



SUSTAINABILITY REPORT

Storage and Distribution Warehouse

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PREPARED FOR
HB+B Property Pty Ltd
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Chippendale NSW 2008

Sustainability Report

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1. Executive Summary

Northrop Consulting Engineers have been engaged to provide Sustainability Consulting advice to HB+B Property to support the State Significant Development Application (SSDA) process for the proposed Storage and Distribution Warehouse development located within the Alspec Industrial Business Park (AIBP), Luddenham Road, Orchard Hills NSW 2748.

This report provides an overview of the proposed ecologically sustainable development (ESD) principles and efficiency measures that form part of the Environmental Impact Statement (EIS), aligning with sustainability objectives set out in the Planning Secretary's Environmental Assessment Requirements (SEARs), Sustainable Buildings State Environmental Planning Policies (SEPP) 2022 and the Penrith Development Control Plan (DCP) 2014.

Information contained within this report has been prepared in direct response to:

- The Secretary's Environmental Assessment Requirements (SEARs).
- The Environmental Planning and Assessment Regulation 2021.
- State Significant Development Guidelines.
- Penrith Development Control Plan (DCP) 2014 - E17 Luddenham Road Industrial Business Park.

The ESD initiatives and targets outlined within this document have been compiled based on the following:

- Best practice design principles.
- National Construction Code (NCC) Section J – Energy Efficiency Targets (i.e.: exceeding targets).

The project seeks to meet and exceed the sustainable requirements set for non-residential developments. Specific sustainability initiatives proposed for the building include, but are not limited to:

- Space efficient building layout.
- A commitment to energy efficiency exceeding the requirements of Section J of the Building Code of Australia.
- A highly efficient façade wall-glazing system designed to minimise heat gains into the building while promoting the entry of daylight for the areas occupied during the day.
- Reduction of potable water use.
- The use of high WELS rated sanitary fixtures and fittings.
- Rainwater collection and reuse.
- Increased use of daylighting to reduce power usage.
- A solar array to contribute to renewable energy supply and reduce reliance on the grid.
- Waste Minimisation strategies.
- Water Sensitive Urban Design principles.
- Electric vehicle charging infrastructure.

The integration of these initiatives demonstrates a strong social and environmental commitments of the project, aligning the project to an Australian Excellence Sustainability Standard and effectively addressing and mitigating against the negative environmental, social, and economic impacts associated with the project. The proposed building initiatives provide a cost-effective solution in design, construction and operation and the design team is committed to further pursuing the goals of sustainable development across this site as the project progresses.

2. Introduction

2.1 Background

To ensure that the development meets the Planning Secretary's Environmental Assessment Requirements (SEARs) and aligns with Alspec's commitment to sustainability, this report has examined the design documentation and the project's integration with the surrounding area. Northrop has then examined the Ecologically Sustainable Design (ESD) principles that have been incorporated into the project design and will provide guidance on further initiatives to be considered during the project's detailed design phase. This report lays out the site approach to sustainability and refers to the applicable elements of the planning requirements.

2.2 Site Location

The proposed Alspec Industrial Business Park (AIBP) development is situated at Luddenham Road, Orchard Hills, NSW 2748, within the Penrith suburbs, and is surrounded by natural vegetation.



