NORTHROP

SSDA ESD REPORT

Woolworths Wyong RDC

1 Warren Road, Warnervale

PREPARED FOR
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SSDA ESD Report

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
23.02.2022	1	Preliminary Issue	E. Chan	A. Girgis
21.03.2022	2	SSDA Issue	E. Chan	A. Girgis
27.04.2022	3	SSDA Issue with DPE comments	E. Chan	A. Girgis

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Executive Summary

This ESD Report outlines how the proposed development at Woolworths Wyong RDC meets the Secretary's Environmental Assessment Requirements (SEARs) as a state significant development.

This report demonstrates how the following sustainability objectives are to be met:

- Address the Secretaries Environmental Assessment Requirements (SEARs);
- Incorporate additional sustainability initiatives to improve the environmental and operational performance of the building addressing both efficiency of the site and future climate related risks.

The scope of the development includes and expansion to the existing facility, which results in the project is being ineligible for a certified Green Star Buildings Rating under Green Building Council of Australia. As a formal rating cannot be targeted, project specific sustainability initiatives have been established based on the Global Sustainability Megatrends developed by the World Green Building Council.

Some of the key proposed initiatives for the building include, but are not limited to:

- Climate Action
  - Implementation of a large-scale rainwater capture and reuse system
  - Low energy building – Passive design, Efficient building services design,
  - Metering and monitoring
  - Large scale on-site renewable energy generation
  - Sustainable Transport - Installation of electric vehicles charging infrastructure
- Health & Wellbeing
  - Provide high-quality indoor air
  - Acoustic and Visual comfort
  - Low toxicity materials
- Resource & Circularity
  - Procurement of sustainable materials
  - Waste minimisation strategies.
  - Improved Ecological value of site

1. The Proposal

1.1 Project Details

Component	Description
Site Name	Woolworths Wyong RDC
Address and Legal Description	1 Warren Road, Warnervale, NSW 2259 Lot 413, DP1058215
Site Area	Total area of 102,445 m^2 (Approximate)
Current Use	The current operations on the site are industrial

The site is in Warnervale, 110km north of the Sydney CBD and 70km from Newcastle. The site affords road linkages to Sparks Road, and the Pacific Motorway.

1.2 Proposed Development

The proposed development comprises the works outlined in the following table:

Element	Proposed
Development summary	▪ Infrastructure comprising civil works and utilities servicing ▪ Extension of warehouse
Hours of Operation	▪ It has been assumed that the facilities will operate 24 hours per day, seven days per week

Table 1 - Overview of Proposed Development

2. Introduction

2.1 Sustainability Objectives

The Woolworth's Facility will be targeting the following sustainability objectives:

- Address the Secretaries Environmental Assessment Requirements (SEARs);
- Incorporate additional sustainability initiatives to improve the environmental and operational performance of the building addressing both efficiency of the site and future climate related risks.

2.2 Response to Secretaries Environmental Assessment Requirements (SEARs)

This report addresses how the proposed project addresses Items 8 of the SEARs for warehouses and distribution centres. These requirements are outlined below alongside where the response to each can be found within this report.

Item for inclusion	Action to Address Requirement	Report Location
Identify how ESD principles 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 of the project.	Section 4
Demonstration how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards	The development will establish its sustainability initiatives under the Sustainability Megatrends and will exceed sustainability standards across the industry. This report will outline the goals and targeted outcomes and what makes it industry leading.	Section 3 & Section 4
Demonstrate how the development minimise the greenhouse gas emissions and consumption of energy, water and material resources	The development will minimise greenhouse gas emission through energy efficiency and transportation measures. The Sustainability initiatives integrated into the design and construction of the project outline the range of measures implemented to minimise resource consumption.	Section 4

2.3 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. Sustainability Commitments & Principles

The following section describes how ESD principles (as defined in clause 193 of Part 8, Division 5 of the Environmental Planning and Assessment Regulation 2021) are being incorporated in the design and ongoing operational phases of the project. These initiatives illustrate how the project addresses the following.

