmation from sub-contractor that services have been installed and commissioned as required, and 3. Modelling report showing required PMV is achieved. Modelling report to be done in line with methodology described in Draft thermal comfort and indoor air quality interim <a href="https://www.health.nsw.gov.au">https://www.health.nsw.gov.au</a>	Y	Phase 3 - Mechanical schematic design report and drawings	ESD/Mechanical
Unlocks human potential	<p><b>Microbial control</b></p> <p>As a measure to prevent legionella, heated water to hand basins, showers etc., shall be stored at temperature above 60 °C. Thermostatic mixing valves are to be used for tempered water generation at each point of use. Valves need to comply with micro disinfection requirements - "Code of Practice for Thermostatic Mixing Valves NSW" as approved by the NSW Health Department.</p>	Ph 2-5: Services Design	DG51.09 DG53.11	DAB c28 Microbial Control	1. Letter by hydraulic engineer confirming hot water is stored above 60 deg and that valves comply with code of practice.	NA	Phase 3 - There is no stored water. TMV's are being specified.	Hydraulics
Unlocks human potential	<p><b>External access lighting</b></p> <p>External Access Lighting shall be provided to illuminate building entrances, footpaths, sheltered walkways, roadways and car park. External Access Lighting must:</p> <ul style="list-style-type: none"> <li>Be minimal and designed to prevent glare to pedestrians, nearby residents and to motorists. Evidence of compliance with AS4282, AS/NZS 1158 and other applicable Australian Standards must be provided by the designer.</li> <li>Be located so as to link various sources of illumination such as street lighting (for carpark and roadways) and internal security lighting (for footpaths, walkways and entrances).</li> <li>Illuminate building entry doors.</li> </ul> <p>Highlight "accident prone" areas such as changes in level, stairs and ramps.</p> <p>Provide vertical illumination.</p>	Ph 2-5: Services Design	DG63.08.01	DAB c27.0 Light Pollution to Neighbouring Bodies	1. As built drawings indicating the location of all external luminaires 2. Letter by lighting designer describing glare prevention measures	Y	Phase 3 - Added as notes and it will be included in the schematic drawings at Phase 4	Electrical
Unlocks human potential	<p><b>Low VOC-emitting materials</b></p> <p>All surface coatings, and other volatile organic compound (VOC) emitting products including adhesives, sealants, carpets, carpet tiles, and carpet underlays, must be made from low-VOC emission materials.</p> <p>Paints must meet the limits stipulated in the Australian Paint Approval Scheme's (APAS) VOC limits for low VOC paints.</p> <p>Paints, adhesives and sealants must not exceed the maximum VOC limits stipulated in the Green Star Buildings rating tool.</p> <p>Carpets must not exceed the total VOC limits stipulated in the Green Star Buildings tool.</p>	Ph 3-4: Product and Material Selection	DG2.5.2	DAB c13 Indoor Pollutants	1. Product specifications, certificates, safety data sheets that demonstrate low VOC contents 2. Bill of quantities	NA	Phase 3 - N/A at this stage. It will be developed at a later stage	Contractor
Unlocks human potential	<p><b>Low formaldehyde-emitting materials</b></p> <p>Only low formaldehyde-emitting engineered wood products should be used, such as those that meet the Australian Standards for formaldehyde emission limit E1 (NIECAS classification) or lower. The engineered wood products must not exceed the emissions limits stipulated in the Green Star Buildings rating tool. Engineered wood products include particleboard, plywood, Medium Density Fibreboard (MDF), Laminated Veneer Lumber (LVL), High-Pressure Laminate (HPL), Compact Laminate and decorative overlaid wood panels. This requirement excludes formwork.</p>	Ph 3-4: Product and Material Selection	DG2.5.2	DAB c13 Indoor Pollutants	1. Product specifications, certificates, safety data sheets that demonstrate low-formaldehyde contents Bill of quantities	NA	Phase 3 - N/A at this stage. It will be developed at a later stage	
Unlocks human potential	<p><b>Acoustic post-occupancy evaluation</b></p> <p>Post Occupancy evaluations are often undertaken to assess the performance of recently completed or existing facilities. Where a Post Occupancy Evaluation is to be undertaken it should be conducted by the project team or acoustic engineer and should be undertaken of selected acoustic parameters only. Evaluation must include (as per the above criteria):</p> <ul style="list-style-type: none"> <li>Internal noise levels,</li> <li>Room acoustics,</li> <li>Noise emission,</li> <li>Room-to-room acoustics performance</li> </ul> <p>The noise measurement and documentation must be provided by a qualified acoustic consultant and in accordance with AS/NZS 2107:2016</p> <p>Measurements shall be conducted in at least 10% of regularly occupied spaces.</p>	Ph 7-9: Construction, Commissioning Post Occupancy and Operation	DG11.07	ESP c13 Internal Noise Levels	1. Commitment by li to conduct acoustic post-occupancy evaluation	NA	Phase 3 - N/A at this stage. It will be developed at a later stage	
Unlocks human potential	<p><b>Pesticide free environments</b></p> <p>Schools must be designed, constructed and maintained, without using chemicals for termites and other pest control.</p> <p>No chemical pesticides and termiticide to be used. Preventive treatments to be by physical means and careful design to minimise risk</p>	Ph 7-9: Construction, Commissioning Post Occupancy and Operation	DG2.5.3	Not covered in Green Star	Statement by head contractor that no pesticides or termites have been used.	NA	Phase 3 - N/A at this stage. It will be developed at a later stage	
Unlocks human potential	<p><b>Healthy Places</b></p> <p>The design of the project should address five key principles for Healthy Places, as defined in Green Star Communities credit 9.3. These are:</p> <ul style="list-style-type: none"> <li>Walkability</li> <li>Active and public transport,</li> <li>Wayfinding</li> <li>Good public space design</li> <li>Social interaction</li> </ul>	Ph 2-5: Architectural Design	DG2.5.4	Healthy Places (GS 9.2)	1. Narrative providing examples of how each principle is being addressed, with examples from the Masterplan Report and Traffic/Transport Plan	Y	Phase 3 - Walkability - easy access to site from multiple entries Bike parking/Storage Wayfinding - clearly identified from street frontages, forecourts at the front where parents can wait Connecting to Country - elders are welcoming - parking circles	Architect