



Sustainability Management Plan

Greenstead Valley

Pure Projects

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Revision History

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1 Introduction

Aspire Sustainability Consulting has been engaged to prepare a Sustainability Management Plan (SMP) to accompany the Development Application regarding the proposed Greenstead valley development. This report outlines the sustainable design initiatives being explored for the development, demonstrating a commitment to exceed controls & objectives outlined in the DCP Requirements.

1.1. Sustainable Design Frameworks

The development shall be designed in line with the following sustainable design frameworks, ensuring key ESD design principles are implemented across all aspects of design:

- NCC 2022 Section J Compliance (via J1V3 Performance Solution);
- State Environmental Planning Policy (SEPP): Sustainable Buildings;
- Wingecarribee Local Environmental Plan 2010; &
- Wingecarribee Shire Council, DCP 2021 Part A Rural Lands.

1.1.1. NCC 2022 Volume 1 Section J (Energy Efficiency)

Provisions within Section J of the NCC relate to energy efficiency and the reduction of Greenhouse Gas Emissions for Class 2 to 9 developments. Aspects of design required to be addressed in Section J include the façade, building envelope, lighting, HVAC, energy metering, building sealing and ventilation.

A J1V3 report has been issued based on DA design '240229_P126001_J1V3_Report_1.0' providing indication of the likely performance requirements to be adopted to comply with NCC Section J 2022.

1.1.2. State Environmental Planning Policy (SEPP): Sustainable Buildings 2022

The Sustainable Buildings SEPP is aligned with National Construction Code & NSW Net Zero Policy which will help in delivering buildings that are more energy efficient, produce less GHG emissions and inform future benchmarks. Applicable parts of the Sustainable Buildings SEPP are outlined below:

- Address general sustainability requirements (C2);
 - Design initiatives showing compliance with SEPP C2 are contained throughout this report; &
- Disclose embodied emissions for future benchmarks (C3);
 - Addressed in C3 Embodied Emissions advice note has been submitted to accompany the DA.

It should be noted that the Sustainable Buildings SEPP is a framework that sets minimum performance requirements for projects in NSW, however local councils may enforce increased sustainability targets.

1.2. ESD Controls & Objectives

The following table references sections within the report where compliance is demonstrated with applicable DCP's requirements.

Table 1: ESD Objectives

Wingecarribee Shire Council, DCP 2021 Part A Rural Lands	
Section A5.1.4 Water Quality	Design Response
a. Protect and manage stormwater discharges from homes, businesses and industry.	Please refer to Sections 7, 9 & 10.
b. Conserve water use wisely at home and at work (through user habits, water saving appliances and flow control devices).	Please refer to Sections 7, 9 & 10.
c. Enhance vegetation conditions along river corridors which will provide an effective buffer strip to our waterways.	Please refer to Sections 9 & 10.
d. Control damaging access (eg. stock access) to waterways.	Please refer to Sections 9 & 10.
Section A5.3.2 Water Sensitive Design	Design Response
a. Conservation of potable water.	Please refer to Sections 7,9, 10 & 11.
b. Protection of natural ecosystems and waterways.	Please refer to Sections 9 & 10.
c. Protection of water quality entering natural ecosystems and waterways.	Please refer to Sections 9 & 10.
d. Minimisation of surface runoff entering natural ecosystems and waterways.	Please refer to Sections 9 & 10.
e. Integration of stormwater and wastewater treatments into the natural landscape to enhance visual, social, cultural and ecological values.	Please refer to Sections 7, 9 & 10.

The following table references sections within the report where compliance is demonstrated with applicable ESD requirements within the Clause 3 of section 5.13 Eco-tourist Facilities from the Wingecarribee Local Environmental Plan 2010.

Table 2: ESD Objectives

Wingecarribee Local Environmental Plan 2010	
Clause 3, Section 5.13 Eco-tourist Facilities	Design Response
b. The development will be located, constructed, managed and maintained so as to minimise any impact on, and to conserve, the natural environment.	Please refer to Sections 4 to 12.
c. The development will enhance an appreciation of the environmental and cultural values of the site or area.	Please refer to Section 9.
d. The development will promote positive environmental outcomes and any impact on watercourses, soil quality, heritage and native flora and fauna will be minimal.	Please refer to Section 9.

