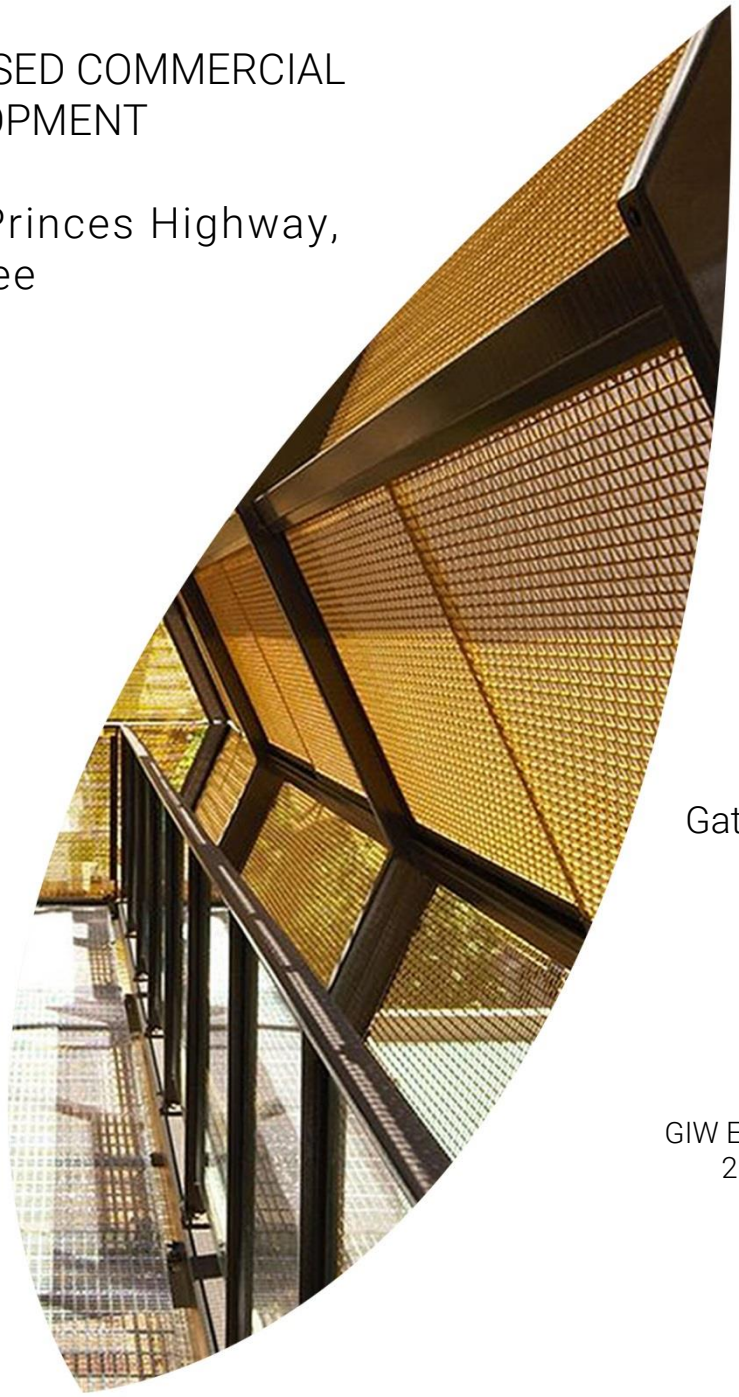
SUSTAINABLE MANAGEMENT PLAN

PROPOSED COMMERCIAL DEVELOPMENT

18-22 Princes Highway, Werribee



GIW22170
Revision B

Prepared for:
The Trustee for Princes Gateway Investments Trust

9 August 2023

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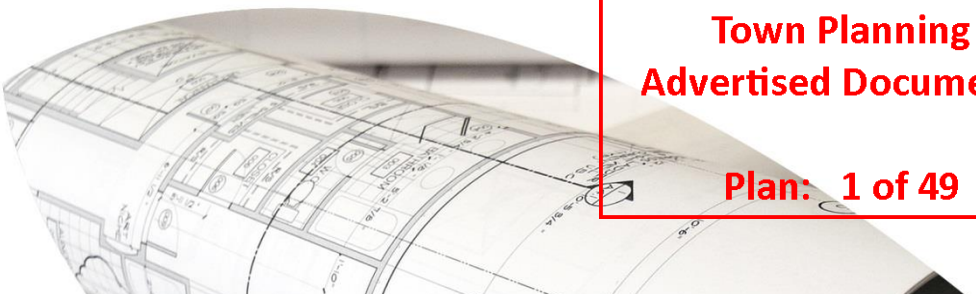

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Revision History

Revision Number	Date Issued	Author	Approved	Comments
A	27/02/2023	IB	GW	Draft
B	09/08/2023	IB	GW	Final

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Contents

1. Introduction

Project Information

GIW Environmental Solutions Pty Ltd ("GIW") has been engaged by The Trustee for Princes Gateway Investments Trust to provide Environmentally Sustainable Design (ESD) consulting services for the proposed commercial development at 18-22 Princes Highway, Werribee.

The proposed development will include 3 retail tenancies and 2 commercial / retail tenancies constructed over 2 buildings of 2 levels plus basement and outdoor carpark and will consist of the following:

- 1,695m^2 retail
- 2,862m^2 commercial / retail

The site located at 18-22 Princes Highway, Werribee has an approximate surface area of 6,684m^2 and is currently the location of one empty lot and one commercial building with ancillary sheds and carparking. Distance from the site to Melbourne CBD is approximately 31km.

Figure 1 - Pre-existing sites at 18-22 Princes Highway, Werribee.

Statutory Requirements

This Sustainable Management Plan (SMP) has been prepared to inform City of Wyndham of the proposed development's sustainability credentials and performance targets. The project team is committed to achieving a building solution which responds to City of Wyndham Planning Scheme - Clause 15.01-2L-01 Environmentally Sustainable Development.

Development Type	Application Requirement	Example Tools
A non-residential building with a gross floor area of more than 2000 square metres.	Sustainability Management Plan (SMP) Green Travel Plan (GTP)	BESS Green Star MUSIC STORM

Further to the above, this SMP also responds to Victoria Planning Provisions VC216 – 15.01-2S.

Built Environment Sustainability Scorecard (BESS)

The proposed commercial development will be assessed against the Built Environment Sustainability Scorecard (BESS) guidelines. The BESS tool addresses nine key environmental categories as follows:

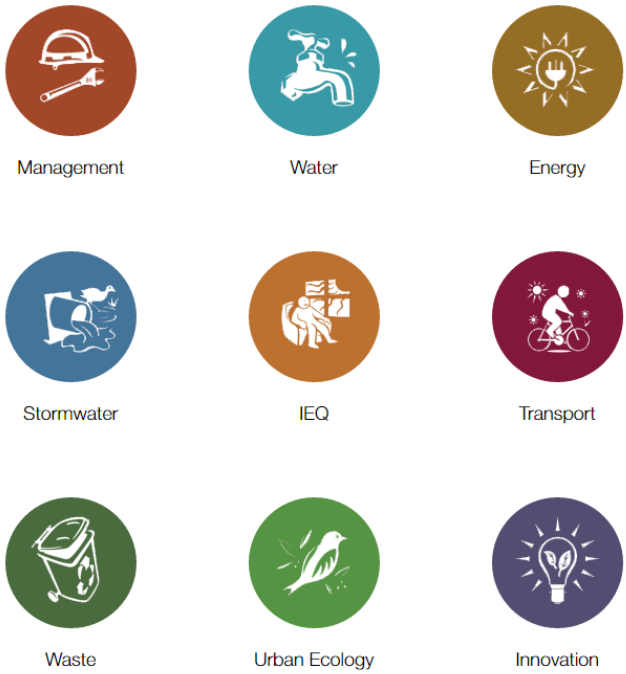


Figure 2 - BESS Environmental Categories (www.bess.net.au)

All ESD measures described under the nine key environmental categories are to be suitably incorporated into relevant project documentation at the appropriate project phase.

