

Development Plan – 81-95 Burnley Street and 26-34 Doonside Street Richmond

Environmentally Sustainable Design Framework

Prepared for: Gurner TM

Project No: MEL2264
Date: 3 May 2023
Revision: 04

Project:	Development Plan – 81-95 Burnley Street and 26-34 Doonside Street Richmond
Location:	81-95 Burnley St & 26-31 Doonside Street Richmond VIC 3121
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Project No:	MEL2264
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01	20/09/21	For submission	David Zammit	DZ	Vickie Huang	VH	David Zammit	DZ
02	23/09/21	For submission	David Zammit	DZ	Vickie Huang	VH	David Zammit	DZ
03	16/02/23	To Address Council Response	Zain Siddiqui	ZS	Thomas Miers	TM	Thomas Miers	TM
04	03/05/23	For submission	Zain Siddiqui	ZS	Shruti Rajan	SR	Thomas Miers	TM

Project Team

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1. Environmentally Sustainable Design Framework

This report was prepared for Gurner in relation to the Environmentally Sustainable Design proposed for the multi-stage multi-building development proposed for the site at 81-95 Burnley Street and 26-34 Doonside Street, Richmond.

Statutory context

1.1.1 City of Yarra

The site is situated within the municipal boundaries of the City of Yarra. The City of Yarra requires developments to meet the national energy efficiency standards as outlined in Section J of the National Construction Code (NCC). When applying for a Planning Permit or a Building Permit, projects also need to include and demonstrate environmental sustainability measures.

The City of Yarra Planning Scheme Clause 22.17 outlines that the City acknowledges that the built environment has a significant impact on the wider natural environment and most current development practices are not sustainable in the long term and is committed to promoting sustainable design and development. Critical to achieving this commitment is for development to meet appropriate environmental design standards.

This policy provides a framework for early consideration of environmental sustainability at the building design stage to achieve the following efficiencies and benefits:

- > Easier compliance with building requirements through passive design
- > Reduction of costs over the life of the building
- > Improved affordability over the longer term through reduced running costs
- > Improved amenity and liveability
- > More environmentally sustainable urban form
- > Integrated water management

The City of Yarra Planning Scheme Clause 22.17-2 outlines key objectives. The overarching objective is that development should achieve best practices in environmentally sustainable development from the design stage to construction and operation.

The following objectives should be satisfied, where applicable:

1.1.1.1 Energy performance

- > To improve the efficient use of energy, by ensuring development demonstrates design potential for ESD initiatives at the planning stage.
- > To reduce total operating greenhouse gas emissions.



- > To reduce energy peak demand through design measures (eg. appropriate building orientation, shading to glazed surfaces, optimise glazing to exposed surfaces, space allocation for solar panels and external heating and cooling systems).

1.1.1.2 Water resources

- > To improve water efficiency.
- > To reduce total operating potable water use.
- > To encourage the collection and reuse of stormwater.
- > To encourage the appropriate use of alternative water sources (eg. greywater).

1.1.1.3 Indoor Environment Quality

- > To achieve a healthy indoor environment quality for the wellbeing of building occupants, including the provision of fresh air intake, cross ventilation, and natural daylight.
- > To achieve thermal comfort levels with minimised need for mechanical heating, ventilation and cooling.
- > To reduce indoor air pollutants by encouraging use of materials with low toxic chemicals.
- > To reduce reliance on mechanical heating, ventilation, cooling and lighting systems.
- > To minimise noise levels and noise transfer within and between buildings and associated external areas.

1.1.1.4 Stormwater Management

- > To reduce the impact of stormwater run-off.
- > To improve the water quality of stormwater run-off.
- > To achieve best practice stormwater quality outcomes.
- > To incorporate the use of water sensitive urban design, including stormwater re-use.

1.1.1.5 Transport

- > To ensure that the built environment is designed to promote the use of walking, cycling and public transport, in that order.
- > To minimise car dependency.
- > To promote the use of low emissions vehicle technologies and supporting infrastructure.

1.1.1.6 Waste management

- > To promote waste avoidance, reuse and recycling during the design, construction, and operation stages of development.
- > To ensure durability and long-term reusability of building materials.
- > To ensure sufficient space is allocated for future change in waste management needs, including (where possible) composting and green waste facilities.

1.1.1.7 Urban Ecology

- > To protect and enhance biodiversity within the municipality.
- > To provide environmentally sustainable landscapes and natural habitats and minimise the urban heat island effect.

- > To encourage the retention of significant trees.
- > To encourage the planting of indigenous vegetation.
- > To encourage the provision of space for productive gardens, particularly in larger residential developments.

These key objectives have been addressed by considering the following 9 key sustainable building categories as benchmarked in the BESS/ Green Star Buildings assessments which adopts the Sustainable Design Assessment in the Planning Process:

- > Management
- > Water
- > Energy
- > Storm Water
- > Indoor Environment Quality
- > Transport
- > Waste
- > Urban Ecology
- > Innovation

Overall, the proposed ESD initiatives of this development will meet the Council's overarching goal of promoting sustainable design and buildings.

