Sustainability Management Plan

Neerim Road, Murrumbeena VIC

20/01/2026

Frater Consulting Services Pty Ltd

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a part of Sustainability Tech Partners Pty Ltd

Sustainability Management Plan (SMP)
Proposed Mixed-Use Development

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DOCUMENT VERSION

Version	Date	Changelog	Author	Review
0	24/07/24	Issued for client review (FCS 59710)	PS	-
1	31/07/24	Updated as per latest drawings and client's comments (FCS 59710)	PS	-
2	03/09/25	As per latest plans and clients' comments	WZ	-
3	17/10/25	As per latest plans and comments (FCS 66253)	WZ	DG
4	18/12/25	As per permit comments	WZ	-
5	20/01/26	As per permit comments – Revised	WZ	-

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Executive Summary – Council Conditions Response

a) Any changes required to ensure consistency with the endorsed plans.
Response: Actioned.

b) The size of all heat pump hot water systems (tanks and pumps) for residential and non-residential areas of the building (BESS Energy Hot Water).
Response: Refer to the Energy Efficiency section – Hot Water Heating (Page 9) for system specifications.

c) Adjustable clothes lines for each individual apartment clearly labelled to claim BESS Energy Credit 3.4 Clothes Drying or alternatively remove this credit.
Response: No Clothes Drying credit is claimed in the report or in BESS.

d) The correct angle of the solar panels detailed.
Response: Refer to the Energy Efficiency section – Solar PV System (Page 10). The roof is flat concrete and the PV system will be installed on adjustable frames. A conservative minimum 5° tilt has been nominated in BESS, with final angle to be optimised at installation.

e) Visitor bicycle parking on the subject site to claim BESS Credit Bicycle Parking (Residential Visitor and Non-Residential Visitor) or alternatively remove this credit.
Response: Refer to the Transport section – Bicycle Parking (Page 16).

f) EV charging infrastructure to claim BESS Transport Credit 2.1 Electric Vehicle Infrastructure.
Response: Refer to the BESS section – EV Charging (Page 16).

g) Lighting commitments as proposed to claim BESS Energy credits 3.6 and 3.7.
Response: Refer to the Energy Efficiency section – Lighting (Page 10). LED lighting is specified throughout; apartments do not exceed 4 W/m^2, and retail meets NCC 2019 LPD requirements.

h) IEQ air quality treatments to claim BESS IEQ Air Quality credit.
Response: Refer to the Building Materials section (Pages 17–18) for low-VOC paints, sealants, adhesives, engineered wood and carpets, all meeting BESS Air Quality requirements.

i) Tap and floor waste on balconies and terraces to claim BESS Urban Ecology Credit 2.4 Private Open Spaces.
Response: Refer to the Urban Ecology section – Private Open Space (Page 19)

j) Clarity on how the car park can be fully naturally ventilated to claim BESS Energy 3.1 Car Park Ventilation or alternatively remove this credit.
Response: Refer to the Energy Efficiency section – Car Park Ventilation (Page 10).

k) An NCC Façade Calculator report to claim BESS Energy Façade credit.
Response: The NCC Façade Calculator is included in Appendix F before the BESS report.

l) Evidence to demonstrate non-residential areas are effectively naturally ventilated to claim BESS IEQ 2.3 Ventilation credit.
Response: No natural ventilation credit is claimed for non-residential areas. These areas will be mechanically ventilated, providing 50% additional outdoor air above AS 1668, with CO_2 maintained below 800 ppm. Refer to the IEQ Ventilation section (Page 14).

m) Clarity whether washing machines are to be provided or confirm 'occupant to install' under BESS Water washing machine credit.
Response: "Occupant to install" is selected in BESS. Refer to BESS Report – Page 10 of 24.

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n) Provide further detail on how the BESS Water 4.1 Building Systems Water Use Reduction credit is to be achieved.
Response: Refer to the Water Efficiency section – Building System Water (Page 12). Further design details will be confirmed at a later stage in coordination with the services engineers.

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INTRODUCTION

Frater Consulting Services have been engaged to undertake a Sustainability Management Plan for the proposed mixed-use apartment development located at Neerim Road, Murrumbeena. This has been prepared to address the Glen Eira City Council's sustainability requirements Planning Policy Clauses 15.01-2L-02 *Environmentally Sustainable Development* and 53.23 *Significant Residential Development with Affordable Housing.*

Within Clause 15.01-2L-02, the City of Glen Eira has identified the following key categories to be addressed:

- Energy Performance;
- Water Resources;
- Stormwater Management;
- Indoor Environment Quality;
- Construction, Building & Waste Management;
- Building Materials;
- Transport; and
- Urban Ecology.

The site has been assessed using the BESS tool. BESS was developed by association of councils led by Merri-bek City Council. This tool assesses the energy and water efficiency, thermal comfort and overall environmental sustainability performance of new buildings or alterations. It was created to demonstrate how new development can meet sustainability requirements as part of a planning permit application for the participating council.

Each target area within the BESS tool generally receives a score of between 1% and 100%. A minimum score of 50% is required for the energy, water, stormwater and IEQ areas. An overall score of 50% represents 'Best Practice' while a score over 70% represent 'Excellence'. The result of the BESS assessment is included as Appendix F.

The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) tool which addresses stormwater quality considerations has been used for the development to ensure that stormwater management best practice requirements have been achieved. The result of the MUSIC assessment is included as Appendix A.

bess
Built Environment Sustainability Scorecard

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SITE DESCRIPTION

The proposed site is located at Neerim Road, Murrumbeena. The 2,658 m^2 site is clear from buildings. The eastern portion of the site is used as a car park and the western part is fenced off. It is located approximately 15kms south-east of the Melbourne CBD.

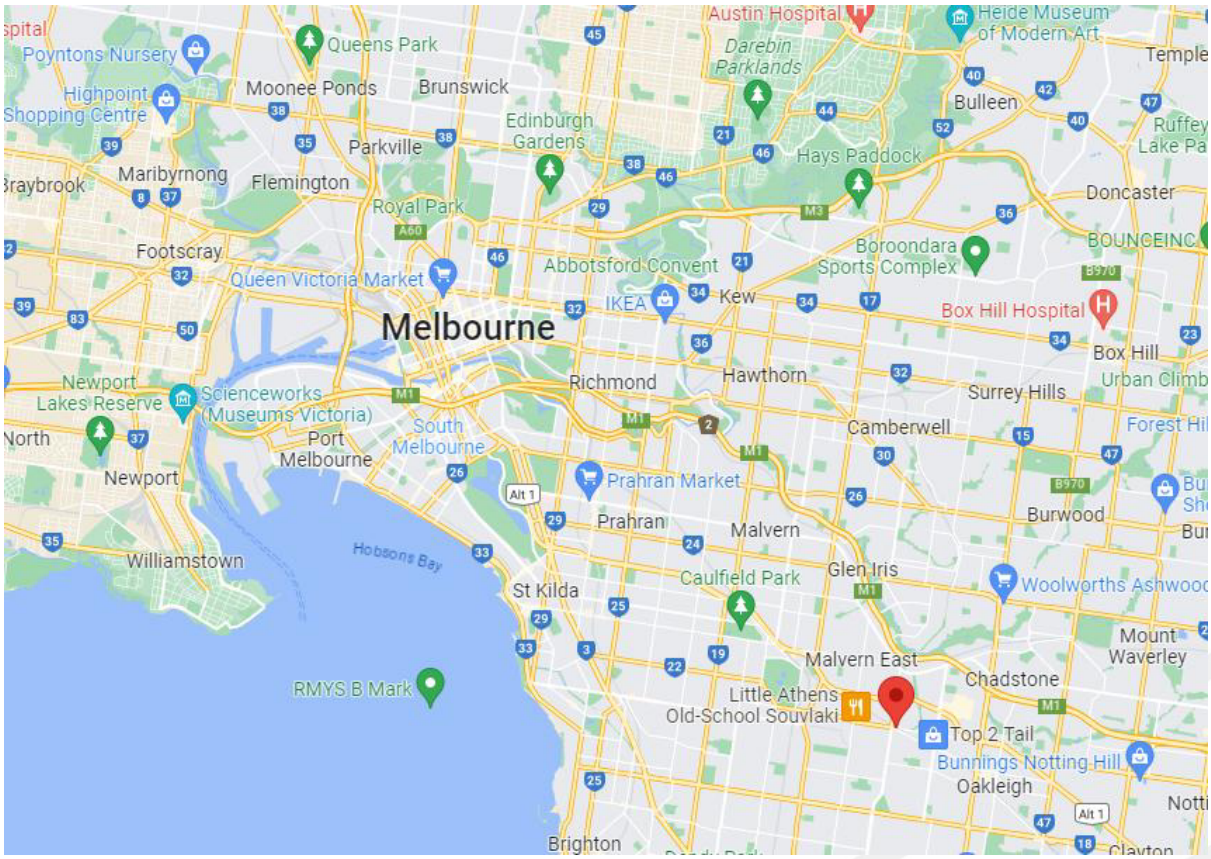

Figure 1: Location of the proposed development in Murrumbeena with relation to Melbourne CBD (Source: Google Maps)

PROPOSED DEVELOPMENT

The proposal consists of development of the site into an eight-storey mixed-use development with the following:

- Two basement levels with a car park comprising 86 car spaces, waste storage areas, bicycle spaces, and storage areas.
- A supermarket, three food & beverage units, and two retail units at ground floor level.
- A total of 144 apartment units from levels one to seven:
  - 29 Studios
  - 1-bedroom apartments x 88
  - 2-bedroom apartments x 27

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ENERGY EFFICIENCY

Energy and its key elements should be integrated into the design of the proposed development. These elements contribute to reducing greenhouse gas emissions by utilising energy efficient appliances, energy conservation measures and renewable energy.

Thermal Performance - Apartments

Energy ratings will be completed at the building approval stage. A commitment is made that all apartments will meet the energy efficiency requirements of minimum 7.0-Star average energy rating with no individual apartment scoring less than 6.0-Stars. This will be achieved using appropriate insulation level in all external walls, roof and floors as well as the use of thermally efficient glazing windows throughout thermal envelope. Preliminary energy modelling has been included in the report in Appendix B

Energy Efficiency - Retail

Prior to the building construction stage of the project, a section J (NCC 2019) DTS assessment will occur with the following commitments:

- 10% improvement on floor and ceiling insulation level requirement from NCC 2019;
- Wall and glazing performance to be in line with DTS requirements - Preliminary façade calculator in Appendix F
- Heating/cooling system to be chosen within one star of the best available product in the range at the time of purchase or COP/EER 85% or better than most efficient equivalent capacity unit available if no star rating is available; and
- Water heating system to be chosen within one star of the best available product in the range at the time of purchase or 85% or better than most efficient equivalent capacity unit available if no star rating is available.

Alternatively, prior to the building construction stage of the project, energy modelling will occur with the aim of exceeding requirement of NCC 2019, using an NCC JV3 modelling process. This will be achieved through the use of high-performance building fabric and glazing, low energy lighting and building services. **The reference building model will include the minimum improvement committed above for floor and ceiling.** This method will allow for flexibility in for glazing performance. Results in BESS using JV3 approach would yield a slightly lower score under BESS Energy 1.1 however our BESS assessment has been prepared to ensure that energy section and overall compliance is maintained.

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Heating and Cooling Systems

To reduce the energy consumption heating and cooling will be provided by energy efficient air conditioners chosen **with 4-Star rating minimum (cooling and heating) or within one star of the best available product in the range at the time of purchase whichever is greater**.

COP/EER 85% or better than the most efficient equivalent capacity unit available if no star rating is available.

Please note that 4 Star energy rating has been entered in BESS as an average however actual star rating will depends on the product range.

All-Electric Development

No gas connection will be provided for the development. This will reduce reliance on fossil fuels and will be in line with local and state targets of decarbonisation.

Hot Water Heating

Hot water will be provided with efficient electric heat pump system.

Please refer to the below for details on the system.

12 Equipment and Pump Schedule

12.1 Hot Water Systems

Plant No.	Location	Unit Type	No. Of	Delivery Temp	Recovery
HWP-1	Roof Plant Areas	Rheem 16kW Air to Water Heat Pump	2 No.	65°C @ 50°C Rise	300 L/hour recovery
		RT1000	4 No.	Max Storage 90°C	N/A
	Rheem or approved equal with hot water circulating pumpset.				
Plant No.	**Location**	**Unit Type**	**No. Of**	**Delivery Temp**	**Recovery**
HWP-2	Roof Plant Areas	Rheem 16kW Air to Water Heat Pump	2 No.	65°C @ 50°C Rise	300 L/hour recovery
		RT1000	4 No.	Max Storage 90°C	N/A
	Rheem or approved equal with hot water circulating pumpset.				

Figure 2: Hot water heat pump spec

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Lighting

Apartment

Energy consumption from artificial lighting within the apartments will be reduced by using LED lighting. A lighting level of 4W/m^2 will not be exceeded in the apartments. The use of light internal colours will improve daylight penetration thus reducing the need for artificial lighting.

Retail

The maximum illumination power density (W/m^2) of the development will meet NCC 2019 requirements in by the use of LED throughout the development.

