



northstar



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Yiribana Logistics Estate West

Ecologically Sustainable Development Report

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Quality Control

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Final Authority

This report must be regarded as draft until the above study components have been each marked as final, and the document has been signed and dated below.



Linda Slechta

29 November 2022

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CONTENTS

1.	INTRODUCTION	4
1.1.	Purpose of the Report	4
2.	PROJECT OVERVIEW	5
3.	GUIDANCE	8
3.1.	Green Star Design & As-built	8
3.2.	Mamre Road Development Control Plan	8
4.	ECOLOGICALLY SUSTAINABLE DEVELOPMENT	10
5.	SUSTAINABLE DEVELOPMENT OPPORTUNITIES	11
5.1.	Management	11
5.2.	Indoor Environment Quality (IEQ)	11
5.3.	Energy	12
5.4.	Transport	12
5.5.	Water	13
5.6.	Materials	13
5.7.	Land Use and Ecology	13
5.8.	Emissions	14
6.	CONCLUSION	15
7.	REFERENCES	16

FIGURES

Figure 1	Proposal site location	6
Figure 2	Proposal site layout	7

TABLES

Table 1	Alignment with ESD principles	10
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1. INTRODUCTION

Northstar Air Quality Pty Ltd (Northstar) has been commissioned by The GPT Group to prepare an ecologically sustainable development (ESD) report to support the development application (DA) for the construction and operation of a proposed warehouse development, namely the Yiribana Logistics Estate West (the Proposal), located at 771-797 Mamre Road Kempers Creek NSW (the Proposal site).

The Proposal will be benchmarked against the Green Building Council of Australia's (GBCA) Green Star rating scheme, with a 5-star Green Star 'Australian Excellence' rating targeted, as well as an ambition to be carbon neutral in operations.

1.1. Purpose of the Report

This report considers ESD elements and brings together outcomes of key sustainability initiatives which will be proposed and considered as part of the design, construction and ongoing operation of the Proposal. The GBCA Green Star rating tool has been used to frame the sustainability initiatives which have been identified in collaboration with the design team, in line with the Green Star sustainability categories. The identified opportunities and initiatives outlined in this report will contribute towards the Proposal's target of a 5-star Green Star rating, as well as enable an appropriate pathway for the Proposal's carbon neutral ambitions.

The ESD opportunities and initiatives identified in this report also align with the appropriate and relevant sustainability objectives outlined in the Mamre Road Precinct Development Control Plan (DCP) (DPIE, 2021) which help inform and shape the sustainable outcomes of the Proposal.