1.2 ESD Approach

1.2.1 Project sustainability brief

An environmentally sustainable design assessment must be undertaken for each individual building, which will set out how this development will achieve:

- > Water-sensitive urban design objectives pursuant to the Yarra Planning Scheme, and
- > Environmentally sustainable design objectives pursuant to Yarra Planning Scheme.

These items will be achieved as follows:

Water-sensitive urban design objectives and requirements pursuant to the Yarra Planning Scheme; and

The WSUD objectives will use the MUSIC assessment to demonstrate Best Practice pollutant removal targets are met in line with planning scheme clauses 22.16-2 and 53.18-5. A combination of rainwater tanks, raingardens, proprietary devices and other treatment options will be explored when proposing a compliant stormwater solution as part of any further planning permit application.

Environmentally sustainable design objectives and requirements pursuant to the Yarra Planning Scheme

An SMP report is to be prepared in accordance with planning scheme clause 22.17-2. Objectives relating to energy, water, IEQ, stormwater, transport, waste and urban ecology will be addressed. Improvements on minimum energy efficiency requirements for dwellings are likely to form a central focus of the SMP assessment.

An SMP report will be prepared for each individual building and will utilize one of the following tools to demonstrate compliance as identified in the policy requirements, statutory requirements and the project brief.

- > **Either a Built Environment Sustainability Scorecard – A minimum 50% score, or**
- > **A Green Star Buildings – 4 Star certified rating.**

1.3 Summary of ESD Initiatives

Table 1 below shows a summary of ESD initiatives in the different SDAPP categories including Management, Water, Energy, Stormwater, IEQ, Transport, Waste Management and Urban Ecology.

The Summary of ESD initiatives provided below will set out whole of site goals and targets for a framework that can guide subsequent SMP'S for each individual building.

Table 1: Summary of ESD initiatives.

ESD Initiatives		
Management	<ul style="list-style-type: none"> > Improved thermal performance of building envelope > Landfill Diversion Target <ul style="list-style-type: none"> – 80% of construction and demolition waste is to be reused or recycled (in weight). 	<ul style="list-style-type: none"> > Metering strategy. > Building users guide.
Water	<ul style="list-style-type: none"> > Water efficient fittings, fixtures and appliances: <ul style="list-style-type: none"> – Showers: 4 Stars (≤ 7 L/min) – Toilets: 4 Stars – Taps: 6 Stars – Urinals: 6 Stars – Dishwashers: 5 Stars 	<ul style="list-style-type: none"> > Rainwater tanks to capture from nominated roof areas and connected to toilets, landscaping and bin wash. > Reduction in building systems' water use > Xeriscape or low-water use plant selection for all landscaping and irrigation via a subsurface drip.
Energy	<ul style="list-style-type: none"> > Target New Zero Development GURNER™ is a Climate Active carbon neutral certified company. For the proposed development, GURNER aims to make our developments carbon-neutral operationally. We are committing to an all-electric design, including solar panels, achieving 7-star NatHERS average rating and using either 100% offsite renewable energy sources (Green Power) or 5% of on-site renewable energy production. > High-Performance Fabric and Glazing <ul style="list-style-type: none"> – Following energy efficiency performance for residential areas as required by section J of the NCC 2022: <ul style="list-style-type: none"> > A minimum average NatHERS rating of 7 stars. > A minimum of 6-star NatHERS rating for each individual unit. > In addition, the City of Yarra requires the units located in NatHERS Climate Zone 21, to not 	<ul style="list-style-type: none"> > Ventilation and Air Conditioning <ul style="list-style-type: none"> – Energy efficient units within 1 star, or have a COP/EER within 85% of the best available system > Lighting <ul style="list-style-type: none"> – Lighting power density is reduced by at least 10% below the maximum lighting power density allowable for residences and all common areas accessible by residents. – Independent light switching is provided to each room of each sole-occupancy unit. Where open plan living, dining and kitchen areas are provided, each functional area is separately switched. – All common areas accessible by residents are provided with automated lighting control

	<ul style="list-style-type: none"> – exceed the maximum cooling load of 30 MJ/ m². – The non-residential areas will achieve a minimum 10% improvement over NCC 2022 Section J requirements. <ul style="list-style-type: none"> > This will be demonstrated by JV3 modelling or a DTS assessment. – High-performance LED lighting. 	<p>system(s), such as occupant detection.</p> <p>Renewable energy</p> <ul style="list-style-type: none"> – Renewable electricity support from offsite solar PV supplier to common areas. <p>Hot Water System:</p> <ul style="list-style-type: none"> – Hot water supply from energy-efficient heat pumps. <p>Reduction of Gas Use:</p> <ul style="list-style-type: none"> – No gas connection will be provided. The development is committed to be all-electric.
Stormwater	<ul style="list-style-type: none"> > Water Sensitive Urban Design (WSUD) and stormwater treatment systems to meet Best Practice pollutant reduction targets. 	<ul style="list-style-type: none"> > The WSUD targets are to be demonstrated via MUSIC modelling at TP stage. > Preliminary precinct-wide STORM modelling is included in Appendix A.
IEQ	<ul style="list-style-type: none"> > The development will achieve the minimum daylight requirements to meet best practice BESS IEQ. > The ventilation systems are designed to monitor the CO₂ concentration levels in non-residential spaces. > Low-volatile organic compound (VOC) paints, adhesives, and sealants will be specified in the proposed development. 	<ul style="list-style-type: none"> > High-performance double glazing. > All residential dwellings will have external operable windows to habitable rooms (e.g. living and bedrooms). > Low-emission formaldehyde timber products will be specified in the proposed development.
Transport	<ul style="list-style-type: none"> > Train and bus timetables installed at prominent locations. > Bike parking facilities for regular building occupants and visitors. > A Green Travel Plan (GTP) will be provided to occupants and residents. 	<ul style="list-style-type: none"> > Electric Vehicle Charging Points will be provided. > Infrastructure and load management plan for more EV charging parking spots to be provided.

