Sustainability Management Plan

Wathaurong Hub Redevelopment

Wathaurong Aboriginal Co-Operative

February 20, 2024

→ **The Power of Commitment**

Project name		Wathaurong Hub Redevelopment						
Document title		Sustainability Management Plan | Wathaurong Hub Redevelopment						
Project number		12613952						
File name		Wathaurong Hub Redevelopment_Sustainability Management Plan_20240216_v3.docx						
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**			
			Name	**Signature**	**Name**	**Signature**	**Date**	
S4	0						22/09/23	
S4	1						20/02/24	

GHD
Contact: Lewis Grive, Senior Structural Engineer
Level 9, 180 Lonsdale Street
Melbourne, Victoria 3000, Australia
T +61 3 8687 8000 | **E** lewis.grive@ghd.com |

Contents

Table index

Figure index

Appendices

1. Introduction

1.1 Purpose of this report

This sustainability management plan has been prepared for the Wathaurong Aboriginal Co-operative Morgan Street Redevelopment. This proposal is classified as 'large-scale' according to the Sustainable Design Assessment in the Planning Process (SDAPP) Framework and Program.

The City of Greater Geelong Sustainability Management Plan Guidelines and Template describe generic minimum sustainability expectations, often referring to measures relating to residential buildings. These have been adjusted in this report to be appropriate for the development type.

This report demonstrates how the proposed development incorporates environmentally sustainable design.

1.2 Scope and limitations

This report: has been prepared by GHD for Wathaurong Aboriginal Co-Operative and may only be used and relied on by Wathaurong Aboriginal Co-Operative for the purpose agreed between GHD and Wathaurong Aboriginal Co-Operative.

GHD otherwise disclaims responsibility to any person other than Wathaurong Aboriginal Co-Operative arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Project Information

2.1 Basis of assessment

This assessment has been completed with reference to the following documents and planning scheme clauses:

- 'Town Planning Issue' architectural drawings, Revision B, 15 September 2023
- Planning scheme clause 22.71 – Environmentally Sustainable Development
- Planning scheme clause 52.34 – Bicycle Facilities
- Planning scheme clause 53.18 – Stormwater Management in Urban Development
- City of Greater Geelong Sustainability Management Plan Guidelines and Template

2.2 BESS

In order to assess the overall sustainability credentials of the site in line with Council requirements and relevant planning schemes, the Build Environment Sustainability Scorecard has been utilised.

This tool breaks sustainability into nine categories and lists a range of available sustainability initiatives appropriate for the building type. Each category and initiative are assigned a weighting, and a weighted score is provided for the overall development and in each of the nine categories based on the percentage of these measures to be implemented in the design.

- Management
- Water (mandatory 50%)
- Energy (mandatory 50%)
- Stormwater (mandatory 50%)
- Indoor Environment Quality (mandatory 50%)
- Transport
- Waste
- Innovation

A pass is achieved if the development achieves a score of 50% or more overall as well as a minimum 50% score in each of four mandatory categories as designated above.

The results of the BESS assessment for the development are listed below:

Category	Contribution of Category to Overall Score	Mandatory Minimum Score	Score Achieved
Management	4.5%	-	28%
Water	9.0%	50%	60%
Energy	27.5%	50%	73%
Stormwater	100%	50%	100%
Indoor Environment Quality	16.5%	50%	57%
Transport	9.0%	-	62%
Waste	5.5%	-	33%
Urban Ecology	5.5%	-	37%
Innovation	9.0%	-	0%
Total	100%	50%	59%

As demonstrated above, the development exceeds the minimum requirements in each individual category and achieves an overall score of 60%, meeting all BES requirements of the project.

2.3 Site Description

The proposed development site is to the north of the Cowies Creek Lake in north Geelong, adjacent to Morgan Street. A description of the site and proposed development are provided in table 1 and figure 1 below.

Table 1: Site Description

<table>
<tr><th colspan="2">Site Description</th></tr>
<tr><td>Address</td><td>62 Morgan Street North Geelong</td></tr>
<tr><td>Approximate total area of site to be developed</td><td>8,578 m^2</td></tr>
<tr><td>Development type</td><td>Large development</td></tr>
<tr><td>Levels</td><td>
<table>
<tr><th>Levels</th><th>Approx. Gross Floor Area (m^2)</th><th>Building Classification</th></tr>
<tr><td>Ground</td><td>2,093</td><td>9b, 7a</td></tr>
<tr><td>1</td><td>1,690</td><td>5, 9b</td></tr>
<tr><td>2</td><td>1,669</td><td>5</td></tr>
<tr><td>Total</td><td>5,452</td><td></td></tr>
</table>
</td></tr>
<tr><td>Car parking</td><td>Ground level – covered and uncovered</td></tr>
</table>