- The precautionary principle – through the implementation of environmental management and an assessment of the building's operational maintainability, the project attempts to incorporate adaptability and resilience into the project design. The concepts behind the precautionary principle is to create spaces that can both; accommodate for changes, which may eventuate in the future, and avoid the risk of serious or irreversible damage to the environment.
- Inter-generational equity to ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations – through the inclusion of zero ozone depleting refrigerants, best practice PVC and low impact paints, sealants and adhesives, alongside a focus on providing greater vegetation and support for the buildings connection with nature, the project demonstrates a strong commitment to the preservation of environmental health, diversity and productivity of the local area.
- Conservation of biological diversity and ecological integrity – through the planting of native vegetation, improvement of stormwater runoff from the site and use of integrated landscaping, the project will act to improve, conserve, and support the local biological diversity and integrity.
- Improved valuation, pricing, and incentive mechanisms - the design process should involve significant input from the Quantity Surveyor who will be involved ensure that the project both remains on budget and effectively considers environmental factors in the valuation of assets and services. Furthermore, the project will look at maintainability and the operational costs associated with individual design initiatives and the overall design.

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 building as defined in clause 193 of Part 8, Division 5 of the Environmental Planning and Assessment Regulation 2021. Further detail of the general sustainability initiatives is outlined below.

3.1 Woolworths Sustainability Commitments

Woolworths Group commits to sustainable development and practices in the group's future, as outlined in the Woolworths Sustainability Plan 2025 which outlines the following goals.

People:

1. Be a truly inclusive workplace
2. Invest in the holistic wellbeing of our team
3. Create meaningful careers in the workplace of the future
4. Activate ethical and mutually beneficial partnerships through the whole value chain
5. Have a positive impact on our customers and communities

Planet:

1. 100% Green Electricity by 2025
2. Zero Food Waste to landfill by 2025
3. Net positive carbon emissions by 2050
4. Practice responsible stewardship of natural resources

Product:

1. Materially increase healthier choices in our customers' baskets
2. 100% of Own Brand packaging is sustainable
3. 100% of Own Brand sourcing is sustainable
4. Lead the future of protein
5. Lead the responsible service and consumption of alcohol and gaming

3.2 Project Sustainability Principles

As part of the goal to achieve net positive carbon emission by 2050, Woolworths Group aims to achieve a minimum 4 Star Green Star Design & As-Built rating in all new development. Green Star rating is administrated by the Green Building Council of Australia (GBCA), in December 2021 GBCA has retired the Green Star Design & As-Built rating tool and replaced with the Green Star Buildings rating tool.

However, since Woolworths Wyong RDC development is an existing building undergoing an extension and redevelopment where the building will not be vacated and withdrawn from stock for the purpose of replacing plant and services, it is deemed as non-eligibility under the Green Star Buildings rating tool (from Green Star Buildings - Eligibility and certification criteria – Building Type).

Furthermore, Green Star Performance rating tool is rating system focus on existing building performance, in contrast to the building design elements. And buildings are only allowed to submit for Green Star Performance certification 36 months after receiving an Occupancy Certificate. The facility will consider obtaining a Green Star Performance rating upon project completion.

Therefore, the project has established project specific sustainability initiatives based on the Global Sustainability Megatrends (Climate Action, Health & Wellbeing, and Resource & Circularity) as identified by the World Green Building Council. The following area have been targeted for the project which is in line with the Sustainability Megatrends:

- Climate Action
  - Responsible Water Use
  - Low Carbon Emission
  - Sustainable Transport
  - Green Infrastructure
- Health & Wellbeing
  - Indoor Environment Quality
- Resource & Circularity
  - Sustainable Materials
  - Waste Reduction
  - Improved Ecology

Sustainability goals and targeted outcomes have been established for each of these targeted areas and these represent the sustainability aspirations for the project.

4. Sustainability Initiatives

The following section describes the sustainability initiatives with respect to the goals and targeted outcomes for the project. Adjustments to the initiatives may be required in response to changes made during design and construction.

4.1 Climate Action

4.1.1 Responsible Water Use

Water will be managed responsibly with the goal of reducing potable water demand compared to a standard practice building. This will be achieved through the following initiatives.

