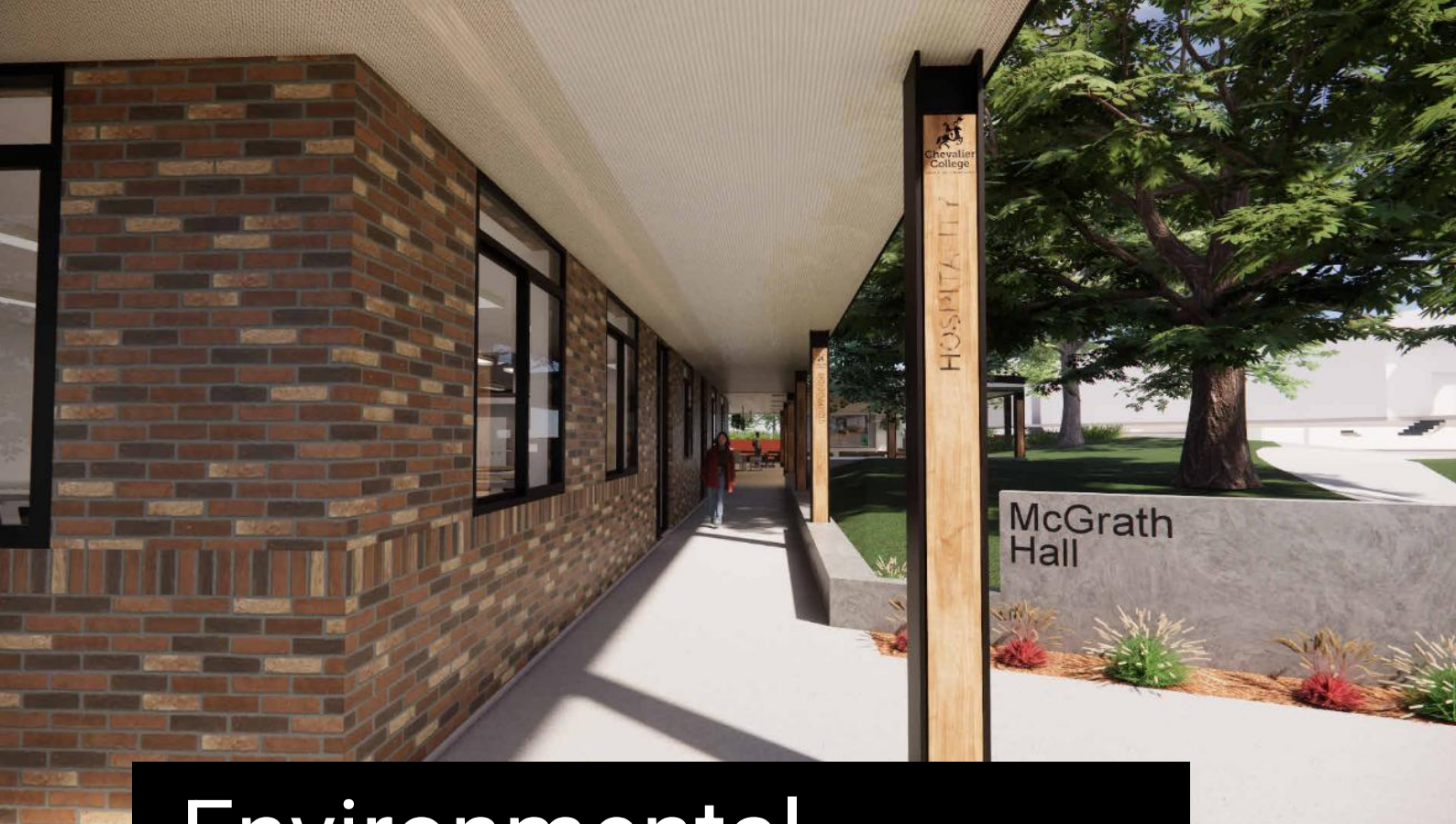




Environmental Sustainability Design Report

**250237 – CHEVALIER COLLEGE STAGE 1
HOSPITALITY UPGRADE PROJECT**

Client:
Maddison Property

Revision: C

Date: 07/04/2025

REPORT INFORMATION

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1 INTRODUCTION

1.1 Project Description

Chevalier College Stage 1 Hospitality Upgrade is located at 11 Charlotte St, Burradoo NSW 2576, within Lot 12, Deposited Plan 748370. The school campus spans 106 acres and features playing fields, an onsite farm and various educational facilities. This project involves the partial demolition and reconstruction of the existing Block K (McGrath Hal), which serves as a multifunctional space accommodating hospitality and food technology education.

The scope of work includes the removal of the existing foyer, change rooms, stage, and storage rooms on the western and northern sides of the building. While the western part of the building, including the roof, will be demolished, the northern stage area will undergo internal demolition. The main hall, which currently accommodates up to 700 guests for sit-down dinners and 1,400 for other events, will remain untouched, continuing to serve as a venue for community and school activities.