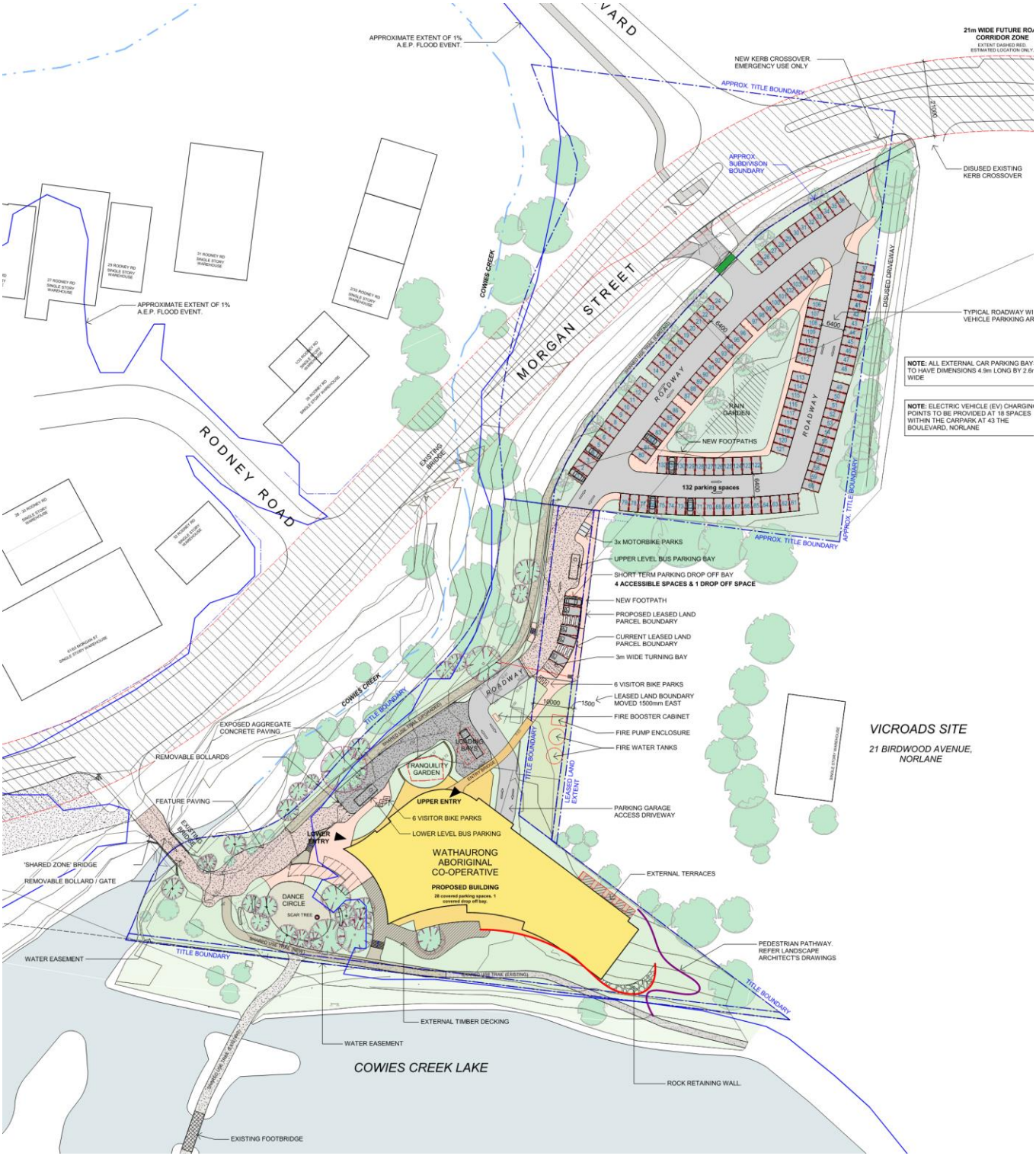


Figure 1: Site Area

3. Environmentally Sustainable Design Initiatives

3.1 Management

3.1.1 Objectives

- To achieve best practice in building management by integrating sustainability from concept design through to construction.
- To give future occupants the information they need to be able to run their buildings in the most efficient way.

3.1.2 Initiatives

Initiative	Responsibility	Stage of Implementation
Metering and Monitoring		
All major common area services throughout the development will be separately sub-metered. This allows for monitoring of consumption of electricity and water and identification of opportunities to further reduce consumption. To be documented in Design Development stage.	Electrical Engineer Hydraulic Engineer	Design Development

3.2 Water

3.2.1 Objectives

- To efficiently use water.
- To minimise total operating potable water use.
- To collect and reuse rainwater and stormwater.
- To use alternative water sources appropriately – for example, grey water.

3.2.2 City of Greater Geelong minimum expectations

- Rainwater capture and reuse for toilet flushing.
- BESS water category assessment of 50 per cent.

3.2.3 Initiatives

Initiative	Responsibility	Stage of Implementation
Rainwater Capture and Use		
A reduction in potable water use on site will be achieved by capturing rainwater from roof surface to be used for flushing in all toilets within the buildings. Rainwater tank(s) with a capacity of 30kL will be provided for the development, collecting from half of the buildings roof area and serving toilets within the development.	Hydraulic, Civil Engineer, Architect	Design Development
Water Fixtures, Fittings, and Connections		
Efficient water fixtures, fittings, and appliances will be implemented throughout the development with the following minimum Water Efficiency Labelling and Standards[1] ratings: **Showers** 4 stars (less than 7.5 L/min) **Kitchen and bathroom taps** 6 stars **Toilets** 4 stars **Urinals** 6 stars	Architect	Detailed Design
Water Efficient Landscaping		
All new landscaping on the development site will be completed with water efficiency in mind. This includes drought resistant native plant selection and mulching of garden beds to ensure that no irrigation is required after an initial establishment period.	Landscape Architect	Design Development

[1] https://www.waterrating.gov.au/about/standards

3.3 Energy

3.3.1 Objectives

- To use energy efficiently.
- To minimise total operating greenhouse emissions.
- To minimise energy peak demand through design – for example, orienting the building appropriately, shading glazed surfaces, optimising glazing to exposed surfaces, allocating space for solar panels and external heating and cooling systems.
- To minimise associated energy costs.

3.3.2 City of Greater Geelong minimum expectations

- BESS energy category assessment of 50 per cent.

3.3.3 Initiatives

Initiative	Responsibility	Stage of Implementation
On-site Renewable Energy		
Roof-mounted photovoltaic arrays are to be installed as part of the development to reduce grid electricity demand. The panels will face north-east for efficiency in on-site generation. The minimum size is to contribute at least 5% of the building's energy demand, which has been estimated within the BESS tool as 10kW. A roof area of 330m^2 is designated for solar PV panel array to far exceed the minimum size target.	Electrical Engineer, Architect	Design Development
Efficient Internal Lighting		
Maximum illumination power density (W/m2) in at least 90% of the areas of the relevant building class are to meet the requirements in Table J7D3a of the NCC 2022 Vol 1. To be documented in Design Development stage.	Electrical Engineer, Architect	Design Development
Building Envelope, HVAC and Hot Water Systems		
Heating, cooling, and hot water requirements within the building will be minimised through architectural design, selection of appropriate building fabric, and use of efficient mechanical systems. The development must demonstrate the building fabric and HVAC and hot water system as noted below:	Sustainability Consultant, Architect, Mechanical Engineer	Design Development

3.3.4 Building fabric targets

All exposed floors and ceilings forming the building envelope meet the required NCC2022 R-value

- **Floors:** R-Value ≥ 2.0 m^2K/W
- **Roof:** R-value ≥ 3.2 m^2K/W

All walls and glazing meeting or exceeding the minimum NCC2022 compliance requirements. Refer to Appendix B for summary of Section J4D6 Calculations

Walls: R-Value ≥ 1.0 m^2K/W

Glazing: U-Value ≤ 4.3 W/m^2K, SHGC ≤ 0.58

3.3.5 HVAC and hot water systems target

- All heating and cooling systems within one star or with a COP/EER 85% or better of the most efficient equivalent capacity available.
- Hot water systems within one star or with efficiency 85% or better of the most efficient equivalent capacity system available

3.4 Stormwater

3.4.1 Objectives

- To reduce the impact of stormwater runoff.
- To improve the water quality of stormwater runoff.
- To meet best practice standards for managing stormwater.
- To incorporate Water Sensitive Urban Design principles, including stormwater reuse.