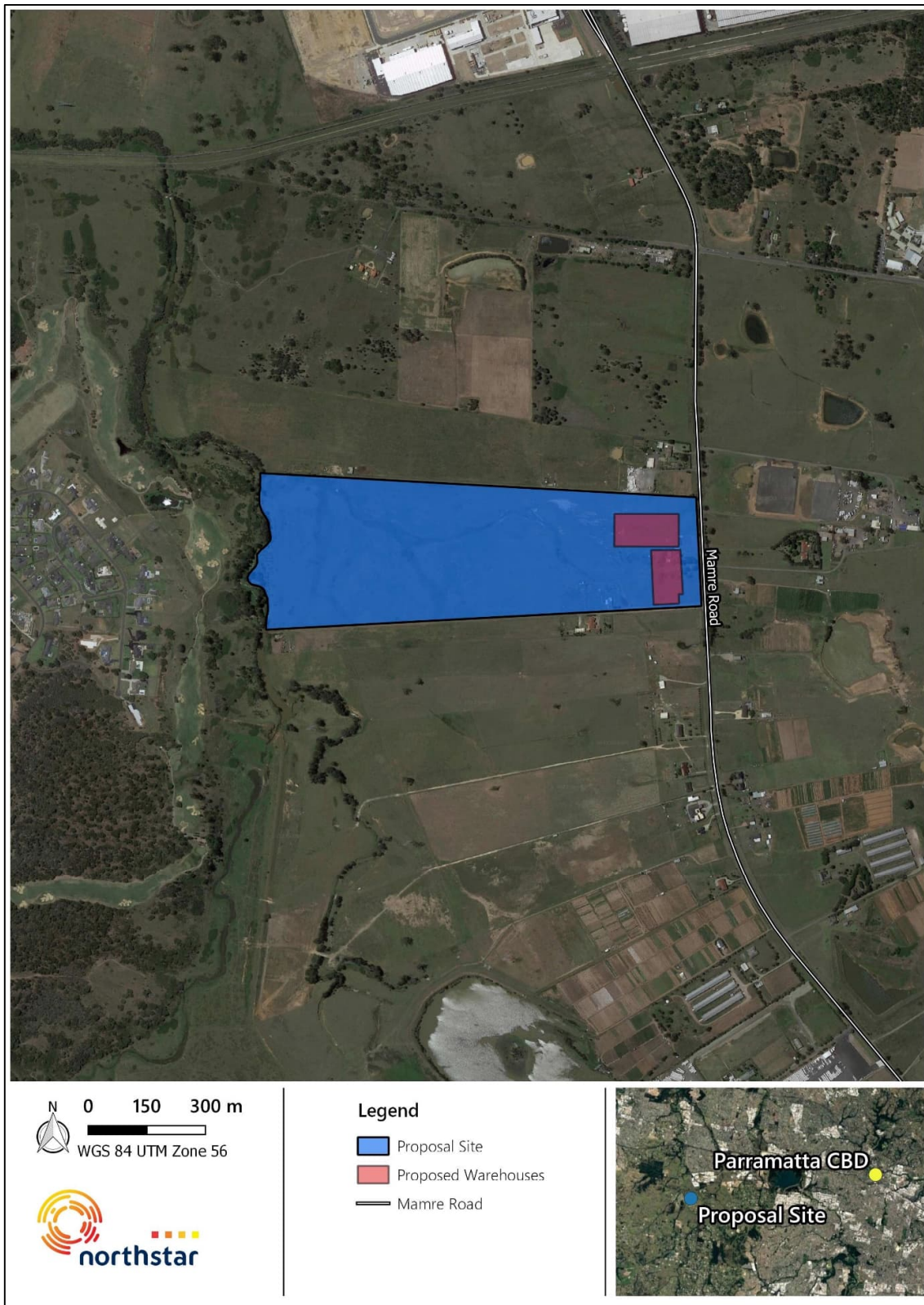
2. PROJECT OVERVIEW

Consent is sought for the construction and operation of a logistics warehouse development, comprising two warehouses at the Proposal site. The overall scope of the Proposal is outlined as follows:

- Construction of a single occupancy warehouse building (Warehouse 1A), with a warehouse area of approximately 10 350 square meters (m²), serviced by office space approximately 450 m² in area, loading docks and associated car parking of 46 spaces;
- Construction of a single occupancy warehouse (Warehouse 1B), with a warehouse area of approximately 13 610 m², serviced by office space approximately 455 m² in area, loading docks and associated car parking of 57 spaces;
- Associated landscaping; and
- Construction of a 25.6 m wide collector road.

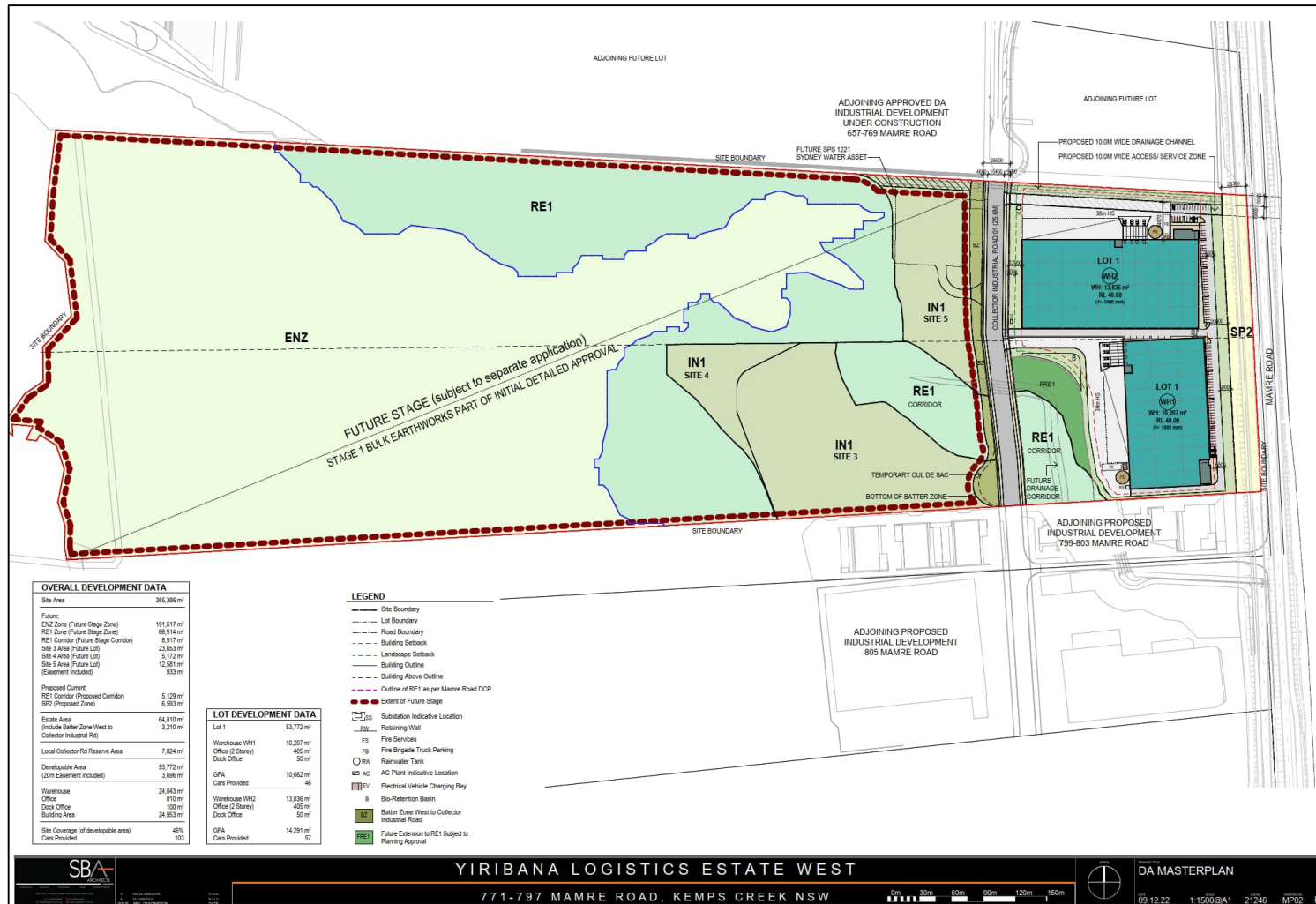
The location and layout of the Proposal site is provided in Figure 1 and Figure 2 respectively.