e. The site will be maintained (or regenerated where necessary) to ensure the continued protection of natural resources and enhancement of the natural environment.	Please refer to Section 9.
f. Waste generation during construction and operation will be avoided and that any waste will be appropriately removed.	Please refer to Section 9.
i. Any power and water to the site will, where possible, be provided through the use of passive heating and cooling, renewable energy sources and water efficient design.	Please refer to Sections 4 & 7.
k(iii). Efficient and minimal energy and water use and waste output.	Please refer to Sections 4, 7 & 10.
k(iv). Mechanisms for monitoring and reviewing the effect of the development on the natural environment.	Please refer to Section 9.
k(v). Maintaining improvements on an on-going basis in accordance with relevant ISO 14000 standards relating to management and quality control.	Please refer to Section 9.

1.3. Aim of Report

The following sections outline design initiatives being considered that reduce the environmental impact of the design, construction, and operation of the development, highlighting alignment with applicable targets and planning controls.

2 Project Description

The development proposed is an eco-friendly facility, located at 1551 Joadja Road, Joadja NSW. The proposal includes a variety of Community Villages, for both short term stay and day trips. This includes:

- Arrival Village consisting of parking areas and arrival building;
- Community 1 consisting of a refurbished homestead building and cabins; &
- Community 2 consisting of amenities building and glamping.

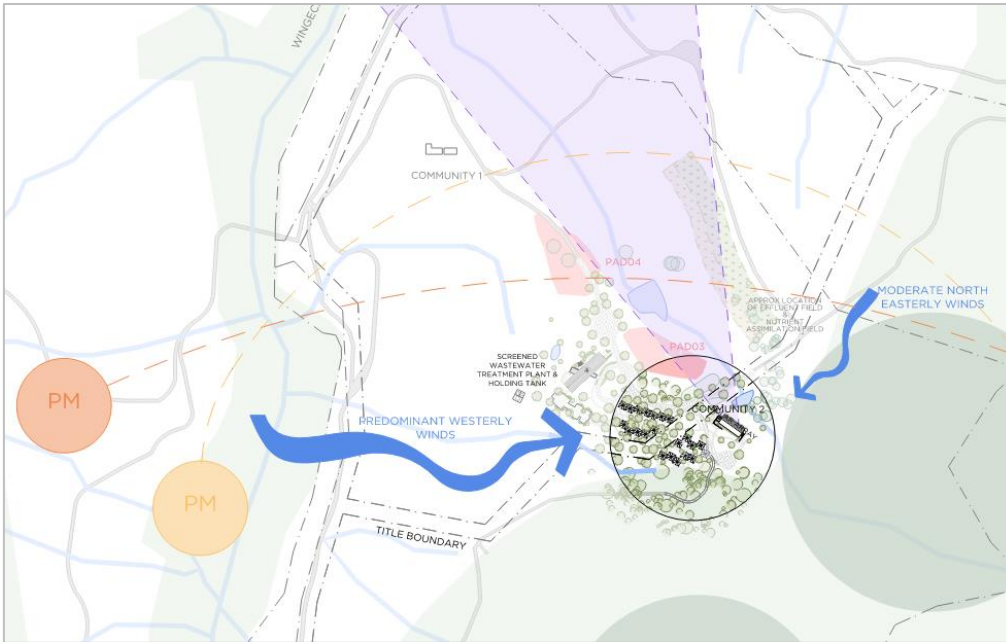


Figure 1: Site Layout

2.1. Information Sources

- NCC Section J 2022 Volume 1;
- Architectural DA packages: 1938_DA_GLAMPING & TENTS_R04, 1938_DA1_ARRIVAL VILLAGE_R01, 1938_DA2_COMMUNITY 1_R01 & 1938_DA3_COMMUNITY 2_R02;
- Breathe ESD Vision Document 6th October 2020; &
- Wingecarribee Shire Council, DCP 2021 Part A Rural Lands.

3 Ecologically Sustainable Design

The following sections contain sustainable design initiatives currently being explored by the design team in line with the ecologically sustainable design categories outlined below:

- Passive Design & Energy Efficiency
- Water
- Emissions
- Transport
- Construction
- Climate Change Adaptation
- Materials
- Land Use & Ecology
- Waste

During design development, feedback from the design team will drive discussions with the aim of finalising the approach regarding sustainable design for the Greenstead Valley Development.