Figure 1 Overview of the Alspec Industrial Business Park – nettletontribe

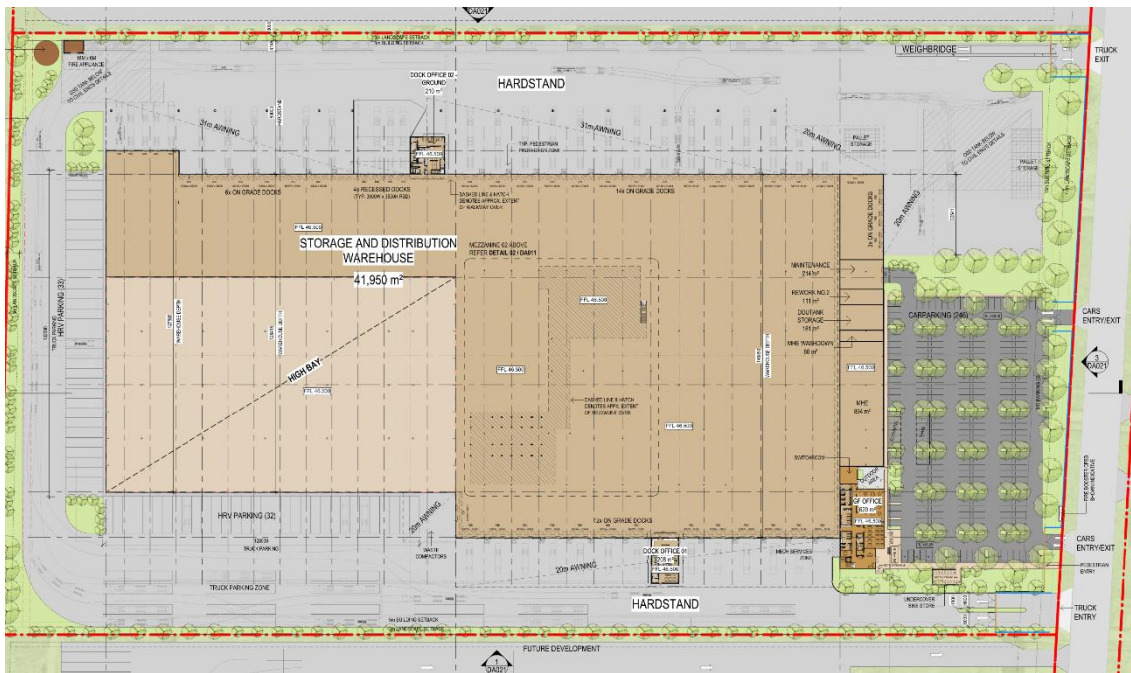


Figure 2 Proposed Site Plan - nettletontribe

2.3 Scope

Northrop Consulting Engineers have been engaged by HB+B Property to provide a Sustainability Report that will outline how the project meets the relevant planning requirements. The following sections of this report will identify the ESD principles of the construction and its relation to the Planning Secretary's Environmental Assessment Requirements (SEARs), Sustainable Buildings State Environmental Planning Policies (SEPP) 2022, and the Penrith Development Control Plan 2014 - E17 Luddenham Road Industrial Business Park requirements relevant to the area.

2.4 Response to Secretaries Environmental Assessment Requirements (SEARs)

This report discusses how the proposed development addresses Section 8 Ecologically Sustainable Development (ESD) of the SEARs. The requirements are outlined below, along with references to where each response can be found within this report.

Table 1: Response to Section 8 Ecologically Sustainable Development (ESD) of the SEARs

Item for inclusion	Action to Address Requirement	Report Location
Identify how ESD principals (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	This ESD report details how the project aims to address ESD Principles and their incorporation into the design and ongoing operation.	Section 3
Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.	The project has integrated initiatives aligned with principles outlined by the Green Building Council of Australia (GBCA). These elements provide a benchmark for the project to industry best practice	Section 4

Item for inclusion	Action to Address Requirement	Report Location
Demonstrate 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.	Significant resource efficiency measures are being included within the project design these include substantial energy, water, and material efficiency, water sensitive design and waste management measures.	Section 3
If Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022 applies: - demonstrate how the development has been designed to address the provisions set out in in Chapter 3.2(1). - provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35BA of the EP&A Regulation.	An energy metering and monitoring strategy will be implemented to monitor the main energy uses in the building. The project aims to divert construction and demolition waste from landfill. A waste management plan has been developed to reduce operational waste. Additionally, a solar array will be installed to generate renewable energy and reduce grid energy usage. Passive design strategies will be implemented to reduce reliance on artificial lighting and mechanical heating and cooling.	Section 2.5 & Section 3

2.5 Response to State Environment Planning Policies (SEPP) 2022 - Sustainable Buildings Requirements

The SEPP (Sustainable Buildings) 2022 outlines new requirements to allow projects to reduce greenhouse gas emissions. This section specifically addresses the following sustainability objectives for non-residential buildings.