The proposed development introduces:

- A hospitality learning area, including Café corner
- A food technology area with a prep room, storage rooms, and change rooms
- A covered outdoor learning area (COLA)
- An entry foyer
- Bathroom amenities
- A stage with a furniture store

The Mc Grath Hall is accessible by vehicle from Charlotte Street, with on-site parking and servicing provided on the northern side of the building. The site is well- connected to public and school bus routes and is located approximately 2.7 km from Burradoo Train station.

2 Sustainability Legislation Drivers

This project must comply with sustainability requirements outlined in local, state, and national regulations. These include:

- Wingecarribee Shire Council (2021) Bowral Township Development Control Plan (DCP)
- National Construction Code (NCC) 2022 Section J – Energy Efficiency
- State Environmental Planning Policy (SEPP) 2022 (Sustainable Buildings)

2.1 Wingecarribee Shire Council (2021) Bowral Township DCP

The Bowral Development Control Plan (DCP) 2021 was adopted by the Wingecarribee Shire Council on 10 March 2010 and came into effect on 16 June 2010. The most recent amendment took effect on 17 March 2021.

The DCP provides guidance on the design and operation of development within the Local Government Area (LGA) to support aims and objectives of the Local Environmental Plan (LEP). It mandates considerations such as biodiversity protection, water conservation, and energy efficiency in new developments.

2.2 NCC 2022 – Section J - 2022

The National Construction Code (NCC) Section J sets performance standards for energy efficiency, ensuring that buildings reduce operational energy consumption. It regulates building fabric performance, HVAC efficiency, artificial lighting, and energy monitoring.

The hall extension is seeking to meet and exceed the National Construction Code (NCC) Volume 1, 2022.

2.3 NSW State Environmental Planning Policy (Sustainable Buildings) 2022

This State Environmental Planning Policy (SEPP) was released on 22 September 2023 and remains current as of this report. The SEPP 2022 aims to reduce greenhouse gas emissions and water consumption in large-scale projects. It applies to new non-residential developments valued over \$5 million and to existing building alterations exceeding \$10 million, ensuring sustainable construction and operational practices.

3 Project Responses to Sustainability Drivers

3.1 Wingecarribee Shire Council (2021) Bowral Township DCP

The section of the Bowral Township DCP that applies to this project is Part A (All land), Section 2 (General Objectives), A2.2.8 Environmental Sustainability. The DCP outlines Principles and Objectives which are addressed below.

3.1.1 Principles

- (a) ***the precautionary principle*** - *if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation,*

Response: The project prioritizes long-term sustainability through:

- Sustainable Construction Practices: 80% of demolition and construction materials will be diverted from landfill, reducing environmental impact.
- Energy Efficiency: The new design incorporates passive design principles, including natural ventilation, a light-coloured roof to reduce the heat island effect, high-performance insulation, and window shading to minimise solar heat gain and improve indoor thermal comfort.
- Water Management: A 10,000L rainwater tank will be installed on the southern side of the hall, supplying water for toilets, irrigation, and path washing.

- (b) ***inter-generational equity*** - *the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

Response: To ensure long-term sustainability, the project has been designed to benefit current and future generations through:

- Durable and Sustainable Materials: Retaining as much of the existing construction as possible, including most concrete paths, and using low-VOC paints throughout the project.
- Energy and Water Efficiency: Installation of water-efficient fixtures, including knee-button or sensor taps in the kitchen and push taps in bathrooms, to minimise water wastage.
- Flexible Learning Spaces: The facility is designed to accommodate future technological advancements in education and sustainability, including provisions for a future transition from gas cooking to electrical induction, significantly reducing fossil fuel usage.

- (c) **conservation of biological diversity and ecological integrity** - new development must ensure that there is no loss of biological diversity or ecological integrity,

Response: The project aims to maintain ecological integrity through:

- Biodiversity Conservation: While two trees will be removed to accommodate the new Covered Outdoor Learning Centre; new trees will be planted on the northern side of McGrath Hall. Additionally, native drought-resistant landscaping will be implemented to support local biodiversity.



Figure 1: New trees planted

- Minimizing Habitat Disruption: Construction activities will be managed to avoid unnecessary disturbance to local flora and fauna.
- Herb Garden: A new herb garden will be established on the northern side of the hall, enhancing biodiversity and supporting sustainability education.

- (d) **improved valuation, pricing and incentive mechanisms** - environmental factors should be incorporated into the valuation of assets and services through such principles as:

- (i) *polluter pays* - those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

Response:

- Contractors will be responsible for properly managing and disposing of construction waste, ensuring minimal environmental impact.
- Measures such as dust suppression and noise control will be implemented to reduce pollution during construction.