Lighting Sensors

Common areas will be controlled using occupancy sensor and/or daylight sensors. Ventilation in these areas will be controlled using timers and other sensors.

Car Park Ventilation

Car park ventilation will be designed to best practice energy efficiency with the exhaust fans installed with CO sensors which will only operate when required.

Please note further details will be provided on the engineer's drawings.

Solar PV System

A total 23kW solar photovoltaic for renewable energy generation will be installed on the roof of the development. This will off-set a portion of greenhouse gas emissions and energy use for the project (lighting, pumps etc.).

The building incorporates a flat concrete roof, with the proposed PV system to be mounted on adjustable framing. A 5-degree minimum tilt angle has been adopted within the BESS assessment as a conservative design assumption. The final orientation and tilt will be optimised by the solar installer during the installation phase.

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WATER EFFICIENCY & STORMWATER MANAGEMENT

Water saving-use and reuse and its key elements should be integrated into the design of the proposed development. These principles contribute to reducing the water demand in addition to promoting water reuse. Stormwater management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring natural systems are protected and enhanced whilst promoting on-site retention and aims to reduce runoff or peak flows.

Water Efficient Fittings

The development will include efficient fittings and fixtures to reduce the volume of mains water used in the development. The following WELS star ratings will be specified;

- Toilets – 4 Star;
- Taps (bathroom and kitchen) – 5 Star;
- Showerhead – 4 Star with aeration device (6.0-7.5L/min); and
- Dishwasher – 5 Star.

Rainwater Collection & Use

Rainwater tank

Rainwater runoff from the roof area of the development will be collected and stored in rainwater tanks[1] with a total effective capacity of 20,000L.

Rainwater collected will be used for toilet flushing in all apartments. These initiatives will reduce significantly the stormwater impacts of the development and help achieve compliance with the MUSIC tool (See Appendix A).

Stormwater Treatment – Atlan® Filter 850mm Vault

The entire site area runoff will be diverted to an Atlan Filter Vault. This will treat the stormwater runoff from the site by filtering coarse and fine pollutants before releasing the outflows to the legal point of discharge on site. Please refer to Appendix C for more information on this treatment device.

This treatment measures along with rainwater retention will significantly reduce stormwater pollution from the site. Please refer to Appendix C for the MUSIC assessment by ATLAN (formerly referred to as SPEL)

Stormwater Proprietary Product Maintenance

A maintenance contract with the manufacturer or suitably qualified company will be required to be implemented to ensure that the proprietary products installed for stormwater treatment are regularly maintained.

[1] Please note that any stormwater detention volume requirement for the site will be in addition to the proposed rainwater retention and that the proposed tank will not be directly topped up by mains water.

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Water Efficient Appliances

All appliances provided in the development as part of the base building work (e.g. dishwasher) will be chosen within one WELS star of the best available.

Water Efficient Landscaping

Native or drought-tolerant plants will be implemented for the landscaped areas on site. Use of water or irrigation will not be required after an initial period when plants are getting established. If irrigation is required, it will be connected to rainwater tanks.

Building System Water

Potable (mains) water consumption from fire testing and building systems (HVAC) will be **reduced by at least 80%** by collecting and recycling. This requirement will need to be clearly integrated into the services' design. Building air-conditioning will not use potable water for cooling.

Please note that further details for the water system will be confirmed at a later stage with the engineers.

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INDOOR ENVIRONMENT QUALITY

Indoor Environment Quality and its key elements should be integrated into the design of the proposed development. These elements play a significant role in the health, wellbeing and satisfaction of the development occupants. Facilitating a good (IEQ) design provides a naturally comfortable indoor environment and less dependence on building services such as, artificial lighting, mechanical ventilation and heating and cooling device.

Volatile Organic Compounds

All paints, adhesives and sealants and flooring will have low VOC content. Alternatively, products will be selected with no VOCs. Paints such as eColour, or equivalent should be considered. Please refer to Appendix D for VOC limits.

Formaldehyde Minimisation

All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better. Alternatively, products will be specified with no Formaldehyde. Products such as ecological panel – 100% post-consumer recycled wood (or similar) will be considered for use within the development. Please refer to Appendix D for formaldehyde limits.

Daylight Levels

Apartment

Daylight penetration will be enhanced with the use of light internal colours to improve daylight reflection. All the living/kitchen areas have limited room depth (<8m from windows) with dual aspect allowing for good daylight access. All bedrooms will have access to a window so no bedroom will rely on borrowed daylight. Ceiling height throughout the habitable rooms will be minimum 2.7m and glazing provided will be **60% Visual Light Transmittance** minimum.

Please refer to Appendix F for residential daylight inputs.

Retail

Daylight inputs through windows/openings for the retail spaces will be enhanced with the use of light internal colours, allowing better internal reflection of daylight. Retails will have large glazing to allow for good daylight penetration. The retail spaces will achieve good daylight amenities (beyond compliance with the SDAPP guidelines).

Please refer to Appendix E for daylight hand calculation showing compliance with best practice requirements.

Thermal Comfort - Shading

Horizontal projection fixed shading (north only) will be provided on north, east and west facades of the habitable rooms. Vertical shades will be also provided to east, south-east, west and south-west windows for low-level sun shading. This will help to reduce glare and control solar gains, improving the thermal comfort of the office spaces. A conservative input of 50% has been claimed in BESS shading IEQ 3.4.

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Natural Ventilation

Apartment

All kitchens will have a separate dedicated exhaust fan (range-hood) which will be directly exhausted out of the building.

External windows in the apartments will generally include an operable component to allow for natural ventilation. This will help introduce fresh air to the residents and, when weather conditions are suitable, reduce the need for mechanical cooling.

Mechanical Ventilation – CO^2 Concentration Monitoring

Retail

All retail spaces will be provided with O/A fans which will commit to provide 50% increase on O/A provision from AS1668.

O/A will be provided in the retail spaces to ensure that CO2 concentration in the rooms remains below 800ppm.

Acoustic Insulation

The development will be designed to meet the NCC requirement for acoustic insulation to minimise noise levels and noise transfer within and between buildings.

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CONSTRUCTION, BUILDING & WASTE MANAGEMENT

Building Management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring efficient and effective on-going building performance. Waste management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring minimal waste is transported to landfill by means of disposal, recycling and on-site waste storage and/or collection methods.

Metering / Monitoring

Each apartment and major communal areas of the apartments will be separately metered for potable water and energy. Effective metering ensures that residents/tenants are responsible for their consumption, and they can reduce their consumption.

Construction Waste Management

A waste management plan will be introduced to all on-site staff at a site orientation session to ensure that the waste generated on site is minimised and disposed of correctly. A minimum 80% of all construction and demolition waste generated on site will be reused or recycled.

Construction Environmental Management

The builder will identify environmental risks related to construction and include management strategies such as maintaining effective erosion and sediment control measures during construction and operation and ensure that appropriate staging of earthworks (e.g. avoid bare earthworks in high-risk areas of the site during dominant rainfall period).

Building Users Guide

A Building User's Guide (BUG) will be developed and made available to all owners and occupants. Generally the guide should include the following information:

- A description of operational and maintenance requirements of the heat and cooling systems and hot water systems for efficient and safe use of these systems;
- A description of operational and maintenance requirements of building initiatives to reduce energy and water use;
- A description of operational and maintenance requirements of water sensitive urban design features;
- A description of operational and maintenance requirements of waste management strategy; and
- Transport facilities including public transport information.

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Operational Waste

Apartments will be provided with a central waste storage room in the basement. Tenancies will be provided with one waste room per community (total of two waste storage rooms) on ground floor. Waste storage rooms will have facilities for general waste, recycling, food waste, glass waste as well as hard rubbish.

Please refer to the Waste Management Plan for further details.

Figure 3: Examples of kitchen receptacles for general waste and recycling.

TRANSPORT

Bicycle Parking

Residents will be able to securely park their bicycle in dedicated bicycle storage areas provided in the basement car park. This will be protected from weather and theft. A total of 144 bike spaces will be provided in the development for residents, and 4 spaces will be provided in the development for non-residential (3 for residents and 1 for visitor). (Total 148)

Electric Vehicle Car Charging Infrastructure

Electrical distribution boards dedicated to serving electric vehicle charging in a carpark will be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in 25% of car parking spaces. With the designated electric vehicle charging infrastructure, the development will support adequate EV charging facility for residents upon demand. **This is exceeding BESS Transport 2.1 Electric Vehicle requirement.**

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BUILDING MATERIALS

Materials selection should be integrated into the design of the proposed development. The criteria for appropriate materials used are based on economic and environmental cost.

Timber

All timber used in the development will be Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) certified, or recycled / reused.

Flooring

The use of timber flooring will be preferred for all living areas and bedrooms. Wherever possible, flooring will be selected from products/materials certified under any of the following:

- Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS);
- Global GreenTag - https://www.globalgreentag.com/; and/or
- Good Environmental Choice (GECA).

Alternatively, flooring must be durable, include some eco-preferred content, be modular and/or come from a manufacturer with a product stewardship program and ISO 14001certification.

Joinery

Wherever possible, joinery will be manufactured from materials/products certified under any of the following:

- Global GreenTag - https://www.globalgreentag.com/; and/or
- Good Environmental Choice (GECA).

Steel

Wherever possible, steel for the development will be sourced from a Responsible Steel Maker[2]. Reinforcing steel for the project will be manufactured using energy reducing processes commonly used by large manufacturers such as Bluescope or OneSteel.

[2] A Responsible Steel Maker must have facilities with a currently valid and certified ISO 14001 Environmental Management System (EMS) in place, and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).

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URBAN ECOLOGY

In highly urbanised environments, such as metropolitan Melbourne, it is important to recognise the importance of maintaining and increasing the health of our urban ecosystems to improve living conditions not only for the fauna but also ourselves. We can improve our urban ecosystem through the incorporation of vegetation through landscaping for both new and existing developments.

Re-use of Land

The development is a redevelopment of an existing established site, therefore increased density in an established urban area will reduce urban sprawl.

Landscaping

Landscaped areas and planter boxes will be provided around the site. It will provide the occupants with a pleasant surrounding environment. The design will incorporate a mix of native species to help maintain local biodiversity.

Private Open Space

Each apartment will have a tap and floor waste in its private open space or on their balcony.

Insulant ODP

All thermal insulation used in the development will not contain any ozone-depleting substances and will not use any in its manufacturing.

Communal Spaces

Communal spaces with a total area of 355m^2 will be provided for the residential component. This provides a space wherein people can gather for social exchange.

This exceeds Urban Ecology 1.1 minimum space requirement: 1m^2 for each of the first 50 occupants * Additional 0.5m^2 for each occupant between 51 and 250 * Additional 0.25m^2 for each occupant above 251.

Food Production

59m^2 area will be used for food production in the development.

Green walls and roof

Planting and vegetation has been incorporated into select facades and the rooftop of the development, helping to mitigate the urban heat island effect while enhancing thermal comfort through natural cooling. Please refer to the landscape plan.

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IMPLEMENTATION & MONITORING

The proposed development will meet the best practice requirement of the City of Glen Eira through the different initiatives describe in this report such as thermally efficient building envelope, efficient air conditioning and hot water system and sustainable materials. An appropriate implementation and monitoring of the initiatives outlined within this report will be required.

Implementation of the ESD initiatives outlined in this report requires the following processes:

- Full integration with architectural plans and specifications
- Full integration with building services design drawings and specifications
- Endorsement of the ESD Report with town planning drawings
- ESD initiatives to be included in plans and specifications for building approval

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APPENDIX A – WSUD REPORT / MUSIC ASSESSMENT

New development must comply with the best practice performance targets for suspended solids, total phosphorous and total nitrogen, as set out in the Urban Stormwater Best Practice Environmental Management Guidelines, Victoria Stormwater Committee 1999. Currently, these water quality performance targets require:

- Suspended Solids - 80% retention of typical urban annual load.
- Total Nitrogen - 45% retention of typical urban annual load.
- Total Phosphorus - 45% retention of typical urban annual load.
- Litter - 70% reduction of typical urban annual load.

The MUSIC tool, an industry accepted tool, was used to assess the development and ensure that the best practice targets described above are met. A minimum compliance score of 100% is required to achieve for the development.

Site Delineation

For the purpose of the assessment, the development has been delineated into the following surface types:

- Site area of 2,658m^2;
- Roof area runoff of 1,183m^2 which will be diverted into rainwater tank(s);
- Permeable area of 453m^2 comprised of landscaped area and pervious areas (not covered by roof or above basement); and
- The entire site area including the overflow from the tank will be designed to divert to an ATLAN® Filter Vault.

Stormwater initiatives

Rainwater Tank
(Rainwater tank for toilet flushing)

The roof area (as described above) will be diverted to 20,000L rainwater tanks on basement level. The rainwater collected will be used for toilet flushing.

Atlan® Filter Vault

The entire including the overflow from the tank site will be diverted to a ATLAN® Filter Vault. This will treat the stormwater runoff from the site by filtering coarse and fine pollutants before releasing the outflows to the legal point of discharge on site. Please refer to Appendix B for more information on the ATLAN® Filter Vault.