4 Passive Design & Energy Efficiency

The Greenstead Valley will consider the following passive design initiatives throughout design development:

- A light external colour scheme that reduces the sites contribution to the local heat island effect, also lowering internal temperatures by minimising the heat being transferred through the building fabric;
- Increased openings to occupied spaces allowing mixed mode operation that significantly reduces reliance on artificial cooling or heating to maintain comfort conditions;
- Consideration of ceiling fans to further improve comfort and reduce use of HVAC;
- Shading incorporated on the north throughout the site along with vertical shading on east and west facades to parts of Community 1 building, minimising peak HVAC loads whilst allowing winter daylight penetration;
- Suitably performing glazing for each facade, protecting from hot ambient air during summer whilst allowing heat to be kept inside during winter;
- Vegetation incorporated throughout site to provide shade and places of respite;
- Thermal mass utilised where possible, helping to smooth out daily temperature peaks and troughs;
- Thermal zoning of HVAC systems to improve operating efficiency; &
- Exceed minimum envelope performance by 10%.

Energy efficiency initiatives being explored in design are outlined below:

- Metering in line with minimum performance standards to track and monitor energy consumption;
- Efficient, air-cooled HVAC systems that eliminate water consumption associated with heat rejection;
- High energy efficient systems such as Heat Pumps for Domestic Hot Water heating;
- No use of gas throughout site with 100% electrification;
- Exceeding minimum energy efficiency provisions within NCC 2022 Volume 1;
- Use of energy efficient appliances;
- Solar PV systems installed throughout site to provide a portion of the sites power, whilst reducing peak power demands;
- Consideration of battery storage systems to reduce peak demand and avoid reliance on centralised grid infrastructure;
- Net zero emission targets; &
- Energy efficient LED lighting throughout with appropriate motion & daylight controls.

5 Transport

The development is situated at 1551 Joadja Road, Joadja NSW, an area not connected to sustainable modes of transport such as bicycle tracks, walkways and bus stops. To reduce emissions associated with transport to, from and around site, investigations during detailed design will include:

- Showers & locker facilities for staff and visitors;
- A car-pooling system for the staff forming part of the site Operation Management Plan;
- Provision of electric bicycle to travel in and around the site along with parking facilities; &
- Integrated Sustainable Transport Plan.

6 Materials

The environmental footprint of the development can be reduced through the procurement of sustainable products. This can include products produced with lower than typical energy consumption during manufacture, made with reused content, or not transported large distances to its point of use.

During the detailed design phase, the sustainable materials strategy for the development will explore the following items:

- Environmental Performance Declarations (EPD's) for major material elements;
- Consideration of re-used materials;
- Design consideration regarding disassembly on site;
- FSC timber;
- 50% cement replacement;
- Use materials with less finishes and in their natural state;
- Use of low embodied energy materials; &
- Paints, adhesives & sealants specified to contain low or no VOC & formaldehyde free, improving internal air quality.



Figure 2: Examples of third-party environmental product declarations that can be explored during design development.

7 Water

The development will aim to reduce potable water consumption by 40-60% compared to a typical building of the same nature by incorporating the following water saving measures into design:

- Installing fixtures and fittings in line with best practice requirements outlined in Table 2;
- Ensuring a large portion of landscape comprises native or low-water use plant species;
- Exploring other water storage methods such as pool, heat sink, habitat creation etc;
- Inclusion of rainwater reuse tanks to be used for landscape irrigation and WCs of communal facilities;
- Installation of an on-site sewer and stormwater treatment system; &
- Air cooled HVAC systems, reducing water associated with heat rejection.

Table 2: Recommended Water Efficiency of Fixtures & Appliances

Fixture/Equipment Type	WELS Rating
Taps with aerators (DCP)	5 stars
Urinals	5 stars
Toilets	4 stars
Showers	3 stars (> 4.5 but <= 6.0)
Clothes Washing Machines	4 Stars
Dishwashers	5 Stars


Figure 3: WELS Water Rating Label

8 Construction

Sustainable construction practices that will be considered for implementation throughout construction include:

- Contractor construction waste management plan to investigate >90% of construction and demolition waste by weight being diverted from landfill;
- Responsible management systems such as an Environmental Management Plan & implementing an Environmental Management System in line with ISO 14001; &
- Reuse of existing building elements where possible & design for disassembly.


