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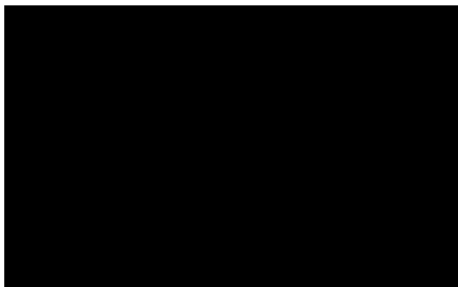
SUSTAINABLE DESIGN ASSESSMENT

297-307 Roslyn Road, Highton

Revision C

23/02/2026

PREPARED BY



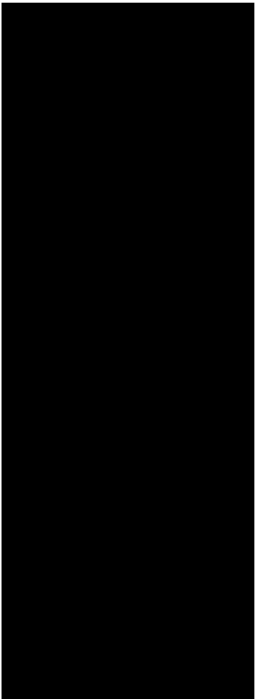
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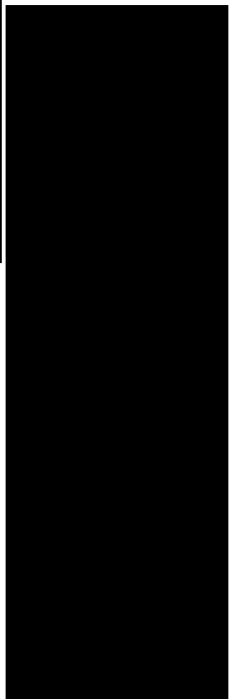
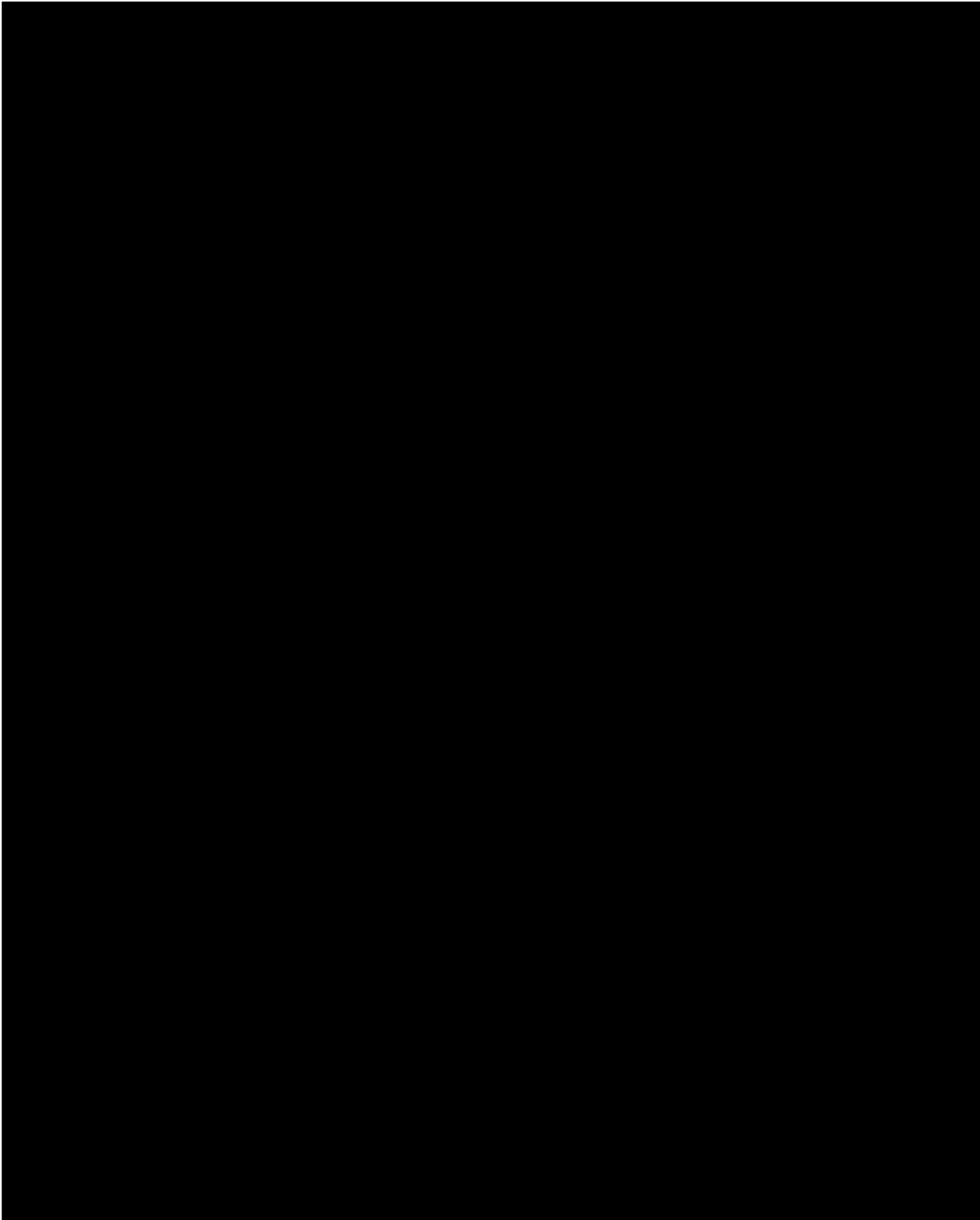
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DOCUMENT CONTROL:

REVISION	DATE ISSUED	AUTHOR	REVIEWED	DESCRIPTION
A	14.10.2025	TA	FM	TP-Prelim
B	28.10.2025	TA	-	TP
C	23.02.2026	TA	-	TP





1. PROJECT SUMMARY

██████████ Ltd has been engaged to prepare a Sustainable Design Assessment (SDA) for the proposed development.

Municipality:	Greater Geelong City Council
Planning Application Number:	PP-909-2025
Site Address:	297-307 Roslyn Road, Highton
Total Site Area:	2631 m²
Project Description:	Proposed Childcare
TUL Reference Number:	N76



Figure 1: Zoning Map (source: planning.vic.gov.au)

All results generated by this report are based on:

- Town Planning Drawings prepared by ██████████ dated **September 2025**.
- Landscape Plan prepared by ██████████ dated **18.02.2026**.
- Catchment Music Analysis by ██████████ dated **10.02.2026**.
- City of Greater Geelong RFI PP-909-2025, dated **03.11.2025**.

1.1 SITE AND DEVELOPMENT DESCRIPTION

The proposed development is located within the Neighbourhood Residential Zone (NRZ) of the Greater Geelong City Council and is currently surrounded by residential premises.

The site is currently occupied by a single-storey dwelling, which is proposed to be demolished to facilitate the new development. The proposed childcare centre is designed to accommodate 116 children and employ at least 35 staff members. It will include on-site car parking located at the front of the property and an outdoor play area situated at the rear. Additionally, site has frontage to Roslyn Road to the north with no parking restrictions.

1.2 SCOPE OF REGULAR USE AREAS

For the purpose of this assessment, the spaces highlighted in blue in **Figure 2** below will be categorised as 'regular use areas'. These are defined as "any room or internal space other than a bathroom, laundry, toilet, cupboard, corridor, stair, lobby, copying room, photographic darkroom, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended periods".