It should be noted that permeable areas have been maximised in the development which will reduce the overall stormwater outflows from the site. Vegetated areas are provided in the proposed development reducing the heat island effect and improving the local habitat.

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Stormwater Results

The initiatives and areas described above have been applied to the MUSIC tool by ATLAN and the proposed development has achieved the following results:

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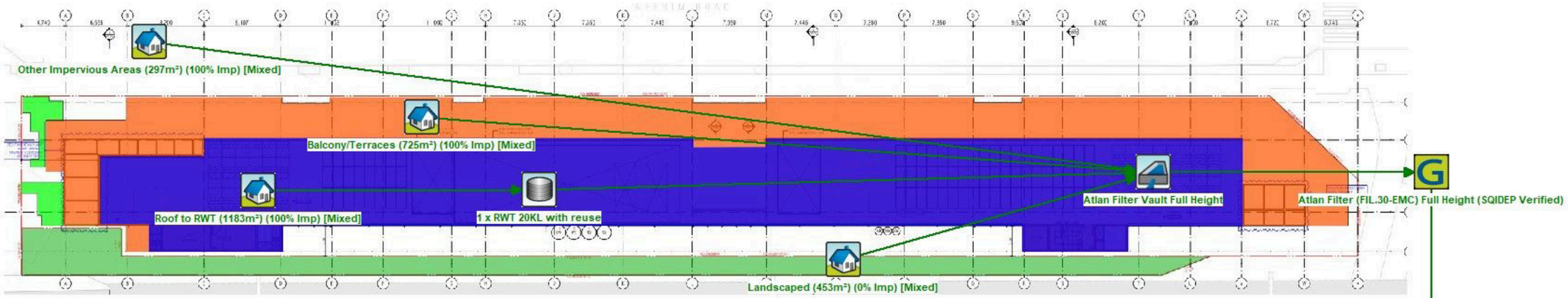


Treatment Train Effectiveness - LPOD

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.51	0.863	42.8
Total Suspended Solids (kg/yr)	105	19.4	81.5
Total Phosphorus (kg/yr)	0.321	0.072	77.6
Total Nitrogen (kg/yr)	3.54	0.971	72.6
Gross Pollutants (kg/yr)	55.8	0	100

TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm

ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

City of GLEN EIRA
GLEN EIRA CITY COUNCIL

REV	DATE	BY	DESCRIPTION	CHK
1	14-10-2025	OT		

Frater Consulting Services Pty Ltd

Drawn	Date
Check	Date
Verified	Date
Approved	Date

Atlan STORMWATER

PROJECT
467-473 Neerim Rd, Murrumbeena

TITLE
MUSIC Modelling

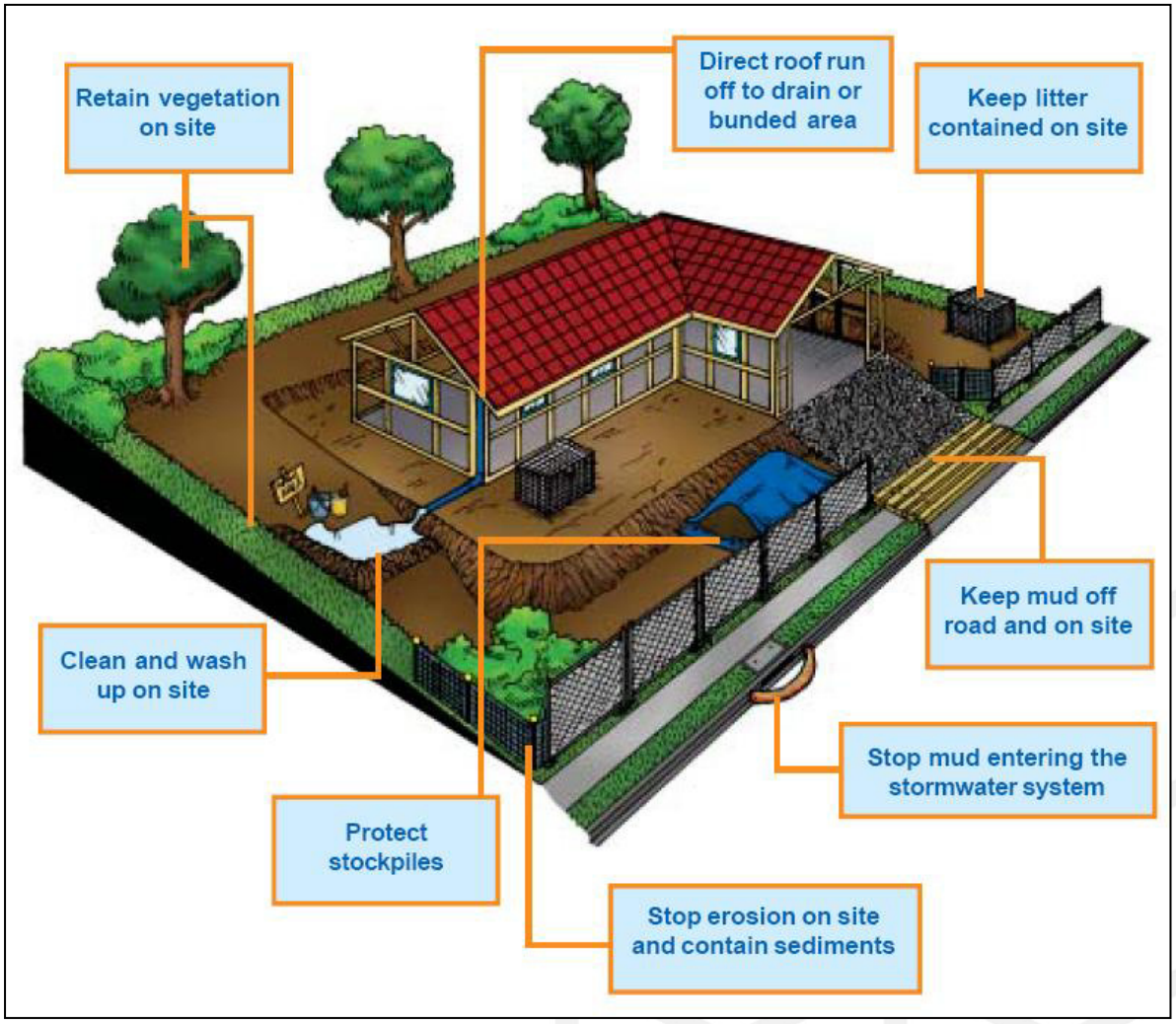
SCALE	SIZE	SHEET	REV
N.T.S	A3	1 OF 1	1

CUSTOMER CODE : 25-84934 | DWG No.

C:\Users\Robin Radoc\OneDrive\Documents\Vault\Designs\ATLAN\03 - PROJECTS\YEAR 2023\NOVEMBER 2023\2357399 - STAGE 2 GREENLINK\2357399.C.01.10\2357399.C.01.10.GA (PIT 8 BIO).idw

Stormwater Management at Construction Site

To manage stormwater management in the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will mean ensuring buffer strips are in place, sediment traps are installed, and the site will be kept clean from any loose rubbish. The builder will follow the process outlined in "Keeping Our Stormwater Clean – A Builder's Guide" by Melbourne Water.



Copies of "Keeping Our Stormwater Clean – A Builder's Guide" booklet can be downloaded from the following website.

https://www.clearwatervic.com.au/resource-library/guidelines-and-strategy/keeping-our-stormwater-clean-a-builders-guide.php

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APPENDIX B – SAMPLE ENERGY RATING

A preliminary energy rating has been prepared for 35 Unit Apartment to determine how the dwellings will achieve the 7.0 Star average commitments.

The results are as follows:

Apartment No.	Star Rating	Energy use (MJ/m²)	Heating Energy (MJ/m²)	Cooling Energy (MJ/m²)	NCFA (m²)
101	7.8	63.2	48.5	14.7	25.7
102	7.9	59.1	46.0	13.1	27.6
103	7.1	88.8	78.4	10.4	40.5
105	7.5	74.3	60.4	13.9	46.2
106	7.6	71.0	57.4	13.5	37.0
108	7.9	62.5	47.7	14.8	37.0
111	8.2	53.3	43.4	9.9	61.5
122	6.9	93.5	77.3	16.2	60.3
201	6.2	118.6	109.1	9.6	51.0
202	7.9	62.7	48.1	14.6	27.6
224	7.9	61.2	49.5	11.7	40.5
301	6.6	103.7	89.4	14.3	51.0
325	6.6	105.3	89.8	15.5	60.3
408	7.0	89.4	75.3	14.1	46.2
412	7.4	76.7	63.2	13.5	37.0
414	7.8	65.1	55.8	9.3	61.5
501	6.4	112.3	97.3	15.1	51.0
502	6.9	93.7	77.5	16.1	46.9
511	7.0	90.3	81.6	8.7	46.2
512	7.2	84.4	75.4	9.0	46.2
519	7.3	80.4	68.6	11.8	27.6
522	6.5	106.4	94.1	12.3	60.3
605	7.3	80.6	70.1	10.6	70.9
607	7.5	74.6	66.7	8.0	61.0
608	7.3	79.8	72.3	7.6	61.0
609	7.2	85.3	78.6	6.7	61.0
613	7.3	80.1	71.7	8.4	46.6

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614	7.8	64.0	57.3	6.8	70.9
615	6.0	124.6	107.8	16.8	50.5
701	6.3	114.8	98.4	16.4	46.1
702	7.0	90.0	76.7	13.3	70.9
705	6.9	91.4	77.9	13.5	70.9
706	6.9	92.8	79.2	13.5	70.9
709	6.7	100.9	85.0	15.9	46.6
710	6.9	92.9	79.7	13.2	70.9

This result has been achieved with the following building fabric:

CEILINGS

- R2.5 insulation to the 200mm suspended concrete slab exposed to the outside air

FLOORS

- R1.0 insulation to the suspended concrete slab floor above Arcade West in Apt.103.
- R1.0 insulation to the suspended concrete slab floor in Apt.201 only

WALLS

- All external walls to have R2.5 insulation
- All internal walls to neighbours (2P2) to have R1.5 insulation to each side of party wall;
- All internal walls to neighbours (2P1) to have R1.5 insulation;
- No internal walls insulation applied throughout to have R2.5 insulation as follows:

- Note: insulation cannot be compressed to fit cavity; cavity must accommodate specified thickness of insulation given below

WINDOWS

- All remaining windows and glazed doors are to be aluminium framed double-glazed clear glass with U- value & SHGC as listed below

WINDOW TYPE	U-VALUE	SHGC
Awning, Hinged Door	3.6	0.54
Sliding Door	3.6	0.47

Note:

- Total System 'U-Value' - The glass windows and/or glass doors supplied must equal and/or can be less than the 'U-Values" listed in this report.

- Total System 'SHGC' - The glass windows and/or glass doors supplied should not be greatly reduced or increased (a 5% tolerance is acceptable) than the Total System 'SHGC' Values listed in this report.

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Apartment No.	Star Rating	Ceiling Insulation	Wall Insulation	Floor Insulation	Glazing
					Type A
101	7.8	-	R2.5	-	All Glazing
102	7.9	-	R2.5	-	All Glazing
103	7.1	-	R2.5	R1.0	All Glazing
105	7.5	-	R2.5	-	All Glazing
106	7.6	-	R2.5	-	All Glazing
108	7.9	-	R2.5	-	All Glazing
111	8.2	-	R2.5	-	All Glazing
122	6.9	-	R2.5	-	All Glazing
201	6.2	-	R2.5	R1.5	All Glazing
202	7.9	-	R2.5	-	All Glazing
224	7.9	-	R2.5	-	All Glazing
301	6.6	-	R2.5	-	All Glazing
325	6.6	-	R2.5	-	All Glazing
408	7.0	-	R2.5	-	All Glazing
412	7.4	-	R2.5	-	All Glazing
414	7.8	-	R2.5	-	All Glazing
501	6.4	-	R2.5	-	All Glazing
502	6.9	-	R2.5	-	All Glazing
511	7.0	-	R2.5	-	All Glazing
512	7.2	-	R2.5	-	All Glazing
519	7.3	R2.5	R2.5	-	All Glazing
522	6.5	R2.5	R2.5	-	All Glazing
605	7.3	-	R2.5	-	All Glazing
607	7.5	R2.5	R2.5	-	All Glazing
608	7.3	R2.5	R2.5	-	All Glazing
609	7.2	R2.5	R2.5	-	All Glazing
613	7.3	-	R2.5	-	All Glazing
614	7.8	-	R2.5	-	All Glazing
615	6.0	R2.5	R2.5	-	All Glazing
701	6.3	R2.5	R2.5	-	All Glazing
702	7.0	R2.5	R2.5	-	All Glazing
705	6.9	R2.5	R2.5	-	All Glazing
706	6.9	R2.5	R2.5	-	All Glazing
709	6.7	R2.5	R2.5	-	All Glazing
710	6.9	R2.5	R2.5	-	All Glazing
Average	**7.2**				

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AIR LEAKAGE

- All doors, windows, exhaust fans and openings will be sealed so as to not allow for air infiltration into the apartments.