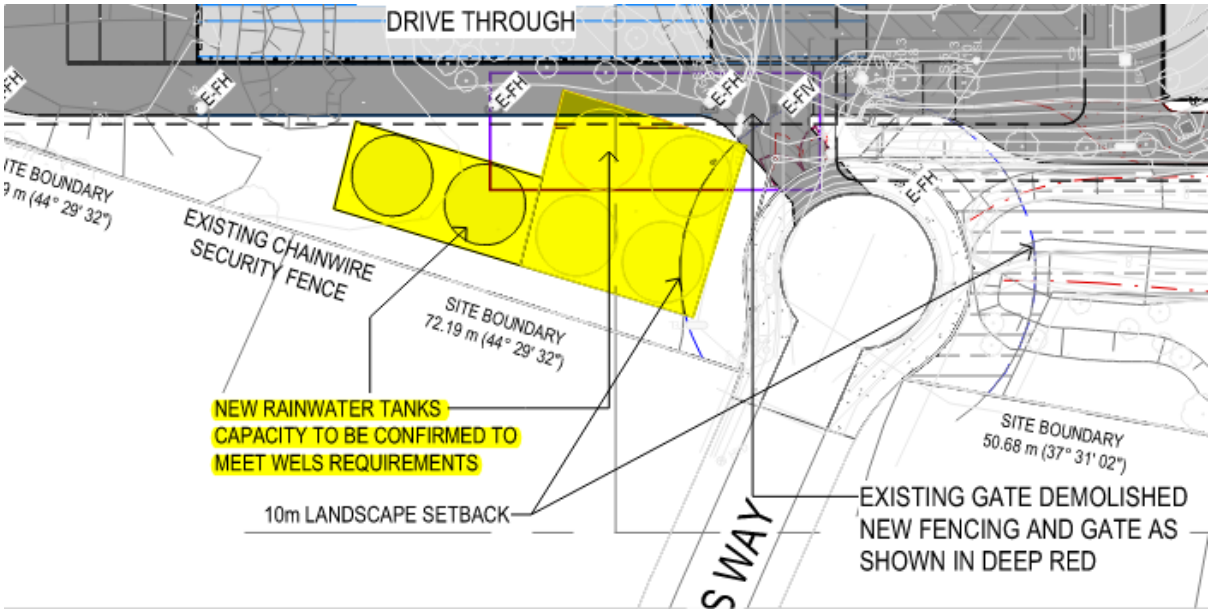
4.1.1.1 Water efficient fixtures and fittings

Water Efficient flow and flush fixtures will be used:

- Wash hand basin taps 6-star WELS
- General taps 6-star WELS
- Toilets dual flush 4-star WELS
- Urinals 0.9 L per flush 5-star WELS
- Shower heads 7-9 L per minutes 4-star WELS

4.1.1.2 Rainwater capture and reuse

A large rainwater capture and reuse system would be implemented to offset the sites water usage such as washdown, cooling towers, toilet flushing and other facets of production. A water balance calculation will be completed at detailed design stage to maximise the potential of rainwater reuse to offset most of the sites potable water usage.



4.1.1.3 Water Sensitive Urban Design

The project will incorporate a strong focus on water sensitive urban design with the external landscape design assisting to minimise water use for irrigation. The inclusion within the design of landscaped area will also assist in the reduction of site stormwater discharge and assist in the management of the projects broader impact on urban stormwater flows.

4.1.1.4 Water Metering and Monitoring

Water metering will be used to inform water efficiency practices as part of an on-going building tuning process.

4.1.2 Low Carbon Emission

The new development will seek to meet all aspects of the National Construction code (NCC), and surpass the Energy Efficiency requirements, reflected by the targeted 10% reduction in Greenhouse Gas Emission when compared to a NCC code compliant reference building. This reflects a commitment to reducing energy usage and Green House Gas emissions.

The expansion will also look to minimise the use of fossil fuels, in line with Woolworth's commitment to becoming net-zero emissions by 2050. This can be supported by a transition plan and power purchase agreements, resulting in an elimination of Greenhouse Gas Emissions from the facility in line with the Government's goal of net zero emissions by 2050.