Responsibilities & Implementation

The Trustee for Princes Gateway Investments Trust will be responsible for the suitable implementation of the requirements of this report throughout the design and development phases. Should the development be sold the responsibility will pass to the new owner. At such time as a builder is novated or a building contract is put in place the builder will be responsible for implementation during the construction phase. At occupancy, the Owners Corporation and individual lot owners and or tenants will be responsible for the correct use of installed equipment and building systems in line with the provided Building User's Guide.

Sources of Information

The following 'Sources of Information' have been used to guide the design solutions:

- I2C – Project No. 2022-023 – Drawing No. TP01-TP19 Rev C.
- Municipal Association of Victoria - SDAPP Explained; Building Design for a Sustainable Future
- Built Environment Sustainability Scorecard (BESS)
- CSIRO 1999, Urban Stormwater – Best Practise Environmental Management Guidelines

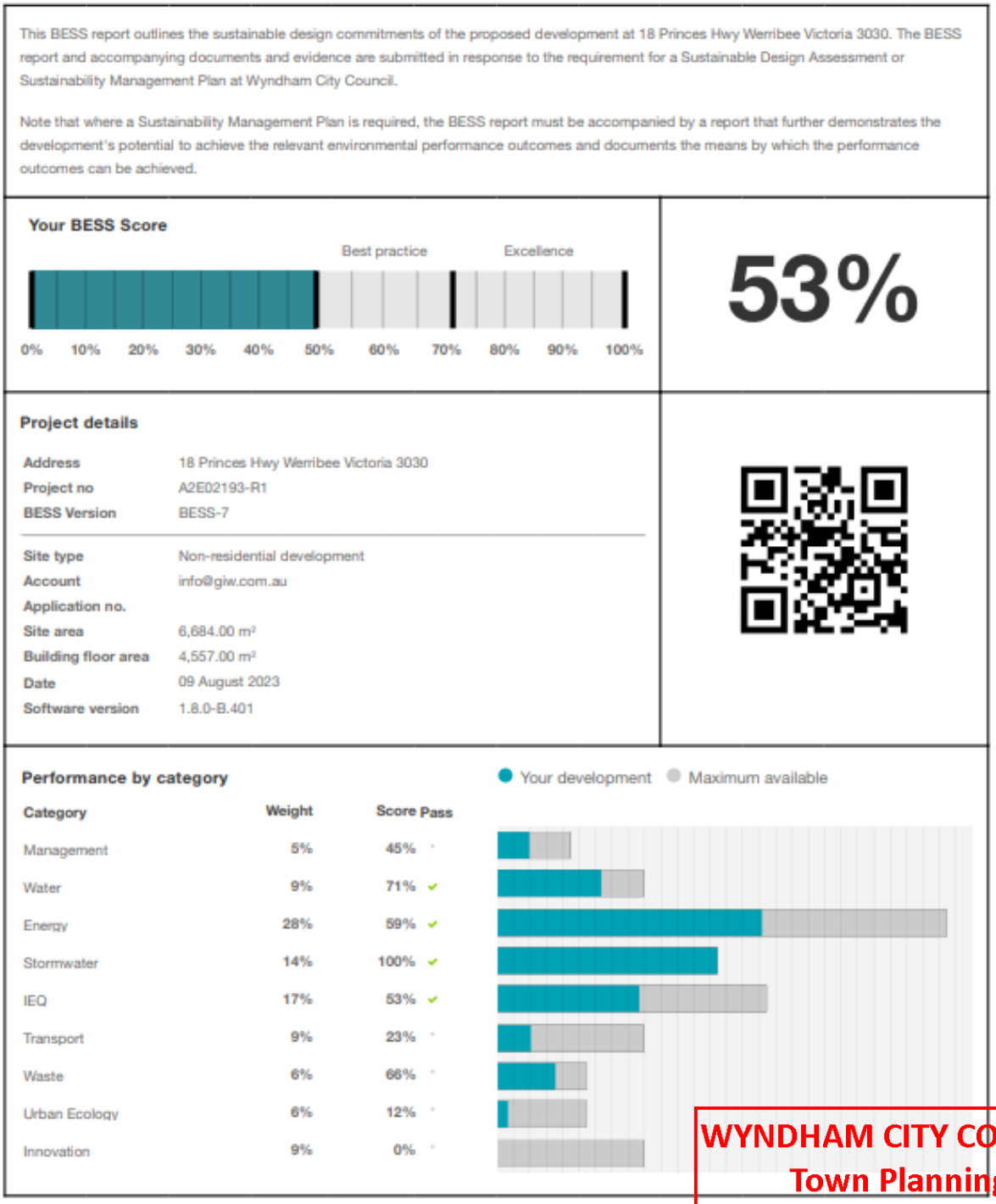
2. ESD Summary

The proposed commercial development at 18-22 Princes Highway, Werribee will implement the following ESD initiatives:

1. The project achieves a total BESS score of 53% with no mandatory category (IEQ, Energy, Water, Stormwater) below 50%.
2. The retail areas are targeting a 2% DF to 33% of the nominated area.
3. The office / retail areas are targeting a 2% DF to 40% of the nominated area.
4. The development is provided with a comprehensive shading strategy.
5. The non-residential areas aim to reduce heating and cooling energy consumption below the reference case (BCA Section J 2019).
6. The development is to utilise electric instantaneous hot water systems.
7. A total 10kW Solar PV system is to be located on the roofs of the proposed development.
8. Individual cold water and electricity meters will be provided to the tenancies and communal areas.
9. Water efficient fittings and fixtures are applied throughout.
10. 2off 20,000 litre rainwater tanks will harvest rainwater from the building roofs. This tank will be connected to all WC's and landscape irrigation.
11. A compliant MUSIC result is achieved.
12. Landscape irrigation demand will be connected to the rainwater tank.
13. In total 16 bicycle spaces are to be provided for employees & 12 bicycle spaces are to be provided for non-residential visitors.

3. BESS Performance

The project achieves a total BESS score of 53% with no mandatory category (IEQ, Energy, Water, Stormwater) below 50%. This figure represents a percentage improvement over a benchmark project. A score of 50% and higher equates to 'best practice' and is an effective pass of the BESS tool. A score of 70% and higher equates to BESS 'excellence' and exists as a higher benchmark in the tool.



This BESS report outlines the sustainable design commitments of the proposed development at 18 Princes Hwy Werribee Victoria 3030. 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 Wyndham 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

Best practice Excellence

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

53%

Project details

Address	18 Princes Hwy Werribee Victoria 3030
Project no	A2E02193-R1
BESS Version	BESS-7
Site type	Non-residential development
Account	info@giw.com.au
Application no.	
Site area	6,684.00 m²
Building floor area	4,557.00 m²
Date	09 August 2023
Software version	1.8.0-B.401

Performance by category

Your development Maximum available

Category	Weight	Score	Pass
Management	5%	45%	
Water	9%	71%	✓
Energy	28%	59%	✓
Stormwater	14%	100%	✓
IEQ	17%	53%	✓
Transport	9%	23%	
Waste	6%	66%	
Urban Ecology	6%	12%	
Innovation	9%	0%	

4. ESD Assessment

Management

Council ESD objectives:

- To encourage a holistic and integrated design and construction process and ongoing high performance.