LIGHTS

- All recessed down light fittings that have openings allowing air to pass through to a ceiling cavity (e.g. Adjustable down lights) shall be fitted with a cover that allows for ceiling insulation to closely enclose the sides and top of the down light.

ASSUMPTIONS

- Floors were assumed to be 200mm concrete slab
- Windows and glazed doors were measured off from the plans. Any changes in the dimensions shall constitute re-rating

Please note that the building fabric described above may change as the full building rating is prepared and plans are updated for building approval, however a minimum energy rating performance average of 7.0 Stars will be maintained as a minimum for the development.

Please note that there is a large number of individual certificates provided for the development. Below only the summary certificate is provided. If needed, individual certificates can be issued upon request.

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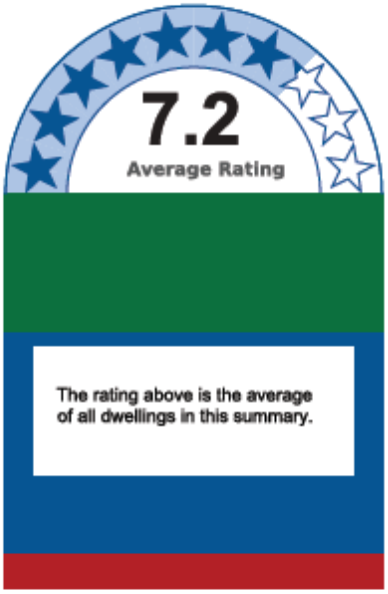
Nationwide House Energy Rating Scheme — Class 2 Summary
NatHERS Certificate No.

Generated on 02 Oct 2025 using Hero 4.1



Property

Address 467-473 NEERIM ROAD, MURRUMBEENA, VIC, 3163

Lot/DP

NatHERS climate zone 62 - Moorabbin Airport

Accredited assessor

Jacob Edwards
Frater Consulting Services
jacob@fraterconsultingservices.com.au
+61 386916928

Accreditation No. DMN/16/1718

Assessor Accrediting Organisation DMN

Verification

DRAFT PREVIEW ISSUE - NOT TO BE USED FOR CERTIFICATION

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m²)	Cooling load (MJ/m²)	Total load (MJ/m²)	Star rating
	101	48.5 (147)	14.7 (37)	63.2	7.8
	102	46.0 (147)	13.1 (37)	59.1	7.9
	103	78.4 (147)	10.4 (37)	88.8	7.1
	105	60.4 (147)	13.9 (37)	74.3	7.5

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply

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NatHERS Certificate 7.2 Average Star Rating as of 02 Oct 2025

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m²)	Cooling load (MJ/m²)	Total load (MJ/m²)	Star rating
	106	57.4 (147)	13.5 (37)	71.0	7.6
	108	47.7 (147)	14.8 (37)	62.5	7.9
	111	43.4 (147)	9.9 (37)	53.3	8.2
	122	77.3 (147)	16.2 (37)	93.5	6.9
	201	109.1 (147)	9.6 (37)	118.6	6.2
	202	48.1 (147)	14.6 (37)	62.7	7.9
	224	49.5 (147)	11.7 (37)	61.2	7.9
	301	89.4 (147)	14.3 (37)	103.7	6.6
	325	89.8 (147)	15.5 (37)	105.3	6.6
	408	75.3 (147)	14.1 (37)	89.4	7.0
	412	63.2 (147)	13.5 (37)	76.7	7.4
	414	55.8 (147)	9.3 (37)	65.1	7.8
	501	97.3 (147)	15.1 (37)	112.3	6.4
	502	77.5 (147)	16.1 (37)	93.7	6.9
	511	81.6 (147)	8.7 (37)	90.3	7.0
	512	75.4 (147)	9.0 (37)	84.4	7.2
	519	68.6 (147)	11.8 (37)	80.4	7.3
	522	94.1 (147)	12.3 (37)	106.4	6.5
	605	70.1 (147)	10.6 (37)	80.6	7.3
	607	66.7 (147)	8.0 (37)	74.6	7.5
	608	72.3 (147)	7.6 (37)	79.8	7.3
	609	78.6 (147)	6.7 (37)	85.3	7.2
	613	71.7 (147)	8.4 (37)	80.1	7.3
	614	57.3 (147)	6.8 (37)	64.0	7.8
	615	107.8 (147)	16.8 (37)	124.6	6.0
	701	98.4 (147)	16.4 (37)	114.8	6.3
	702	76.7 (147)	13.3 (37)	90.0	7.0
	705	77.9 (147)	13.5 (37)	91.4	6.9
	706	79.2 (147)	13.5 (37)	92.8	6.9

Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments.
For more details see www.nathers.gov.au.

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NatHERS Certificate **7.2 Average Star Rating** as of 02 Oct 2025

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m²)	Cooling load (MJ/m²)	Total load (MJ/m²)	Star rating
	709	85.0 (147)	15.9 (37)	100.9	6.7
	710	79.7 (147)	13.2 (37)	92.9	6.9
Average	35x (Total)	73.0	12.4	85.4	7.2

Explanatory Notes

About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances, or energy production of solar panels. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

Accredited Assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO). AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content, input and creation of the NatHERS Certificate is by the assessor. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

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APPENDIX C – WSUD MAINTENANCE & INSTALLATION

Installation

Rainwater Tank(s)

The rainwater tank(s) will be installed in basement. Its manufacturer or material has not been nominated. It will be installed with a mesh insect cover over the inlet pipe to ensure the tank does not become a breeding ground for pests. Mesh needs to be installed over overflow pipes and if a manhole is present it needs to be properly sealed.

Please refer to the architectural drawings for the location of the rainwater tank.

Pumps

The pumps required either to divert the stormwater runoff to the rainwater tank or to distribute the collected water to the end uses (toilets) will be required to be installed as per the chosen manufacturer specifications.

Inspection Requirements

Rainwater Tanks

Inspections of roof areas and gutters leading to the tank should take place every 6 months. Rainwater in the tanks should be checked every 6 months for mosquito infestation.

The rainwater tank should be examined every 2 years for sludge build up.

Ensure the monitoring system (be it digital or a simple float system) is functioning properly by checking the water level in the rainwater tanks.

Pumps

The pumps required will be required to be routinely inspected by listening for the day-to day operation of the pumps. Unusual noise or no noise should be investigated. Inspection should occur as per the chosen manufacturer specifications.

Clean Out / Maintenance Procedure

Rainwater Tank, Roof and Gutters

Rainwater tanks will require the roof and gutters onsite to be maintained; gutters should be checked, maintained and cleaned every six months to avoid blockages from occurring. If a leaf blocking system is installed this can be completed annually.

Any trees onsite should be maintained every 6 months with branches overhanging the roof removed.

Water ponding in gutters should be avoided as this provides a breeding ground for mosquitos; tanks should also not become breeding grounds for mosquitoes. If mosquitoes are detected in the tank remedial steps need to occur to prevent breeding. If mosquitoes or other insects are found in rainwater tanks, the point of entry should be

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located and repaired. As well as preventing further access, this will prevent the escape of emerging adults. Gutters should be inspected to ensure they do not contain ponded water and be cleaned if necessary.

Please refer to https://www.health.vic.gov.au/sites/default/files/2022-11/Keeping-your-rainwater-tank-safe-from-mosquitos.pdf for more information on mosquito control.

Rainwater tanks should be checked by regular maintenance person every 3-6 months to ensure that connection to the building is maintained and there are no blockages.

A simple way to ensure the tank is operating as intended would be through the installation of a smart monitoring device (e.g. OneBox®). These systems allow users to operate tanks remotely from internet or smartphone, monitor and control the tanks in real time, allow automatic release of stored water prior to storm events, alert users if there is any blockage and view tank history and usage patterns.

Alternatively, onsite tank gauges can help those familiar with the tank know if the tank is not working correctly.

Pumps

Maintenance should occur as per the chosen manufacturer specifications. All strainers and filters should be cleaned every 6 months. Good quality pump should provide trouble free service for up to 10 years.

Commissioning

Rainwater Tank

All rainwater tanks should be washed or flushed out prior to use. All inlets and outlets should be correctly sealed to prevent insects entering. Connection to all toilets in the development should be tested (dye test or equivalent).

Please note if new roof coating or paint is to be installed then the first few run-offs after installation need to be discarded.

Pumps

Commissioning should occur as per the chosen manufacturer specifications.

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Summary

The following needs to occur onsite to ensure compliance with WSUD requirements and maintain operation of rainwater tank and connections onsite.

Task	When?	Requirement
Inspect Rainwater tanks	Every 6 months	• Check for any damage/compression • Mosquitoes' infestation
	Every 2 years	• Sludge Build up – if sludge build up occurs a vacuum tank needs to be called out to site.
Inspect roofs & gutters	Every 6 months	• Clean out of leaves / debris. • Remove any overhanging branches onsite.

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Atlan Filter

Cartridge filter for tertiary stormwater treatment

atlan.com.au

Atlan STORMWATER

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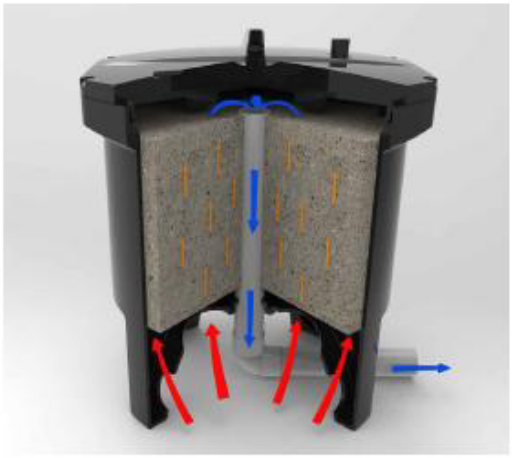

APPLICATIONS

- Car Parks & Shopping Centres
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance
- Airport Aprons & Tarmacs
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards

Atlan Filter is a cartridge filter system that incorporates an upflow treatment process that maximises surface treatment area. Flow through the filter cartridges utilises a self-regulating siphon which results in low maintenance and high performance stormwater treatment. Automatic backwash technology further lengthens the lifespan of the filter.

Hydraulic pressure forces water through the filter media resulting in a constant velocity throughout the filter area. This ensures consistent media contact time and treatment outcomes.

Optimised to suit your site specific water quality outcomes and local authority requirements, The Atlan Filter has no moving parts and uses a true siphon effect to ensure high-performance pollution removal. These devices maintain excellent removal efficiency whilst maintaining site surface yield.

FEATURES

The media cartridge provides a significantly greater surface contact area to footprint ratio than other filters.

With a flow rate of 3L/s per cartridge and underground installation, the Atlan Filter provides excellent removal efficiency whilst maintaining site surface yield.

- No moving parts, generating a true siphon effect
- Small footprint
- Inorganic filter media (doesn't leach nutrients)
- Can be deployed in various drainage structures such as manholes, OSD tanks, & vaults
- Contains no moving parts

Tested Treatment Efficiencies*

POLLUTANT	EFFICIENCY
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	74%
Total Nitrogen (TN)	59%

*Contact Atlan to confirm approved performance for the project LGA

Atlan Filter is SQIDEP approved after passing Stormwater Australia's rigorous testing and performance assessment process.

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BENEFITS

PROVEN SAND FILTER PERFORMANCE

The uniform size silica-sand filter media provides higher removal efficiencies than coarser types of media. Atlan Filter media is inorganic – it doesn't leach nitrogen and other nutrients.

Each Atlan Filter automatically backflushes under gravity. The backflush clears most sediment particles from out of the media and back into the vault floor, which allows the hydraulic conductivity from degrading throughout its service life. No moving parts are involved, which increases reliability. The Atlan Filter cartridge design life is in excess of 5 years.

HOW IT WORKS

The Atlan Filter has an upflow treatment process that maximises surface area. The innovative cartridge filter system provides excellent pollutant removal in a small footprint.

Hydraulic pressure forces water through the filter media, which discharges through the centre tube and out through the outlet collection manifold.

Upon completion of a treatment cycle, each cartridge backwashes and effectively dislodges particulates from the filtration layers. This reestablishes filter media porosity. The dislodged particles accumulate on the vault floor for easy removal during maintenance. Atlan Filter's design has no moving parts and generates a true siphon effect.

Atlan Filters are often installed downstream of nearby devices in a treatment train. For example, a Flowceptor Class 1 upstream greatly increases the life cycle interval of the Atlan Filter. These devices will remove larger gross pollutants, coarse sediments, total suspended solids and hydrocarbons - enabling the Atlan Filter to target fine particulate matter and nutrients.

FLEXIBILITY

Due to greater surface area and high flow capacity, combined with the modular cartridge design, the Atlan Filter systems can be deployed in a variety of structures including manholes, precast vaults, and cast-in-place structures.

Each system is optimised to suit your specific site and local authority requirements by qualified and experienced professionals.