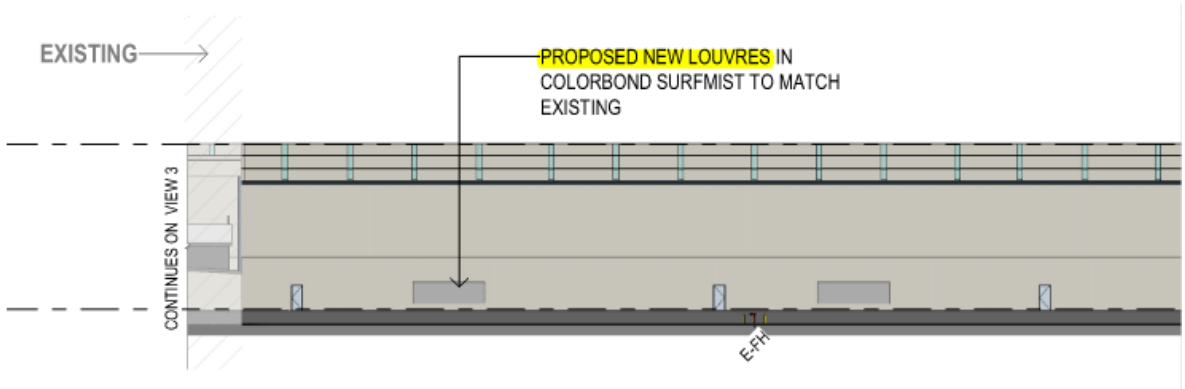
Energy efficiency will be considered throughout the design development process with the following improvements to be considered as part of the design process. It is expected that these measures, should they be implemented, could reduce the site's grid electricity demands greatly compared to a standard practice building.

4.1.2.1 Airconditioning within the Warehouse Spaces

Given the nature of the project, housing fresh produce, there is a need for air conditioning and refrigeration of the warehouse areas, using an efficient HVAC set-up the energy use for these spaces will be minimised. The Refrigeration units will look into the use of environmentally friendly refrigerants such as R134a, R410a or approved alternative such as R290. Additionally, each of the conditioned warehouse will incorporate insulation to meet the requirements of the code and minimise heat gains into these spaces. As the detailed design of the HVAC system progresses it will incorporate further measures to optimise energy use and to provide flexibility of conditioning within the large warehouse spaces.

4.1.2.2 Natural Ventilation of Tertiary Spaces

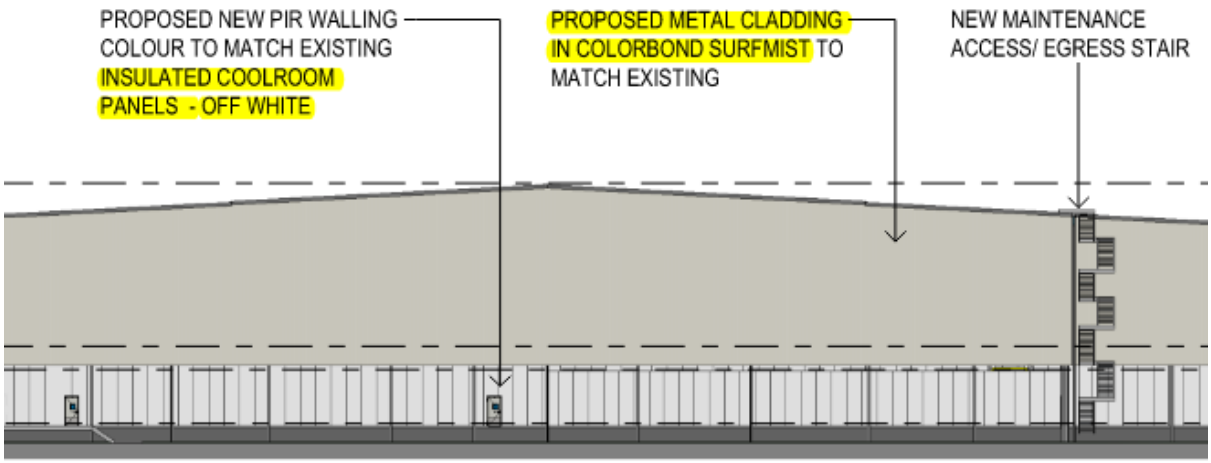
The project incorporates significant logistic areas, where achievable areas for circulation and vehicles will be naturally ventilated or open air in the case of truck loading areas. Louvres and vents are proposed in these areas to enable naturally ventilation operation by exploiting the buoyancy of air to draw ventilation through the space. Central circulation spaces such as bathrooms and stairs should also look to incorporate natural ventilation and the use of spill air from adjacent spaces.