3.4.2 City of Greater Geelong minimum expectations

- A 100 per cent STORM score using Melbourne Waters STORM calculator or through the use of Model for Urban Stormwater Improvement Conceptualisation (MUSIC) modelling demonstrating best practice standards for managing stormwater.

3.4.3 Initiatives

Initiative	Responsibility	Stage of Implementation
Stormwater Management		
Stormwater runoff from the impervious surfaces of the development will be managed to reduce pollutant loads leaving the site. Measures implemented will include buffers, swales, bioretention, and rainwater capture and use. Details of the project stormwater management systems, including MUSIC modelling demonstrating achievement of stormwater quality objectives, can be found in the Stormwater Management Plan prepared by GHD.	Hydraulic Engineer, Civil Engineer	Design Development

3.5 Indoor Environment Quality

3.5.1 Objectives

- To achieve a healthy indoor environment quality for building occupants using fresh air intake, cross ventilation, and natural daylight.
- To achieve maximum thermal comfort with minimal mechanical heating, ventilation and cooling.
- To reduce indoor air pollution by using low-toxic materials.
- To minimise reliance on mechanical heating, ventilation, cooling and lighting systems.
- To minimise noise levels and noise transfer within and between buildings and associated external areas.

3.5.2 City of Greater Geelong minimum expectations

- A minimum BESS score of 50 per cent.
- Adequate daylight to regular use floor areas (as defined in BESS)
- Appropriate shading to all windows receiving direct sunlight.

In addition to an overall 50% score in the Indoor Environment Quality category, BESS has two minimum benchmarks that must be achieved relating to daylight access and ventilation. These minimums will be met as described in the below table.

3.5.3 Initiatives

<table>
<tr><th>Initiative</th><th>Responsibility</th><th>Stage of Implementation</th></tr>
<tr><td colspan="3">Daylight Access</td></tr>
<tr><td>A minimum score of 33% is required in this credit to pass the IEQ category. The following percentage of regular use floor areas will achieve a daylight factor of at least 2%:

Space — Percentage of floor area compliance
Assembly Building (Class 9b) — 44.5%
Office (Class 5) — 43.3%

This has been demonstrated though Green Star daylight hand calculation, as shown in Appendix B.

The Visible Light Transmittance (VLT) of glazing must be 40% or greater.</td><td>Architect, Sustainability Consultant</td><td>Design Development</td></tr>
<tr><td colspan="3">Ventilation</td></tr>
<tr><td>Internal air quality will be maintained through an architectural design and mechanical systems through a combination of</td><td>Architect, Mechanical Engineer</td><td>Design Development</td></tr>
</table>

Initiative	Responsibility	Stage of Implementation
measures. At least two of the three items listed below will be achieved: • 60% of the regularly occupied spaces are naturally ventilated, i.e. openable windows to provide fresh air • Ventilation systems will be linked to carbon dioxide monitors to ensure that internal concentration of CO_2 does not exceed 800 parts per million		
Shading		
A minimum of 50% of north, east, and west facing glazing are effectively shaded (provided with overhangs), managing solar heat gain within the buildings of the development. The majority of north, east, and west orientated windows are provided with overhangs. Refer to Appendix D for markups of shading.	Architect	Design Development
Volatile Organic Compound Reduction		
All paints, sealants, adhesives, carpets, and engineered wood products selected will not exceed maximum total indoor pollutant emissions. This will be achieved by specifying products that meet current GECA, Global GreenTag GreenRate, Carpet Institute Australia Environmental Classification Scheme Level 2, Green Star or WELL standards for volatile organic compounds in paints, adhesives and sealants, carpets, and engineered wood.	Architect	Design Documentation

3.6 Transport

3.6.1 Objectives

- To encourage walking, cycling and public transport (in that order) with supportive built environments.
- To minimise car dependency.
- To promote low-to-zero-emission-vehicle technologies and infrastructure

3.6.2 City of Greater Geelong minimum expectations

- Bicycle parking for occupants – one per 8 practitioners + 1 per 300m2 of office space
- Bicycle parking for visitors – one per 4 practitioners + 1 per 1000m2 of office space

3.6.3 Initiatives

Initiative	Responsibility	Stage of Implementation
Bicycle Parking		
Bicycle parking will be provided that exceeds planning scheme requirements by a minimum of 50%. This is estimated assuming 21 practitioners and 1463m^2 of office space. Minimum bicycle park numbers required to achieve this are listed below: • Employee – 12 spaces • Visitor – 12 spaces The development will meet or exceed the above.	Architect, Landscape Architect	Design Development
Electric Vehicle Charging		
Electrical infrastructure will be provided allowing for the charging of electric vehicles (at a minimum 1 space is to be provided with EV charging infrastructure). This will encourage the adoption of electric vehicles within the school community and with the solar photovoltaic generating electricity on-site, electricity used for vehicle charging will be low emissions.	Electrical Engineer	Design Development

3.7 Waste

3.7.1 Objectives

- To minimise waste and encourage reuse and recycling during design, construction and operation.
- To ensure long-term reusability of building materials.
- To allow sufficient space for future waste management changes, including (where possible) composting and green waste facilities.

3.7.2 City of Greater Geelong minimum expectations

- Recycling facilities and general waste facilities are equally convenient.

3.7.3 Initiatives

Initiative	Responsibility	Stage of Implementation
Convenience of Recycling		
All general waste disposal facilities will be accompanied by recycling disposal facilities. This will ensure that recycling is as at least as convenient as general waste and that at a minimum two waste streams are utilised to reduce the site's contribution to landfill.	Architect	Detailed Design

3.8 Urban Ecology

3.8.1 Objectives

- To protect and enhance biodiversity within the municipality.
- To provide environmentally sustainable landscapes and natural habitats, while minimising the urban heat island effect.
- To retain significant trees.
- To encourage planting of indigenous vegetation.
- To create space for productive gardens, particularly in larger residential developments.

3.8.2 Initiatives

Initiative	Responsibility	Stage of Implementation
Vegetation		
At least 20% of the total site area is to be covered with vegetation to improve local ecology and biodiversity	Architect, Landscape Architect	Design Development

3.9 Innovation

3.9.1 Objective

- To encourage innovative technology, design and processes which positively influence the sustainability of buildings.

3.9.2 City of Greater Geelong minimum expectations

This category is designed to recognise new or outstanding initiatives not recognised elsewhere, such as in the Green Star tools. While this category is not specifically covered in Clause 22.71, the information does often overlap with other categories.

Sustainability innovations are earmarked for this project however have not been included here as they may be partially captured in other categories and the development already exceeds the minimum requirements of BESS and relevant planning scheme clauses so additional points have not been claimed.

4. BESS Results

As set out in Section 3, the development meets the minimum requirements across all categories and the overall BESS assessment as per the results below.