Table 2 Response to SEPP (Sustainable Buildings) 2022 Requirements

Reference	Objective	Design Response
General Sustainability	Reporting on general performance, including water conservation, waste minimization and use of renewable energy.	- Energy metering and monitoring strategy will be implemented to effectively monitor the main energy uses within the building. - The project is also aiming to divert construction and demolition waste from landfill. - A waste management plan is developed to reduce operational waste. - Installation of solar array to generate renewable energy and reduce energy usage from the grid

Reference	Objective	Design Response
Embodied Emissions Reporting	Implement processes of measuring and reporting on embodied emissions.	Disclose embodied emissions via the NABERS embodied emission material form (not part of this report).
Net Zero Provisions	Demonstrate at development application that the development is designed with sufficient space and infrastructure so all energy needs can be sourced from renewables by 2035.	The development meets the criteria for large commercial development and will provide a Net Zero ready statement (not part of this report).
Energy Performance and Offsets	Independently verify that the development has met the energy performance required by the NCC, through NABERS post occupancy assurance. Purchase offsets for onsite fossil fuel use and to rectify any performance gap for energy efficiency	The development meets the criteria for large commercial development and will commit to obtaining a minimum NABERS Energy star rating (not part of this report).
Water Performance	Independently verify that the development has met a minimum 3-star NABERS water rating.	The development meets the criteria for large commercial development and will commit to obtaining a minimum NABERS Water star rating (not part of this report).

2.6 Limitations

Due care and skill have been exercised in the preparation of this report. No responsibility or liability to any third party is accepted for any loss or damage arising out of the use of this report by any third party. Any third party wishing to act upon any material contained in this report should first contact Northrop for detailed advice, which will consider that party's requirements.

3. Ecologically Sustainable Development

The following section describes how ESD principals (as defined within clause 193 of the Environmental Planning and Assessment Regulation 2021) are being incorporated in the design, construction, and operation phases of the project.

Table 3 Principles of Ecologically Sustainable Development

Principle	Objective	Project Response
The precautionary principle	Namely, that 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. In applying the precautionary principle, public and private decisions should be guided by: - careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and - an assessment of the risk-weighted consequences of various options.	Through the implementation of environmental management and building maintainability, the project will incorporate a focus on adaptability and resilience into the project design. The concept behind the precautionary principle is to create features in the project that can both; adapt to changes, which may eventuate in the future, and avoid the risk of serious or irreversible damage to the environment.
Inter-generational equity	Namely, that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.	To ensure the maintenance or enhancement of the health, diversity, and productivity of the environment for the benefit of future generations, the design will incorporate initiatives such as best practices PVC and low-impact paints, sealants, adhesives and FSC certified wood. Additionally, there will be a focus on integrating more vegetation and enhancing the connection with nature. Through these measures, the project will demonstrate a strong commitment to preserving the environmental health, diversity, and productivity of the local area.
Conservation of biological diversity and ecological integrity	Namely, that the conservation of biological diversity and ecological integrity should be a fundamental consideration.	By planting native vegetation, reducing stormwater runoff from the site, and employing integrated landscaping, the project will work to enhance, conserve, and support the local biological diversity and integrity.

Principle	Objective	Project Response
Improved valuation, pricing, and incentive mechanisms	Namely, that environmental factors should be included in the valuation of assets and services, such as: • polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, and • the users of goods and services should pay prices based on the full life cycle of the costs of providing the goods and services, including the use of natural resources and assets and the ultimate disposal of waste, and • established 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 benefits or minimise costs to develop their own solutions and responses to environmental problems.	The design of this development will employ lifecycle costing to determine the optimal strategy for major plant items. Decisions will be based on whole-of-life costs rather than capital expenditure alone. The project will involve significant input from the Quantity Surveyor, who will ensure that the project remains on budget and effectively considers environmental factors in the valuation of assets and services.

Through the inclusion of the above and the sustainability initiative outlined within this report the project clearly addresses the ESD Principles into the design, construction and operation of the development as defined within clause 193 of the Environmental Planning and Assessment Regulation 2021. Further details of the general sustainability initiatives are outlined below.

3.1 Energy Efficiency



Energy efficiency will be prioritised throughout the design development process, with the design team considering the following improvements. It is anticipated that the measures outlined in the following section, in addition to the implementation of a solar array, will significantly reduce the site's grid electricity demands when compared to a standard practice building.