SIZE SPECIFICATIONS

ATLAN FILTER	FULL HEIGHT FIL.30-EMC-M	HALF HEIGHT FIL.15-EMC-M
Total height	860mm	660mm
Diameter	740mm	740mm
Minimum head required	850mm	550mm
Treatment flow rate	3.0L/s	1.5 L/s
Height of inlet ports above vault floor	250mm	250mm
Filtered water collection pipe diameter	50mm	50mm

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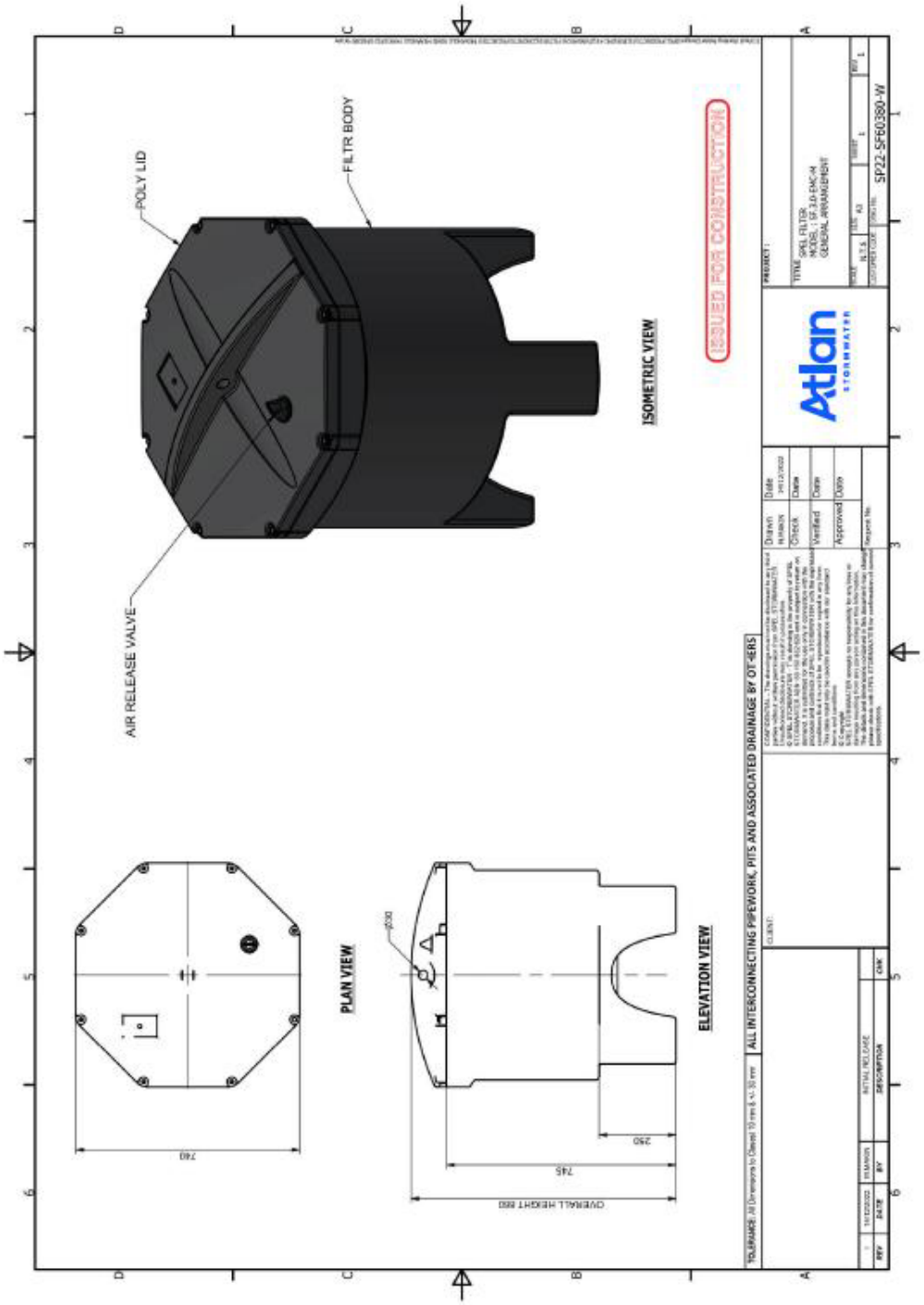
DRAWING - FULL HEIGHT



4 Atlan Filter

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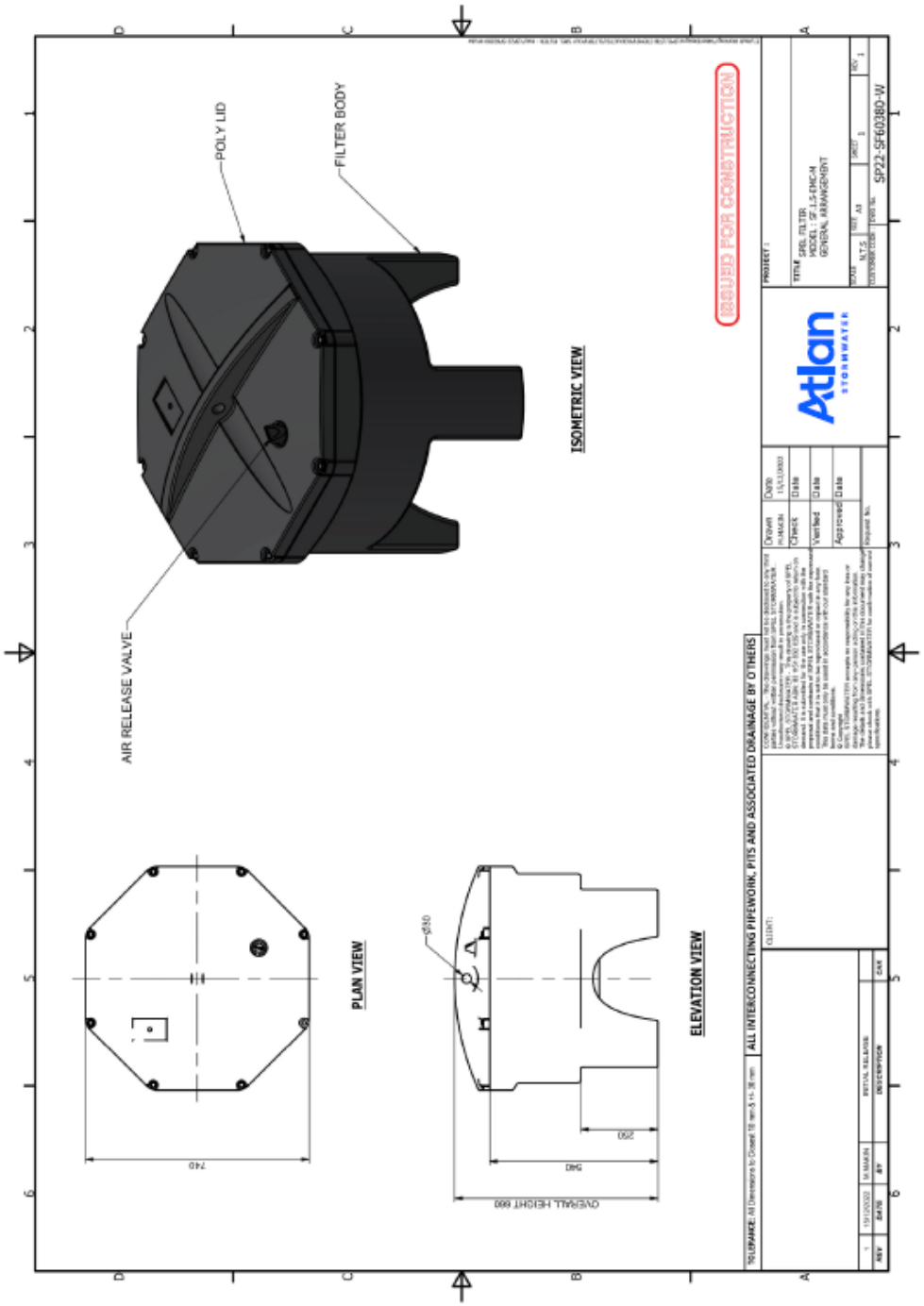
DRAWING - HALF HEIGHT



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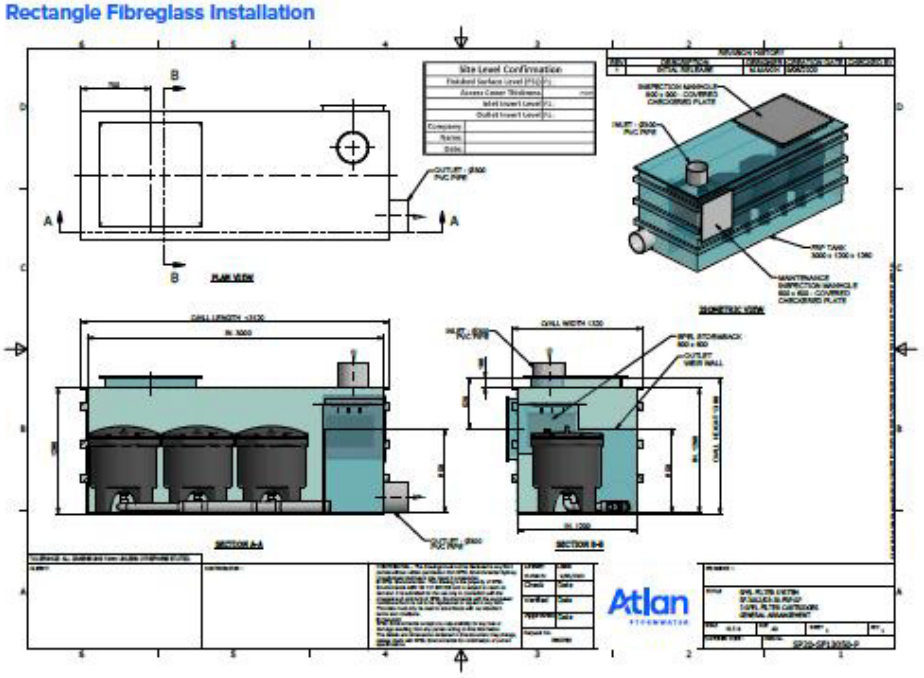
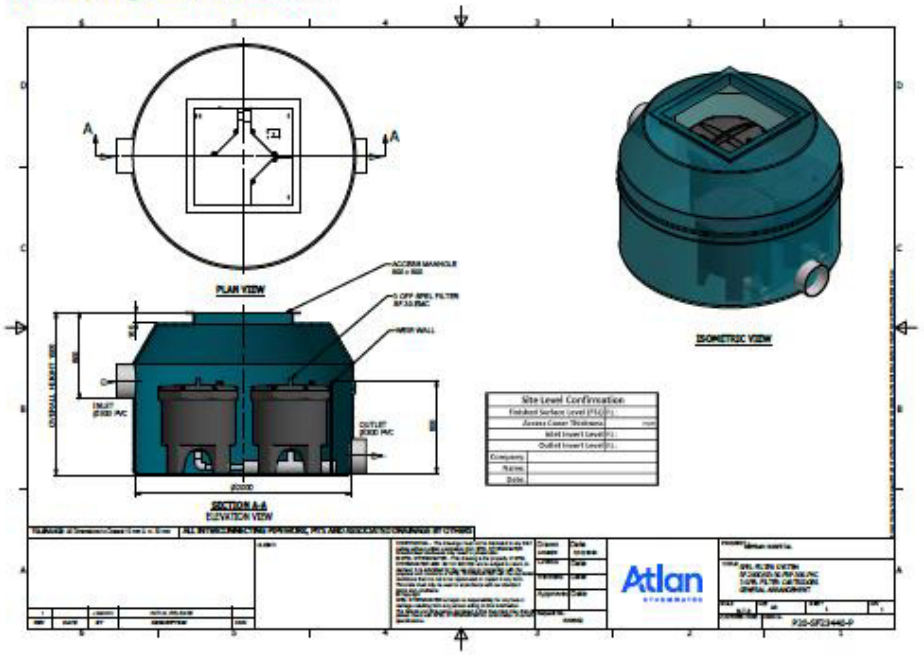
DRAWINGS