Council Best Practice Standard

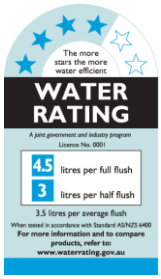
Criteria		Construction and Building Management Actions
Pre-Application Meeting	To ensure appropriate sustainable design principles and strategies are considered from the preliminary design stage of each development.	GIW has been actively involved in the preliminary design stage, but has not been involved in a pre-application meeting with Council.
Metering	To provide building users with information that allows monitoring of energy and water consumption	Electricity and cold water metering is to be provided to each individual commercial tenancy. Lighting and general power to common areas is to be separately metered to quantify energy used for common areas spaces.
Building User's Guide	To encourage and recognise initiatives that will help building users to use the building more efficiently.	A Building User's Guide will be provided to all occupants explaining the correct use of installed equipment and building systems. This shall cover at a minimum: • Energy and Environmental Strategy • Monitoring and Targeting • Building Services • Transport Facilities • Materials and Waste Policy • Expansion/Re-fit Considerations • References and Further Information

Water

Council ESD objectives:

- To ensure the efficient use of water
- To reduce total operating potable water use
- To encourage the collection and reuse of stormwater
- To encourage the appropriate use of alternative water sources (e.g. grey water)
- To minimize associated water costs

Council Best Practice Standard

Criteria		Development Provision
Potable Water Reduction	To reduce total potable water use due through the use of efficient fixtures, appliances, and the use of rainwater.	WELS 4 Star - Toilets  WELS 5 Star - Taps  WELS 5 Star - Urinals  WELS 5 Star - Dishwasher 
Rainwater Collection & Reuse		2off 20,000 litre rainwater tanks will harvest rainwater from the building roofs. This tank will be connected to all WC's and landscape irrigation. It is estimated that this will save more than 771kL of potable water every year and meet 38% of the demand in these areas. Stormwater drainage mechanism is to be determined by the hydraulics services engineer at the design development phase. Refer Appendix A – WSUD Response
Landscape Irrigation	To ensure the efficient use of water and to reduce total operating potable water use through encouraging water efficient landscape design.	Landscape irrigation demand will be connected to the rainwater tank.

Council Best Practice Standard

Criteria		Development Provision
Building System Water Use Reduction	Ensure the efficient use of water, to reduce total operating potable water use and to encourage the appropriate use of alternative water sources for cooling and fire testing systems.	>80% of fire test water (e.g. hydrant pump test water or SCV annubar test) is to be reused on site. The proposed development is to incorporate air-cooled HVAC systems for the non-residential areas within the development.

Energy

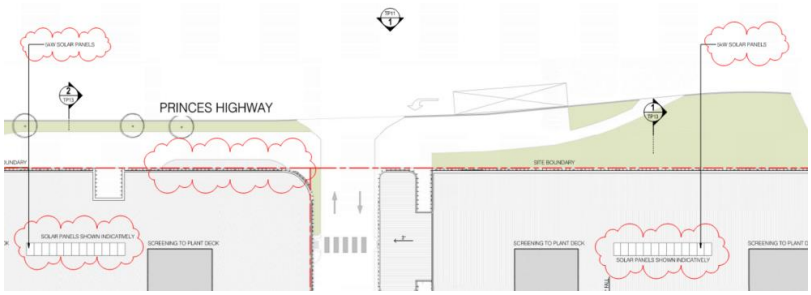
Council ESD objectives:

- To ensure the efficient use of energy
- To reduce total operating greenhouse emissions
- To reduce energy peak demand
- To reduce associated energy costs

Council Best Practice Standard

Criteria		Development Provision
Thermal Performance Rating – Non-Residential	To reduce energy needed to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs.	The non-residential areas aim to reduce heating and cooling energy consumption below the reference case (BCA Section J 2019). Appendix B – J1.5 Façade Calculator.
HVAC System	To ensure the efficient use of energy and to reduce consumption of electricity.	VRV / VRF systems with a COP of 3.4 are to be installed to the non-residential areas.
Hot Water System	To ensure the efficient use of energy and to reduce consumption and greenhouse emissions from water heating.	The development is to utilise electric instantaneous hot water systems.
Car Park Ventilation	To ensure the efficient use of energy, reduce total operating greenhouse gas emissions and to	The basement carpark ventilation fans are driven by a VSD motor connected to CO sensors within the carpark. The inclusion of CO sensor control will allow the ventilation fans to ramp down when the car park is unoccupied. The system is to be designed in accordance with AS1668.2.

Council Best Practice Standard

Criteria		Development Provision
	reduce energy peak demand.	The mechanical services engineer is responsible for the design and specification of the system. The contractor is to procure and install the specified system. Maintenance requirements of the CO sensor system are to be included in the O&M manual.
Internal Lighting – Non-Residential	To ensure the efficient use of energy, to reduce energy consumption, greenhouse emissions associated with artificial lighting, and to reduce energy peak demand.	The maximum illumination power density (W/m2) in the non-residential areas meets the requirements of Table J6.2a of the NCC 2019 Section J. Lighting power density shall be as follows: • Retail: No greater than average 14W/m^2 • Office: No greater than average 4.5W/m^2
Renewable Energy Systems - Solar	To encourage on-site renewable energy generation and reduce greenhouse emissions.	A total 10kW Solar PV system is to be located on the roofs of the proposed development. The system is expected to generate approximately 13,126kWh.  Location Solar PV System Refer Appendix C – Renewable Energy

Stormwater

Council ESD objectives:

- 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 water sensitive urban design principles

Council Best Practice Standard

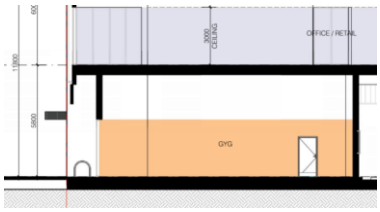
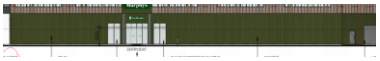
Criteria		Development Provision
		The eWater - Model for Urban Stormwater Improvement Conceptualisation (MUSIC) tool has been applied to determine performance relative to Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999). As per City of Wyndham Planning Scheme - Clause 53.18 Stormwater Management in Urban Development, the development is required to achieve a compliant MUSIC result.
Stormwater Treatment	To minimise negative environmental impacts of stormwater runoff and maximise onsite re-use of stormwater.	A compliant MUSIC result is achieved via the following: • Rainwater collection off building 1 and 2 roof areas is to be directed into 2off. 20,000 litre rainwater tanks connected to WC's and landscape irrigation. • Rainwater collection off the impervious areas will be directed into SPEL Stormsacks (over each storm pit) for primary treatment and then into a Hydrosystem HS.400/1 for tertiary treatment prior to discharge into LPOD. • Rainwater collection off the pervious areas and RWT overflow will be directed into a SPEL Hydrosystem HS.400/1 for tertiary treatment prior to discharge into LPOD. Refer Appendix A – WSUD Response.

Indoor Environment Quality

Council ESD objectives:

- to achieve a healthy indoor environment quality for the wellbeing of building occupants.
- to provide a naturally comfortable indoor environment will lower the need for building services, such as artificial lighting, mechanical ventilation and cooling and heating devices.

Council Best Practice Standard

Criteria		Development Provision
Daylight Access – Non-Residential	To provide a high level of amenity and energy efficiency through design for natural light.	The retail areas are targeting a 2% DF to 33% of the nominated area. The office / retail areas are targeting a 2% DF to 40% of the nominated area.
Ventilation – Non-Residential	To provide fresh air and passive cooling opportunities.	Outdoor air rate for the commercial areas is to be 50% increased compared to AS 1668:2012. The ventilation system of the office areas will be designed to achieve, monitor and maintain CO2 concentrations below 800ppm This is to be included in the mechanical design and specifications.
Thermal Comfort – Non-Residential	To provide comfortable indoor spaces and reduce energy needed for heating and cooling.	The development is provided with a comprehensive shading strategy:  Recessed ground floor retail windows are shaded by the floor above.  Dan Murphy windows are sized to limit solar heat gains and winter heat loss.