3.1.1 Optimisation of the fabric

Intelligent design and material selection will ensure thermal comfort is achieved without relying solely on mechanical means. Passive design strategies such as performance glazing, shading and use of insulation will reduce demand on the mechanical air conditioning systems leading to lower energy consumption and greenhouse gas emissions.

Implementing effective shading design ensures consistent access to daylighting throughout the building, consequently helping to minimize the use of artificial lighting.

The building fabric will be designed to meet or exceed the NCC 2022 requirements for building envelope. Thermal breaks will be incorporated into walls and roofs where appropriate.

3.1.2 Integration of Cool roofs

To mitigate the potential for increased urban heat island effects across the site and surrounding area, the design will integrate cool roofing systems. These systems aim to minimise heat buildup within the building materials, thereby reducing the energy demands on HVAC systems. This will be achieved by selecting roofing products with colours that have a Solar Absorptance (SA) equivalent to a light classification in the Building Code of Australia (BCA).

3.1.3 Energy Efficient Equipment

Only energy-efficient appliances and equipment will be used in the project, with a focus on selecting systems with higher Seasonal Energy Efficiency Ratio (SEER) rating when compared to Section J/ Minimum Energy Performance Standards (MEPS) requirements.

3.1.4 HVAC System

The air-conditioning and ventilation systems will be designed to comply or exceed the minimum requirements of NCC 2022 Section J Part J6.

Ductwork and pipework systems will be designed to reduce system pressure losses to reduce fan and pump motor power. This includes the selection of equipment for reduced coil and vessel pressure drops and being generous with ductwork and pipework sizes to reduce friction losses.

These initiatives will provide significant savings in energy use.

3.1.5 Highly efficient lighting system

Installing efficient lighting systems, such as LED lighting, throughout the building will significantly decrease its overall energy consumption. LED lights are more efficient than traditional fluorescent lights and are characterized by an extended lifespan contributing to a reduction in carbon emissions. They are also efficient in dissipating heat and therefore reduce the heat load experienced within conditioned spaces.

Lighting will be designed to comply or exceed the minimum requirements of NCC 2022 Section J Part J7 and will be controlled via automatic control system.

3.1.6 Energy Metering and Monitoring

An energy metering and monitoring strategy will be implemented to effectively monitor the main energy uses within the building as per the requirements of Section J9D3 in the NCC 2022.

3.2 Energy Generation



With the above energy efficiency measures, the energy load of the facility will be significantly reduced, allowing a large portion of the site electrical energy demand to be met through onsite renewable energy generation from a solar array. This will assist to both offset the site energy use and minimise the site daytime peak demand from the grid.

3.3 Indoor Environment Quality



Indoor environment quality is always an important consideration in spaces that are regularly occupied. The following have been considered as part of the building design.

3.3.1 Daylight Access

Daylighting systems will be integrated throughout the internal and external areas of this project to support the admission of natural light and direct sunlight throughout the design. This will be achieved using high Visible Light Transmission (VLT) windows within the office and translucent roof sheeting over the warehouse roof. Adopting an integrated daylight approach will improve the wellbeing of the building occupants by creating a visually stimulating environment.

In addition to promoting occupant comfort, providing daylight will reduce the overall energy consumption of the building. Natural light will alleviate the need for artificial lighting whilst the direct sunlight will enhance thermal comfort during cooler months. Furthermore, the provision of roof lights in the warehouse will ensure continued operational resilience, enabling work to proceed in the event of power outages.

3.3.2 Indoor Air Quality (IAQ)

The quality of indoor air has a significant impact on both our health and the environment, potentially leading to adverse health effects such as allergies and asthma.

To address this concern, the project will improve the outdoor air provided to regularly occupied spaces, which will reduce CO₂ build up within the office areas and improve comfort for the building occupants.

3.3.3 Interior noise level control

Internal noise levels will be actively considered with the building layout and systems design, considering how noise will reverberate through the building. The use of acoustic insulation and sound isolation measures will ensure that interior noise levels to be maintained below acceptable limits.