Figure 2: Ground Floor regular use areas (source: Malcolm Elliott Architects)

2. POLICY, LEGISLATION AND GUIDELINES

Sustainable design is a critical intervention in today's-built environment to protect the environment and living standards, as well as future proofing the coming generations. The Sustainable Design Assessment contains a summary of environmental initiatives integrated into the design of the subject development, whilst providing information ensuring the following:

- New buildings to meet acceptable environmental performance standards
- Outline environmental objectives and standards required by Council
- Consistent and fair approach to the associated environmental impact
- Flexible methods of meeting environmental standards
- Promote the benefit of sustainability within the development

2.1 SCOPE OF ASSESSMENT

The Greater Geelong City Council has recognised the importance of environmentally sustainable design. As a result, the Council has incorporated various sustainable strategies and objectives within its planning scheme to provide an early framework to achieve sustainable efficiencies and benefits. This includes the following sustainable standards:

- **Clause 15.01.2L:** Environmentally Sustainable Development
- **Clause 53.18:** Stormwater Management in Urban Development

If environmentally sustainable design is not considered at the time of planning approval, the ability to achieve environmentally sustainable development may be compromised by the time these matters are considered as part of a building approval. In addition, there may be difficulties or extra costs associated with retro-fitting the development to implement environmentally sustainable design principles.

Please refer to the Greater Geelong Planning Scheme for additional details.

In addition to the aforementioned statutory clauses, this Sustainable Design Assessment has also been written in consideration of the following guidelines:

- Green Star by Green Building Council of Australia
- Guide for Best Practice for Waste Management in Multi-Unit Developments by Sustainability Victoria
- Blue Factor by Microburst Software

2.2 BUILT ENVIRONMENT SUSTAINABILITY SCORECARD (BESS)

Sustainable design is a critical intervention in today's-built environment to protect the environment and living standards, as well as future proofing the coming generations. The Sustainable Design Assessment contains a summary of environmental initiatives integrated into the design of the subject development, whilst providing information ensuring the following:

- New buildings to meet acceptable environmental performance standards
- Outline environmental objectives and standards required by Council
- Consistent and fair approach to the associated environmental impact
- Flexible methods of meeting environmental standards
- Promote the benefit of sustainability within the development

All information and calculations necessary to produce the report are provided by using **Version 9** of the Built Environment Sustainability Scorecard (BESS). The BESS tool (**Appendix A**) assesses energy and water efficiency, thermal comfort, and overall environmental sustainability performance of new buildings or alterations.

There are four mandatory categories with minimum score: Indoor Environment Quality (IEQ), Energy, Water, and Stormwater. The final BESS overall score is determined by the individual category scores:

- 'Best Practice' is defined within BESS as an overall score of 50% or above.
- 'Excellence' is defined within BESS as an overall score of 70%.

The proposed development has achieved the following BESS scores:

BESS CATEGORY	REQUIRED SCORE	PROJECT SCORE	COMPLIANCE
Management	0%	12%	Yes
Integrated Water Management	50%	82%	Yes
Operational Energy	50%	60%	Yes
IEQ	50%	53%	Yes
Transport	0%	11%	Yes
Waste & Resource Recovery	0%	66%	Yes
Urban Ecology	0%	25%	Yes
Innovation	0%	0%	Yes
Total Score		50%	Best Practice

3. MANAGEMENT

Environmentally Sustainable Design (ESD) Principle – Construction and Building Management should be integrated into the design of the proposed development. These principles will inspire a holistic and integrated design and construction process. It also encourages ongoing high performance.

Key elements may include:

- Environmental Credentials of Project Team
- Environmental Management Plan; Construction and Operation
- Thermal Performance Modelling

The following table summarises the proposed development's commitments towards the best practice Management measures, which align with the Greater Geelong City Council's sustainability strategies. The information below is supported by the following resource: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Environmental Credentials of Project Team	▪ Appointed contractors are recommended to have valid environmental credentials (i.e. ISO 14001 Environmental Management System accreditation, Green Star Accredited Professional and Certified Green Plumber).
Environmental Management Plan; Construction and Operation	▪ A project specific Environmental Management Plan will be implemented during the operation phase.
Thermal Performance Modelling	▪ A preliminary façade assessment has been conducted for the development. Please see Section 5 and Appendix E of this report for further details.

4. INTEGRATED WATER MANAGEMENT

Environmentally Sustainable Design (ESD) Principle - Water resources and its key elements should be integrated into the design of the proposed development. These principles contribute to efficient water usage by reducing total operating potable water use, promoting the collection and re-use of rainwater and stormwater, consequently helping to conserve precious water resources and minimising associated water costs.

Key elements include:

- Stormwater treatments
- Maintenance
- Fixtures, fittings and appliances
- Water efficient landscaping

The following table summarises the proposed development's commitments towards the best practice Integrated Water Management measures, which align with the Greater Geelong City Council's sustainability strategies. The information below is supported by the following resource: **BESS Summary Report (Appendix A)** and **Water Sensitive Urban Design (Appendix B)**.

ISSUES	DESIGN RESPONSES
MUSIC	▪ MUSIC model was used to assess how the development manages stormwater quality using different treatment methods. ▪ Every impervious surface was included in the calculations, together with their proposed treatments. This was done to determine how well the design meets the required best practice stormwater quality targets. ▪ Refer to Appendix B for further details. ▪ A brief summary of the proposed stormwater treatments is outlined below.
Stormwater Treatments	<u>RAINWATER TANKS</u> ▪ The Roof West and Storage Shed (approx. 551m²) are to be connected to a minimum of 7,000L underground rainwater tank for toilet flushing. ▪ The Roof East (approx. 577m²) is to be connected to a minimum of 7,000L underground rainwater tank for toilet flushing. ▪ The rainwater tank capacity is exclusive for retention purpose – any detention requirement is additional. ▪ No charged piping system shall travel underneath the building's footings or slabs. <u>RAINGARDENS</u> ▪ Approx. 241m² of the Carpark West is connected to a minimum 10m² raingardens. ▪ Approx. 253m² of the Carpark Central is connected to a minimum 10m² raingardens.

	▪ Approx. 204m² of the Carpark East is connected to a minimum 5.8m² raingardens.
Maintenance	▪ The stormwater management assets are to be maintained periodically as according to the manufacturer's guidelines, or the generic maintenance schedule provided within Appendix B. ▪ It will be the responsibility of the Building Management to organise the required maintenance and upgrades when required. This includes engaging an appropriate, qualified contractor to conduct the necessary tasks.
Efficient Fittings & Appliances	▪ Showerhead: 4 Star WELS¹ (≥ 6.0 but ≤ 7.5)
	▪ Kitchen and Bathroom Taps: 5 Star WELS
	▪ Dishwashers: 5 Star WELS
	▪ WC: 4 Star WELS
	▪ Washing Machine: 5 Star WELS
	▪ If provided by the developer, all other appliances will be within one WELS star of the best available.
Efficient Landscaping	▪ Water efficient landscaping shall be installed throughout the proposed development. ▪ Low water-use / drought-tolerant and native plant selection are recommended. ▪ A water efficient garden <u>should not require irrigation system</u> and should not need watering when plants are established.

¹ Water Efficiency Labelling and Standards (WELS). Refer to www.waterrating.gov.au for further details.

5. OPERATIONAL ENERGY

Environmentally Sustainable Design (ESD) Principle - Energy and its main elements contribute to reducing greenhouse emissions by utilising energy efficient appliances, energy conservation measures and renewable energy. In addition to maintaining and improving comfort levels, efficient energy use is vitally important to reduce energy costs and the associated environmental impacts.

Key elements include:

- Energy Rating
- Renewable energy
- Heating
- Cooling
- Hot water services
- Lighting
- Appliances

The following table summarises the proposed development's commitments towards the best practice Operational Energy measures, which align with the Greater Geelong City Council's sustainability strategies. The information below is supported by the following resource: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Energy Rating	▪ A Section J or approved equivalent will be undertaken at building permit stage. ▪ A Preliminary NCC 2022 Façade Calculator was completed to demonstrate the building's external wall and glazing performance. Refer to Appendix E for further details. ▪ All exposed floor and ceiling (forming part of the envelope) will meet the required NCC2022 insulation levels (total R-value upwards and downwards). ▪ All wall and glazing shall meet the requirements of NCC 2022 façade calculator (or be better than its total allowance).
Renewable energy	▪ A 3kw solar PV system will be installed in the development. The panels are to orientate towards the East and be angled at 15 degrees.
Heating and Cooling Systems	▪ All heating and cooling systems shall be one Star or have a (Coefficient of Performance) CoP and Energy Efficiency Ratios (EER) of not less than 85% than the most efficient equivalent capacity unit available.
Hot Water System	▪ Water heating system shall be within one star of the best available or be at least 85% better than the most efficient equivalent unit available.
Efficient Lighting	▪ The maximum illumination power density in at least 90% of the area of the relevant building class shall meet the requirements in Table J7D3a of the NCC 2022.