Rectangle Fibreglass Installation



Round Fibreglass Tank Installation



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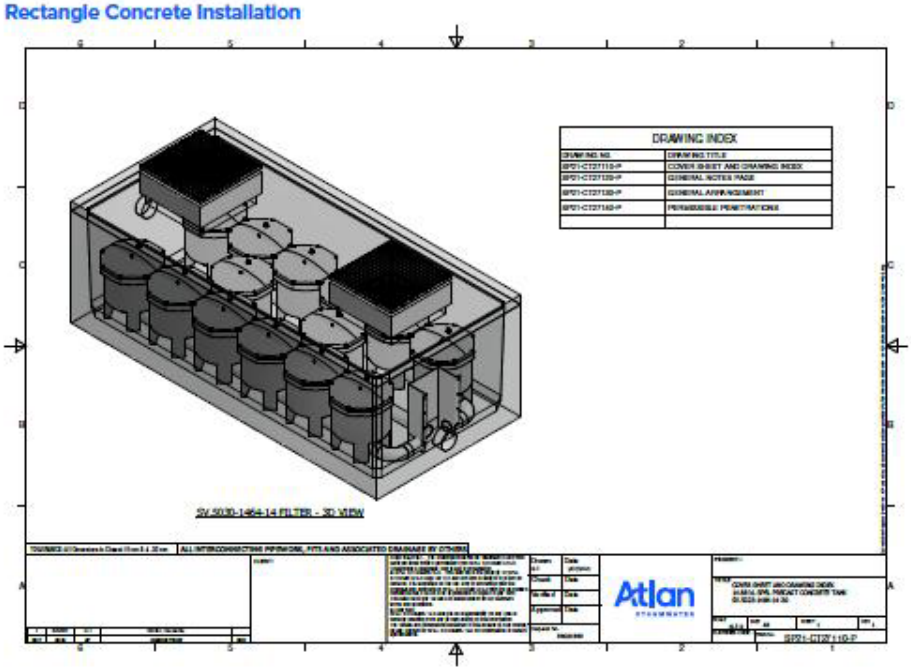
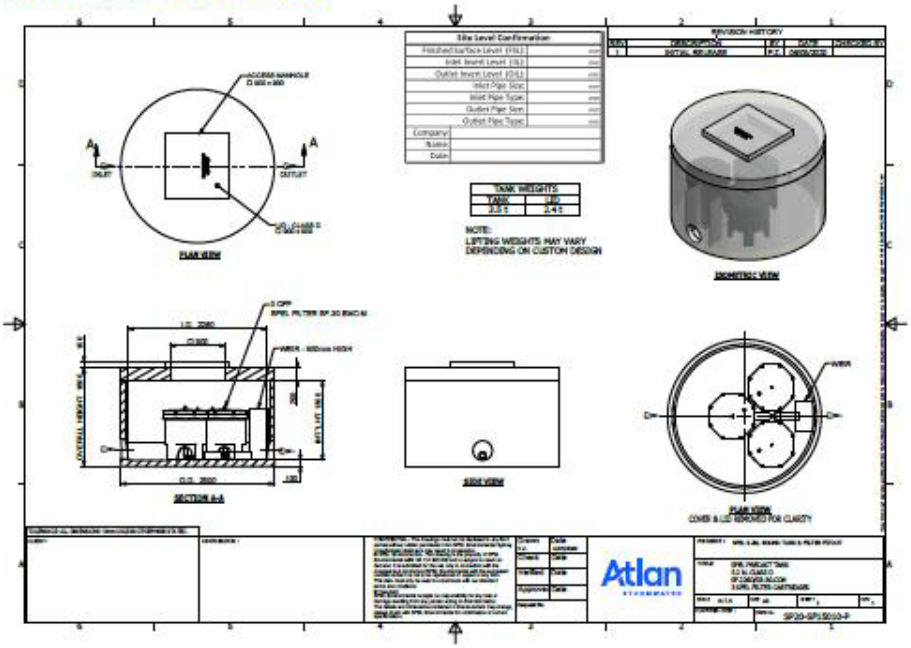
DRAWINGS

Rectangle Concrete Installation



Round Concrete Tank Installation



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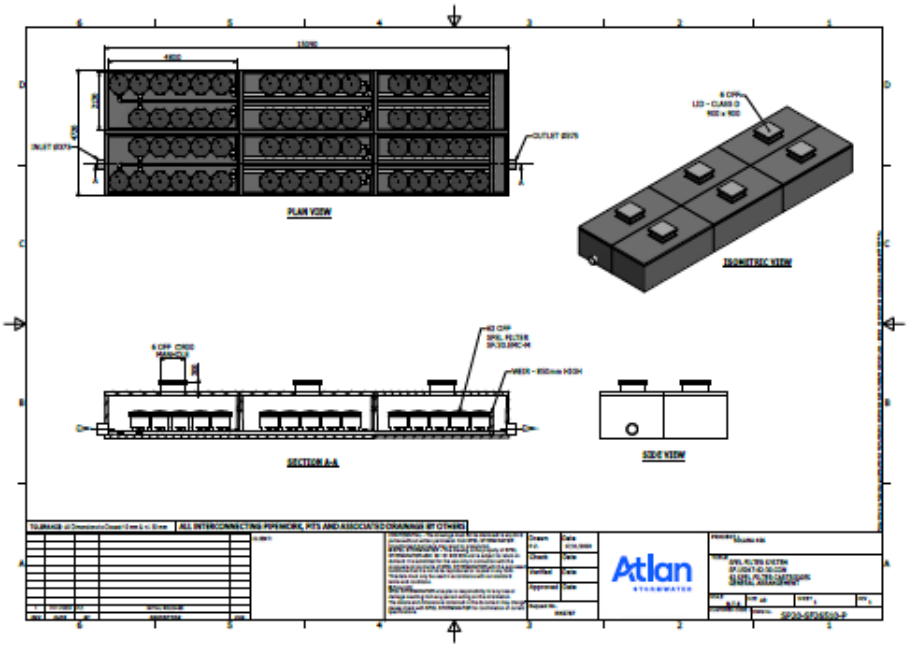
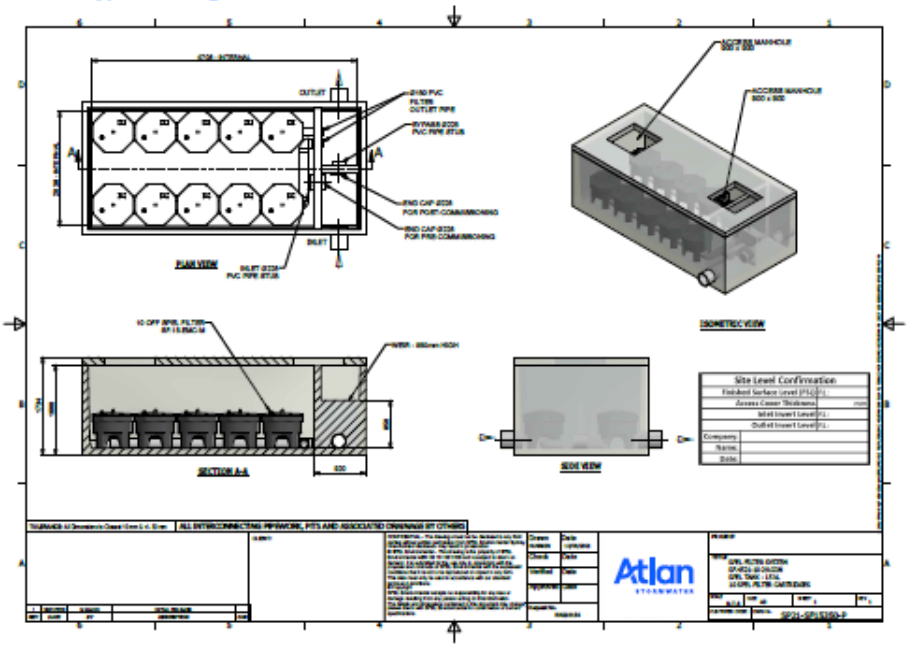
DRAWINGS

Modular Filtration Tank Installation



Internal Bypass Arrangement Tank



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Atlan Filter

Cartridge filter for tertiary stormwater treatment

Atlan STORMWATER

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APPENDIX D – VOC & FORMALDEHYDE EMISSION LIMITS

The following table are an extract of the Green Star Buildings submission guidelines:

Total VOC limits

Paints, Adhesives and Sealants

Product category	Max. Total Volatile Organic Compounds (TVOC) content in grams per litre (g/L) of ready to use product
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes, and wood stains	75
Primers, sealers, and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

Carpets

Compliance option	Test protocol	Limit
ASTM D5116	ASTM D5116 - Total VOC limit*	limit* 0.5mg/m^2 per hour
	ASTM D5116 - 4-PC (4-Phenylcyclohexene) *	0.05mg/m^2 per hour
ISO 16000 / EN 13419	ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m^2 per hour
ISO 10580 / ISO/TC 219 (Document N238)	ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m^2 per hour

* mg/m²hr may also be represented as mg/m²/hr

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Test protocol	Emissions Limit / Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1mg/L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1mg/L
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	≤1mg/L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1mg/L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1mg/L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/m²hr*

Test protocol	Emissions Limit / Unit of Measurement
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m²hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m²hr (at 3 days)
ASTM D6007	≤0.12mg/m³**
ASTM E1333	≤0.12mg/m³***
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m²hr

** The test report must confirm that the conditions of Table above comply for the particular wood product type, the final results must be presented in EN 717-1 equivalent (as presented in the table) using the correlation ratio of 0.98.

*** The final results must be presented in EN 717-1 equivalent (as presented in the table), using the correlation ratio of 0.98.

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APPENDIX E – DAYLIGHT ACCESS – GREEN STAR CALCULATION

The Green Building Council of Australia (GBCA) has created a daylight access calculation method within the Green Star benchmarking tool. This tool is widely recognised by Councils and Industry.

The Green Star Daylight Hand Calculation method is used to determine if there are risks associated with the current design, particularly with respect to meeting the desired daylight factors referenced in the Sustainable Management Plan in the Planning Process (SDAPP) Indoor Environment Quality guidelines.

According to the SDAPP guidelines, best practice is achieved where 2% daylight factor is achieved across 30% of the floor area of the nominated area.

The calculation method is based on one simple formula to calculate a zone of compliance within a nominated room. The compliant zone is the area of the room achieving 2% daylight factor and can be calculated as follows:

$$\boldsymbol{Zone\ of\ Compliance = 2 \times h \times w}$$

$\boldsymbol{w}$ is the width of the glazing serving the room

$\boldsymbol{h}$ is the height of the window head above the desktop/table level

Windows serving the nominated area are required to have a minimum 40% VLT to use the formula.

The percentage of compliant area within the nominated area can then be easily calculated with the following formula:

$$\boldsymbol{Percentage\ of\ compliant\ area = \frac{Zone\ of\ Compliance}{Nominated\ Area} \times 100}$$

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Site Description

The proposed development consists of retail units at ground level and apartments above. The areas such as stairs and toilets will not be occupied regularly, hence are not included.

Additionally, the supermarket has been excluded from daylight calculation as daylight access requirement does not necessarily apply to large scale retail such as shopping mall and supermarkets.

The nominated areas for the Hand Calculation are comprised of the retail areas which will be regularly occupied.

The desktop/table level has been estimated to be 700mm.

See below for the mark-up of the compliant zone (orange) within each nominated area (cyan).

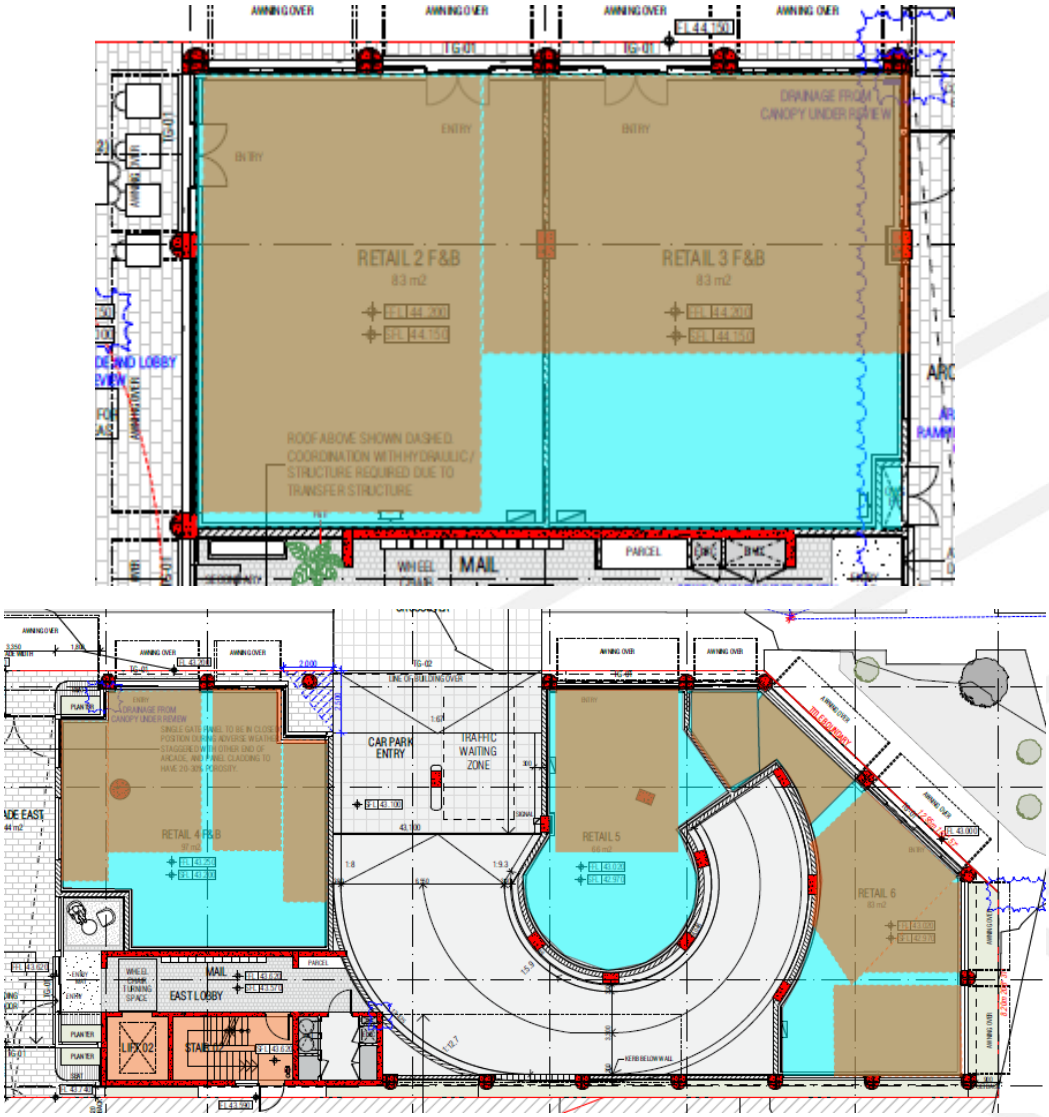

Figure 4: Compliance zone for ground floor retail areas

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	Nominated Areas (m^2)	Compliant Areas (m^2)	Compliant Areas (%)
RETAIL 2	83	64	77%
RETAIL 3	84	62	74%
RETAIL 4	96	63	66%
RETAIL 5	65	32	49%
RETAIL 6	81	67	83%
TOTAL	409	287	70%

The green star hand calculation for the proposed retail areas shows that the development will achieve and exceed SDAPP best practice requirement by achieving over 70% of floor area at 2% daylight factor.