Figure 1 Proposal site location



Source: Northstar Air Quality

Figure 2 Proposal site layout



Source: SBA Architects

3. GUIDANCE

3.1. Green Star Design & As-built

The GBCA Green Star rating tool is an internationally recognised rating system developed for the built environment. Green Star assesses and provides a holistic assessment of sustainability for buildings against a range of environmental impact categories that align with the United Nations Sustainable Development Goals (UN SDG's).

It is understood the Proposal is aiming to target a 5-Star Green Star rating, along with an ambition to be carbon neutral in operations.

The Proposal plans to implement sustainability through the application of the principles of ESD, along with initiatives which have been guided by the framework of the Green Star rating tool. A high-level qualitative assessment of the Proposal's sustainability initiatives against the applicable Green Star categories has been undertaken and outlined in Section 5.

It should be noted the following provides a list of opportunities being considered for the Proposal and does not constitute a Green Star rating pathway. The identified opportunities will be further refined and the feasibility and practicality of each would be assessed and considered during future stages as the design progresses.

3.2. Mamre Road Development Control Plan

The Mamre Road DCP (DPIE, 2021) provides guidance on how developments should demonstrate ESD measures in design, including a consideration of:

- Building and window orientation;
- Window size and glass type;
- Material, colour and surface treatments;
- Insulation;
- Landscaping and trees to provide shade and moderate the building microclimate;
- Natural ventilation and light with generous, all weather openings;
- Utilise extensive roof areas for energy and water collection;
- Air flow, ventilation and building morphology to support cooling; and
- Circular economy in design, construction and operation of buildings, public domain, infrastructure and energy, water and waste systems.

In addition, the DCP recommends building services should promote:

- Separate metering of water and electricity for multiple uses or tenants;
- Shut off valves at stormwater outlets to trap toxic spills;
- Waterless urinals;
- Energy efficient lighting;
- Gas boosted solar hot water for staff amenities;
- Rainwater and recycled water for toilet flushing, irrigation or other non-potable uses;
- Waste heat recovery systems;
- Integrated systems for energy generation – waste and water;
- Air-cooled systems, ground source heat rejection or pond heat rejection; and
- Energy storage systems combined with the use of photovoltaic cells for roof areas.

Measures to improve air quality and visual and thermal comfort to be considered include:

- Low volatile organic compound (VOC) paints and low formaldehyde floor covering, adhesives and furniture;
- Glazed facades to be shaded and/or use performance glass to control radiant heat;
- Occupant control of comfort parameters;
- Protection from noise;
- Provision of quality landscaped outdoor amenity areas for staff;
- Hydronic heating and ceiling fans; and
- Materials with low reflectance values.