- (ii) *full costing - the users of goods and services should pay prices based on the full life cycle of the costs of providing those goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*

Response:

- The selection of construction materials and systems considered factors such as procurement, maintenance, and end-of-life disposal to support long-term sustainability.
- (iii) *cost-effectiveness - environmental goals should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise the benefits or minimise the costs to develop their own solutions and responses to environmental problems.*

Response:

- Sustainable design measures will be implemented in a financially viable manner, balancing upfront costs with long-term benefits.
- A metering and monitoring system will be connected to the existing system to track energy and water usage, ensuring ongoing efficiency and identifying unnecessary resource waste such as water leaks or out of hours standby power.

3.1.2 Objectives

- (a) *protect vegetation, threatened species, ecological communities, hydrological aspects, watercourses, significant natural features, and any other aspect of environmental quality.*

Response:

- While two trees will be removed as part of the development, all remaining vegetation will be preserved to maintain existing habitat and new trees will be planted on the northern side of McGrath Hall. Drought-resistant and native landscaping will be incorporated to support local biodiversity and minimise water use.
 - A 10,000L rainwater tank will be installed to reduce reliance on potable water for irrigation, toilet flushing, and washing down paths.
 - The use of low-VOC paints throughout the project will contribute to improved indoor air quality and reduced environmental impact.
- (b) *no net loss of riparian condition, remnant vegetation, biodiversity values, wetland values, wildlife habitat or water quality.*

Response:

- The introduction of drought-resistant and native plants will enhance biodiversity and minimise the need for irrigation.
- The rainwater harvesting system will support water conservation and reduce runoff impacts.

(c) Encourage on-site tree plantings which enhance the environment and provide additional wildlife habitat and connectivity of habitat

Response:

- The landscaping plan includes native and drought-resistant species, contributing to the local ecosystem.
- Several new trees will be planted on the northern side of the hall, further enhancing the environment and providing additional wildlife habitat.
- A herb garden will be established on the northern side of the hall, promoting biodiversity and sustainable food practices.

(d) Maintain and enhance existing public open space areas

Response:

- The project introduces a new Covered Outdoor Learning Area (COLA), which is larger than the existing public space and enhances the functionality and accessibility of outdoor areas for students and staff. It features ceiling fans for improved thermal comfort during warmer months and electric radiant heaters for efficient heating comfort in winter.

(e) Practical incorporation of the principles of ecologically sustainable development into the development

Response:

- The building design prioritizes energy efficiency, featuring a light-colored roof to reduce the heat island effect.
- The HVAC system will incorporate split AC with natural ventilation, reducing energy demand.
- Cooking appliances will include a mix of electric induction and gas, with provisions for a future transition to 100% induction cooking.
- Water-efficient fixtures, such as sensor-activated taps and push taps, will minimise water waste.
- A metering and monitoring system will be connected to the existing, ensuring that energy and water usage is tracked and optimised for efficiency.

(f) Ensure that buildings are 'energy smart' and meet all BASIX requirements.

Response:

- While this building is not subject to BASIX as it is a non-residential development, it incorporates energy-smart strategies to enhance efficiency and sustainability. Please refer to the ESD principles in the response above.

3.2 NCC 2022 – Section J

Section J of the NCC sets out the Deemed-to-Satisfy (DTS) provisions to ensure buildings use energy efficiently.

The development will comply with the Section J requirements of the National Construction Code (NCC) Volume 1, 2022 by incorporating:

- Thermal performance requirements for roofs, ceilings, walls, glazing and floors.
- High-efficiency HVAC systems incorporating split AC units with natural ventilation options.
- Energy-efficient LED lighting with occupancy sensors.
- Future provisions for rooftop Solar Photovoltaic panels and battery storage, in accordance with NCC Section J
- A metering and monitoring system for energy consumption tracking.

3.3 State Environment Planning Policy (Sustainable Buildings) 2022

3.3.1 Standards for non-residential development

(1) *The project has been designed to enable the following:*

(a) *the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,*

Response:

- The project involves partial demolition of the western wing of the hall, with more than 60% of the existing building being retained. This approach helps minimise waste and reduce the environmental impact associated with upfront embodied carbon in materials.
- 80% of construction and demolition waste being diverted from landfill through recycling and reuse initiatives.
- Where feasible, existing building elements such as concrete pathways and other structural components will be retained, reducing material waste.

(b) *a reduction in peak demand for electricity, including through the use of energy efficient technology*

Response:

- Artificial Lighting energy will be minimised by the use of shaded windows. Consideration will also be given to skylights and/or solar tubes that can provide additional natural light, subject to managing operational maintenance concerns including safe access for cleaning and minimising waterproofing risks.
- The HVAC system includes split AC with natural ventilation, reducing energy demand during moderate weather conditions.