Council Best Practice Standard

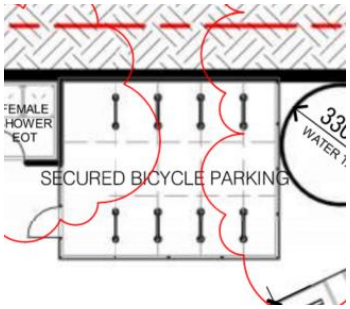
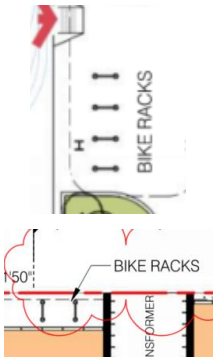
Criteria		Development Provision
		 Level 1 office / retail windows are shaded by vertical fins.
		None of the regular use areas of the commercial areas are provided with ceiling fans.
Air Quality – Non-Residential	All paints and adhesives meet the maximum total indoor pollutant emission limits.	All internally applied paints adhesives and sealants are to have a low or ultra-low VOC content in line with Green Star Buildings V1 Credit 13.
	All carpet meets the maximum total indoor pollutant emission limits.	All internally applied carpets are to have a low VOC content in line with Green Star Buildings V1 Credit 13.
	All engineered wood meets the maximum total indoor pollutant emission limits.	All internally applied engineered wood products are to have low formaldehyde levels in line with Green Star Buildings V1 Credit 13.

Transport

Council ESD objectives:

- To minimise car dependency.
- To ensure that the built environment is designed to promote the use of public transport, walking and cycling.

Council Best Practice Standard

Criteria		Development Provision	
Bicycle Parking – Non-Residential & Non-Residential Visitors	To encourage and recognise initiatives that facilitate cycling.	 In total 16 bicycle spaces are to be provided for employees. This represents a 50% increase over the planning scheme requirements for the office / retail.	 In total 12 bicycle spaces are to be provided for non-residential visitors. This represents a 50% increase over the planning scheme requirements for the office / retail.
End of Trip Facilities – Non-Residential	To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling.	NIL.	
Electric Vehicle Infrastructure	To minimise car dependency and to ensure that the built environment is designed to promote the use of public	No car parking spaces are specifically intended for electric vehicles.	

Council Best Practice Standard

Criteria		Development Provision
	transport, walking and cycling.	
Car Share Scheme	To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling.	NIL.
Motorbikes / Mopeds	To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling.	NIL.

Materials

ESD objectives:

- Use of low embodied energy materials.
- Encourage use of recycled and reusable materials in building construction and undertake adaptive reuse of buildings, where practical.

Council Best Practice Standard

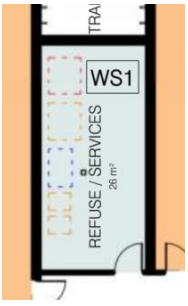
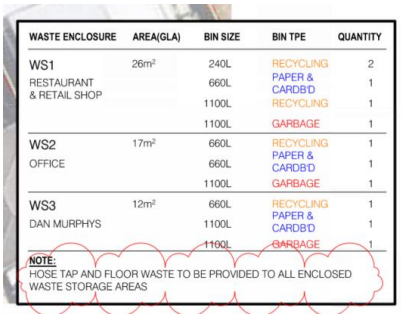
Criteria		Development Provision
Embodied Energy	Limited use of high embodied energy metals and materials, especially in a design with intended high churn (e.g. retail)	The design will seek to limit the use of high embodied energy metal finishes. At least 40% of coarse aggregate in the concrete is crushed slag aggregate or other alternative materials (measured by mass across all concrete mixes in the project).
Structural and Reinforcing Steel	Commitment to source structural and reinforcing steel from a responsible steel maker	The building's steel (by mass) is to be sourced from a Responsible Steel Maker with: • a currently valid and certified ISO 14001 Environmental Management System (EMS) in place; and • is a member of the World Steel Association's (WSA) Climate Action Programme (CAP)
Sustainable Timber	Commitment to source timber from sustainably managed source, with proof of audit trail.	Where timber is to be used, such timbers are to accord with the GBCA's 'Essential' criteria for forest certification. This may include FSC and / or PEFC Certification which are both internationally recognised schemes ensuring that timber is sourced from sustainable sources. Alternatively, recycled timber will be used.
PVC	Commitment to source best practice PVC products	Permanent formwork, pipes, flooring, blinds and cables in the project will seek to comply with the following: • Meet the GBCA's Best Practice Guidelines for PVC. or; • The supplier holds a valid ISO140001 certification.
Sustainable Products	Commitment to source products that meet the transparency and sustainability requirements	The project will incorporate products that meet the transparency and sustainability requirements where deemed appropriate. This includes the following: reused products, recycled content products, environmental product declarations, third party certified and stewardship programs.

Waste Management

Council ESD objectives:

- To ensure waste avoidance, reuse and recycling during the design, construction and operation stages of development.
- To ensure long term reusability of building materials.
- To meet Councils' requirement that all multi-unit developments must provide a Waste Management Plan in accordance with the *Guide to Best Practice for Waste Management in Multi-unit Developments 2010*, published by Sustainability Victoria.

Council Best Practice Standard

Criteria		Development Provision
Building Re-use	To ensure waste avoidance, reuse and recycling during the design.	None of the existing structure is re-used.
Construction and Demolition Waste	To reduce construction waste going to landfill	At least 80% of the waste generated during construction and demolition has been diverted from landfill.
Food & Garden Waste	To ensure waste avoidance, reuse and recycling during the operational life of the building.	Food and organic waste storage is provided in the shared bin room.
Convenience of Recycling	To ensure waste avoidance, reuse and recycling during the operational life of the building.	  Separate general, recycling, glass and organic waste storage will be provided at the shared bin rooms. Each tenancy is to be provided with separate general, recycling and food and organics waste bins. This requirement is to be included in the owners corporation rules or lease agreement.

Urban Ecology

Council ESD objectives:

- To protect and enhance biodiversity.
- To provide sustainable landscaping.
- To protect and manage all remnant indigenous plant communities.
- To encourage the planting of indigenous vegetation.

Council Best Practice Standard

Criteria		Development Provision
Communal Space	To encourage and recognise initiatives that facilitate interaction between building occupants.	NIL
Vegetation	To encourage and recognise the use of vegetation and landscaping within and around developments.	Landscaped area is to be located throughout the site. The total area of vegetation is 5% of the site area.
Green Walls / Roof	To encourage the appropriate use of green roofs, walls and facades to mitigate the impact of the urban heat island effect.	NIL
Food Production – Non-Residential	To encourage the production of fresh food on-site.	NIL
Heat Island Effect	To reduce the contribution of the project site to the 'heat island effect	Roof are to have a three year SRI of minimum 60. Unshaded hard-scaping elements are to have a three year SRI of minimum 40.

Appendices

Appendix A: WSUD Response

Site layout Plan

The following architectural mark-up illustrates the rainwater collection and impervious areas of the proposed development site.