	▪ The proposed development will incorporate the following lighting types: ○ LEDs – all internal areas ○ LEDs or Solar – garden lighting ▪ All common, external, and service area lighting to be fitted with sensors or timers.
Fixed Clothes Lines/Racks	▪ Private outdoor clothesline has been allocated within the proposed Dry Court & Refuse Area.
Efficient Appliances	▪ All appliances if provided by the developer will be within one energy star of the best available.



6. INDOOR ENVIRONMENT QUALITY

Environmentally Sustainable Design (ESD) Principle – The key elements of Indoor Environment Quality play a significant role in the health, wellbeing, and satisfaction of the development's occupants. Ensuring a naturally comfortable indoor environment means less dependence on building services such as artificial lighting, mechanical ventilation and heating and cooling devices.

Key elements may include:

- Daylight
- Ventilation
- Shading
- Glazing
- Thermal Comfort
- Noise Level
- External View

The following table summarises the proposed development's commitments towards the best practice IEQ measures, which align with the Greater Geelong City Council's sustainability strategies. The information below is supported by the following resources: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Daylight	▪ Approximately 34% of the nominated regular use areas will meet a minimum daylight factor of 2%. ▪ Refer to Appendix C.
Ventilation	▪ Approximately 36% of the nominated regular use areas will be effectively naturally ventilated. Refer to Appendix D. ▪ Outdoor air in regular use areas shall be increased by 50% above the minimum requirements of AS 1668:2012. ▪ The ventilation system shall be designed to achieve, monitor and maintain a CO2 concentration of 800ppm. ▪ All kitchens are ventilated with dedicated and separated extract fans. ▪ Energy efficient mechanical heating and cooling system will also be provided for days with extreme temperatures.
Effective Shading	▪ External shading devices are passive design interventions which can help to protect the building envelope and reduce heat transfer through the building fabric, consequently supporting a comfortable building environment and reduce associated operational costs. ▪ Permanent overhangs assist in shading the glazing on all façades. Refer to Figure 3. ▪ Furthermore, internal blinds / curtains will also enhance the effectiveness of shading.

Efficient Glazing	- A commitment has been made to specify clear double glazed windows to all regular use areas. This will provide passive heat gains and reduce energy consumptions. - Glazing to comply with energy report specifications at the building approval stage.
Thermal Comfort	- Good insulation levels will maintain comfortable temperature within the proposed development. - Effective shadings and efficient cross ventilation of the proposed design reduces cooling demand in summer.
Noise Levels	- The proposed development has a substantial front setback, which will act as a buffer against traffic noises. - Additionally, the proposed development is committed to satisfy the acoustic requirements under NCC Vol 1 Part F7.
External View	Sliding doors are proposed for access to the external play areas, hence providing a visual connection for the building users with the outdoor.



Figure 3: Elevations (source: M [REDACTED])

7. MATERIALS

Environmentally Sustainable Design (ESD) Principle – Materials selection should be integrated into the design and the proposed development. The criteria for appropriate materials used are based on economic and environmental costs.

These key elements include:

- Air Quality
- Best Practice PVC
- Sustainable Timber
- Cement
- Heat Island Effect Reduction

The following table summarises the proposed development's commitments towards the best practice Material measures, in accordance with the Greater Geelong City Council's sustainability strategies.

ISSUES	DESIGN RESPONSES
Air Quality	▪ All paints and adhesives, carpet and engineered wood must meet the maximum total indoor pollutant emission limits. ▪ Specified products shall meet the current, relevant GECA, Global Green Tag Green Rate, Carpet Institute Australia Environmental Classification Scheme Level 2, Green Star (Refer to Table A and B below) or WELL standards for TVOC in paints, adhesives, sealants, and carpet, and for formaldehyde in engineered wood
Best Practice PVC	▪ All PVC use and suppliers in the development will meet the 'Best Practice Guidelines for PVC in the built environment'. This includes cables, pipes, conduits, flooring and blinds. ▪ The usage of PVC in the development, particularly in sanitary plumbing and electrical wiring, shall be minimised. ▪ Use of High-density polyethylene (HDPE) piping for water delivery shall be considered.
Sustainable Timber	▪ All timber products used in the project will be from renewable resources. ▪ All other timber imports to be Forest Stewardship Council (FSC)² or Program for the Endorsement of Forest Certification (PEFC)³ certified.
Cement	▪ A minimum of 20% of the cement must be replaced with supplementary cementitious material (SCM), recycled aggregate and 50% recycled water.

²Forest Stewardship Council (<https://www.fsc.org/en>)

³Program for the Endorsement of Forest Certification (<https://www.pefc.org/>)

Heat Island Effect Reduction	- The urban heat island effect will also be minimised by using light-coloured materials throughout the development. - Driveways and paver areas: Solar Reflective Index (SRI) higher than 0.40, light coloured concrete or similar
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Table A: Engineered Wood Emissions Limit
(Green Star Design & As Built)

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/m ² hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m ² hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m ² hr (at 3 days)
ASTM D6007	≤0.12mg/m ³
ASTM E1333	≤0.12mg/m ³
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/m ² hr

Table B: Total VOC Limits
(Green Star Design & As Built)

Paints, Adhesives, and Sealants

Product Category	Maximum TVOC content (g/L) of ready-to-use product
<i>General purpose adhesives and sealants</i>	50
<i>Interior wall and ceiling paint, all sheen levels</i>	16
<i>Trim, varnishes and wood stains</i>	75
<i>Primers, sealers and prep coats</i>	65
<i>One and two pack performance coatings for floors</i>	140
<i>Acoustic sealants, architectural sealant, waterproofing and membranes and sealant, fire retardant sealants and adhesives</i>	250
<i>Structural glazing adhesive, wood flooring and laminate adhesives and sealants</i>	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

8. TRANSPORT

Environmentally Sustainable Design (ESD) Principle – Green, or “eco-friendly” buildings encourage people to use modes of transport other than cars to reduce urban air pollution and the generation of greenhouse gas emissions. Alternative transportation can be facilitated by incorporating cyclist facilities and access to public transport networks into the building’s design.

Key elements may include:

- Minimise car dependency
- Promote alternative transportation
- Bicycle Parking

The following table summarises the proposed development’s commitments towards the best practice Transport measures, which align with the Greater Geelong City Council’s sustainability strategies. The information below is supported by the following resources: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Minimise Car Dependency	▪ The proposed development includes 25 car parking spaces. ▪ Additional visitor parking spaces are available on Roslyn Road.
Bicycle Parking	▪ A total of 4 secure visitor bicycle parking spaces will be provided in the proposed development. ▪ Refer to architectural drawings for locations.
Public Transport	▪ Approximately 5.1km to South Geelong Railway Station. ▪ Approximately 450m Thornhill Road/Roslyn Road bus stop. ▪ Refer to site plan below.