Waste & Materials	<ul style="list-style-type: none"> > Recycling facilities as accessible as general waste facilities. > Multiple opportunities to minimize embodied carbon will be investigated during detailed design to reduce the embodied carbon of development. > Some methods to reduce embodied carbon that will be considered will be: <ul style="list-style-type: none"> – Reduction in Structural Steel and Concrete via improvements in design and specification. – Reuse of material from the demolishing of the current building onsite. – Specification of materials that use recycled, low carbon materials or Responsible Materials. 	<ul style="list-style-type: none"> > Use of light-coloured and high SRI materials and/or landscaping will be considered and maximized to reduce the Urban Heat Island Effect. > Four waste streams are already being considered by the development. A detailed circular economy strategy will be considered at the planning permit stage that will include considerations for e-waste and soft plastics. > Locally sourced building products.
Urban Ecology	<ul style="list-style-type: none"> > Communal terrace spaces for development. > >5% of the site will be covered in vegetation. > The design will be assessed under the Green Factor Tool to enhance the green infrastructure and biodiversity of the site. 	<ul style="list-style-type: none"> > Detailed design will investigate the introduction of additional vegetation on the roof and balconies as well as incorporating shade to exposed high-mass elements and pedestrian routes.

Appendix A – Stormwater Management Plan

Background

Melbourne Water's Stormwater Treatment Objective – Relative Measure (STORM) Calculator is a simple analysis method for stormwater treatment and water sensitive urban design (WSUD). It rates the performance of treatment measures such as rainwater tanks, wetlands, and infiltration systems relative to best practice targets, and calculates a weighted average score. A STORM score of 100 or greater indicates that treatment measures are of sufficiently high standard.

In order to demonstrate compliance, a score of 100% must be achieved using the Stormwater Treatment Objective – Relative Measure (STORM) tool, demonstrating that the following has been achieved:

- > Suspended solids – 80% retention of typical urban load
- > Total Nitrogen – 45% retention of typical urban load
- > Total Phosphorous – 45% retention of typical urban load
- > Litter – 70% reduction of typical urban load

As design progresses, the site stormwater management strategy will consider flows from the development as well as the streets, driveways and other impervious surfaces. The overall stormwater strategy will be detailed in the civil engineer's WSUD report and will be designed to ensure that council's best practice targets are met.

A provisional STORM rating has been carried out, based on the following WSUD measures:

- > Stormwater collection from all non-trafficable Building A roof areas and stored in a 50,000L rainwater tank connected to toilets for flushing and landscape irrigation.
- > Stormwater collection from all non-trafficable Building B roof areas and stored in a 70,000L rainwater tank connected to toilets for flushing and landscape irrigation.
- > Stormwater collection from all non-trafficable Building C roof areas and stored in a 50,000L rainwater tank connected to toilets for flushing and landscape irrigation.
- > Stormwater collection from all non-trafficable Building D roof areas and stored in a 30,000L rainwater tank connected to toilets for flushing and landscape irrigation.
- > Collection of rainwater from the remainder of the site will be directed towards the nearest legal point of discharge (LPG) and does not require any additional treatment.

The development achieves a STORM rating of 110% as shown below.



STORM Rating Report

TransactionID: 1558962
 Municipality: YARRA
 Rainfall Station: YARRA
 Address: 81-95 Burnley Street
 Richmond
 VIC 3121
 Assessor: ADP Consulting
 Development Type: Residential - Mixed Use
 Allotment Site (m2): 12,812.00
 STORM Rating %: 110

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Building A Roof	2,700.00	Rainwater Tank	50,000.00	100	146.00	80.90
Building B Roof	3,000.00	Rainwater Tank	70,000.00	100	136.00	87.80
Building D Roof	2,000.00	Rainwater Tank	50,000.00	100	164.00	80.00
Building C Roof	1,200.00	Rainwater Tank	30,000.00	100	164.00	80.00
Heritage Roof	157.00	None	0.00	0	0.00	0.00
Hardscaping	1,478.00	None	0.00	0	0.00	0.00
Balconies and trafficable roofs	1,550.00	None	0.00	0	0.00	0.00



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