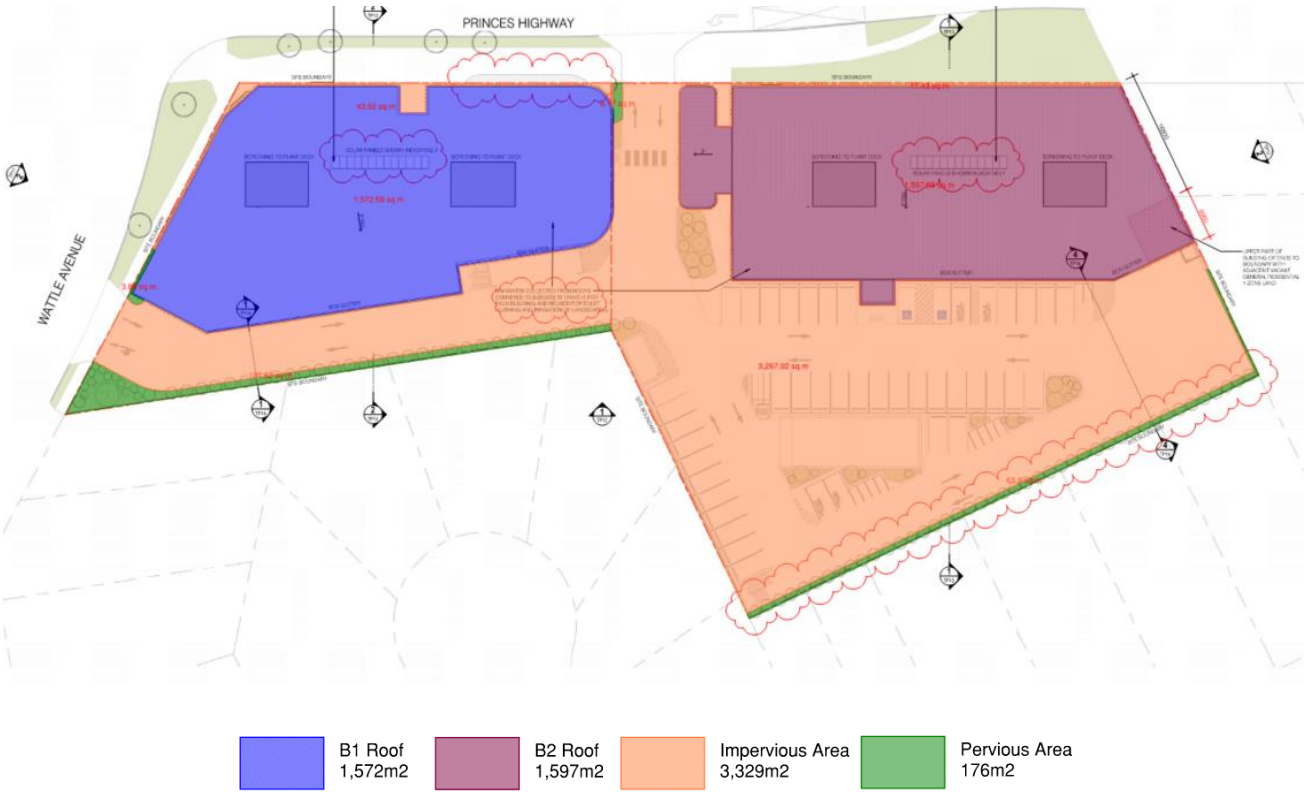


Figure 1 - Mark-up of water catchment and impervious areas

Weather File

Rainfall Station	Time Step
Melbourne Airport	6 minutes

Demand Inputs

The 2off. 20,000 litre rainwater tanks are to be connected to all WCs. The following demand assumptions have been included in the modelling:

	Toilet Flushing

Assumptions	• Occupant density per NCC Section D - Table D1.13:
	  o Retail: 3m^2/person
	  o Office: 10m^2/person
	• Total number of regular occupants: 304
	• 20L per day per occupant for toilet flushing.

Volume (kL/yr)	2,219kL

MUSIC Model

A compliant MUSIC model result is achieved with the following WSUD initiatives:

- Rainwater collection off building 1 and 2 roof areas is to be directed into 2off. 20,000 litre rainwater tanks connected to WC's and landscape irrigation.
- Rainwater collection off the impervious areas will be directed into SPEL Stormsacks (over each storm pit) for primary treatment and then into a Hydrosystem HS.400/1 for tertiary treatment prior to discharge into LPOD.
- Rainwater collection off the pervious areas and RWT overflow will be directed into a SPEL Hydrosystem HS.400/1 for tertiary treatment prior to discharge into LPOD.

The development demonstrates an improvement on the stormwater quality performance objectives as outlined in the Urban Stormwater Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999) for reduction in total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN) loads. Refer Figure 2 and Table 1 below for the stormwater quality performance objectives and results.

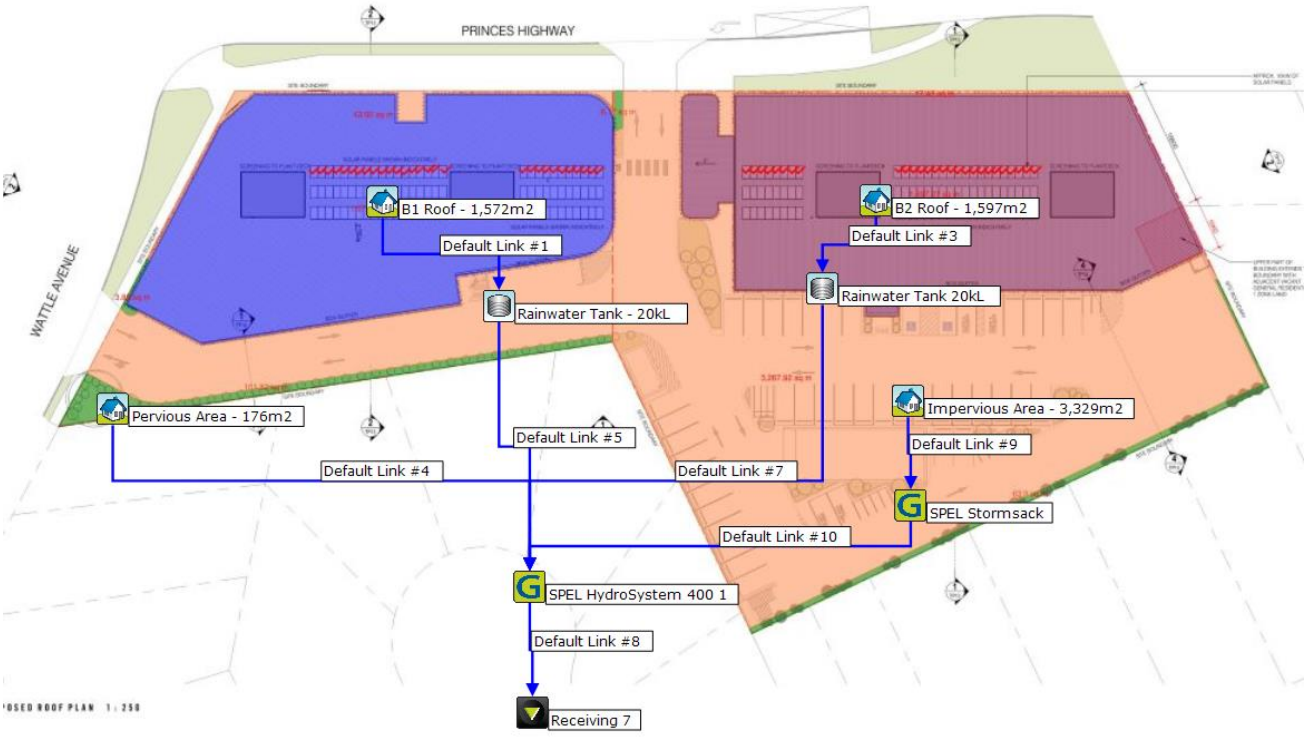


Figure 2 – MUSIC Model

	CSIRO performance objectives (reduction %)	22 Princess Highway (reduction %)
Suspended Solids	80%	91.52
Total Nitrogen	45%	71.29
Total Phosphorus	45%	76.23
Gross Pollutants	70%	100

Table 1 - Stormwater quality performance objectives

	Sources	Residual Load	% Reduction
Flow (ML/yr)	3.55	2.518	29.07
Total Suspended Solids (kg/yr)	417.3	35.39	91.52
Total Phosphorus (kg/yr)	0.8139	0.1935	76.23
Total Nitrogen (kg/yr)	7.809	2.242	71.29
Gross Pollutants (kg/yr)	127.8	0	100

Figure 3 – Screenshot of the MUSIC Treatment Train Effectiveness at the Receiving node.