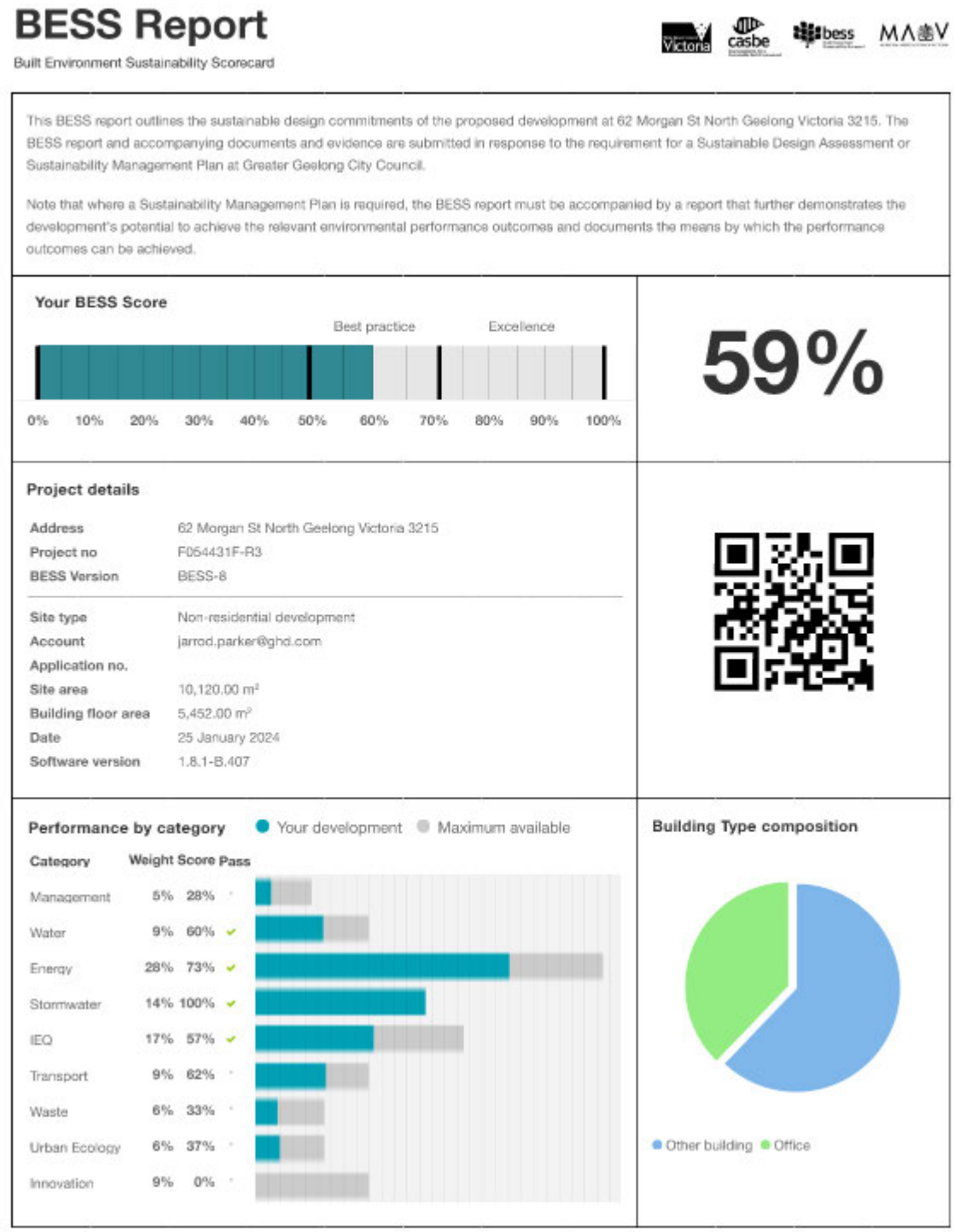


Figure 2: BESS Assessment Cover Page

5. Conclusion

The design for the proposed Wathaurong Aboriginal Co-operative building incorporates numerous initiatives designed to enhance the environmental performance of the facility. These include measures aimed at reducing energy and potable water consumption, managing the volume and quality of stormwater leaving the site, improving the quality of the indoor environment through daylight access and ventilation, facilitating sustainable transport means to and from the site by employees and visitors, effective management of waste, and improvement of local biodiversity through retention of vegetation and improvement of local biodiversity through native planting.

The project achieves all requirements of relevant planning schemes including exceeding minimum mandatory scores of the BESS assessment.

In addition to the initiatives mentioned in the report and captured in the BESS assessment, the principles incorporated in the design a of the building encourages connection to nature and the local landscape and highlight the importance and benefit of sustainable buildings, communities, and practices.

Appendix A

BESS Report

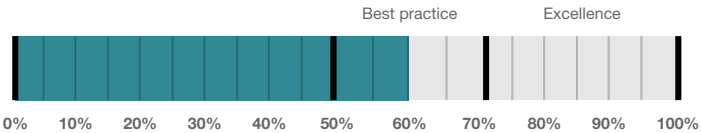
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 62 Morgan St North Geelong Victoria 3215. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Greater Geelong City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score

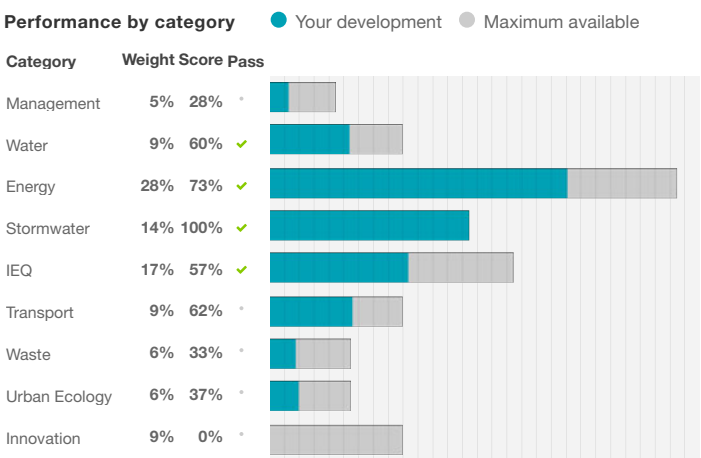


59%

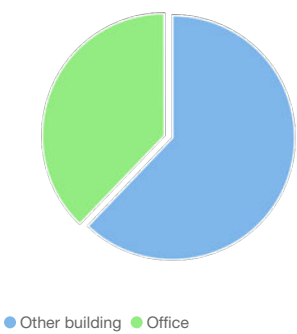
Project details

Address	62 Morgan St North Geelong Victoria 3215
Project no	F054431F-R3
BESS Version	BESS-8
Site type	Non-residential development
Account	jarrod.parker@ghd.com
Application no.	
Site area	10,120.00 m²
Building floor area	5,452.00 m²
Date	25 January 2024
Software version	1.8.1-B.407