3.3.4 Material selection

Materials selection for the project aims to improve the internal environment of the site with materials with low volatile organic compound (VOC) and formaldehyde content preferred to help minimise respiratory issues for building occupants.

3.4 Water Efficiency



A strong focus has been put on the effective management of water within the building with the following initiatives being included in the design in all areas throughout the project.

3.4.1 Rainwater capture and reuse

Further feasibility is to be completed regarding the ideal end-use for any non-potable water uses on site. The site's extensive building roofs provide ample opportunity for rainwater harvesting, making it particularly advantageous.

3.4.2 Water Efficient Equipment

Water efficient fixtures and fitting will reduce the water consumption of the site. As an indication, the following should be targeted:

Table 4 Sanitary Fixtures Efficiency

Fixture / Equipment Type	WELS Rating	WELS Label
Taps	5 Star	
Urinals	5 Star	
Toilet	4 Star	
Showers	3 Star	
Dishwashers	5 Star	

3.4.3 Use of low maintenance landscaping

The sites landscaping will incorporate native and low maintenance vegetation where possible which will significantly reduce the potable water consumption of the site. This use of native vegetation will also help support local flora and fauna.

3.5 Waste Management



Effective waste management throughout construction and operation of the site will help to promote resource efficiency and minimise the adverse environmental impacts of the project. The following are being considered as part of the design process.

3.5.1 Waste Management Plan

A Waste Management Plan will be prepared with the following key objectives:

- To minimise the environmental impacts of the operations of the development.
- To minimise the impact of the management of waste within the development.
- To ensure waste is managed to reduce the amount landfilled and to minimise the overall quantity generated.
- To ensure appropriate storage and collection of waste.

These objectives will be achieved through strategies such as the integration of recycling bins and back-of-house separation areas, which will encourage recycling and separation of cardboard/paper waste, glass, food waste and comingled recycling and general waste.

3.5.2 Separated Waste and Recycling Streams

The provision of separated waste and recycling streams could allow for more effective recycling of the project's operation waste. Providing separate bins for cardboard/paper waste, glass, food wastes, comingled recycling and general waste will improve the buildings operational efficiency and result in significant environmental benefits.

3.5.3 Construction Waste Minimisation

The project will also limit the amount of construction waste sent to landfill with the aim of at least 80% of all waste produced to be sent to recycling facilities or reused onsite.

3.6 Low Impact Materials Selections



Embodied energy will be reduced by avoiding unnecessary use of materials and procuring materials with a low carbon footprint where appropriate. Steel and concrete suppliers with environmental product disclosures (EPDs) will be preferred to support the improvement of industry standards and transparency of information on material impacts.

3.7 Sustainable Transport



The following site attributes and sustainable transport initiatives will be implemented to reduce carbon emissions associated with transport, and access to amenities by building users.

3.7.1 End of Trip Facilities

According to the Penrith (DCP) 2014 - E17 Luddenham Road Industrial Business Park requirements, end-of-trip facilities, including lockers and showers, will be provided. This provision aims to promote walking and cycling among staff members, encouraging sustainable transportation practices and enhancing employee well-being.

3.7.2 Sustainable Transport

The project involves developing and executing a Green Travel Plan (GTP) aimed at promoting sustainable transportation options. It will encourage alternatives to single-occupancy vehicle travel, such as walking, cycling, carpooling, and public transportation. The GTP will be customised to the specific needs of the community or organisation, adopting a culture of environmentally friendly commuting to reduce traffic congestion, improve air quality, and promote healthier lifestyles.

3.7.3 Electric Vehicles (EV) Infrastructure

Dedicated car parking spaces equipped with charging infrastructure will be strategically implemented for electric vehicles. Additionally, EV charging stations will be made available for bikes. These initiatives are in line with Penrith DCP 2014 - E17 Luddenham Road Industrial Business Park requirements. The aim is to encourage the adoption of electric vehicles to promote green transport, thereby minimising greenhouse gas emissions and promoting sustainable transportation practices.

3.8 Water Sensitive Urban Design



Water Sensitive Urban Design (WSUD) stands at the forefront in modern urban planning, offering innovative solutions to the complex challenges of water management in urban environments.