4.1.2.3 Improved building fabric and glazing performance

The building envelope comprises several different façade types, with the proposed scheme using a combination of light-coloured metal finishes (e.g. Colorbond Surfmist, off white colour for PIR panels) and low-e glazing to lower heat gains throughout summer while maintaining good daylighting throughout of the building. Furthermore, new temperature-controlled space will be insulated with high performing PIR panels to minimise heat transfer between spaces and hence reducing energy consumption.

The use of well-designed glazing and building materials will also assist the projects targets for energy efficiency, acoustic performance, and thermal comfort.



4.1.2.4 HVAC System Control

The proposed HVAC system incorporates individual area controls for thermal comfort conditions within the office spaces allowing building occupants to maintain comfort conditions suitable to the use and occupancy of spaces. This system assists in optimising the sites energy efficiency while maintaining comfortable conditions.

4.1.2.5 Energy Metering and Monitoring

An energy metering and monitoring strategy is to be considered to effectively monitor the main energy uses within the building, alongside the lighting and small power use. This aims to provide fault detection and monitoring of the different areas of the building.

4.1.2.6 Highly Efficient Lighting System

The installation of LED lighting and lighting sensors (e.g motion sensor) throughout the building will assist in the minimisation of lighting energy use. Improved lighting energy also reduces the heat loads within cooled spaces and therefore lowers the energy used to condition the building.

4.1.2.7 Energy Generation

With the above energy efficiency measures load within the facility will be reduced, allowing a large portion of the sites electrical energy demand to be met through the proposed inclusion of a 250kW PV system. This will assist to both offset the sites energy use and minimise the sites daytime peak demand from the grid.

4.1.3 Sustainable Transport

4.1.3.1 Carpool Parking

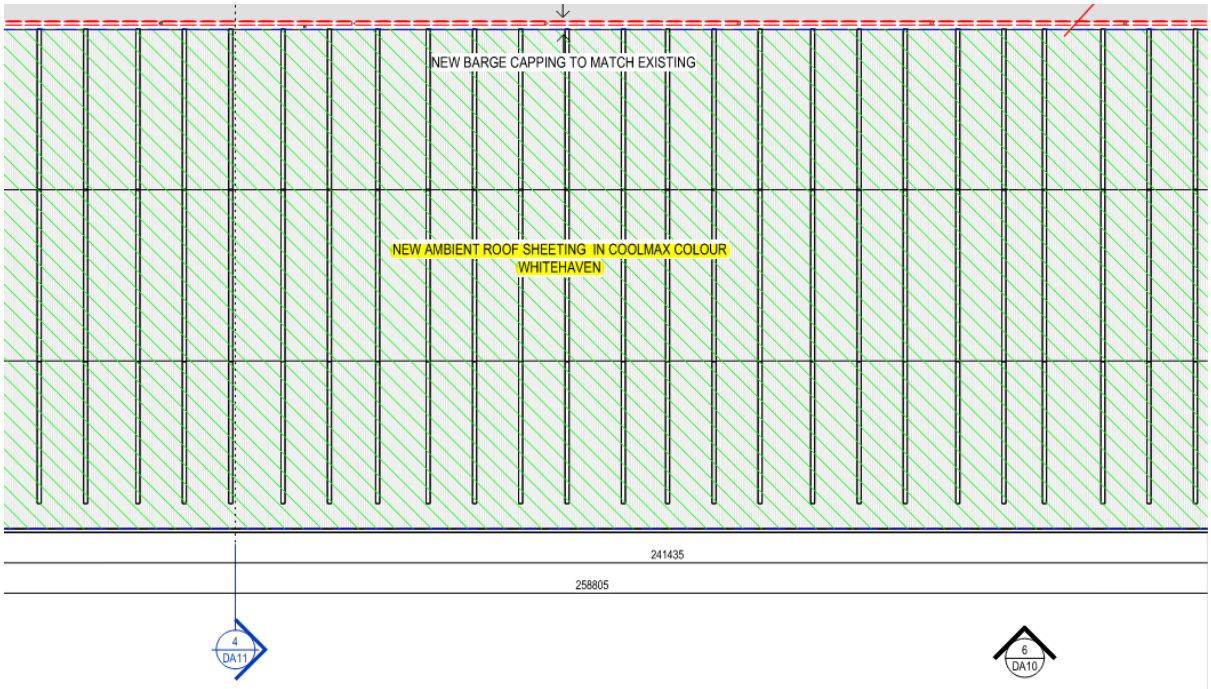
20 dedicated car parking space is provided for carpooling to encourage efficient use of transportation mode to reduce greenhouse gas emissions from transport.