WSUD Strategy

The development will include the provision of 2off. 20,000-litre rainwater tank. The rainwater tanks are to be connected to all WC's and landscape irrigation.

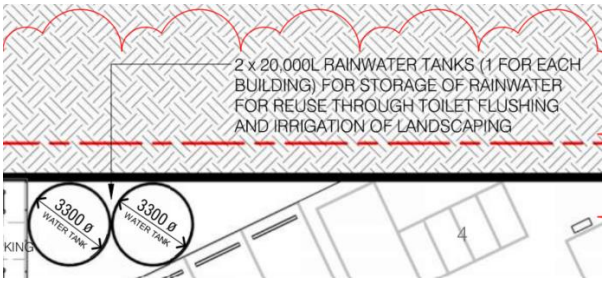


Figure 4 – Location Rainwater Tank

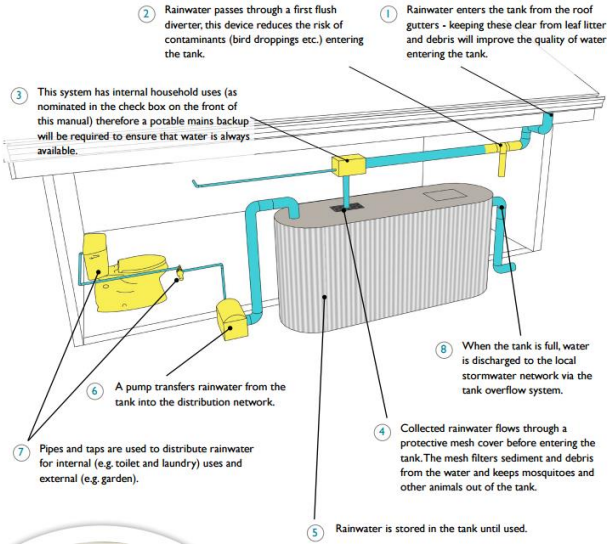


Figure 5 – Cross-section Tank
(City of Port Phillip)

Rainwater collection off the impervious areas will be directed into SPEL Stormsack over the storm pits for primary treatment.

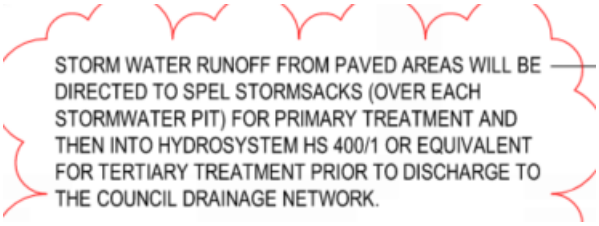


Figure 6 – Location SPEL Stormsack

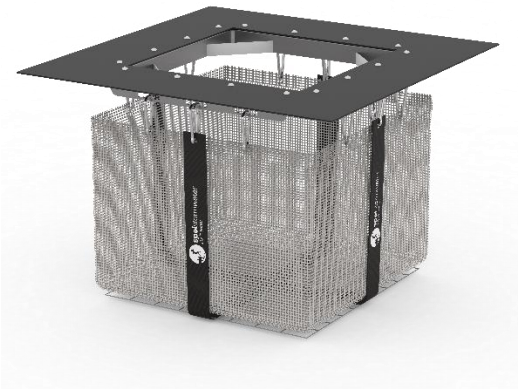


Figure 7 – SPEL Stormsack.

Overflow from the tanks and rainwater collection off the pervious and impervious areas will be directed into a SPEL Hydrosystem HS.400/1 for tertiary treatment prior to discharge into LPOD.

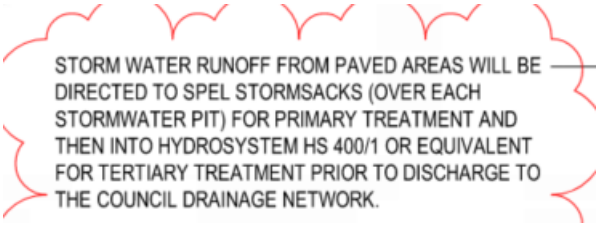


Figure 8 – Location SPEL Hydrosystem

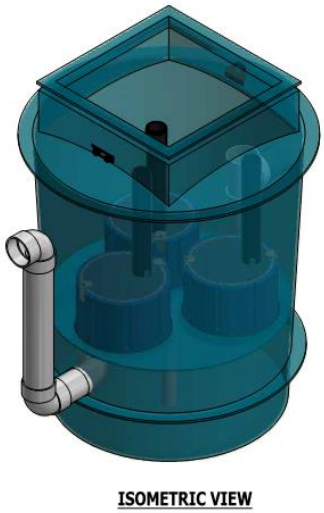


Figure 9 – SPEL Hydrosystem HS.400

Rainwater Reuse

Inputs

Catchment Area	3169	sqm
Number of Occupants	304	
Bin Washout	No	
Irrigation Area	793	sqm
Tank Capacity	40,000	Litre

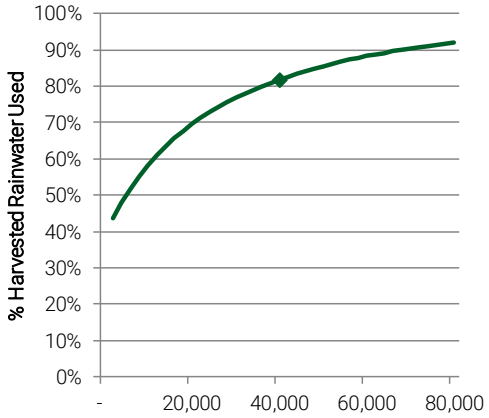
Outputs

% Served by Rainwater	32.5%	
% Harvested Rainwater Used	81.7%	
Total Potable Water Saved	809,840	Litre

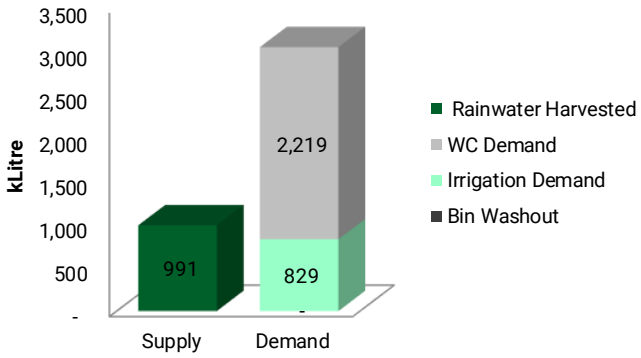
Rainwater Balance (Monthly Averages)

Month	Rainwater Harvested (L)	Irrigation Demand (L)	WC Demand (L)	Bin Washout (L)
Jan	66,288	122,692	188,480	0
Feb	77,134	111,143	170,240	0
Mar	70,065	57,013	188,480	0
Apr	81,622	54,579	182,400	0
May	79,071	56,317	188,480	0
Jun	84,943	25,663	182,400	0
Jul	66,665	26,147	188,480	0
Aug	86,359	26,147	188,480	0
Sep	89,472	75,015	182,400	0
Oct	88,368	76,431	188,480	0
Nov	115,718	74,544	182,400	0
Dec	85,198	123,641	188,480	0
Total	990,901	829,333	2,219,200	0
Equivalent STORM tool				

Tank Sizing



Supply-Demand



Site Management Statement

Prevention of litter, sediments and pollution entering the stormwater system in the construction phase is to be addressed through introduction of the following initiatives:

- Buffer strips to pervert stormwater runoff.
- Gravel sausage filters at stormwater inlets to prevent silt, mud or any other site contaminant from entering the stormwater system.
- Silt fences under grates at surface entry inlets to prevent sediment from entering the stormwater system.
- Temporary rumble grids to vibrate mud and dirt off vehicles prior to leaving the site.
- The site is to be kept clean from any loose rubbish or rubble.
- Introduction of offsite construction for building elements where deemed appropriate.