In accordance with the aims of the SEARs and the Penrith DCP 2014 – E17 Luddenham Road Industrial Business Park, the development must adhere to the principles of Water Sensitive Urban Design (WSUD). WSUD integrates the urban water cycle, including stormwater, groundwater, and wastewater management and water supply, into urban design to minimise environmental degradation and improve aesthetic and recreational appeal.

The project incorporates a strong focus on water sensitive urban design with the external landscape design assisting to minimise water use for irrigation. Additionally, the inclusion of vegetation, rainwater collection, and black and grey water treatment, help to decrease site stormwater discharge and in the management of the projects broader impact on stormwater flows. The project will achieve the storm water quality targets during construction and operation phases, as specified in Section 17.6 Integrated

Water Cycle Management of the Penrith Development Control Plan 2014 - E17 Luddenham Road Industrial Business Park.

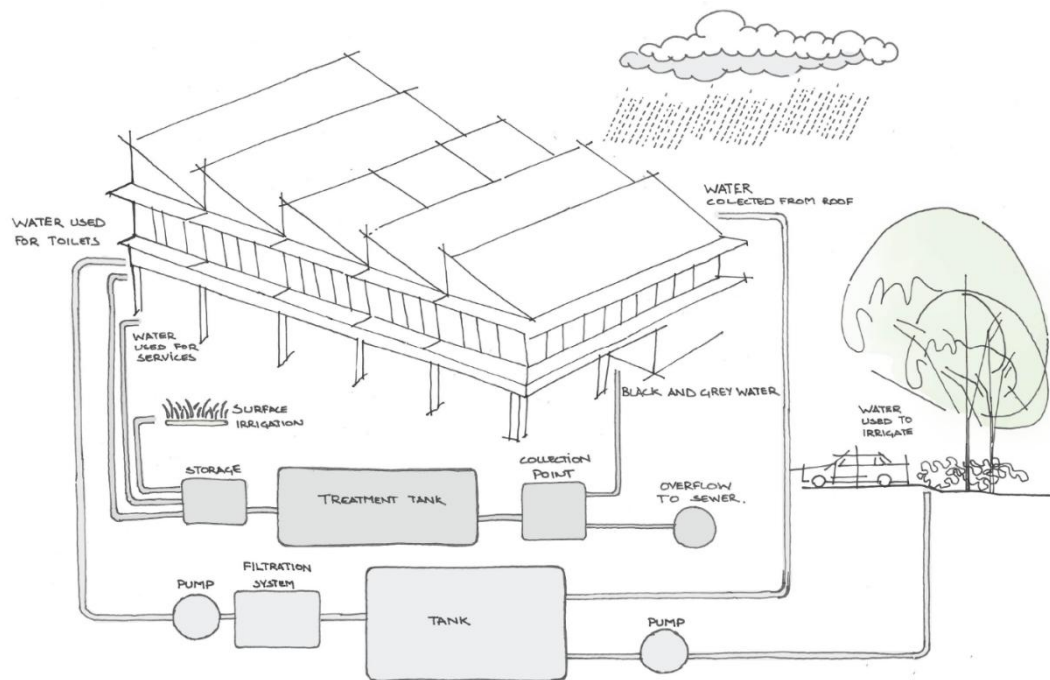


Figure 3 Proposed Rainwater Capture & Reuse - nettletontribe

3.9 Improved Ecology



Through planting native vegetation and promoting improved interaction with the natural environment, the project will look to improve the site's ecology and minimise its ongoing environmental impact. The project will also consider the implementation of the following:

- Minimisation of light spill from the facility which impacts on migratory animals and insects.
- Reduced dissolved pollutants in stormwater discharged from the site.
- Installation of blister islands in the car park, planted with trees, serves various purposes including acting as natural air purifiers, providing shading and cooling effects, creating habitats for birds, insects, and other wildlife, as well as managing stormwater.