4.1.3.2 Electric vehicle charging

20 dedicated car parking spaces with charging infrastructure provided for electric vehicle to support the uptake of electric vehicle to minimise greenhouse emissions.

4.1.4 Green Infrastructure

To address heat islanding across the site and wider area, the development would incorporate Coolmax whitehaven roofing with a high Solar Reflectivity Index (SRI 95) which will minimise the buildup of heat within the material and reduce load on the HVAC system.



4.2 Health & Wellbeing

4.2.1 Indoor Environment Quality

Indoor environment quality is always an important consideration in spaces that are regularly occupied such as the offices and ambient warehouse areas. The following considerations have been considered as part of the building design:

4.2.1.1 Improved outdoor air provision

The project will aim to improve the outdoor air provided to regularly occupied spaces by 50% than AS1668.2:2012. This will minimise CO_2 build up within the office areas and improve comfort for the building occupants.

To address energy use concerns the design will also look to incorporate on an outdoor air economy cycle which will allow the building to exploit periods where the buildings external conditions can effectively provide thermal comfort in the space reducing the run times of the air-conditioning system.

4.2.1.2 Interior noise level control

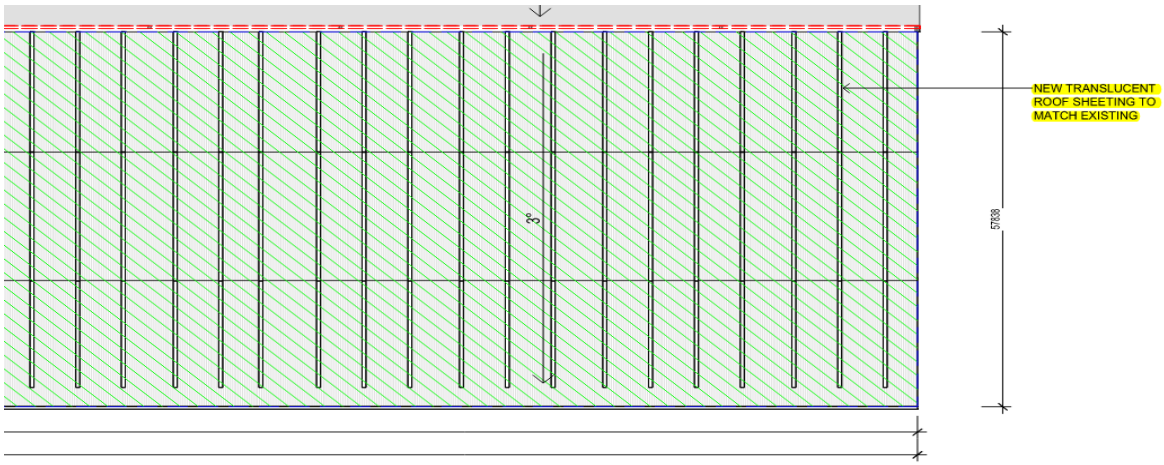
Internal noise levels will be actively considered with the building layout and systems design considering how noise will reverberate through the building. The use of acoustic insulation and sound isolation will ensure that interior noise levels to be maintained below acceptable limits. Acoustic separation (Rw45) will be provided between office and warehouse.