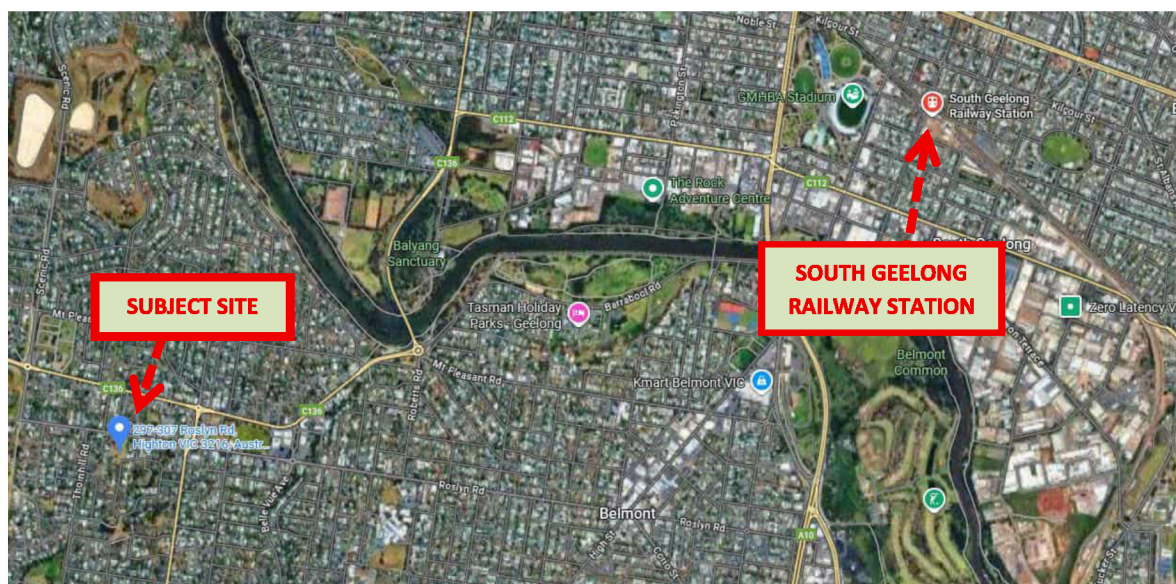


Figure 4: Site Location (source: Google Maps)

9. WASTE MANAGEMENT

Environmentally Sustainable Design (ESD) Principle – A waste management plan should be incorporated into the design of the proposed development to ensure minimal waste is transported to landfill by means of disposal, recycling and on-site waste storage and/or collection methods.

Key elements may include:

- Construction Waste Minimisation
- Operational Waste Management Plan
- Waste Storage
- Food and Garden Waste

The following table summarises the proposed development's commitments towards the best practice Waste Management measures, which align with the Greater Geelong City Council's sustainability strategies. The information below is supported by the following resources: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Construction Waste Management	▪ The construction contract will include the requirement to reuse or to recycle 70% of all demolition and construction waste.
Operation Waste Management Plan	▪ The Facility Operator will implement a Waste Management Plan that retains waste records and annual reports to building occupants. ▪ Refer to the submission package for further details.
Waste Storage	▪ Space allocation for waste streams are indicated on plans. ▪ The recycling facilities should be as convenient for the occupants as facilities for general waste.
Food and Garden Waste	▪ Occupants have access to a food and garden waste collection system via private collection. ▪ If feasible, it is also recommended that facilities (i.e. compost bins or worm farms) be provided to support onsite management of food and garden waste. This can help to minimise the amount of waste leaving the development.

10. URBAN ECOLOGY

Environmentally Sustainable Design (ESD) Principle – Urban Ecology and its fundamental principles aim to promote and protect ecosystems and biodiversity. Urban and agricultural developments should aim to enhance Urban Ecology by decreasing hard or impervious areas and at the same time increasing vegetation and landscaping opportunities.

Key elements may include:

- Communal Space
- Vegetation
- Reuse of developed Land
- Maintaining / Enhancing Ecological Value

The following table summarises the proposed development's commitments towards the best practice Urban Ecology measures, which align with the Greater Geelong City Council's sustainability strategies. Information below is supported by the following resources: **BESS Summary Report (Appendix A)**.

ISSUES	DESIGN RESPONSES
Communal Space	▪ A Staff Room and Piazza have been proposed to facilitate interaction between building users.
Vegetation	▪ Approximately 9% of the site is covered with vegetation. ▪ Refer to Figure 5 below.
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.
Maintaining / Enhancing Ecological Value	▪ The ecological value of the site will be enhanced through the provision of garden beds as indicated on the plans.

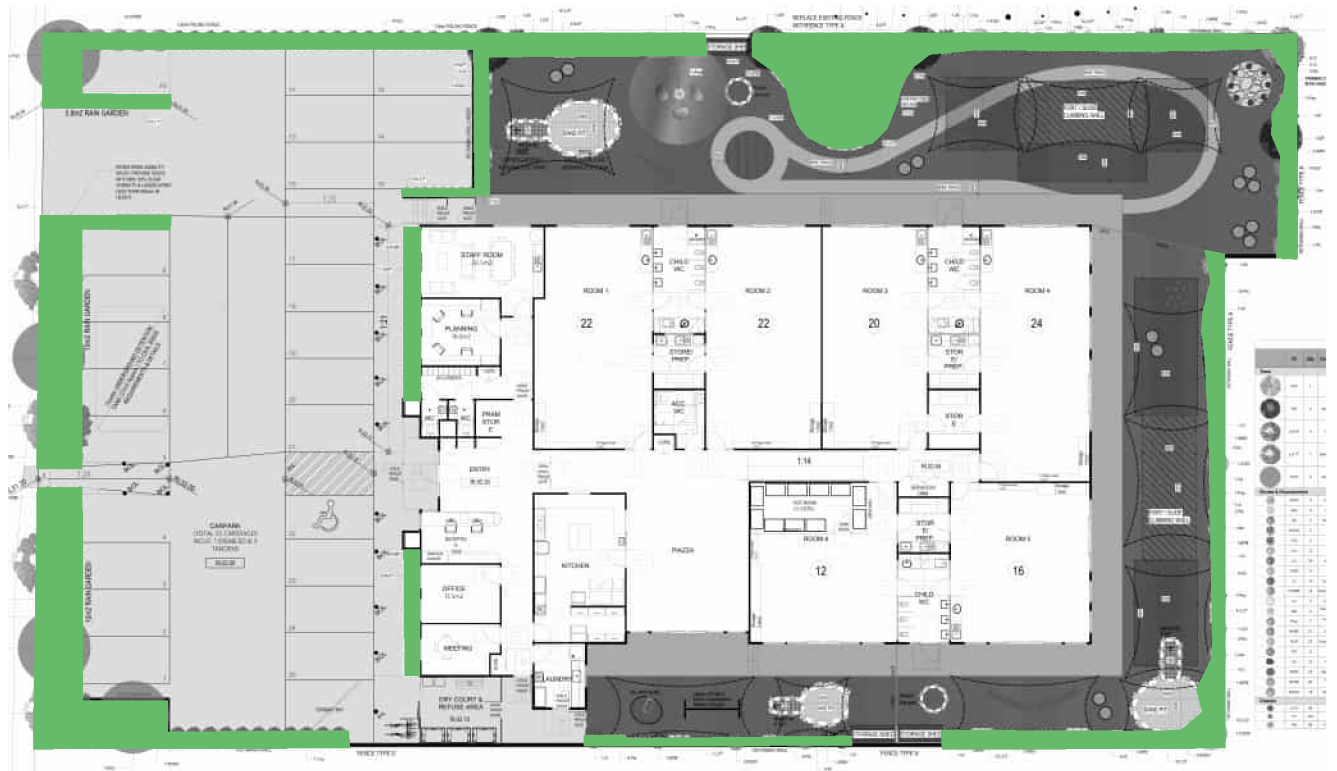


Figure 5: The green highlighted area above denotes the extent of proposed vegetation cover.
(source: [redacted])

11. IMPLEMENTATION

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
- Submission of a compliance report after construction to ensure no initiatives is omitted.