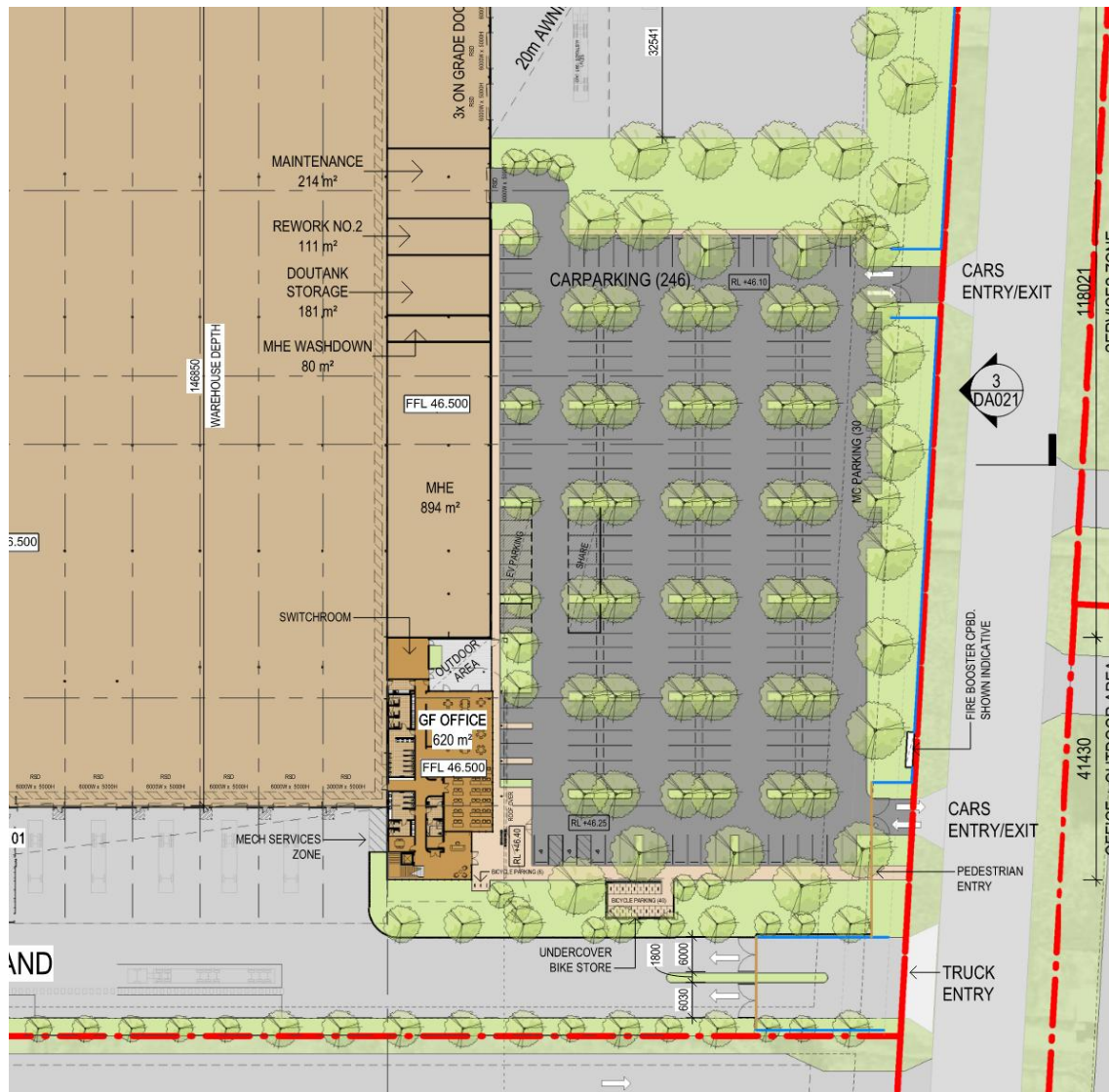


Figure 4 Proposed Car Park Blister Islands - nettletontribe

4. Industry Best Practice

The project also aims to meet and exceed industry best practice sustainability requirements within its design as part of the sustainability commitments associated with construction and operation. This section provides a summary of how the project is incorporating best practice in line with elements drawn from the Green Building Council of Australia (GBCA). These elements provide a benchmark for the project to industry best practice.

4.1 Management

Management promotes the adoption of environmental principals throughout the project's inception, design, construction, commissioning and operation of the building. The following initiatives are currently proposed.