The Proposal seeks to ensure ESD measures in line with the DCP are considered within design, construction and ongoing operations where practical and feasible.

4. ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The following Table 1 outlines how the Proposal aligns with the ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) and how these are being considered in the design and ongoing operation phases. These will include best practice considerations in water, energy and waste management.

Table 1 Alignment with ESD principles

ESD Principle	Proposal Response
Precautionary Principle – <i>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</i>	This ESD report has been completed through discussion with the design team in order to identify opportunities for the Proposal to ensure any serious or adverse environmental impacts are avoided. Sustainability opportunities identified within this report ensure that best practice in sustainability and environmental responsibility are considered in the design, construction and ongoing operation of the Proposal.
Inter-generational equity – <i>the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations</i>	The Proposal target of 5-star Green Star and carbon neutral ambitions focus on energy efficiency and reducing the carbon footprint during operations. This approach reduces the greenhouse gas emissions of the Proposal and will contribute toward reduction in consumption of resources. Adaptation measures to improve climate resilience have been considered in design, which will ensure the Proposal can adapt to increasing risks from future climate impacts in the longer term.
Conservation of biological diversity and ecological integrity – <i>conservation of biological diversity and ecological integrity should be a fundamental consideration</i>	Through the development on land which has already been cleared and used for agricultural purposes, the Proposal will have minimal impact on existing vegetation and ecological communities. Nonetheless, hardstand areas would be minimised where possible with local landscaping which will include the use of native, drought tolerant vegetation. Asbestos contamination identified at the Proposal site will be remediated prior to site development.
Improved valuation, pricing and incentive mechanism – <i>environmental factors should be included in the valuation of assets</i>	The design and operation of the Proposal will aim to reduce water and energy demand, and subsequent greenhouse gas emissions. Ongoing sustainability operations will be realised through continual improvements as a result of metering and monitoring to ensure environmental factors are considered in the long term.

5. SUSTAINABLE DEVELOPMENT OPPORTUNITIES

The following section demonstrates how ESD opportunities will be met through the delivery of a proposed pathway to carbon neutrality that includes the integration of key sustainability initiatives. The sustainability initiatives identified below align with the relevant categories outlined in the GBCA Green Star rating tool and will contribute toward the proposed 5-star Green Star rating.

5.1. Management

Appropriate management practices and processes that support best practice sustainability outcomes throughout the different phases of a project's design, construction and ongoing operation will ensure the development is operated and continues to operate in a sustainable manner.

Opportunities to ensure best practice sustainability outcomes will include:

- Engagement of ESD professional to oversee and manage the Green Star submission;
- Aligning climate change with The GPT Groups climate policy and consideration of climate change risk in design;
- Consideration of relevant adaptation measures to improve climate resilience;
- Metering and sub-metering of main building elements in order to effectively monitor and ensure any changes in operation are noted and addressed; and
- Implementation of an appropriate waste management plan during construction, operations and decommissioning to ensure the appropriate separation of materials for reuse or recycling.

5.2. Indoor Environment Quality (IEQ)

Appropriate consideration of indoor environment quality will enhance the comfort and wellbeing of occupants. Opportunities to improve and enhance the indoor environment quality at the Proposal will include:

- The use and specification of low VOC paints and materials in construction. Including floor coverings, internal furniture and adhesives;
- Consideration of naturally ventilated spaces where practical and feasible, particularly for the warehouse spaces;
- Use of acoustic insulation for the officed areas to ensure internal noise levels are maintained at an appropriate and acoustically comfortable level for occupants; and
- Achieving Section J compliance of the National Construction Code 2019 to ensure thermally comfortable spaces for occupants.

5.3. Energy

The Proposal will be designed and constructed to reduce overall greenhouse emissions from operations by addressing energy demand reduction, use efficiency and generation from alternative sources. Identified initiatives will also contribute towards the proposed carbon neutral targets for the Proposal, in line with The GPT Group's corporate commitments to carbon neutrality¹. Where the on-site photovoltaic system does not meet operational demand, the procurement of renewable energy would be undertaken, with carbon offsets purchased for residual emissions.

Opportunities identified in the Proposal to reduce energy demand include:

- The installation of a minimum 99 kilowatt (kW) photovoltaic solar system on the warehouse roof to provide renewable power for electricity demand;
- Individual area controls for the heating, ventilation and air conditioning system in order to allow greater control and limit output only to areas of demand;
- The use of natural lighting in the warehouses spaces where practical to reduce the need for electric lighting;
- The use of energy efficient LED lighting in all spaces;
- The installation of energy efficient appliances and equipment within the office areas to reduce energy demand;
- Limiting the use of glass on the east and west facing offices or facades to reduce heat gain in the warmer months and heat loss during cooler months;
- Reflective, light coloured façade and roofing material in order to reduce heat gain; and
- Natural ventilation in warehouse spaces where practical and feasible.