(c) *a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,*

Response:

- The design incorporates natural ventilation in classrooms and common areas to reduce reliance on mechanical cooling.
- A light-coloured roof helps mitigate heat gain, reducing the need for air conditioning.

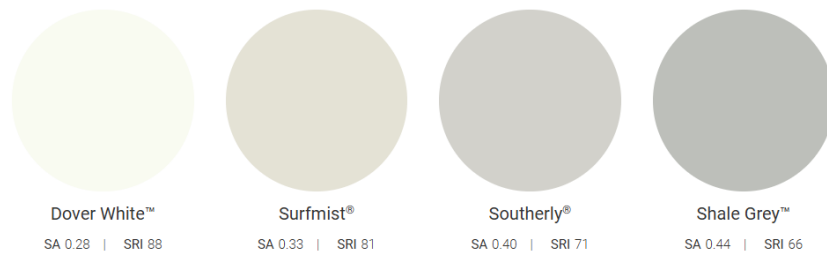


Figure 2: Colorbond light-coloured roof finishes

- Large windows and open spaces will maximize natural daylight, reducing reliance on artificial lighting during the day.

(d) the generation and storage of renewable energy,

Response:

- The refurbishment of the building, whilst positive from an embodied carbon perspective, unfortunately means retaining an original roof that was not designed to carry solar photovoltaic panels. Furthermore, the new lower roof section is overshadowed by existing mature trees to the West and the existing roof to the East. For these reasons, it makes the installation of rooftop Solar PV panels ineffective.

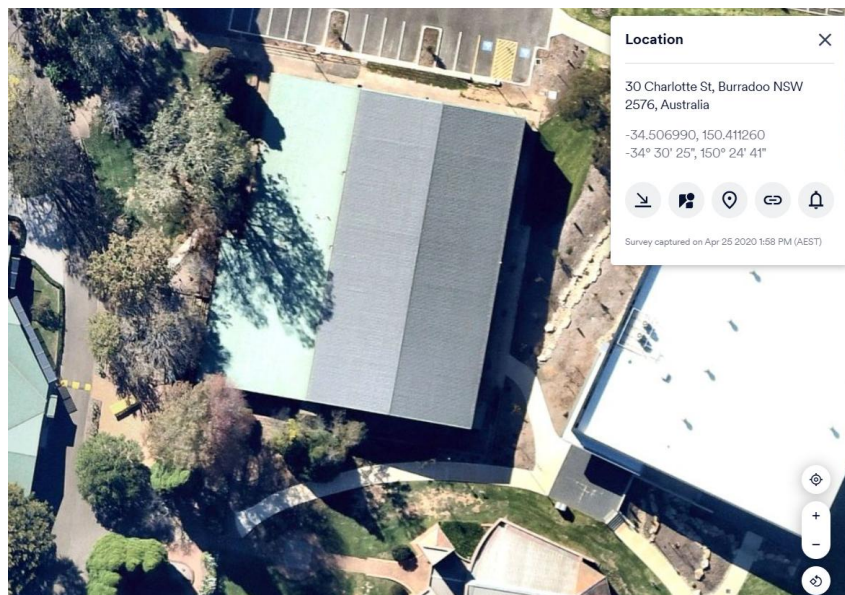


Figure 3: Photo of current building roof showing overshadowing from trees to the North and West.

- The new roof will be designed to be structurally capable of having Solar PV panels installed in the future in accordance with NCC 2022 (maximum 20% of the new roof area). Also, the switchboards will be designed to support the future integration of battery storage, enabling further reductions in grid reliance.

(e) *the metering and monitoring of energy consumption,*

Response:

- The development will include metering and monitoring systems for energy and water consumption and will be connected to the existing system.
- This will enable tracking and optimization of energy use, ensuring long-term efficiency.

(f) the minimisation of the consumption of potable water.

Response:

- Water-efficient fixtures, including knee-button or sensor-activated basin taps in the kitchen and push taps in bathrooms, will reduce potable water use.



Figure 6: Knee-button and push taps (Image for reference purposes only)

- A 10,000L rainwater tank will be installed on the southern side of the hall, supplying toilet flushing, irrigation, and path washing.
- Drought-resistant native landscaping will be implemented to minimise irrigation needs.



Figure 5: Drought resistant landscaping (Image for reference purposes only)

(2) Development consent must not be granted to non-residential development unless the consent authority is satisfied the embodied emissions attributable to the development have been quantified.

Response:

The NABERS Embodied Emissions Material Form has been completed and is a part of the Development Application submission. This form quantifies key construction materials used in the development.

4 Conclusion

The Chevalier College Stage 1 Hospitality Upgrade is committed to integrating ESD principles throughout its design, construction, and operation. By incorporating sustainable construction methods, energy efficiency strategies, and environmental management practices, the project ensures a reduced ecological footprint while providing a high-quality, future-ready educational facility.

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