ASPECT	REQUIREMENT	RESPONSIBILITY
Rainwater Tank	The Roof West and Storage Shed (approx. 551m ²) as well as Roof East (approx. 577m ²) are to be connected to a minimum of 2 x 7,000L underground rainwater tanks for toilet flushing. Refer to Section 4 of this report for full roof connection.	Architect, Services Engineer, Builder
Raingarden	Approx. 699m ² of West, East and Central Carpark are connected to a minimum 25.8m ² raingardens.	Architect, Services Engineer, Builder
Showers	4 Star WELS (≥ 6.0 but ≤ 7.5)	Architect, Builder
Taps	5 star WELS	Architect, Builder
Toilets	4 star WELS	Architect, Builder
Washing Machine	5 star WELS	Architect, Builder
Dishwashers	5 star WELS	Architect, Builder
Other Appliances	If provided by developer, specify and install appliances with WELS and energy rating within 1 star of the best available.	Architect, Builder
Water Efficient Landscaping	Water efficient landscaping to be installed.	Landscape Architect, Builder
Energy Assessment	A Section J or approved equivalent will be undertaken at building permit stage All exposed floor and ceiling (forming part of the envelope) will	ESD Consultant, Architect

	meet the required NCC2022 insulation levels (total R-value upwards and downwards). All wall and glazing shall meet the requirements of NCC 2022 façade calculator (or be better than its total allowance).	
Renewable energy	A 3kw solar PV system will be installed in the development. The panels are to orientate towards the East and be angled at 15 degrees.	Services Engineer, Architect, Builder
Heating and Cooling	All heating and cooling systems shall be one Star or have a CoP and EER of not less than 85% than the most efficient equivalent capacity unit available.	Services Engineer, Builder
Hot Water System	Water heating system shall be within one star of the best available or be at least 85% better than the most efficient equivalent unit available.	Services Engineer, Builder
Clothes Drying	Foldaway clotheslines to be installed in the proposed Dry Court & Refuse Area.	Architect, Builder
Lighting	LED, external lighting to be controlled by a motion detector. The maximum illumination power density in at least 90% of the area of the relevant building class shall meet the requirements in Table J7D3a of the NCC 2022.	Services Engineer, Builder
Glazing	Double Glazing (or better) to all regular use areas.	Architect, Energy Rater, Builder
Natural Ventilation	A minimum of 36% of the regular use areas are effectively naturally ventilated.	Service Engineer
Outdoor Air	Outdoor air will be increased at least 50% above AS 1668.2:2012	Service Engineer

CO₂ Concentration	The ventilation system will be designed and monitored to maintain a maximum CO ₂ concentration of 800ppm.	Service Engineer
Air Quality	All paints, adhesives, carpet, and engineered wood must meet the maximum total indoor pollutant emission limits. Specified products must meet the relevant certifications and standards.	Architect, Builder
PVC	All major PVC use and suppliers to meet best practice guidelines. Usage of PVC in the development, particularly in sanitary plumbing and electrical wiring, to be minimised. Use of HDPE piping for water delivery preferred.	Builder
Cement	A minimum of 20% of cement must be replaced with SCM, recycled aggregate and 50% recycled water.	Builder
Timber	All timber used in the project to either be plantation or recycled timber imported to be FSC or PEFC certified.	Builder
Flooring	All flooring to have Ecospecifier, Green Tag, Carpet Institute of Australia or GECA certification	Builder
Joinery	All joinery to have Ecospecifier, Green Tag or GECA certification	Builder
Urban Heat Island Effect Reduction	Specify and install light-coloured driveways and paver areas (Solar Reflective Index (SRI) higher than 0.40, light coloured concrete or similar).	Architect, Builder
Bicycle Storage	Specify and install 4 secure visitor bicycle parking spaces in the development.	Architect, Builder

Construction Waste	A minimum of 70% of demolition and construction waste to be diverted from landfill.	Builder
Food & Garden Waste	Ensure the development has access to private waste collection Recommended to install facilities to manage food and garden waste onsite, such as compost bins or the like.	Building Management, Facility Operator Architect, Builder
Ecological Value	At least 9% of the overall site to be covered with vegetation.	Landscape Architect, Architect, Builder

REFERENCES

Appendix A – BESS Summary Report

Appendix B – Water Sensitive Urban Design

Appendix C – Green Star Daylight Assessment

Appendix D – BESS IEQ 2.3 Effective Natural Ventilation

Appendix E – Preliminary NCC 2022 Façade Calculator

APPENDIX A

BESS SUMMARY REPORT

BESS Report

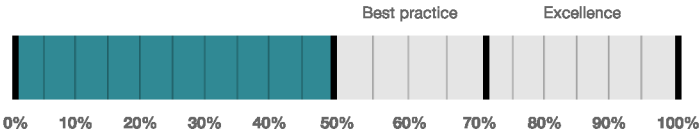
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 297-307 Roslyn Rd Highton Victoria 3216. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Greater Geelong City Council.

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

Your BESS Score



50%

Project details

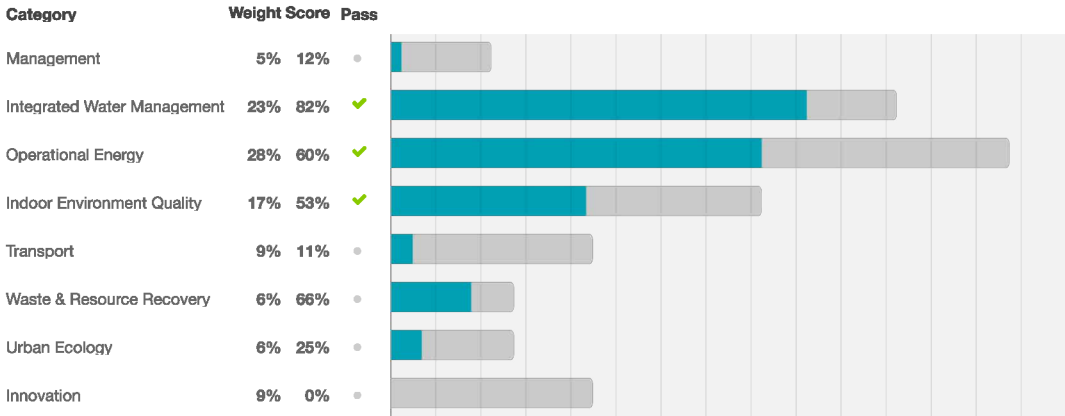
Name N76 - 297-307 Roslyn Road, Highton
Address 297-307 Roslyn Rd Highton Victoria 3216
Project ID [REDACTED]
BESS Version BESS-9

Site type Non-residential development
Account [REDACTED]
Application no. PP-909-2025
Site area 2,631 m²
Building floor area 873 m²
Date 23 February 2026
Software version 2.3.0-B.645



Performance by category

● This project ● Maximum available



Buildings

Name	Height	Footprint	% of total footprint
Childcare	1	873 m ²	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Public building				
Non-Residential Space 1	1	873 m ²	Childcare	100%
Total	1	873 m²	100%	

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)	To be printed Refer to submitted documents.	✓
Integrated Water Management 3.1	Annotation: Water efficient garden details	To be printed Refer to submitted documents.	✓
Operational Energy 4.2	Location and size of solar photovoltaic system	To be printed Refer to submitted documents.	✓
Transport 1.5	Location of non-residential visitor bicycle parking spaces	To be printed Refer to submitted documents.	✓
Waste & Resource Recovery 2.1	Location of food and garden waste facilities	To be printed Refer to submitted documents.	✓
Waste & Resource Recovery 2.2	Location of recycling facilities	To be printed Refer to submitted documents.	✓
Urban Ecology 1.1	Location and size of communal spaces	To be printed Refer to submitted documents.	✓
Urban Ecology 2.1	Location and size of vegetated areas	To be printed Refer to submitted documents.	✓

Supporting Documentation

Credit	Requirement	Response	Status
Management 2.3a	Section J glazing assessment	To be printed SDA Report - Appendix E A Preliminary NCC 2022 Facade Calculator as undertaken at this stage. Refer to submitted documents.	✓
Integrated Water Management 2.1	STORM report or MUSIC model	To be printed SDA Report - Appendix B Refer to submitted documents.	✓

Credit	Requirement	Response	Status
Operational Energy 1.1	Energy Report showing calculations of reference case and proposed buildings	To be printed NA Section J will be undertaken at building permit stage.	✓
Operational Energy 3.7	Average lighting power density and lighting type(s) to be used	To be printed Architectural Drawings Refer to submitted documents.	✓
Operational Energy 4.2	Specifications of the solar photovoltaic system(s)	To be printed Architectural Drawings Refer to submitted documents.	✓
Indoor Environment Quality 1.4	A short report detailing assumptions used and results achieved.	To be printed SDA Report - Appendix C Refer to submitted documents.	✓

Credit summary

Management Overall contribution 4.5%

		12%
1.1 Pre-Application Meeting		0%
2.3 Thermal Performance Modelling - Non-Residential		50%
3.2 Metering - Non-Residential		0%
3.3 Metering - Common Areas		0%
4.1 Building Users Guide		0%

IWM Overall contribution 22.5%

		82%	✓ Pass
1.1 Potable Water Use		62%	✓ Achieved
2.1 Stormwater Treatment		100%	✓ Achieved
3.1 Water Efficient Landscaping		100%	
4.1 Building Systems Water Use		0%	

Operational Energy Overall contribution 27.5%

		Minimum required 50%	60%	✓ Pass
1.1 Thermal Performance Rating - Non-Residential			37%	
2.1 Greenhouse Gas Emissions			100%	
2.2 Peak Demand			100%	
2.6 Electrification			0%	⊗ Disabled
Credit is available when the energy supply is set to all-electric (no gas or wood) blah.				
2.7 Energy consumption			100%	
3.1 Carpark Ventilation			0%	
3.2 Hot Water - Non-Residential			100%	
3.7 Internal Lighting - Non-Residential			100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)			N/A	✦ Scoped Out
No cogeneration or trigeneration system in use.				
4.2 Renewable Energy Systems - Solar			100%	
4.4 Renewable Energy Systems - Other			N/A	✦ Scoped Out
No other (non-solar PV) renewable energy is in use.				