- Engagement of an ESD professional to advise the Project team throughout the project design and construction.
- Review of the project design to ensure maintenance and access provisions are incorporated at the early stages of design.
- Commitment to commissioning the building.
- Integration of measures to accommodate risks posed to the site due to expected alterations in climate.
- Provision of detailed Operations and Maintenance information and hand over to support ongoing operations.
- Metering of the main building elements to support reporting and optimisation of the project systems in operation.
- Consideration of the operational waste requirements for the site and integration of support for this within the space layouts.

4.2 Indoor Environment Quality

Indoor Environment Quality aims to enhance the comfort and wellbeing of building occupants. The following proposed initiatives relate to building's HVAC system, lighting, indoor air pollutant monitoring systems as well as other building attributes:

- Building services noise levels to be managed to achieve acoustically comfortable spaces.
- Low irritant materials and coatings to be used.
- LED lighting is proposed throughout the development to meet illuminance, uniformity and glare requirements in applicable areas.
- A mechanical system that promotes good thermal comfort in the conditioned spaces.

4.3 Energy

The energy criteria focus on reducing energy consumption and greenhouse gas emissions through more efficient building fabrics and systems as well as on site energy generation. The following initiatives are proposed:

- Inclusion of solar arrays as part of the building design.
- Incorporation of an efficient heating and cooling system.
- Building fabrics that exceed the requirements of the construction code.

4.4 Transport

The transport category promotes projects which make provisions for reduced greenhouse gas emissions arising from occupant travel to and from a building. The following initiatives are proposed for implementation:

- Provision of end-of-trip facilities to promote the use of alternative modes of transportation.
- Provision of electric vehicle charging that will reduce emissions of pollutants, lower greenhouse gas emissions, promote resource efficiency, decrease noise pollution, and enhances energy independence.
- Implementation of a Green Transport Plan to promote healthier lifestyles by encouraging walking, cycling, and the use of public transportation.

4.5 Water

This category recognises projects which reduce the amount of potable water consumed on-site through the design of efficient systems. The following initiatives are proposed for the project.

- Inclusion of highly efficient fixtures and fittings.
- Rainwater collection and reuse.

4.6 Materials

The materials criteria focus on reducing the consumption of resources through selection and reuse of products, and efficient management practices. The following initiatives are proposed within the building:

- The use of paints, adhesives, sealants, and carpets are low in TVOC or non-toxic.
- The use of low TVOC or non-toxic engineered wood products.
- Minimising occupant exposure to banned or highly toxic materials.

4.7 Emissions

This criteria targets building emissions relating to watercourse pollution, light pollution, ozone depletion and global warming. The following initiatives are currently proposed:

- All thermal insulants in the project will aim to avoid the use of ozone depleting substances in both their manufacture and composition.
- To reduce light pollution, no direct light generated inside or outside the building will face directly upward into the sky.
- Protection of local waterways, and the impacts of flooding and drought.

5. Conclusion

This report has addressed the ESD to support the SSDA for the Storage and Distribution Warehouse development located at Alspec Industrial Business Park (AIBP), Luddenham Road, Orchard Hills NSW 2748.

Specific sustainability initiatives proposed for the building include, but are not limited to:

- Space efficient building layout.
- A commitment to energy efficiency exceeding the requirements of Section J of the Building Code of Australia.
- A highly efficient façade wall-glazing system designed to minimise heat gains into the building while promoting the entry of daylight for the areas occupied during the day.
- Reduction of potable water use.
- The use of high WELS rated sanitary fixtures and fittings.
- Rainwater collection and reuse.
- Increased use of daylighting to reduce power usage.
- A solar array to contribute to renewable energy supply and reduce reliance on the grid.
- Waste Minimisation strategies.
- Water Sensitive Urban Design principles.
- Electric vehicle charging infrastructure.

Overall, through the implementation of the initiatives noted within this report the project clearly demonstrates the site's commitment to ESD principles throughout the design, construction, and operation. Additionally, the project design team has worked to optimise the sites energy performance, address key climate related risks posed to the site, align the project to the NSW Government's commitment to carbon neutrality by 2050, and benchmarked the project to industry best practice sustainability.

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