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APPENDIX F – BESS ASSESSMENT & DAYLIGHT INPUT / FAÇADE CALCULATOR

The BESS daylight Deemed-to-Satisfy method has been used to assess the residential part of this development as it is deemed sufficient to demonstrate level of daylight access. BESS assessment clearly shows that the overall IEQ levels for the development achieves best practice which includes daylight access.

All living spaces and bedrooms in the proposed development and all bedrooms comply with BESS Deemed-To-Satisfy daylight criteria as follows:

- **Ceiling heights are 2.7m.**
- **All rooms are less than 8m deep**
- **Glazing to be 60% VLT in habitable rooms (apartment only).**
- **External windows are provided for all living rooms.**
- **Building separation in line with BESS tool notes requirements.**

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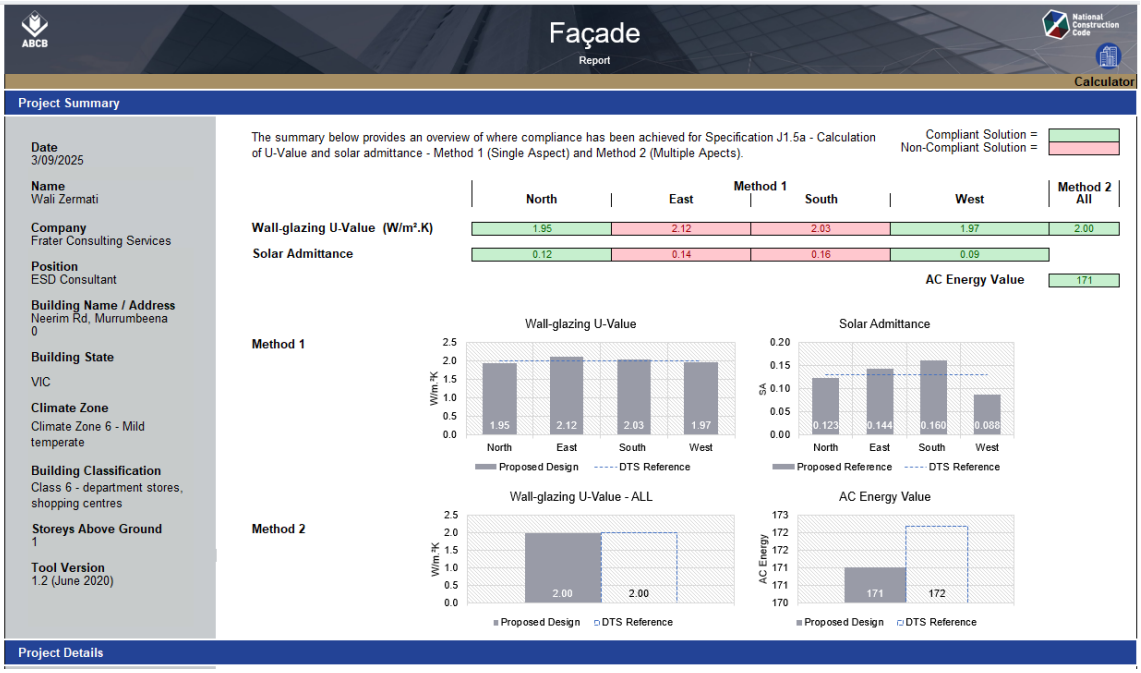
Prelim Façade Calculator



	North	East	South	West
Glazing Area (m²)	192.09	46.58	111.12	22.56
Glazing to Façade Ratio	46%	54%	50%	47%
Glazing References	north glazing	east glazing	south glazing	west glazing
Glazing System Types	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)
Glass Types	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)
Frame Types	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)	DEFAULTS (GENERIC)
Average Glazing U-Value (W/m².K)	3.07	3.07	3.07	3.07
Average Glazing SHGC	0.34	0.34	0.34	0.34
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	224.67	39.44	110.6	25.28
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	External Wall R1.0	External Wall R1.0	External Wall R1.0	External Wall R1.0
Wall Thickness	150	150	150	150
Average Wall R-value (m².K/W)	1.00	1.00	1.00	1.00
Solar Absorptance	0.6	0.6	0.6	0.6

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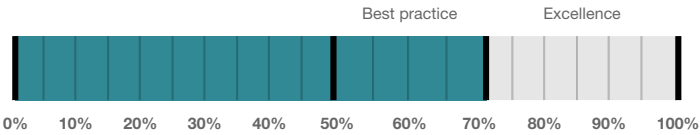
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 467 Neerim Rd Murrumbeena Victoria 3163. 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 Glen Eira 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



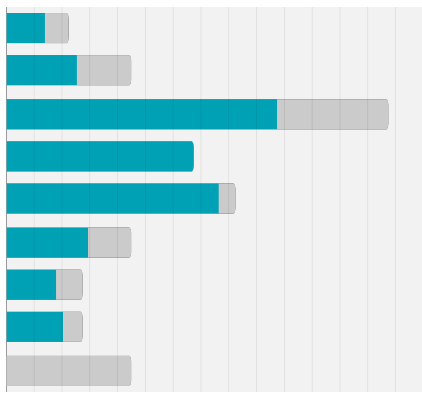
70%

Project details

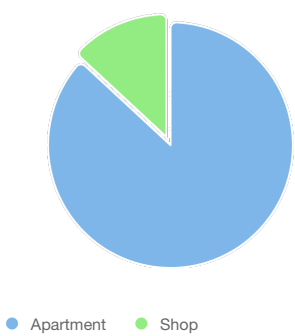
Name	467 Neerim Rd, Murrumbeena VIC 3163, Australia
Address	467 Neerim Rd Murrumbeena Victoria 3163
Project ID	47553E79-R7
BESS Version	BESS-7
Site type	Mixed use development
Account	david@fraterconsultingservices.com.au
Application no.	
Site area	2,658 m²
Building floor area	9,227 m²
Date	17 October 2025
Software version	2.2.0-B.619

Performance by category

Category	Weight	Score	Pass
Management	5%	62%	
Water	9%	57%	✓
Energy	28%	71%	✓
Stormwater	14%	100%	✓
IEQ	17%	93%	✓
Transport	9%	65%	
Waste	6%	66%	
Urban Ecology	6%	74%	
Innovation	9%	0%	



Project composition



Buildings

Name	Height	Footprint	% of total footprint
Development	7	9,309 m²	100%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
APT 1B1B	50	51.5 m²	Development	27%
APT 2B2B	27	85.2 m²	Development	24%
APT 1B1B+S	38	54.5 m²	Development	22%
APT S (Studio)	29	36.9 m²	Development	11%
Total	**144**	**8,016 m²**	**86%**	

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Shop				
RETAIL 1-6	1	1,211 m²	Development	13%
Total	**1**	**1,211 m²**	**13%**	

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Management 3.1	Annotation: Individual utility meters to be provided to all individual dwellings		-
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies		-
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)		-
IEQ 1.1	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.2	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.3	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.5	Floor plans with compliant bedrooms marked		-
IEQ 2.1	Dwellings meeting the requirements for being 'naturally ventilated'		-
Transport 1.1	Location of residential bicycle parking spaces		-

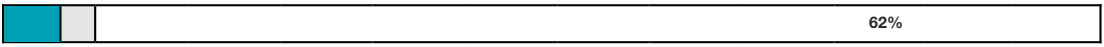
Credit	Requirement	Response	Status
Transport 1.4	Location of non-residential bicycle parking spaces		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Transport 2.3	Location of nominated motorbicycle parking spaces		-
Waste 2.1	Location of food and garden waste facilities		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-
Urban Ecology 2.1	Location and size of vegetated areas		-
Urban Ecology 2.2	Location and size of green roof		-
Urban Ecology 2.3	Location and size of green facade		-
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards		-
Urban Ecology 3.1	Location of food production areas		-

Supporting Documentation

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Management 2.3a	Section J glazing assessment		-
Management 2.3b	Preliminary modelling report		-
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 3.6	Average lighting power density and lighting type(s) to be used		-
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 1.1	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.2	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.3	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.4	A short report detailing assumptions used and results achieved.		-
IEQ 1.5	A list of compliant bedrooms		-
IEQ 2.1	A list of naturally ventilated dwellings		-

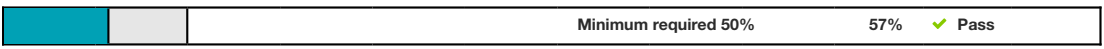
Credit summary

Management Overall contribution 4.5%



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

Water Overall contribution 9.0%



1.1 Potable Water Use Reduction	40%
3.1 Water Efficient Landscaping	100%
4.1 Building Systems Water Use Reduction	100%

Energy Overall contribution 27.5%

	Minimum required 50%	71%	✔ Pass
1.1 Thermal Performance Rating - Non-Residential		37%	
1.2 Thermal Performance Rating - Residential		50%	
2.1 Greenhouse Gas Emissions		100%	
2.2 Peak Demand		13%	
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%	
3.4 Clothes Drying		0%	
3.6 Internal Lighting - Apartments		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%	93%	Pass
1.1 Daylight Access - Living Areas		100%	
1.2 Daylight Access - Bedrooms		100%	
1.3 Winter Sunlight		100%	
1.4 Daylight Access - Non-Residential		70%	Achieved
1.5 Daylight Access - Minimal Internal Bedrooms		100%	
2.1 Effective Natural Ventilation		100%	
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%	

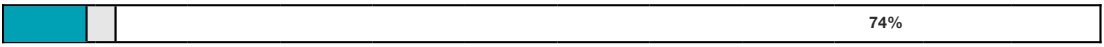
Transport Overall contribution 9.0%

	65%
1.1 Bicycle Parking - Residential	100%
1.2 Bicycle Parking - Residential Visitor	0%
1.3 Bicycle Parking - Convenience Residential	0%
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	N/A Scoped Out
	N/A
2.3 Motorbikes / Mopeds	100%

Waste Overall contribution 5.5%

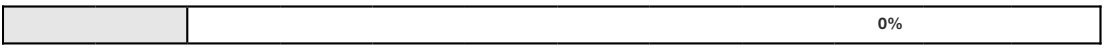
	66%
1.1 - Construction Waste - Building Re-Use	0%
2.1 - Operational Waste - Food & Garden Waste	100%
2.2 - Operational Waste - Convenience of Recycling	100%

Urban Ecology Overall contribution 5.5%



	74%
1.1 Communal Spaces	86%
2.1 Vegetation	50%
2.2 Green Roofs	100%
2.3 Green Walls and Facades	100%
2.4 Private Open Space - Balcony / Courtyard Ecology	100%
3.1 Food Production - Residential	100%
3.2 Food Production - Non-Residential	0%

Innovation Overall contribution 9.0%



	0%
1.1 Innovation	0%

Credit breakdown

Management Overall contribution 4.5%

62%

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
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	100%
Score Contribution	This credit contributes 21.7% towards the category score.
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?
Question	Criteria Achieved ?
Apartment	Yes
2.3 Thermal Performance Modelling - Non-Residential	100%
Score Contribution	This credit contributes 3.3% towards the category score.
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?
Question	Criteria Achieved ?
Shop	Yes
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?
Question	Criteria Achieved ?
Shop	Yes
3.1 Metering - Residential	100%
Score Contribution	This credit contributes 10.9% towards the category score.
Criteria	Have utility meters been provided for all individual dwellings?
Question	Criteria Achieved ?
Apartment	Yes
3.2 Metering - Non-Residential	100%
Score Contribution	This credit contributes 1.6% towards the category score.
Criteria	Have utility meters been provided for all individual commercial tenants?
Question	Criteria Achieved ?
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 ?
Apartment	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 9.0%