IEQ Overall contribution 16.5%

		Minimum required 50%	53%	✓ Pass
1.4 Daylight Access - Non-Residential			34%	✓ Achieved
2.3 Ventilation - Non-Residential			50%	✓ Achieved
3.4 Thermal comfort - Shading - Non-Residential			100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential			0%	
4.1 Air Quality - Non-Residential			100%	

Transport Overall contribution 9.0%

		11%
1.4 Bicycle Parking - Non-Residential		0%
1.5 Bicycle Parking - Non-Residential Visitor		100%
1.6 End of Trip Facilities - Non-Residential		0%
Credit 1.4 must be complete first.		
2.1 Electric Vehicle Infrastructure		0%
2.2 Car Share Scheme		0%
2.3 Motorbikes / Mopeds		0%

Waste & Resource Recovery 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%

		25%
1.1 Communal Spaces		100%
2.1 Vegetation		25%
2.2 Green Roofs		0%
2.3 Green Walls and Facades		0%
3.2 Food Production - Non-Residential		0%

Innovation Overall contribution 9.0%

		0%
1.1 Innovation		0%

Credit breakdown

Management Overall contribution 4.5%

	12%
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1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 37.5% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.3 Thermal Performance Modelling - Non-Residential		50%
Score Contribution	This credit contributes 25% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?	
Question	Criteria Achieved ?	
Public building	Yes	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Public building	No	
3.2 Metering - Non-Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Public building	No	
3.3 Metering - Common Areas		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Public building	No	
4.1 Building Users Guide		0%
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	No	

IWM Overall contribution 22.5%

82% ✔ Pass

Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Stormwater profile	
Which stormwater modelling software are you using?:	MUSIC or other modelling software
STORM score achieved:	165
Flow:	30 %
Total Suspended Solids:	80 %
Total Phosphorus:	64 %
Total Nitrogen:	56 %
Rainwater tank profile	
What is the total roof area connected to the rainwater tank?:	
Rainwater Tank 1	1,138 m ²
	-
Tank Size:	
Rainwater Tank 1	15,000 Litres
	-
Irrigation area connected to tank:	
Rainwater Tank 1	0.0 m ²
	-
Is connected irrigation area a water efficient garden?:	
Rainwater Tank 1	No
	-
Other external water demand connected to tank?:	
Rainwater Tank 1	0.0 Litres/Day
	-
Fixtures, fittings & connections profile	
Building:	Childcare
Showerhead:	4 Star WELS (≥ 6.0 but ≤ 7.5)
Bath:	Scope out
Kitchen Taps:	≥ 5 Star WELS rating
Bathroom Taps:	≥ 5 Star WELS rating
Dishwashers:	≥ 5 Star WELS rating
WC:	≥ 4 Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	≥ 5 Star WELS rating
Which non-potable water source is the dwelling/space connected to?:	Rainwater Tank 1
Non-potable water source connected to Toilets:	Yes

Non-potable water source connected to Laundry (washing machine):		No
Non-potable water source connected to Hot Water System:		No
1.1 Potable Water Use		62%   Achieved
Score Contribution	This credit contributes 31.2% 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	3905 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	2769 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	2256 kL	
Output	% Reduction in Potable Water Consumption	
Project	42 %	
Output	% of connected demand met by rainwater	
Project	97 %	
Output	How often does the tank overflow?	
Project	Never / Rarely	
Output	Opportunity for additional rainwater connection	
Project	1112 kL	
2.1 Stormwater Treatment		100%   Achieved
Score Contribution	This credit contributes 56.2% towards the category score.	
Criteria	Has best practice stormwater management been demonstrated?	
Output	Flow	
Project	30 %	
Output	Min Suspended Solids reduction	
Project	80 %	
Output	Total Suspended Solids reduction	
Project	80 %	
Output	Min Phosphorus reduction	
Project	45 %	
Output	Total Phosphorus reduction	
Project	64 %	
Output	Min Nitrogen reduction	
Project	45 %	
Output	Total Nitrogen reduction	
Project	56 %	
3.1 Water Efficient Landscaping		100% 

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes
4.1 Building Systems Water Use	0%
Score Contribution	This credit contributes 6.2% 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	No

Operational Energy Overall contribution 27.5%

Minimum required 50%

60%

✓ Pass

Project profile

Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?: Yes

Are you installing any renewable energy system(s) (other than solar photovoltaic)?: No

Energy Supply: Electricity & Natural Gas

Are you installing a cogeneration or trigeneration system?: No

Solar Photovoltaic system profile

System Size (lesser of inverter and panel capacity): Solar Photovoltaic system 1 3.0 kW peak

Orientation (which way is the system facing)?: Solar Photovoltaic system 1 East

Inclination (angle from horizontal): Solar Photovoltaic system 1 15.0 Angle (degrees)

Non-residential Deemed-to-Satisfy profile

Do all exposed floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?: Yes

Does all wall and glazing demonstrate meeting the required NCC2022 facade calculator (or better than the total allowance)?: Yes

Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?: Yes

Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?: Yes

1.1 Thermal Performance Rating - Non-Residential

37%

Score Contribution This credit contributes 34.8% towards the category score.

Criteria What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?

2.1 Greenhouse Gas Emissions

100%

Score Contribution This credit contributes 8.7% towards the category score.

Criteria What is the % reduction in annual greenhouse gas emissions against the benchmark?

2.2 Peak Demand

100%

Score Contribution This credit contributes 4.3% towards the category score.

Criteria What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?

2.6 Electrification		0%  Disabled
Credit is available when the energy supply is set to all-electric (no gas or wood) blah.		
This credit is disabled	Credit is available when the energy supply is set to all-electric (no gas or wood) blah.	
2.7 Energy consumption		100%
Score Contribution	This credit contributes 17.4% towards the category score.	
Criteria	What is the % reduction in annual energy consumption against the benchmark?	
3.1 Carpark Ventilation		0%
Score Contribution	This credit contributes 4.3% towards the category score.	
Criteria	If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans?	
Question	Criteria Achieved ?	
Project	No	
3.2 Hot Water - Non-Residential		100%
Score Contribution	This credit contributes 4.3% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?	
3.7 Internal Lighting - Non-Residential		100%
Score Contribution	This credit contributes 8.7% towards the category score.	
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?	
Question	Criteria Achieved ?	
Public building	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 4.3% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Public building	3,303 kWh	
Output	% of Building's Energy	
Public building	10 %	
4.4 Renewable Energy Systems - Other		N/A  Scoped Out
No other (non-solar PV) renewable energy is in use.		
This credit was scoped out	No other (non-solar PV) renewable energy is in use.	