Performance by category



Building Type composition



Buildings

Name	Height	Footprint	% of total footprint
Wathaurong Aboriginal Cooperative	3	2,297 m^2	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Office	1	2,063 m^2	Wathaurong Aboriginal Cooperative	37%
Total	**1**	**2,063 m^2**	**37%**	
Other building				
Function Centre, Health Service	1	3,389 m^2	Wathaurong Aboriginal Cooperative	62%
Total	**1**	**3,389 m^2**	**62%**	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)		-
Water 3.1	Annotation: Water efficient garden details		-
Energy 4.2	Location and size of solar photovoltaic system		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Transport 1.4	Location of non-residential bicycle parking spaces		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 2.1	Location and size of vegetated areas		-

Supporting evidence

Credit	Requirement	Response	Status
Management 2.3a	Section J glazing assessment		-
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 1.4	A short report detailing assumptions used and results achieved.		-

Credit summary

Management Overall contribution 4.5%

28%

1.1 Pre-Application Meeting	0%
2.3 Thermal Performance Modelling - Non-Residential	50%
3.2 Metering - Non-Residential	N/A Scoped Out
	Only one commercial tenant
3.3 Metering - Common Areas	100%
4.1 Building Users Guide	0%

Water Overall contribution 9.0%

Minimum required 50% **60%** ✔ **Pass**

1.1 Potable Water Use Reduction	52%
3.1 Water Efficient Landscaping	100%
4.1 Building Systems Water Use Reduction	N/A Scoped Out
	no water based heat rejection

Energy Overall contribution 27.5%

Minimum required 50% **73%** ✔ **Pass**

1.1 Thermal Performance Rating - Non-Residential	37%
2.1 Greenhouse Gas Emissions	100%
2.2 Peak Demand	100%
2.6 Electrification	100%
2.7 Energy consumption	100%
3.1 Carpark Ventilation	0%
3.2 Hot Water	100%
3.7 Internal Lighting - Non-Residential	100%
4.1 Combined Heat and Power (cogeneration / trigeneration)	N/A Scoped Out
	No cogeneration or trigeneration system in use.
4.2 Renewable Energy Systems - Solar	100%
4.4 Renewable Energy Systems - Other	N/A Scoped Out
	No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

Minimum required 100% **100%** ✔ **Pass**

1.1 Stormwater Treatment	100%

IEQ Overall contribution 16.5%

	Minimum required 50%	57%	✔ Pass
1.4 Daylight Access - Non-Residential		47%	✔ Achieved
2.3 Ventilation - Non-Residential		66%	✔ Achieved
3.4 Thermal comfort - Shading - Non-Residential		66%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
4.1 Air Quality - Non-Residential		100%	

Transport Overall contribution 9.0%

	62%
1.4 Bicycle Parking - Non-Residential	100%
1.5 Bicycle Parking - Non-Residential Visitor	100%
1.6 End of Trip Facilities - Non-Residential	0%
2.1 Electric Vehicle Infrastructure	100%
2.2 Car Share Scheme	0%
2.3 Motorbikes / Mopeds	0%

Waste Overall contribution 5.5%

	33%
1.1 - Construction Waste - Building Re-Use	0%
2.1 - Operational Waste - Food & Garden Waste	0%
2.2 - Operational Waste - Convenience of Recycling	100%

Urban Ecology Overall contribution 5.5%

	37%
1.1 Communal Spaces	0%
2.1 Vegetation	75%
2.2 Green Roofs	0%
2.3 Green Walls and Facades	0%
3.2 Food Production - Non-Residential	0%

Innovation Overall contribution 9.0%

	0%
1.1 Innovation	0%

Credit breakdown

Management Overall contribution 1%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 42.9% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.3 Thermal Performance Modelling - Non-Residential		50%
Score Contribution	This credit contributes 28.6% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?	
Question	Criteria Achieved ?	
Office	Yes	
Other building	Yes	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Office	No	
Other building	No	
3.2 Metering - Non-Residential		N/A ⌖ Scoped Out
This credit was scoped out	Only one commercial tenant	
3.3 Metering - Common Areas		100%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Office	Yes	
Other building	Yes	
4.1 Building Users Guide		0%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	No	

Water Overall contribution 5% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools
Project Water Profile Question	
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Are you installing a rainwater tank?:	Yes
Water fixtures, fittings and connections	
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)
Bath: All	Scope out
Kitchen Taps: All	>= 6 Star WELS rating
Bathroom Taps: All	>= 6 Star WELS rating
Dishwashers: All	Default or unrated
WC: All	>= 4 Star WELS rating
Urinals: All	>= 6 Star WELS rating
Washing Machine Water Efficiency: All	Scope out
Which non-potable water source is the dwelling/space connected to?: All	RW Tank
Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	No
Non-potable water source connected to Hot Water System: All	No
Rainwater Tank	
What is the total roof area connected to the rainwater tank?: RW Tank	850 m^2
Tank Size: RW Tank	30,000 Litres
Irrigation area connected to tank: RW Tank	0.0 m^2
Is connected irrigation area a water efficient garden?: RW Tank	No
Other external water demand connected to tank?: RW Tank	0.0 Litres/Day

1.1 Potable Water Use Reduction		52%	
Score Contribution	This credit contributes 83.3% towards the category score.		
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.		
Output	Reference		
Project	9661 kL		
Output	Proposed (excluding rainwater and recycled water use)		
Project	6738 kL		
Output	Proposed (including rainwater and recycled water use)		
Project	6325 kL		
Output	% Reduction in Potable Water Consumption		
Project	34 %		
Output	% of connected demand met by rainwater		
Project	29 %		
Output	How often does the tank overflow?		
Project	Never / Rarely		
Output	Opportunity for additional rainwater connection		
Project	1492 kL		

3.1 Water Efficient Landscaping		100%	
Score Contribution	This credit contributes 16.7% towards the category score.		
Criteria	Will water efficient landscaping be installed?		
Question	Criteria Achieved ?		
Project	Yes		