The builder is to include these initiatives in the construction management plan and address these during site induction of relevant contractors.

Maintenance Program

The following maintenance requirements are to be programmed to ensure the rainwater tank operates effectively:

Item	Description	Maintenance Interval
Gutters and downpipes	Eave and box gutters are to be inspected and cleaned to prevent large debris from being washed into rainwater tank.	3 monthly
First flush system (as applicable)	Inspect and clean excess sediment from diverter chamber to prevent blockages.	3 monthly
Tank contents	Siphon the tank to inspect contents. If sludge is present, a plumber will be required to drain tank contents and clean the tank.	2 to 3 years
Tank structure	Inspect tank externally for leaks	Yearly
Pump system	Inspect pump wiring, plumbing and check for smooth operation.	6 monthly
Plumbing	Plumbing and fixtures connected to the rainwater tank is to be inspected for leaks.	Yearly

The following maintenance requirements are to be programmed to ensure the SPEL Hydrosystem and SPEL Stormsacks operates effectively:

Item	Description	Maintenance Interval
SPEL Hydrosystem + Stormsacks	Visual inspection for silt and pollutant accumulation.	Every 6 months (or earlier as deemed necessary)
Silt Removal	Silt removal as required using conventional vacuum suction equipment.	Every 6 months (or earlier as deemed necessary)
Filters	Filter inserts are easily interchangeable and are to be replaced.	As deemed necessary

Appendix B: Part J1.5 Façade Calculator

J1.5 Façade Calculator

Address	18-22 Princes Hwy, Werribee
Climate Zone	6
Building Classification	Class 5
Level	1

	North	East	South	West	Internal
Façade area (m2)	277.8	106.8	252.0	78.2	57.6

Number of Rows 12

		Dimensions			Shading (m)	
Window No.	Orientation	Height (m)	Width (m)	Area (m2)	P	H
North Windows	North	3.75	21.3	79.875	0	0
South Windows	South	3.75	35.5	133.125	0	0
West Windows	West	3.75	7.1	26.625	0	0
Internal to Lobby	Internal	3.75	8.7	32.625	0	0

RESULTS

Method 1	U-Value	SHGC	Min. Wall R-values
North	4.48	0.45	1
East	7.50	0.87	1.4
South	2.89	0.25	1
West	3.94	0.38	1
Internal	2.77		1

	U-Value	SHGC
Method 2	3.95	0.35

Appendix C: Renewable Energy

Inputs Solar PV

Peak Wattage of System	10.0	kWp
Azimuth	310	degrees
Inclination	10	degrees

Outputs Solar PV

Electricity Produced per Year	13,126	kWh
No. Panels Required	25	
Total Roof Area Required	53	sqm
Annual Carbon Savings	14,701	kg CO2

Economic Output

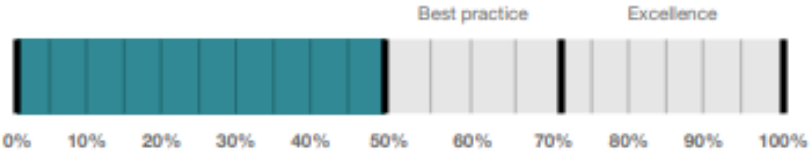
Cost of System	15,000	$
Annual Savings	2,625	$
Simple Payback	6	Years

Appendix D: BESS Assessment

This BESS report outlines the sustainable design commitments of the proposed development at 18 Princes Hwy Werribee Victoria 3030. 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 Wyndham 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

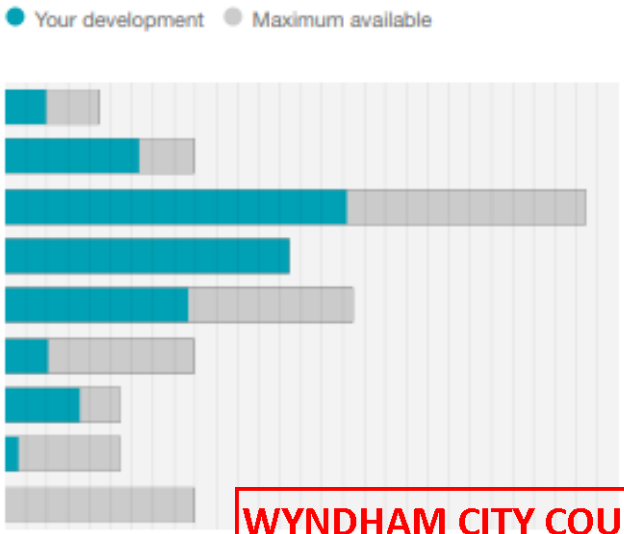


53%

Project details

Address	18 Princes Hwy Werribee Victoria 3030
Project no	A2E02193-R1
BESS Version	BESS-7
Site type	Non-residential development
Account	info@giw.com.au
Application no.	
Site area	6,684.00 m²
Building floor area	4,557.00 m²
Date	09 August 2023
Software version	1.8.0-B.401

Performance by category



Category	Weight	Score	Pass
Management	5%	45%	-
Water	9%	71%	✓
Energy	28%	59%	✓
Stormwater	14%	100%	✓
IEQ	17%	53%	✓
Transport	9%	23%	-
Waste	6%	66%	-
Urban Ecology	6%	12%	-
Innovation	9%	0%	-

Buildings

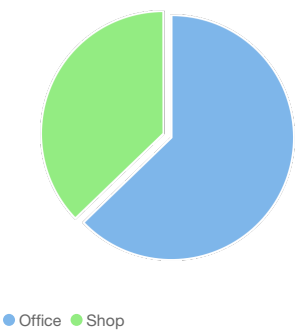
Name	Height	Footprint	% of total footprint
Building 1	2	2,054 m²	42%
Building 2	2	2,763 m²	57%

Dwellings & Non Res Spaces

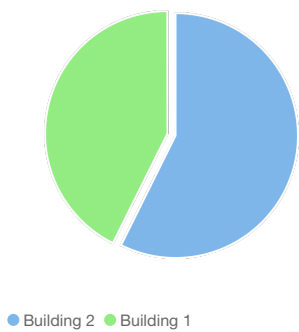
Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Office B2	1	1,423 m²	Building 2	31%
Office B1	1	1,439 m²	Building 1	31%
Total	**2**	**2,862 m²**	**62%**	
Shop				
Dan Murphys	1	1,252 m²	Building 2	27%
GYG	1	229 m²	Building 1	5%
Shop	1	214 m²	Building 1	4%
Total	**3**	**1,695 m²**	**37%**	

Building Type composition



Building composition



Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies		-

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 3.1	Carpark with natural ventilation or CO monitoring system		-
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		-
Waste 2.1	Location of food and garden waste facilities		-
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 3.1	Details of either the fully natural carpark ventilation or CO monitoring system proposed		-
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%

45%

1.1 Pre-Application Meeting	0%
2.3 Thermal Performance Modelling - Non-Residential	31%
3.2 Metering - Non-Residential	100%
3.3 Metering - Common Areas	100%
4.1 Building Users Guide	100%