IEQ Overall contribution 16.5%

		Minimum required 50%	53%	✓ Pass
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1.4 Daylight Access - Non-Residential			34%	✓ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.			
Criteria	What % of the nominated floor area has at least 2% daylight factor?			
Question	Percentage Achieved?			
Public building	34 %			
2.3 Ventilation - Non-Residential			50%	✓ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.			
Criteria	What % of the regular use areas are effectively naturally ventilated?			
Question	Percentage Achieved?			
Public building	36 %			
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?			
Public building	50 %			
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?			
Question	Value			
Public building	800 ppm			
3.4 Thermal comfort - Shading - Non-Residential			100%	
Score Contribution	This credit contributes 17.6% towards the category score.			
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?			
Question	Percentage Achieved?			
Public building	100 %			
3.5 Thermal Comfort - Ceiling Fans - Non-Residential			0%	
Score Contribution	This credit contributes 5.9% towards the category score.			
Criteria	What percentage of regular use areas in tenancies have ceiling fans?			
Question	Percentage Achieved?			
Public building	0 %			
4.1 Air Quality - Non-Residential			100%	
Score Contribution	This credit contributes 5.9% towards the category score.			

Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Public building	Yes
Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Public building	Yes
Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Public building	Yes

Transport Overall contribution 9.0%

	11%
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1.4 Bicycle Parking - Non-Residential		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Public building	No	
Question	Bicycle Spaces Provided ?	
Public building	0	
1.5 Bicycle Parking - Non-Residential Visitor		100%
Score Contribution	This credit contributes 11.1% 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 ?	
Public building	Yes	
Question	Bicycle Spaces Provided ?	
Public building	4	
1.6 End of Trip Facilities - Non-Residential		0%  Disabled
Credit 1.4 must be complete first.		
This credit is disabled	Credit 1.4 must be complete first.	
2.1 Electric Vehicle Infrastructure		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	No	
2.2 Car Share Scheme		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Has a formal car sharing scheme been integrated into the development?	
Question	Criteria Achieved ?	
Project	No	
2.3 Motorbikes / Mopeds		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

Waste & Resource Recovery Overall contribution 5.5%

		66%
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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%

		25%
1.1 Communal Spaces		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 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?	
Question	Common space provided	
Public building	80.0 m ²	
Output	Minimum Common Space Required	
Public building	68 m ²	
2.1 Vegetation		25%
Score Contribution	This credit contributes 50% 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	9 %	
2.2 Green Roofs		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	
2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	
3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Public building	0.0 m ²	
Output	Min Food Production Area	
Public building	22 m ²	

Innovation Overall contribution 9.0%

	0%
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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)?

Disclaimer

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

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APPENDIX B

WATER SENSITIVE URBAN DESIGN

ASSESSMENT SUMMARY

The proposed development at 297-307 Roslyn Rd, Highton, will implement an integrated stormwater management system with the components outlined below. Rainwater tanks are to be installed to capture the stormwater which runs off all roofs, storing it for re-use within the development primarily for toilet flushing. This shall effectively reduce the actual volume of water leaving the site.

RAINWATER TANK

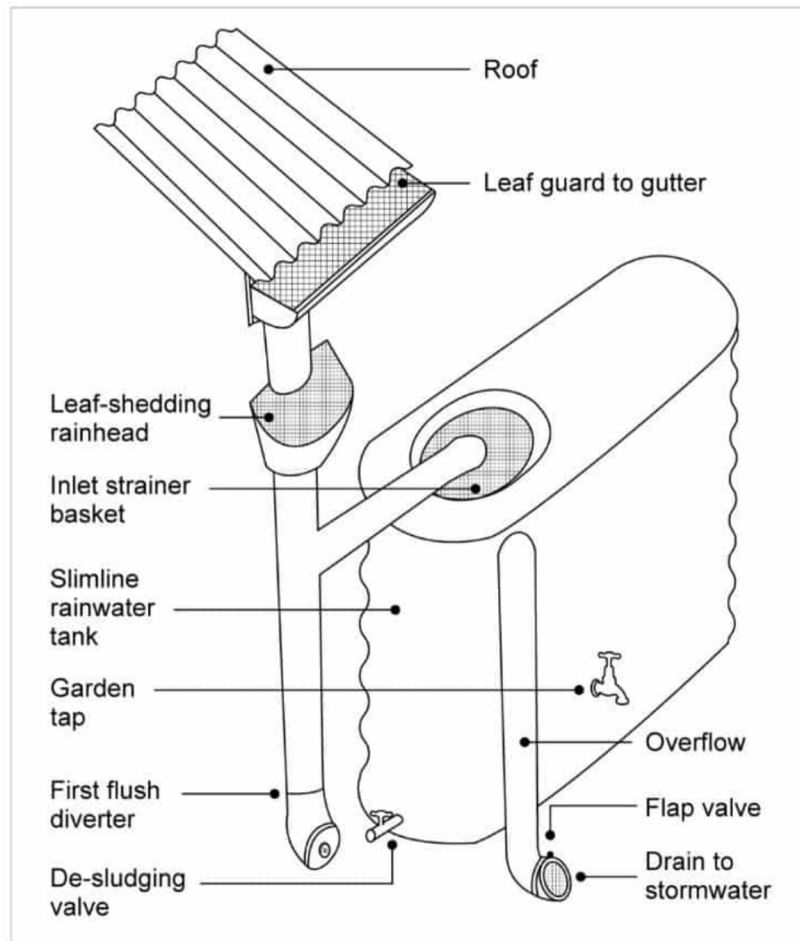


Figure A: Typical detail of a rainwater tank (Source: yourhome.gov.au)

The rainwater tank requirements to the proposed development are detailed below:

- Approximately 551m² of the Roof West and Storage Shed to be connected to a 7,000L underground rainwater tank.
- Approximately 577m² of the Roof East to be connected to a 7,000L underground rainwater tank.
- All aforementioned rainwater tanks must be connected to **all toilets for flushing purposes**.
- The specified capacities are exclusive for retention purpose within the development - any detention requirement is additional.
- No charged piping system shall travel underneath the building's footings or slabs.

Apart from the aforementioned rainwater tanks, several raingardens will also be incorporated within the development to receive and to filter rain run-off from the impervious areas identified below.

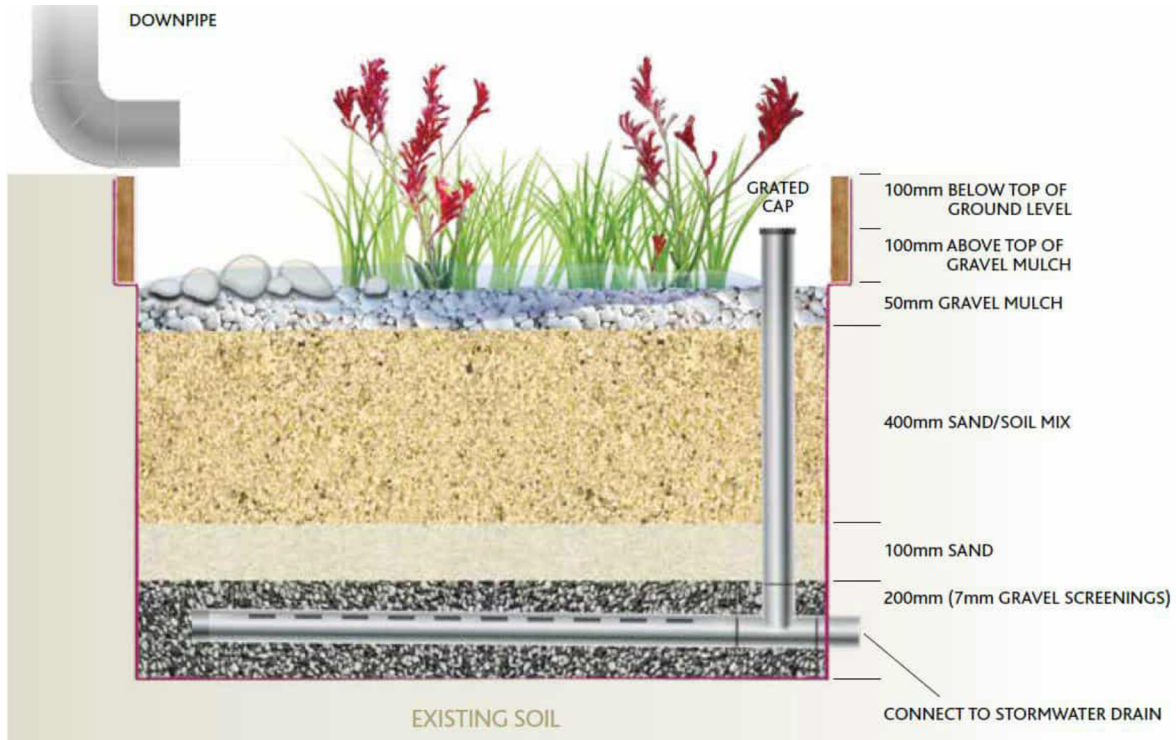


Figure B: Typical cross-section of an inground raingarden (Source: Melbourne Water)

The following raingarden treatments will be installed to the proposed development:

- Approx. 244m² of Carpark West will be connected to a minimum of **10m² of raingardens**.
- Approx. 252m² of Carpark Central will be connected to a minimum of **10m² of raingardens**.
- Approx. 203m² of Carpark East will be connected to a minimum of **5.8m² of raingardens**.