4.1 Building Systems Water Use Reduction		N/A	Scoped Out
This credit was scoped out	no water based heat rejection		

Energy Overall contribution 20% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	Yes
Do all exposed floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2022 facade calculator (or better than the total allowance)?:	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:	Yes
Non-Residential Building Energy Profile	
Heating, Cooling & Comfort Ventilation - Electricity Reference fabric & services:	-
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	-
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & services:	-
Heating - Wood - reference fabric and services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and services:	-
Hot Water - Electricity - Reference:	-
Hot Water - Electricity - Proposed:	-
Lighting - Reference:	-
Lighting - Proposed:	-
Peak Thermal Cooling Load - Reference:	-
Peak Thermal Cooling Load - Proposed:	-
Solar Photovoltaic systems	
System Size (lesser of inverter and panel capacity):	
PV Array (office)	15.0 kW peak
PV Array (other)	15.0 kW peak
Orientation (which way is the system facing)?:	
PV Array (office)	North-East
PV Array (other)	North-East
Inclination (angle from horizontal):	
PV Array (office)	7.5 Angle (degrees)
PV Array (other)	7.5 Angle (degrees)
Which Building Class does this apply to?:	
PV Array (office)	Office
PV Array (other)	Other building

1.1 Thermal Performance Rating - Non-Residential	37%
Score Contribution	This credit contributes 34.8% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?
2.1 Greenhouse Gas Emissions	100%
Score Contribution	This credit contributes 8.7% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
2.2 Peak Demand	100%
Score Contribution	This credit contributes 4.3% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?
2.6 Electrification	100%
Score Contribution	This credit contributes 13.0% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes
2.7 Energy consumption	100%
Score Contribution	This credit contributes 17.4% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
3.1 Carpark Ventilation	0%
Score Contribution	This credit contributes 4.3% towards the category score.
Criteria	If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans?
Question	Criteria Achieved ?
Project	No
3.2 Hot Water	100%
Score Contribution	This credit contributes 4.3% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?
3.7 Internal Lighting - Non-Residential	100%
Score Contribution	This credit contributes 8.7% towards the category score.
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes

4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A	Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.		
4.2 Renewable Energy Systems - Solar		100%	
Score Contribution	This credit contributes 4.3% towards the category score.		
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?		
Output	Solar Power - Energy Generation per year		
Office	17,469 kWh		
Other building	17,469 kWh		
Output	% of Building's Energy		
Office	27 %		
Other building	18 %		
4.4 Renewable Energy Systems - Other		N/A	Scoped Out
This credit was scoped out	No other (non-solar PV) renewable energy is in use.		

Stormwater

Overall contribution 14% Minimum required 100%

Which stormwater modelling are you using?:	MUSIC or other modelling software		
1.1 Stormwater Treatment		100%	
Score Contribution	This credit contributes 100.0% towards the category score.		
Criteria	Has best practice stormwater management been demonstrated?		
Question	Flow (ML/year)		
Project	1.0 % Reduction		
Question	Total Suspended Solids (kg/year)		
Project	80.0 % Reduction		
Question	Total Phosphorus (kg/year)		
Project	45.0 % Reduction		
Question	Total Nitrogen (kg/year)		
Project	45.0 % Reduction		

IEQ Overall contribution 10% Minimum required 50%

1.4 Daylight Access - Non-Residential	47%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.	
Criteria	What % of the nominated floor area has at least 2% daylight factor?	
Question	Percentage Achieved?	
Office	48 %	
Other building	47 %	
2.3 Ventilation - Non-Residential	66%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.	
Criteria	What % of the regular use areas are effectively naturally ventilated?	
Question	Percentage Achieved?	
Office	60 %	
Other building	60 %	
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?	
Question	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668:2012?	
Office	0 %	
Other building	0 %	
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?	
Question	Value	
Office	800 ppm	
Other building	800 ppm	
3.4 Thermal comfort - Shading - Non-Residential	66%	
Score Contribution	This credit contributes 17.6% towards the category score.	
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?	
Question	Percentage Achieved?	
Office	50 %	
Other building	50 %	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%	
Score Contribution	This credit contributes 5.9% towards the category score.	
Criteria	What percentage of regular use areas in tenancies have ceiling fans?	
Question	Percentage Achieved?	
Office	0 %	
Other building	0 %	
4.1 Air Quality - Non-Residential	100%	
Score Contribution	This credit contributes 5.9% towards the category score.	

Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes

Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes

Transport Overall contribution 6%

1.4 Bicycle Parking - Non-Residential	100%
Score Contribution	This credit contributes 25.0% towards the category score.
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes
Question	Bicycle Spaces Provided ?
Office	1
Other building	1

1.5 Bicycle Parking - Non-Residential Visitor	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Office	Yes
Other building	Yes
Question	Bicycle Spaces Provided ?
Office	1
Other building	1

1.6 End of Trip Facilities - Non-Residential	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?
Question	Number of showers provided ?
Office	-
Other building	-
Question	Number of lockers provided ?
Office	-
Other building	-
Output	Min Showers Required
Office	1
Other building	1
Output	Min Lockers Required
Office	1
Other building	1

2.1 Electric Vehicle Infrastructure	100%
Score Contribution	This credit contributes 25.0% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

2.2 Car Share Scheme	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	No

2.3 Motorbikes / Mopeds	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?
Question	Criteria Achieved ?
Project	No

Waste Overall contribution 2%

1.1 - Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 - Operational Waste - Food & Garden Waste	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	No

2.2 - Operational Waste - Convenience of Recycling	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 2%

1.1 Communal Spaces		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?	
Question	Common space provided	
Office	0.0 m²	
Other building	0.0 m²	
Output	Minimum Common Space Required	
Office	107 m²	
Other building	109 m²	
2.1 Vegetation		75%
Score Contribution	This credit contributes 50.0% towards the category score.	
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?	
Question	Percentage Achieved ?	
Project	20 %	
2.2 Green Roofs		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	
2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	
3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Office	-	
Other building	-	
Output	Min Food Production Area	
Office	42 m²	
Other building	43 m²	

Innovation Overall contribution 0%

1.1 Innovation		0%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

Disclaimer

The Built Environment Sustainability Scorecard (BESS) has been provided for the purpose of information and communication. While we make every effort to ensure that material is accurate and up to date (except where denoted as 'archival'), this material does in no way constitute the provision of professional or specific advice. You should seek appropriate, independent, professional advice before acting on any of the areas covered by BESS.