Water Overall contribution 9.0%

Minimum required 50% **71%** ✔ **Pass**

1.1 Potable Water Use Reduction	60%
3.1 Water Efficient Landscaping	100%
4.1 Building Systems Water Use Reduction	100%

Energy Overall contribution 27.5%

	Minimum required 50%	59%	Pass
1.1 Thermal Performance Rating - Non-Residential		12%	
2.1 Greenhouse Gas Emissions		100%	
2.2 Peak Demand		0%	
2.3 Electricity Consumption		100%	
2.4 Gas Consumption		N/A	Scoped Out
No gas connection in use			
2.6 Electrification		100%	
3.1 Carpark Ventilation		100%	
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		0%	Disabled
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%	53%	Pass
1.4 Daylight Access - Non-Residential		37%	Achieved
2.3 Ventilation - Non-Residential		54%	Achieved
3.4 Thermal comfort - Shading - Non-Residential		87%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
4.1 Air Quality - Non-Residential		100%	

Transport Overall contribution 9.0%

23%

1.4 Bicycle Parking - Non-Residential	62%
1.5 Bicycle Parking - Non-Residential Visitor	62%
1.6 End of Trip Facilities - Non-Residential	0% ⊘ Disabled
	Credit 1.4 must be complete first.
2.1 Electric Vehicle Infrastructure	0%
2.2 Car Share Scheme	0%
2.3 Motorbikes / Mopeds	0%

Waste Overall contribution 5.5%

66%

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

Urban Ecology Overall contribution 5.5%

12%

1.1 Communal Spaces	0%
2.1 Vegetation	25%
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 2%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 37.5% 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		31%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	No	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Office	No	
Shop	No	
3.2 Metering - Non-Residential		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	
3.3 Metering - Common Areas		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	
4.1 Building Users Guide		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	Yes	

Water Overall contribution 6% 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	Scope out
Bath: All	Scope out
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 5 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals: All	>= 5 Star WELS rating
Washing Machine Water Efficiency: All	Scope out
Which non-potable water source is the dwelling/space connected to?:	
GYG Shop Office B1	B1 Tank
Dan Murphys Office B2	B2 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 Tanks	
What is the total roof area connected to the rainwater tank?:	
B1 Tank	1,572 m²
B2 Tank	1,597 m²
Tank Size:	
B1 Tank	20,000 Litres
B2 Tank	20,000 Litres
Irrigation area connected to tank:	
B1 Tank	120 m²
B2 Tank	120 m²
Is connected irrigation area a water efficient garden?:	
B1 Tank	Yes
B2 Tank	Yes

Other external water demand connected to tank?:	
B1 Tank	-
B2 Tank	-

1.1 Potable Water Use Reduction	60%
Score Contribution	This credit contributes 71.4% 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	6460 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	4436 kL
Output	Proposed (including rainwater and recycled water use)
Project	2989 kL
Output	% Reduction in Potable Water Consumption
Project	53 %
Output	% of connected demand met by rainwater
Project	94 %
Output	How often does the tank overflow?
Project	Often
Output	Opportunity for additional rainwater connection
Project	785 kL

3.1 Water Efficient Landscaping	100%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

4.1 Building Systems Water Use Reduction	100%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems?
Question	Criteria Achieved ?
Project	Yes

Energy

Overall contribution 16% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	No
Non-Residential Building Energy Profiles	
Heating, Cooling & Comfort Ventilation - Electricity Reference fabric & services: All	10,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services: All	10,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & services: All	10,000 kWh
Heating - Wood - reference fabric and services: All	-
Heating - Wood - proposed fabric and reference services: All	-
Heating - Wood - proposed fabric and services: All	-
Hot Water - Electricity - Reference: All	10,000 kWh
Hot Water - Electricity - Proposed: All	10,000 kWh
Lighting - Reference: All	10,000 kWh
Lighting - Proposed: All	10,000 kWh
Peak Thermal Cooling Load - Reference: All	-
Peak Thermal Cooling Load - Proposed: All	-
Solar Photovoltaic systems	
System Size (lesser of inverter and panel capacity):	
PV 1	5.0 kW peak
PV 2	5.0 kW peak
Orientation (which way is the system facing)?:	
PV 1	North
PV 2	North
Inclination (angle from horizontal):	
PV 1	10.0 Angle (degrees)
PV 2	10.0 Angle (degrees)
Which Building Class does this apply to?:	
PV 1	Office
PV 2	Shop

1.1 Thermal Performance Rating - Non-Residential 12%

Score Contribution	This credit contributes 36.4% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?

2.1 Greenhouse Gas Emissions		100%
Score Contribution	This credit contributes 9.1% towards the category score.	
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Office	26,450 kg CO2	
Shop	14,350 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Office	26,450 kg CO2	
Shop	14,350 kg CO2	
Output	% Reduction in GHG Emissions	
Office	0 %	
Shop	0 %	

2.2 Peak Demand		0%
Score Contribution	This credit contributes 4.5% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	

2.3 Electricity Consumption		100%
Score Contribution	This credit contributes 9.1% towards the category score.	
Criteria	What is the % reduction in annual electricity consumption against the benchmark?	
Output	Reference	
Office	25,931 kWh	
Shop	14,069 kWh	
Output	Proposed	
Office	25,931 kWh	
Shop	14,069 kWh	
Output	Improvement	
Office	0 %	
Shop	0 %	

2.4 Gas Consumption		N/A ◈ Scoped Out
This credit was scoped out	No gas connection in use	

2.6 Electrification		100%
Score Contribution	This credit contributes 9.1% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	

3.1 Carpark Ventilation		100%
Score Contribution	This credit contributes 9.1% 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	Yes	

3.2 Hot Water		100%
Score Contribution	This credit contributes 4.5% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?	
Output	Reference	
Office	12,966 MJ	
Shop	7,034 MJ	
Output	Proposed	
Office	12,966 MJ	
Shop	7,034 MJ	
Output	Improvement	
Office	0 %	
Shop	0 %	

3.7 Internal Lighting - Non-Residential		100%
Score Contribution	This credit contributes 9.1% 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 J6.2a of the NCC 2019 Vol 1?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	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 4.5% 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	6,059 kWh	
Shop	6,059 kWh	
Output	% of Building's Energy	
Office	15 %	
Shop	28 %	

4.4 Renewable Energy Systems - Other		0%	⊘ Disabled
This credit is disabled	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	29.1 % Reduction
Question	Total Suspended Solids (kg/year)
Project	91.5 % Reduction
Question	Total Phosphorus (kg/year)
Project	76.2 % Reduction
Question	Total Nitrogen (kg/year)
Project	71.3 % Reduction

IEQ Overall contribution 9% Minimum required 50%

1.4 Daylight Access - Non-Residential		37%	✔ 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	40 %		
Shop	33 %		
2.3 Ventilation - Non-Residential		54%	✔ 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	-		
Shop	-		
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	50 %		
Shop	50 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Office	800 ppm		
Shop	-		
3.4 Thermal comfort - Shading - Non-Residential		87%	
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	100 %		
Shop	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	-		
Shop	-		
4.1 Air Quality - Non-Residential		0%	
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
Shop	Yes

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

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

Transport Overall contribution 2%

1.4 Bicycle Parking - Non-Residential		62%	
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		
Shop	No		
Question	Bicycle Spaces Provided ?		
Office	16		
Shop	-		

1.5 Bicycle Parking - Non-Residential Visitor		62%	
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		
Shop	No		
Question	Bicycle Spaces Provided ?		
Office	8		
Shop	2		

1.6 End of Trip Facilities - Non-Residential		0%	⊘ Disabled
This credit is disabled	Credit 1.4 must be complete first.		

2.1 Electric Vehicle Infrastructure		0%
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	No	

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 4%

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		100%
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	Yes	
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 1%

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	-	
Shop	-	
Output	Minimum Common Space Required	
Office	139 m²	
Shop	109 m²	

2.1 Vegetation		25%
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	5 %	

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	-	
Shop	-	
Output	Min Food Production Area	
Office	58 m²	
Shop	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

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