



SEAR's ESD Report

Newcastle Jockey Club Stables Development

Newcastle Jockey Club C/O Avid Project Management

Attention: David Read

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Revision History

Revision	Project	Description	Author	Date
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1 Introduction

Aspire Sustainability Consulting has been engaged to prepare an Ecologically Sustainable Design (ESD) report to accompany the State Significant Development Application (SSD-12982045) regarding the proposed Newcastle Jockey Club Stables Development. This report outlines the sustainable design initiatives being explored for the development, demonstrating a commitment to achieve controls & objectives outlined in the Secretary's Environmental Assessment Requirements (SEAR's) in addition to Newcastle DCP Section 7.05.

1.1. ESD Controls & Objectives

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

Table 1: ESD Controls & Objectives

SEAR's Ecological Sustainable Development	Design Response
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning & Assessment Regulation 2000) will be incorporated in the design, construction, and ongoing operation phases of the development.	Numerous ESD principles are currently considered that reduce the environmental impact of the development. Please refer to Sections 3-10 for further information.
Demonstrate how future buildings would meet minimum building sustainability and environmental performance standards.	The development will comply with NCC 2019 Volume 1 Amendment 1 Section J (Energy Efficiency). Please refer to Sections 3-10 that outline additional ESD principles currently considered in design.
Newcastle DCP 2012 Section 7.05	Design Response
To encourage sustainable development.	Please refer to Sections 3-10.
To encourage the innovation of energy efficient technologies and processes.	Please refer to Sections 4, 7 & 8.
To encourage efficient use of resources and the use of recycled materials.	Please refer to Sections 4, 6 & 8
To promote best practice energy use.	Please refer to Section 4.
To improve the efficiency of energy use and reduce the long-term energy consumption for business and industrial uses.	Please refer to Section 4.
To restrict the reflection of sunlight from buildings onto surrounding areas and buildings.	Please refer to Section 4.

1.2. 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 is located at the corner of Chatham & Darling St's, Broadmeadow NSW 2292 and will comprise multiple blocks containing stabling facilities and staff support spaces. The stable blocks will be predominantly naturally ventilated, however will house small, air-conditioned offices on each floor.