The Municipal Association of Victoria (MAV) and CASBE (Council Alliance for a Sustainable Built Environment) member councils do not guarantee, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of BESS, any material contained on this website or any linked sites

Appendix B

Section J4D6 Walls and Glazing: Minimum Compliance Summary

NCC 2022 Section J4D6 Compliance Summary

Project Name	Wathaurong Hub
Class Type	Daytime Operation (Class: 2 common areas; 5; 6; 7; 8; 9b; 9a non-ward areas
Climate Zone	6
Prepared By	
QA'd By	

Facade Area Summary

Façade	Wall Total Area (m^2)	Glazing Total Area (m^2)	Glazing Proportion
North	907.55	294.63	24.5%
East	165.31	41.25	20.0%
South	1093.50	469.44	30.0%
West	421.20	316.45	42.9%
Internal	0.00	0.00	0.0%
Whole Building	2587.56	1121.77	30.2%

Façade R/U-value Summary

Façade	Wall R-Value (W/m^2k)	Glazing U-Value (W/m^2k)	Overall U-Value (W/m^2k)
North	1.00	4.30	1.81
East	1.00	4.30	1.66
South	1.00	4.30	1.99
West	1.00	4.30	2.42
Internal	0.00	0.00	0.00
Whole Building	1.00	4.30	2.00

Façade Solar Admittance Summary

Façade	Average SHGC	Shading Factor	Solar Admittance / AC Value
North	0.58	0.67	0.10
East	0.58	0.77	0.09
South	0.58	0.93	0.16
West	0.58	0.60	0.15
Internal	Not Applicable		
Whole Building	0.58	0.77	691.19

J4D6 Compliance Summary

Façade	METHOD 1
North	Compliance Met With Method 2
East	Compliance Met With Method 2
South	Compliance Met With Method 2
West	Compliance Met With Method 2
Internal	Compliance Met With Method 2
Whole Building	METHOD 2
	Yes

Appendix C

Daylight Assessment

As a minimum requirement for BESS, the development must demonstrate that 33% of the regularly occupied spaces achieve the target daylight factor of 2%. To demonstrate this, the daylight assessment was completed in line with the methodology of the Green Star Daylight and Views Hand Calculation Guide (Version 5, September 2019).

Areas are deemed to have a daylight factor of 2% if they are within the 'zone of compliance' as required by the calculation method. The zone of compliance is an area (in the horizontal plane) that is the width of the window by a depth which is twice the height of the window head above desktop/tabletop level as illustrated in the Figure 2 below.

$$Depth\ of\ the\ Zone\ of\ Compliance = h \times 2$$

$$'w'\ width\ of\ the\ Zone\ of\ Compliance = Width\ of\ the\ glazing$$

$$Zone\ of\ compliance = h \times 2 \times w$$

Additional Notes:

- When plotting the depth of the Zone of Compliance the zone may not be drawn past permanent solid or glazed partitions.
- Any column or mullion < 0.5m in width can be disregarded and the glazing can be considered to be continuous in width.
- For the purposes of this hand calculation desktop/tabletop level is set at 700mm AFFL for all rating tools.

A summary of the results can be found in the following table and images.

Areas	Total Primary Area	Daylight Compliance Area	Daylight Compliance %
Ground Floor	534.1	245.1	45.9%
Level 1	1,076.2	506.6	47.1%
Total (Class 9b)	1,610.3	751.7	**46.7%**
Level 2	1,038.5	497.3	47.9%
Total (Class 5)	1,038.5	497.3	**47.9%**

Ground Floor

Level 1

Level 2


Legend
Description Quantity Unit
Compliant Area 464.71 sq m
West Windows 1,073.68 sq m

Appendix D

IEQ 3.4: Shading

The following pages demonstrate that the development has met the criteria for the BESS credit “IEQ 3.4 Thermal Comfort – Shading – Non-Residential”. The development is claiming that 50% of the glazing on the North, East, and West facades are effectively shaded.

Table 2 below is a summary of the shaded and unshaded glazing across the development. 61% of the glazing to the Class 9b areas is effectively shaded and 87% of the glazing to the Class 5 areas is effectively shaded. Markups of areas can be found on the following pages.

Table 2 Shading Summary

Façade	Level	Shaded Glazing Area	Unshaded Glazing Area
North	Ground	17.5	0
East		0	0
West		118.0	0
North	Level 1	104.1	42.0
East		4.8	14.9
West		0	96.8
Total – Class 9b		**244.5**	**154.0**
% Shaded		**61%**	
North	Level 2	106.5	24.6
East		12.1	9.5
West		101.7	0
Total – Class 5		**220.3**	**34.0**
% Shaded		**87%**	

Recent revision history

#	Status	Description	Date
A		Draft Town Planning	01-09-23
B		Draft Town Planning	15-09-23
C		TOWN PLANNING	20-09-23

SITE BOUNDARY
SHARED USE PATH
SITE ROADWAY
BUS PARKING BAY
6100
8.8m M.R.V. BAY
9820
3500
2600
LOADING HARDSTAND
999 VEHICLE BAY
2500
5400
WASTE COLLECTION
LOADING
PEDESTRIAN BRIDGE ABOVE
PARKING ACCESS
FOOTPATH
5600
BIKE ENTRY
SITE BOUNDARY
EXISTING FENCE LINE
SITE BOUNDARY
REFER TO LANDSCAPE ARCH DOCUMENTATION
KERBING EDGE
TRANQUILITY GARDEN
RED DASHED LINE DENOTES EXISTING EXTENT
BIN 22 m²
CYLINDER 5 m²
SHOWER / CHANGE
EOT 41 m²
12 BIKES
DDA SHOWER / CHANGE
LOADING 28 m²
CLINICAL WASTE STORE 12 m²
RL 8850
CIRCULATION 30 m²
RL 8850
MALE WC 31 m²
DDA 6m²
CORE V 7 m²
CIRCULATION 17 m²
RL 6900
FEMALE WC 31 m²
ANTE ROOM 21 m²
RL 8400
ANTE LOBBY 9 m²
LIFT
BOH CORRIDOR 67 m²
FURNITURE STORE 25 m²
POWDER WALL
TEMPORARY STAGE
FUNCTION CENTRE 414 m²
RL 6900
PREFUNCTION 01 / GATHERING / LOUNGE 196 m²
DESIRED LINE OF TRAVEL
Reception 14 m²
Cafe / Bar 20 m²
RAV STORE
RL 6900
PREFUNCTION 02 / GATHERING / CAFE / BAR 113 m²
MAIN ENTRY
CANOPY ABOVE (DASHED)
REFER TO LANDSCAPE ARCHITECT'S DOCUMENTATION FOR EXTERNAL WORKS
SCAR TREE & DANCE CIRCLE
RAISED TIMBER DECKING
CANOPY ABOVE
CLIMBING VEGETATION ON WALL
FIXED OUTDOOR BARBEQUE
6.5% INCURSION INTO T.P.Z. (HATCHED RED)
EXISTING TREE
T.P.Z. (DASHED RED)
RAISED TIMBER DECKING
WATER EASEMENT
COWIES CREEK LAKE
KITCHEN 92 m²
RL 6900
ROCK RETAINING WALL
SITE BOUNDARY
5600
4900
2600
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
TYPICAL DIMENSIONS FOR ALL INDOOR PARKING SPACES.
6000
6400
6400
PARKING 788 m²
RL 8850
29 CARS
1280
29 28 27 26 25 24 23 22 21 20 19 18 17 16