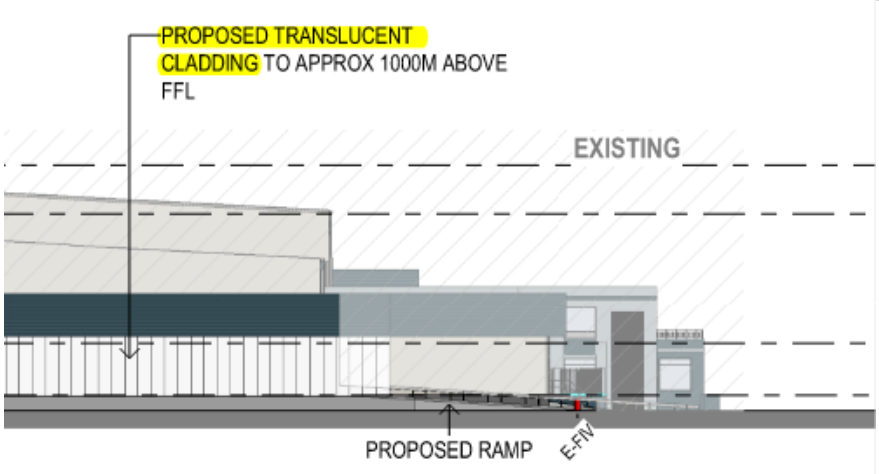
4.2.1.3 Lighting Comfort

The project lighting design will ensure that all lights in internal spaces are flicker free and accurately address the perception of colour in the space. Also, the lighting levels will comply with best practice guidelines for the associated spaces, corresponding to Table 3.1 of AS 1680.2. and that glare is eliminated using baffles, louvers, translucent diffusers, ceiling design, or other means that obscures the direct light source from all viewing angles of occupants. Task lighting will be provided in the office space to allow occupants to adjust their light levels.

4.2.1.4 Daylight Access

The design of the building should aim to allow good daylight penetration into both internal and external spaces. Daylighting can be achieved through windows and other methods, whilst not sacrificing thermal transfer. This access to daylight throughout the building will both minimise energy used for lighting and will improve occupant connection to their external environment. New translucent roof sheeting and cladding are incorporated throughout the new ambient warehouse to provided natural daylight access.





4.2.1.5 Material selection

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

4.3 Resource & Circularity

4.3.1 Sustainable Materials

4.3.1.1 Responsible Building Materials

The project will select products that are responsibly sourced or have a sustainable supply chain, this is achieved through the procurement of products, where 95% of building's steel is sourced from a Responsible Steel Maker, 95% of all timber used in the building and construction is certified by a forest certification scheme, and 90% of all permanent formwork, pipes, flooring, blinds and cables will meet the GBCA's Best Practice Guidelines for PVC.

4.3.1.2 Foster Local Communities

The project is aimed to increase consumption of local products to foster local communities and businesses and minimizing transportation impacts. This will be achieved through the prioritisation of sourcing products within the local community or region, particularly on steel, timber and flooring.

4.3.2 Waste Reduction

Effective waste management throughout demolition, construction and operation of the site will help to promote resource efficiency and minimise the adverse environmental impacts of the project.

4.3.2.1 Construction and Demolition Waste Minimisation

Demolition and construction waste will be diverted from landfill with a target of at least 90% to be sent to recycling or reuse facilities.

4.3.2.2 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.

4.3.2.3 Waste Management Plan

A Waste Management Plan has been prepared with the following key objectives:

1. To minimise the environmental impacts of the operations of the development
2. To minimise the impact of the management of waste within the development
3. To ensure waste is managed to reduce the amount landfilled and to minimise the overall quantity generated

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.

4.3.3 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 the ongoing environmental impact of the project. The project is currently implementing the following:

- Incorporation of a site vegetation.
- Minimisation of light spill from the facility which impacts on migratory animals and insects; and
- Reduced dissolved pollutants in stormwater discharged from the site.

5. Conclusion

This ESD Report outlines how the proposed Woolworths Wyong RDC development aims to meet the Secretary's Environmental Assessment Requirements (SEARs) as a state significant development and how the following sustainability objectives are to be met:

- Address the Secretaries Environmental Assessment Requirements (SEARs);
- Incorporate additional sustainability initiatives to improve the environmental and operational performance of the building addressing both efficiency of the site and future climate related risks.

While due to the scope of the development, the project is not eligible to target for a certified Green Star Buildings Rating under Green Building Council of Australia, project specific sustainability initiatives have been established based on the Global Sustainability Megatrends developed by the World Green Building Council. The proposed initiatives for the project are summarise in the table below:

Principle	Category	Goals	Outcomes	Target
Climate Action	**Responsible Water Use**	Improve water efficiency	Reduce potable water consumption	• Wash hand basin taps - 6 star WELS • General taps - 6 star WELS • Toilets dual flush - 4 star WELS • Urinals - 5 star WELS • Shower heads – 4 Star WELS
			Capture and use rainwater	Installation of new rainwater tanks to maximise the use of rainwater for the potential of toilet flushing, irrigation and cooling towers. Water balance calculation to be completed at detailed design stage.
		Water sensitive urban design	Reduce peak event stormwater discharge	Implement best practice water sensitive urban design features such as vegetated areas and pervious paving to slow and filter stormwater flows.
		Understand water usage and tune for water conservation	Metering and monitoring of water consumption	Submetering of all significant end uses (building, irrigation, rainwater), leak detection and export of data into monitoring platform for optimising water consumption
	Reduced Carbon footprint	Reduce environmental impacts from HVAC system	Minimise the environmental impacts of refrigeration and air conditioning equipment	All air conditioning systems and all associated condensing units to be designed to operate using an environmentally friendly refrigerant such as R134a, R410a or approved alternative such as R290 (Propane)
		Reduce energy consumption	Reduce energy use intensity	Improve building fabrics (e.g. light coloured finishes, low-e glazing) to reduce energy demand from HVAC load, and achieve 10% Reduction in GHG emission when compared to a NCC code compliance reference building
				Install LED lighting and lighting sensors (e.g. motion sensor, daylight sensor)
				Temperature setpoint to be seasonal. Summer 24C DB (+/-1), Winter 21D DB (+/-1)

				Install with a 250kW solar PV system to supply building energy usage
				Maximise the use of natural ventilation in tertiary spaces through proposed louvres and vents
		Understand energy usage and tune for energy conservation	Metering and monitoring of energy consumption	Submetering of all significant end uses (HVAC, lighting) and export of data into monitoring platform for optimising energy consumption
	Transport	Encourage the uptake of low-emission vehicles	Dedicate parking space for fuel efficient vehicles	20 car parking for car pool
		Support the use of electric vehicles	Integrate parking infrastructure for Electric Vehicles	Provide dedicate parking and charging infrastructure (20) to electric vehicle
	Green Infrastructure	Reduce urban heat island effect	Provide cool roof surfaces	Select roofing materials with a three year Solar Reflectance Index of 95 (Coolmax whitehaven)
Health and Wellbeing	**Environmental quality**	Provide high-quality indoor air	Improve outdoor air provision	50% increase in outside air supply than AS 1668.2:2012
			Reduce use of toxic cleaning products	Implement a cleaning protocol that uses green cleaning products
			Select interior products with reduced offgassing	Select interior (within wall or roof vapour barrier) building products that reduce emissions of ultra-low volatile organic compounds (VOCs) and formaldehyde
		Comfort acoustic conditions	Minimise noise transmission in enclosed space	Provide acoustic separation (Rw45) between office space and warehouse
		Provide high degree of lighting comfort	Provide occupants' ability to control the lighting in their immediate environment	Provide task lighting to office space and allow occupants to adjust their light levels
		Provide access to daylight	Increased access to daylight	Provide occupants with daylight access with the use of translucent roof sheeting throughout ambient warehouse area.
		Low toxicity products	Eliminate or reduce use of chrome and lead in water fixtures	Specific plumbing products and fittings that are “Lead Free” or “Safe”, without chrome finish, which are manufactured from Stainless Steel, Copper, Plastic and Copper Alloys.

Resource & Circularity	**Materials**	Use sustainable products	Select produces that are responsibly sourced or have a sustainable supply chain	95% of building steel coming from Responsible Steel Maker, 95% of timber is certified by a forest certification scheme, 90% of permanent formwork, pipes, flooring, blinds and cables meet the Best Practice Guidelines for PVC
		Foster local communities and businesses, while minimizing transportation impacts	Increase consumption of local products	Prioritise the sourcing of products within the local community or region, particularly steel, timber and flooring
	Waste	Reduce construction waste	Recycle construction waste	Divert waste material from the landfill with a target of 90% waste diversion
		Reduce operational waste	Provide on-site facilities for recycling	Provide bins and back-of-house spaces for separation of waste streams including cardboard/paper waste, glass, food waste and comingled recycling
			Waste Management Plan	Waste management plan prepared to reduce waste output and implement recycling strategies
	Improved Ecology	Minimise environmental impacts of the project	Improve site's ecology	Incorporate site vegetation and planting native vegetation
			Minimise light pollution	Ensure external lights are shining down or install with a cover to minimise light spill
			Reduce stormwater pollution	Effective stormwater system and landscaped design to reduce pollutants in stormwater discharge

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 minimise the sites greenhouse gas emission and will continue to be developed throughout the detailed design process.