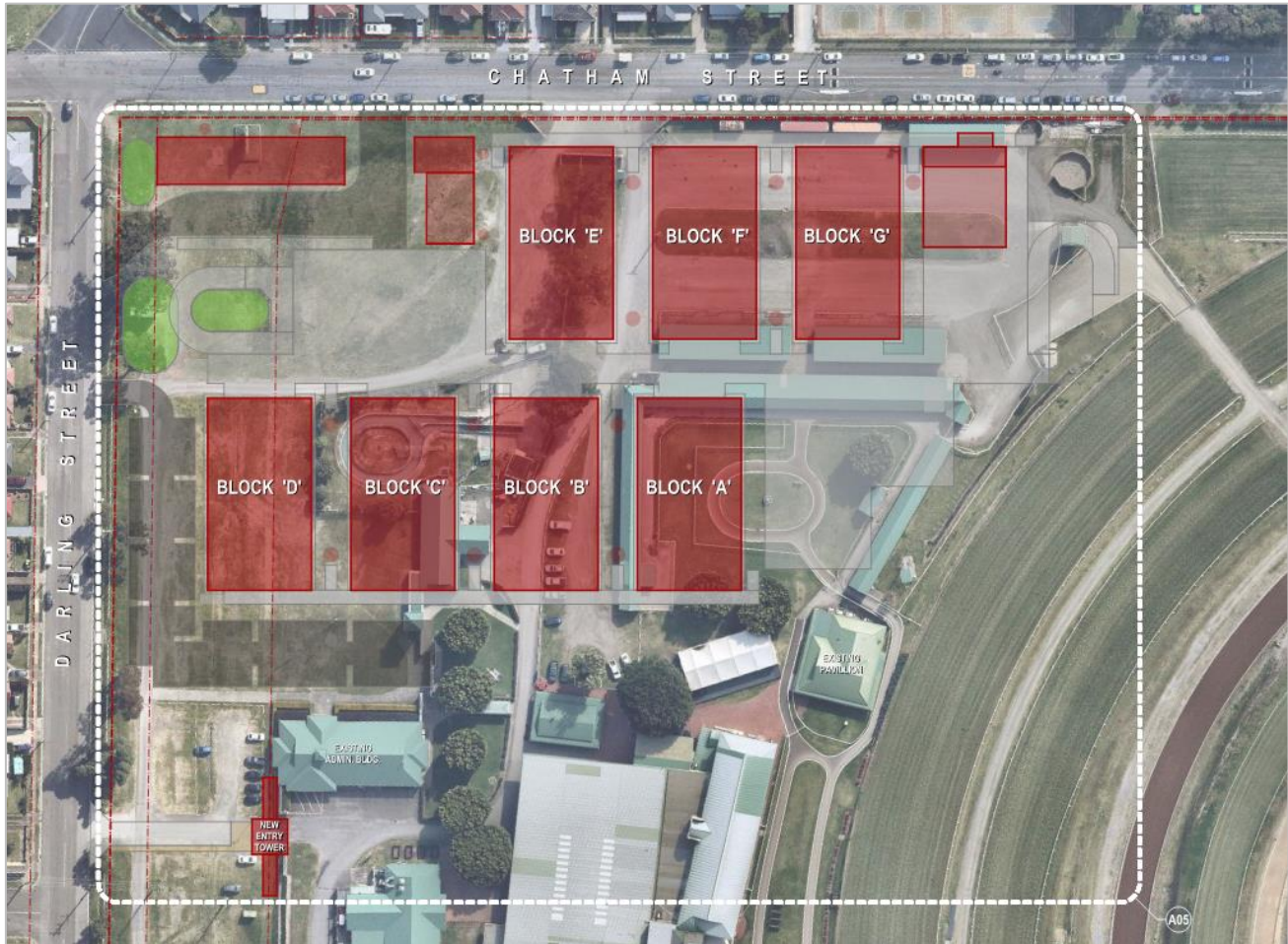


Figure 1: Site Layout

2.1. Information Sources

- NCC Section J 2019 Volume 1;
- Architectural drawings: 11553 - DA - A00 to A32 - 15/09/2021 - rev. B;
- Management Plan: NJC Stables Development - NJC Management Plan MB_Final_210817;
- Air Quality & Odour Risk Assessment: 11553-NJC-Stables_DA-Issue-(rev.-B_15-09-2021);
- Newcastle DCP Section 7.05 Energy Efficiency.

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:

- | | | |
|-------------|----------------|-------------|
| ▪ Energy | ▪ Water | ▪ Emissions |
| ▪ Transport | ▪ Construction | ▪ Ecology |
| ▪ Materials | ▪ Land Use | ▪ Waste |

During design development, feedback from the design team will drive discussions with the aim of finalising the approach regarding sustainable design for the Newcastle Jockey Club Stables Development.

4 Energy

The Newcastle Jockey Club Stables Development will consider the following initiatives throughout design development:

- 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;
- Solar Thermal or gas systems for hot water heating;
- Compliance with NCC 2019 Volume 1, Amendment 1 Energy Efficiency Requirements (Section J);
- Solar PV system to provide a portion of the sites power, whilst reducing peak power demands;
- Energy efficient LED lighting throughout with appropriate motion & daylight controls.

Passive design strategies currently included in design are outlined below:

- A light external colour scheme that reduces the sites contribution to the urban heat island effect, also lowering internal temperatures by minimising the heat being absorbed through the roof and walls in to the stables;
- High level openings that facilitate stack ventilation, allowing warm air to be exhausted from the upper level whilst drawing in cooler air from below;
- Vegetation incorporated throughout site that provide shade;
- Careful orientation of buildings, minimising Western façade area exposed to extensive solar penetration;
- Walls comprising high thermal mass to unconditioned stables, providing a cooler, more comfortable internal environment during warmer days.

5 Transport

The development is located in a central location within Newcastle, well connected to a variety of sustainable modes of transport such as bicycle tracks, train stations and bus stops. Additional items that will be investigated during detailed design include:

- Showers & locker facilities for staff and horse trainers;
- Bicycle parking facilities.

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 plasterboard and flooring;
- Recycled content in products where appropriate;
- FSC timber;
- Concrete with reduced Portland cement quantities;
- Paints, adhesives & sealants specified to contain low VOC & formaldehyde, improving internal air quality.

7 Water

The development will reduce water consumption by incorporating the following water saving measures into design:

- Installing fixtures and fittings in line with best practice requirements outlined in Table 2;
- Ensuring native plant species are incorporated throughout, where possible;
- Inclusion of numerous rainwater reuse tanks positioned between the main buildings to be used for horse washing & toilet flushing;
- Air cooled HVAC systems, reducing water associated with heat rejection.

Table 2: Recommended Water Efficiency of Fixtures & Appliances

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

8 Construction

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

- Contractor construction waste management plan to investigate >80% of construction 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;
- Concrete with a portion of Portland cement replaced with recycled aggregate;
- Reuse of existing building elements where possible.

9 Land Use & Ecology

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

- Plant beds & trees at multiple locations which allow for deep planting and significant canopy cover, providing shade, improving air quality as well as enhancing local levels of biodiversity;
- Utilising stormwater and WSUD features in line with Newcastle DCP, decreasing the strain on central water infrastructure systems, and providing safe havens for local biodiversity;
- Light colour schemes to external surfaces and areas of deep soil vegetation that reduce the urban heat island effect.



Figure 2: Aerial view showing light colour schemes included in current design

10 Emissions & Waste

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

- Stormwater & WSUD features in line with Newcastle DCP, 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;
- Rubber matting that limit noise emissions from horse movement;
- Odour minimisation strategies regarding the stables, horse food and horse waste will be adopted to minimise the effect on adjoining residents' amenity;
- Use of plastic 'Mega' bins regarding used bedding and waste that completely seal all odours and prevents access to rodents and insects;
- Minimisation of waste to landfill throughout the operation of the development with animal waste being re-used off site by a private contractor, and the separation of general waste in to various waste streams.

The potential to use air conditioning systems with R14a refrigerants that have a low Global Warming Potential compared to R32 will also be explored, subject to no detrimental impacts on air conditioning system efficiency.

11 Conclusion

This report demonstrates the development is on track to achieving sustainability requirements contained within the Secretary's Environmental Assessment Requirements (SEAR's) in addition to Newcastle DCP Section 7.05.

Throughout design development, detailed investigations will be carried out to further refine the ESD strategy for the development.