Figure 4: Sustainable Waste Management Hierarchy

9 Land Use & Ecology

The development aims to reduce potential negative impacts resulting from regional development and enhance local ecology by implementing the following design features:

- Plant beds, trees at multiple locations and significant canopy cover helps in providing shade as well as enhancing local levels of biodiversity. The vegetation on the site will be in compliance with the bushfire requirements from the local council;
- Enhance the ecological value of the site with respect to what it was at the time of purchase through measures such as a grass swales that promotes diversity in vegetation and wildlife;

- Utilising stormwater and WSUD features in line with Wingecarribee Shire Council, DCP 2021. This initiative shall also provide safe havens for local biodiversity;
- Incorporating elements of biophilic design throughout the development;
- Create and implement a Biodiversity Management Plan;
- Light pollution to the night sky and the surrounding is minimized through appropriate outdoor lighting systems; &
- Light colour schemes to external surfaces and areas of deep soil vegetation that reduce the local heat island effect.

10 Emissions & Waste

ESD initiatives associated with emissions and waste currently implemented in design include:

- Stormwater & WSUD features in line with planning controls, reducing the sites impact from stormwater runoff and pollution;
- Adopting air cooled HVAC systems, eliminating the risk associated with legionella disease when cooling towers are installed on site;
- Provision of facilities to enable separation of multiple waste streams including glass, plastic, cardboard and organic waste per OWMP 'Greenstead Valley - Operational Waste Management Plan 05.10.2023';
- On-Site composting;
- Reduced bin quantities to promote waste accountability;
- Incorporating worm farm septic and composting WCs; &
- Minimisation of construction waste to landfill.

The potential to use air conditioning systems with refrigerants that have a low Global Warming Potential will also be explored, subject to feasibility regarding proposed air conditioning systems.

11 Climate Change Adaptation

To ensure the long-term durability of the site and its ability to adapt to a changing climate, the following measures will be considered:

- Rainwater tank to reduce the potable water consumption of the development;
- Light colour schemes that keep the external surfaces of the building cool, reducing impacts of the local heat island effect & keeping naturally ventilated spaces cool;
- Increasing capacity of mechanical and electrical distribution boards to accommodate an increase in building electrical loads associated with a warming climate;
- Ensuring the development is constructed in accordance with recognised standards regarding wind tolerance and impacts from hail; &
- Offering areas of respite during extreme weather events.

12 Operational Management

To monitor, review and enhance the quality of development and the surrounding the following measures will be adopted:

- 1) An Operational Management Plan addressing:
 - a. Sustainability risks and opportunities which will be monitored and treated over development's operational phase;
 - b. A comprehensive operation and maintenance review of all the building systems should be carried out quarterly to ensure best practice environmental outcomes for the occupants and the biodiversity;
 - c. Staff and occupants should be provided with information regarding the environmental management measures of the development through digital signages or interactive information kiosks in high traffic areas, induction, website, etc;
 - d. Deliver cleaning services in accordance with a green cleaning policy;
 - e. Relevant ISO 14000 standards related to management and quality control shall be followed for any maintenance and improvement in Greenstead Valley.
- 2) Integrating a Building Management System (BMS) to monitor and record the energy and water demands.

13 Ongoing Management

To ensure ongoing management of the sustainable design initiatives included in this SMP, the following processes will be adopted:

- 1) Provision of Sustainability Schedule listing sustainability features adopted in design, including columns stating:
 - a. Design consideration;
 - b. Responsible discipline;
 - c. Documentation required to demonstrate initiative received; &
 - d. Design team comment.
- 2) Briefing workshops will be held during early design development to ensure applicable design team members are familiar with sustainable design initiatives;
- 3) Periodic reviews of design documentation will take place during latter stages of design development to ensure tender documentation is aligned with sustainability targets;
- 4) Briefing and review process to be repeated with Head contactor & their subcontractor teams;
- 5) Monitoring of trades throughout construction regarding installation of systems and products applicable to sustainable design targets;
- 6) Compilation of As Built documentation to be reviewed verifying the development was constructed as designed.

It is recommended the abovementioned briefing and review tasks are adopted in to the main design program to ensure required works are scheduled to take place at adequate times, ensuring sufficient time for updating of design documentation should amendments be required to achieve desired sustainable outcomes.

14 Conclusion

This report demonstrates the development is on track to exceed sustainability objectives contained within applicable planning controls.

Throughout design development, detailed investigations will be carried out to further refine the ESD strategy for the development, providing an exceptional example of sustainable design to Greenstead Valley and beyond.