		Minimum required 50%	57%	✔ Pass

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools
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
Fixtures, fittings & connections profile	
Showerhead:	
APT 2B2B APT 1B1B+S APT S (Studio) APT 1B1B	4 Star WELS (>= 6.0 but <= 7.5)
RETAIL 1-6	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	Scope out
Washing Machine Water Efficiency:	
APT 2B2B APT 1B1B+S APT S (Studio) APT 1B1B	Occupant to Install
RETAIL 1-6	Scope out
Which non-potable water source is the dwelling/space connected to?: All	234729
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 profile	
What is the total roof area connected to the rainwater tank?: RWTs	1,183 m²
Tank Size: RWTs	20,000 Litres
Irrigation area connected to tank: RWTs	0.0 m²
Is connected irrigation area a water efficient garden?: RWTs	No
Other external water demand connected to tank?: RWTs	0.0 Litres/Day

1.1 Potable Water Use Reduction		40%

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	14751 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	11645 kL
Output	Proposed (including rainwater and recycled water use)
Project	10863 kL
Output	% Reduction in Potable Water Consumption
Project	26 %
Output	% of connected demand met by rainwater
Project	46 %
Output	How often does the tank overflow?
Project	Never / Rarely
Output	Opportunity for additional rainwater connection
Project	5165 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 27.5%

		Minimum required 50%	71%	✔ Pass

Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:	Yes
Do all exposed floors and ceilings (forming part of the envelope) demonstrate a minimum 10% improvement in required NCC2019 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2019 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
Dwellings Energy Approach	
What approach do you want to use for Dwellings?:	Use the built in calculation tools
Are you installing any solar photovoltaic (PV) system(s)?:	Yes
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric
Dwelling Energy Profiles	
Building: All	Development
Below the floor is: All	Another Occupancy
Above the ceiling is: All	Another Occupancy
Exposed sides: All	2
NatHERS Annual Energy Loads - Heat: All	73.0 MJ/sqm
NatHERS Annual Energy Loads - Cool: All	12.4 MJ/sqm
NatHERS star rating: All	7.2
Type of Heating System: All	Reverse cycle space
Heating System Efficiency: All	4 Star
Type of Cooling System: All	Refrigerative space
Cooling System Efficiency: All	4 Stars
Type of Hot Water System: All	Electric Heat Pump Band 1
% Contribution from solar hot water system: All	0 %
Is the hot water system shared by multiple dwellings?: All	Yes
Clothes Line: All	No drying facilities
Clothes Dryer: All	Occupant to Install
Solar Photovoltaic system profile	

System Size (lesser of inverter and panel capacity):	
Solar PV	15.0 kW peak
Solar Photovoltaic system 2	8.0 kW peak
Orientation (which way is the system facing)?:	
Solar PV	North
Solar Photovoltaic system 2	North
Inclination (angle from horizontal):	
Solar PV	5.0 Angle (degrees)
Solar Photovoltaic system 2	5.0 Angle (degrees)
Which Building Class does this apply to?:	
Solar PV	Apartment
Solar Photovoltaic system 2	Shop

1.1 Thermal Performance Rating - Non-Residential	37%
Score Contribution	This credit contributes 4% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?

1.2 Thermal Performance Rating - Residential	50%
Score Contribution	This credit contributes 24.7% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Apartment	7.2 Stars

2.1 Greenhouse Gas Emissions	100%
Score Contribution	This credit contributes 9.5% 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)
Apartment	721,035 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	271,036 kg CO2
Output	% Reduction in GHG Emissions
Apartment	62 %

2.2 Peak Demand	13%
Score Contribution	This credit contributes 4.7% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?
Output	Peak Thermal Cooling Load - Baseline
Apartment	1,444 kW
Output	Peak Thermal Cooling Load - Proposed
Apartment	1,387 kW
Output	Peak Thermal Cooling Load - % Reduction
Apartment	3 %

2.3 Electricity Consumption	100%

Score Contribution	This credit contributes 9.5% towards the category score.
Criteria	What is the % reduction in annual electricity consumption against the benchmark?
Output	Reference
Apartment	706,898 kWh
Output	Proposed
Apartment	265,722 kWh
Output	Improvement
Apartment	62 %

2.4 Gas Consumption	N/A Scoped Out
	No gas connection in use

This credit was scoped out	No gas connection in use

2.6 Electrification	100%

Score Contribution	This credit contributes 9.5% 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 9.5% 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 4.7% 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
Apartment	1,207,064 MJ
Output	Proposed
Apartment	482,699 MJ
Output	Improvement
Apartment	60 %

3.4 Clothes Drying	0%

Score Contribution	This credit contributes 4.1% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?
Output	Reference
Apartment	54,218 kWh
Output	Proposed
Apartment	54,218 kWh
Output	Improvement
Apartment	0 %

3.6 Internal Lighting - Apartments 100%

Score Contribution	This credit contributes 8.2% towards the category score.
Criteria	Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by Table J6.2a of the NCC 2019 Vol 1 (Class 2-9)?
Question	Criteria Achieved ?
Apartment	Yes

3.7 Internal Lighting - Non-Residential 100%

Score Contribution	This credit contributes 1.2% 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 ?
Shop	Yes

4.1 Combined Heat and Power (cogeneration / trigeneration) N/A Scoped Out

No cogeneration or trigeneration system in use.

This credit was scoped out	No cogeneration or trigeneration system in use.

4.2 Renewable Energy Systems - Solar 100%

Score Contribution	This credit contributes 4.7% 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
Apartment	17,493 kWh
Shop	9,330 kWh
Output	% of Building's Energy
Apartment	6 %
Shop	6 %

4.4 Renewable Energy Systems - Other 0% Disabled

No other (non-solar PV) renewable energy is in use.

This credit is disabled	No other (non-solar PV) renewable energy is in use.

Stormwater **Overall contribution 13.5%**

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

Which stormwater modelling are you using?:	MUSIC or other modelling software
1.1 Stormwater Treatment	100%
Score Contribution	This credit contributes 100% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Question	Flow (ML/year)
Project	42.8 % Reduction
Question	Total Suspended Solids (kg/year)
Project	81.5 % Reduction
Question	Total Phosphorus (kg/year)
Project	77.6 % Reduction
Question	Total Nitrogen (kg/year)
Project	72.6 % Reduction

IEQ Overall contribution 16.5%

	Minimum required 50%	93%	✔ Pass

Use the BESS Deemed to Satisfy (DtS) method for daylight to Dwellings?:	Yes
Are all living areas and bedrooms less than 8m deep (5m if south facing)?:	Yes
Do all living areas and bedrooms have a floor-to-ceiling height of at least 2.7m?:	Yes
Does all glazing to living areas achieve at least 60% Visible Light Transmittance (VLT)?:	Yes
Do all living areas have an external facing window (not into a courtyard, light well or other major obstruction)? :	Yes
Does the building(s) comply with the requirements of the building separation tables?:	Yes
What approach do you want to use for daylight to Dwellings?:	Use the built in calculation tools

1.1 Daylight Access - Living Areas	100%
Score Contribution	This credit contributes 22.1% towards the category score.
Criteria	What % of living areas achieve a daylight factor greater than 1%
Output	Calculated percentage
Apartment	100 %

1.2 Daylight Access - Bedrooms	100%
Score Contribution	This credit contributes 22.1% towards the category score.
Criteria	What % of bedrooms achieve a daylight factor greater than 0.5%
Output	Calculated percentage
Apartment	100 %

1.3 Winter Sunlight	100%
Score Contribution	This credit contributes 7.4% towards the category score.
Criteria	Do 70% of dwellings receive at least 3 hours of direct sunlight in all Living areas between 9am and 3pm in mid-winter?
Question	Criteria Achieved ?
Apartment	Yes

1.4 Daylight Access - Non-Residential	70% ✔ Achieved
Score Contribution	This credit contributes 6.7% towards the category score.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Question	Percentage Achieved?
Shop	70 %

1.5 Daylight Access - Minimal Internal Bedrooms	100%

Score Contribution	This credit contributes 7.4% towards the category score.
Criteria	Do at least 90% of dwellings have an external window in all bedrooms?
Question	Criteria Achieved ?
Apartment	Yes

2.1 Effective Natural Ventilation 100%

Score Contribution	This credit contributes 22.1% towards the category score.
Criteria	What % of dwellings are effectively naturally ventilated?
Annotation	Dual aspect.
Question	Percentage Achieved?
Apartment	100 %

2.3 Ventilation - Non-Residential 66% ✔ Achieved

Score Contribution	This credit contributes 6.7% towards the category score.

Criteria	What % of the regular use areas are effectively naturally ventilated?
Question	Percentage Achieved?
Shop	-

Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?
Question	Percentage Achieved?
Shop	50 %

Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?
Question	Value
Shop	800 ppm

3.4 Thermal comfort - Shading - Non-Residential 66%

Score Contribution	This credit contributes 3.3% towards the category score.
Annotation	North facing facades of the habitable rooms are effectively shaded by overhang projections. This does not take south-facing facades into account. West and east facades of habitable rooms will be provided with vertical shading.

Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Shop	50 %

3.5 Thermal Comfort - Ceiling Fans - Non-Residential 0%

Score Contribution	This credit contributes 1.1% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Shop	-

4.1 Air Quality - Non-Residential	100%

Score Contribution	This credit contributes 1.1% towards the category score.

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

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

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

Transport Overall contribution 9.0%

65%

1.1 Bicycle Parking - Residential	100%
Score Contribution	This credit contributes 22.1% towards the category score.
Criteria	How many secure and undercover bicycle spaces are there per dwelling for residents?
Question	Bicycle Spaces Provided ?
Apartment	144
Output	Min Bicycle Spaces Required
Apartment	144

1.2 Bicycle Parking - Residential Visitor	0%
Score Contribution	This credit contributes 22.1% towards the category score.
Criteria	How many secure bicycle spaces are there per 5 dwellings for visitors?
Question	Visitor Bicycle Spaces Provided ?
Apartment	-

1.3 Bicycle Parking - Convenience Residential	0%
Score Contribution	This credit contributes 11% towards the category score.
Criteria	Are bike parking facilities for residents located at ground or entry level?
Question	Criteria Achieved ?
Apartment	No

1.4 Bicycle Parking - Non-Residential	100%
Score Contribution	This credit contributes 3.3% 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)?
Annotation	Total of 4 bike spaces for retail employees and visitors.
Question	Criteria Achieved ?
Shop	Yes
Question	Bicycle Spaces Provided ?
Shop	3

1.5 Bicycle Parking - Non-Residential Visitor	100%
Score Contribution	This credit contributes 1.7% 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 ?
Shop	Yes
Question	Bicycle Spaces Provided ?
Shop	1

1.6 End of Trip Facilities - Non-Residential	0%

Score Contribution	This credit contributes 1.7% 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 ?
Shop	-
Question	Number of lockers provided ?
Shop	-
Output	Min Showers Required
Shop	1
Output	Min Lockers Required
Shop	3

2.1 Electric Vehicle Infrastructure 100%

Score Contribution	This credit contributes 25.4% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

2.2 Car Share Scheme N/A Scoped Out

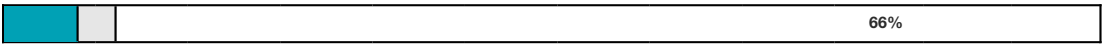
N/A

This credit was scoped out	N/A

2.3 Motorbikes / Mopeds 100%

Score Contribution	This credit contributes 12.7% 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	Yes

Waste **Overall contribution 5.5%**



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 5.5%

74%

1.1 Communal Spaces	86%
Score Contribution	This credit contributes 11.3% 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
Apartment	355 m²
Shop	-
Output	Minimum Common Space Required
Apartment	132 m²
Shop	85 m²

2.1 Vegetation	50%
Score Contribution	This credit contributes 45.1% 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	10 %

2.2 Green Roofs	100%
Score Contribution	This credit contributes 11.3% towards the category score.
Criteria	Does the development incorporate a green roof?
Annotation	Planter box provided in the communal area.
Question	Criteria Achieved ?
Project	Yes

2.3 Green Walls and Facades	100%
Score Contribution	This credit contributes 11.3% towards the category score.
Criteria	Does the development incorporate a green wall or green façade?
Question	Criteria Achieved ?
Project	Yes

2.4 Private Open Space - Balcony / Courtyard Ecology	100%
Score Contribution	This credit contributes 9.8% towards the category score.
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?
Question	Criteria Achieved ?
Apartment	Yes

3.1 Food Production - Residential	100%

Score Contribution	This credit contributes 9.8% towards the category score.
Criteria	What area of space per resident is dedicated to food production?
Question	Food Production Area
Apartment	59.0 m²
Output	Min Food Production Area
Apartment	54 m²

3.2 Food Production - Non-Residential	0%

Score Contribution	This credit contributes 1.5% towards the category score.
Criteria	What area of space per occupant is dedicated to food production?
Question	Food Production Area
Shop	-
Output	Min Food Production Area
Shop	31 m²

Innovation **Overall contribution 9.0%**

	0%

1.1 Innovation	0%
Score Contribution	This credit contributes 100% towards the category score.
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?

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