

Technical Memorandum

May 9, 2024

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| From | Sylvie Mathian | Project No. | 12611546-Eastern Precinct |
| Project Name | Eastern Precincts Community Centres - Tenambit | | |
| Subject | Design response to State Environmental Planning Policy (SEPP) Requirements for non-residential development | | |

1. Introduction

GHD has been engaged by Maitland City Council as ESD consultants for the new Tenambit Community Centre. Our engagement includes general sustainability review of the design, investigation of operational and embodied carbon and compliance with section J.

1.1 Purpose of this Memorandum

The purpose of this technical note is to outline the sustainable design strategies employed in the design of the Tenambit community centre project to meet the general sustainability requirements specified in the 2022 SEPP applicable since 1st of October 2023.

1.2 Reference documents

The following documents form the basis of this document:

- Architectural DA drawing set issued 23.04.24

1.3 Scope and limitations

This technical memorandum has been prepared by GHD for Maitland City Council. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any other person for any other purpose than that outlined in chapter 1.1. It is not intended for circulation or incorporation into other documents other than for the project Development Application to Maitland City Council.

At the time of preparing this Technical Note, the design was in the early stages therefore all sustainability requirements are not fully resolved or documented yet. This document summarises the intent of the design team. All nominated initiatives require further design development and will need to be incorporated into final design and construction documentation.

2. SEPP General Sustainability requirements

The following table describes the SEPP General sustainability requirements and provide a summary of the design response.

Table 1 SEPP General sustainability requirements

| Reference in SEPP | General sustainability requirement | Design response |
|-------------------|--|--|
| 3.2.1.a | Minimisation of Waste from Demolition and Construction | <ul style="list-style-type: none"> – No demolition required for the works to proceed. – The appointed contractor will be required to develop a construction waste management plan and ensure at least 90 % of construction waste is diverted from landfill. |
| 3.2.1.b | Peak Electricity Demand reduction | <ul style="list-style-type: none"> – Passive design features to reduce peak electricity demand incorporated into the design include: <ul style="list-style-type: none"> • External shading of windows on elevations where solar heat gains need to be minimised. External shading provided with self-shading and overhangs. • Positioning of windows to optimise daylight and reduce reliance on artificial lighting during daytime. • Optimised glazing to wall ratios to reduce thermal loads and need for active air conditioning • Insulation of the air-conditioned envelope to target improvement over section J minimum requirements. • Ground floor slab thermal mass to act as thermal storage and will both reduce and shift demand for air conditioning energy use. • Mixed mode ventilation – HVAC system will achieve efficiencies as per section J or better. – HVAC system controls strategy will consider how to make best use of solar energy at times of maximum generation – e.g. through precooling the building to shift thermal load outside of peak times – Lighting power densities will be reduced as much as possible to achieve a saving compared to section J maximum power densities. There will be further savings using intelligent control system. – A roof top photovoltaics system is proposed. Battery storage is an option being considered to cover some of the building's electricity needs. |
| 3.2.1.c | Reduction In the Reliance on Artificial Lighting and Mechanical heating and cooling through passive design | <ul style="list-style-type: none"> – The passive design features introduced in item 3.2.1.b to lower the peak electricity demand will also save energy used by HVAC. – Natural ventilation openings are included in the glazing to provide mixed mode ventilation and free cooling in periods when external temperatures permit. – On site energy generation will provide approximately 30% of the building's annual energy demand. |
| 3.2.1.d | Generation and Storage of Renewable Energy | <ul style="list-style-type: none"> – A solar array will be installed on the roof to generate renewable energy used directly on site. Battery storage is an option being considered to provide some element of energy independence. – The design of the building roof and electricals system allows for future expansion of solar PV systems, ensuring adaptability to increased energy needs. – Space for battery storage has been allocated, ensuring the possibility to install energy storage in the future should additional electricity users be added to the building such as installation of EV charging stations. |

| Reference in SEPP | General sustainability requirement | Design response |
|-------------------|--|--|
| 3.2.1.e | Metering and monitoring | The design will follow NCC2022 section J9D3 requirements. |
| 3.2.1.f | Minimisation of Consumption of Potable Water | To minimize potable water consumption, the community centre incorporates the following features: <ul style="list-style-type: none"> – rainwater harvesting: Harvested water will be used for irrigation and washdowns. – high-efficiency fixtures will be specified, further conserving potable water resources. |
| 1b | Materials embodied carbon | Low carbon construction materials include: <ul style="list-style-type: none"> - concrete slabs, blocks and pavement utilising cement replacement materials such as fly ash or slag - aluminium sourced from window frame suppliers with energy efficient processes - bio based materials insulation |

3. Conclusion

The current design intent of the community centre includes a number of features and initiatives that are consistent with the SEPP general requirements for non-residential buildings. These initiatives will need to be further developed and incorporated into project construction documentation.

Regards

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Mechanical Engineer / ESD consultant