5.4. Transport

Where possible and feasible, the Proposal will facilitate a reduction on the dependency of private use vehicles as well as encourage the provision of alternative forms of transportation. Opportunities to encourage and promote the use of sustainable transport options will include consideration of:

- Provision of bike parking facilities to encourage alternate means of commuting; and
- Prioritisation of electric vehicle car charging parking spaces for electric vehicle parking.

¹ <https://www.gpt.com.au/sustainability/environment/climate-change-energy>

5.5. Water

Reduction in the consumption of potable water at the Proposal site would be achieved through measures such as incorporation of water efficient fixtures and water reuse. The following opportunities and initiatives to reduce water consumption at the site will include:

- High Water Efficiency Labelling and Standards (WELS) rated water efficient fixtures in taps and amenities;
- Harvesting and storage of rainwater for use in non-potable sources such as toilet flushing and landscape irrigation;
- Consideration of native, drought resistant plant species in landscaping to reduce demand for irrigation water; and
- Use of drip irrigation for landscaping using recycled water where possible.

5.6. Materials

The consumption of resources for the Proposal will aim to encourage the selection of low impact materials which have been responsibly sourced in construction and design. Initiatives considered to reduce materials consumption and consider sustainable supply chains on the Proposal will align with The GPT Group's corporate sustainability targets for the sourcing of sustainable materials² and include:

- Use of recycled content in major construction materials such as steel and concrete;
- Waste separation to maximise recycling and reduce waste to landfill during both construction works and during operations;
- Use of local or regional manufacturers for building products where available;
- Considered materials in façade treatments which act to reduce heat gain in warmer months, and retain heat in the cooler months;
- Preference to products which have an Environmental Product Declaration (EPD) where possible; and
- Consider life cycle impacts for decommissioning.

5.7. Land Use and Ecology

Consideration of land use and existing ecology at the Proposal site includes reducing negative impacts on the ecological value and where possible, enhancing the quality of existing local ecology. The following

² <https://www.gpt.com.au/sustainability/environment/waste-resources-management>

considerations have been identified in order to protect and maintain existing ecology within the site and immediate surrounds:

- Minimising hardscape areas within the Proposal footprint with landscaping where possible in order to minimise runoff to surrounding environments;
- Remediation of existing asbestos contamination prior to site development;
- Planting of native and drought tolerant vegetation in landscaping; and
- Adoption of water sensitive urban design (WSUD) initiatives in stormwater management in order to minimise potential negative impacts to downstream environmental habitats and areas.

5.8. Emissions

The consideration of environmental impacts of 'point source' pollution generated by the Proposal will ensure the continued operation can reduce any potential effects associated with the building infrastructure to the atmosphere, watercourses and native animals. The following initiatives have been considered in order to reduce environmental impacts resulting from emission of point source pollutants:

- Discharge of stormwater from the site to meet high levels of water quality through on-site treatment and the incorporation of WSUD principles;
- Compliance of all external lighting surrounding the warehouse to comply with the relevant Australian Standards for upward facing lighting; and
- Appropriate control and management of any emissions resulting from operation of the Proposal through the maintenance of a complaints log and register for any complaints received.

6. CONCLUSION

This report delivers a response to ESD elements and provides an outline of how ESD will be incorporated into the design, construction and ongoing operation of the Proposal. The overall approach to ESD integrates sustainability initiatives which not only align with the Green Star rating system and relevant categories, but also highlights the benefits of considered design initiatives which enable the Proposal to achieve a sustainable outcome.

The key sustainability initiatives outlined in this report contribute to the targeted Green Star rating, as well as ensuring a pathway is set to enable carbon neutral ambitions of the Proposal. Key sustainability initiatives considered as part of the Proposal include:

- Adaptation measures to improve climate resilience, ensuring the Proposal can adapt to increasing risks from future climate change impacts;
- Retaining water in the landscape through appropriate selection of landscaping species and water sensitive urban design elements;
- Where the on-site solar generation does not fully meet demand, procurement of renewable energy for electricity and carbon offsets for residual emissions to enable carbon neutrality;
- Best practice in water and waste management; and
- Alignment with GPT Group's sustainability procurement practices to ensure sustainable supply chains and responsible sourcing of materials.

7. REFERENCES

DPIE, N. (2021). *Mamre Road Precinct - Development Control Plan*. NSW Government.