Date generated 20/09/2023 12:28:26 PM

Project
MORGAN ST REDEVELOPMENT

Client
WATHAURONG ABORIGINAL CO-OPERATIVE

Issuer
W–B
WOODS BAGOT

Project number	Size check
130882	25mm

Checked	Approved	Sheet size	Scale
MP	BM	A0	1 : 100

Sheet title
Floor Plan
Ground

Sheet number	Revision
TP- 2200	C

Status
Town Planning

Recent revision history

#	Status	Description	Date
A		Draft Town Planning	01-09-23
B		Draft Town Planning	15-09-23
C		TOWN PLANNING	20-09-23

Project
MORGAN ST REDEVELOPMENT

Client
WATHAURONG ABORIGINAL CO-OPERATIVE

Issuer
W–B
WOODS BAGOT

Project number	Size check
130882	25mm

Checked	Approved	Sheet size	Scale
MP	BM	A0	1 : 100

Sheet title
Floor Plan
Level 01

Sheet number	Revision
A-TP- 2201	C

Status
Town Planning

Date generated 20/09/2023 12:29:21 PM

Recent revision history

#	Status	Description	Date
A		Draft Town Planning	01-09-23
B		Draft Town Planning	15-09-23
C		TOWN PLANNING	20-09-23

Notes

Contractor must verify all dimensions on site before commencing work or preparing shop drawings.

Do not scale drawings.

Project
MORGAN ST REDEVELOPMENT

Client
WATHAURONG ABORIGINAL CO-OPERATIVE

Issuer
W–B
WOODS BAGOT

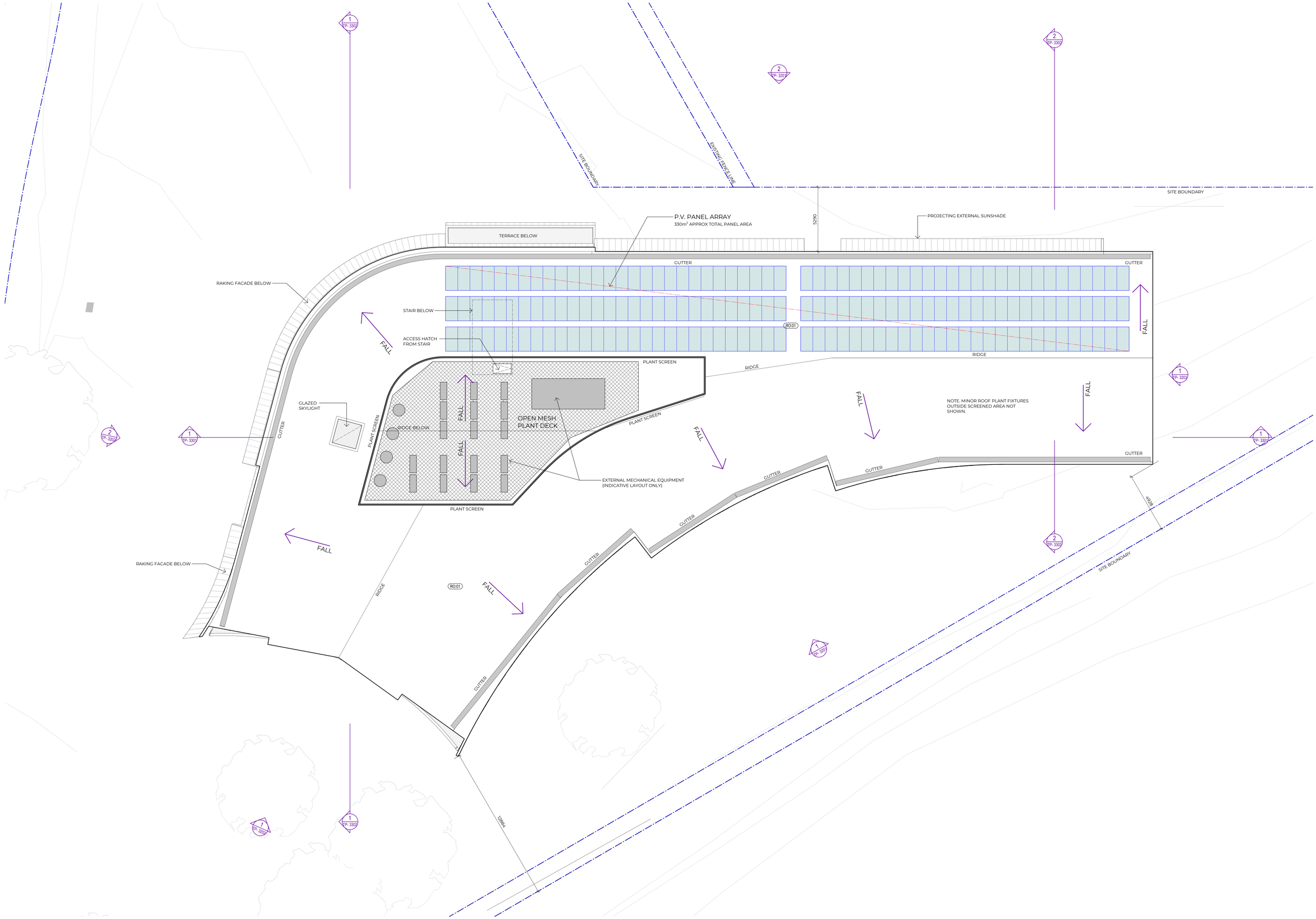
Project number	Size check		
130882	25mm		
Checked	Approved	Sheet size	Scale
MP	BM	A0	1 : 100

Sheet title
Floor Plan
Level 02

Sheet number	Revision
A-TP- 2202	C

Status
Town Planning

Date generated 20/09/2023 12:30:59 PM



Recent revision history

#	Status	Description	Date
A		Draft Town Planning	01-09-23
B		Draft Town Planning	15-09-23
C		TOWN PLANNING	20-09-23

Project
MORGAN ST REDEVELOPMENT

Client
WATHAURONG ABORIGINAL CO-OPERATIVE

Issued
W–B
WOODS BAGOT

Project number	Size check		
130882	35mm		
Checked	Approved	Sheet size	Scale
MP	BM	A0	1 : 100

Sheet title
Floor Plan
Roof

Sheet number	Revision
A-TP- 2203	C

Status
Town Planning

Date generated 20/09/2023 12:31:14 PM

ghd.com

The Power of Commitment