Table 1: MUSIC Performance Results

Diagram illustrating the water management system for the Post-Development Node, showing various water sources and their connections to the central node.

- ROOF West & Storage Shed 551m² [Mixed]** connects to **Rainwater Tank 7.0kL**.
- ROOF East 577m² [Mixed]** connects to **Rainwater Tank 7.0kL**.
- CAR PARK WEST 244m² [Mixed]** connects to **Rain garden 10m²**.
- CAR PARK CENTRAL 252m² [Mixed]** connects to **Rain garden 10m²**.
- CAR PARK East 203m² [Mixed]** connects to **Rain garden 5.8m²**.
- GRASS SOUTH 715.2m² [Mixed]** connects to the **Post-Development Node**.
- GRASS NORTH 64m² [Mixed]** connects to the **Post-Development Node**.

The central node is labeled **Post-Development Node**.

MUSIC Assessment

The MUSIC tool requires every impervious surface including treated and untreated surfaces and the respective treatments to be applied in the calculation to determine the performance of treatment measures relative to the percentage of the best practice targets achieved by the proposed measures. **Figure D** below illustrates the breakdown of the collection areas and its proposed treatment method. As a result, the proposed development has achieved compliance with the best practice objectives.



PLAN COLOUR	CATCHMENT TYPE	AREA m ²	TREATMENT
	ROOF WEST & STORAGE SHED	551	RAINWATER TANK 7000 LITRES (UNDERGROUND RWT)
	ROOF EAST	577	RAINWATER TANK 7000 LITRES (UNDERGROUND RWT)
	CARPARK WEST	244	RAINGARDEN 10 m ²
	CARPARK CENTRAL	252	RAINGARDEN 10 m ²
	CARPARK EAST	203	RAINGARDEN 5.8 m ²
	GRASS SOUTH	715.2	UNTREATED
	GRASS NORTH	64	UNTREATED
	RAINGARDEN	25.8	-
TOTAL AREA		2632	

Figure D: Stormwater diagram (source: Lanigan Civil)

Stormwater Treatment Maintenance Schedule

Once endorsed, it is the responsibility of the Building Management to ensure that the stormwater treatment assets are maintained as according to the maintenance schedule provided by the manufacturer's guidelines or the schedule proposed below:

Rainwater Tank (Underground)

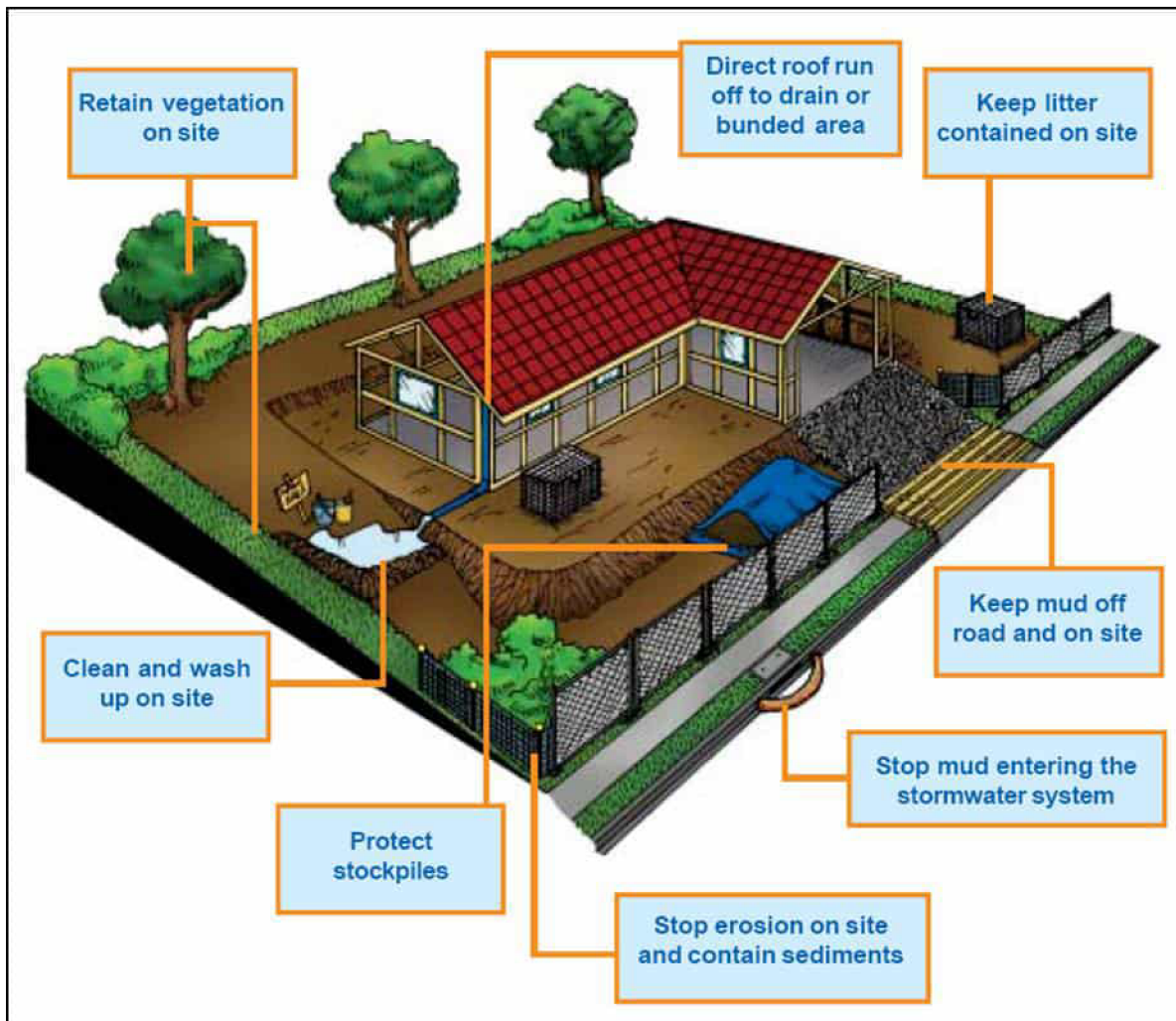
Description	Action	Maintenance Frequency
Gutters	Inspection & cleaning	Every 3 to 6 months
Leaf guards	Inspection & cleaning	Every 3 to 6 months
First flush diverters	Inspection & cleaning	Every 6 months
Water filter	- Replace water filter - Service water pump - Check water quality	Every 6 months
Water tank	Tank interior inspection for any debris, impurities, signs of corrosion for water quality control	Every 6 months
Water tank	Checking for structural integrity	Every 1 year
Water tank	De-sludging rainwater tank	Every 2 - 3 years

Raingardens

Description	Action	Maintenance Frequency
Litter and organics	- Litter removal - Check for algal biofilms that may cause clogging issues	Every 3 months
Vegetation	- Weeds removal - Dead plants replacement - Prune and water plants	Every 3 months
Mulch	- Replace or top up mulch - Check depth of mulch - Making sure that mulch is distributed evenly	Every 3 months
Civil components	- Inspect functional elements for damage and repair as required. - Check and clear sediment, litter and debris in inlet and outlet points.	Every 3 months

Stormwater Management at Construction Site

To manage stormwater management during 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.



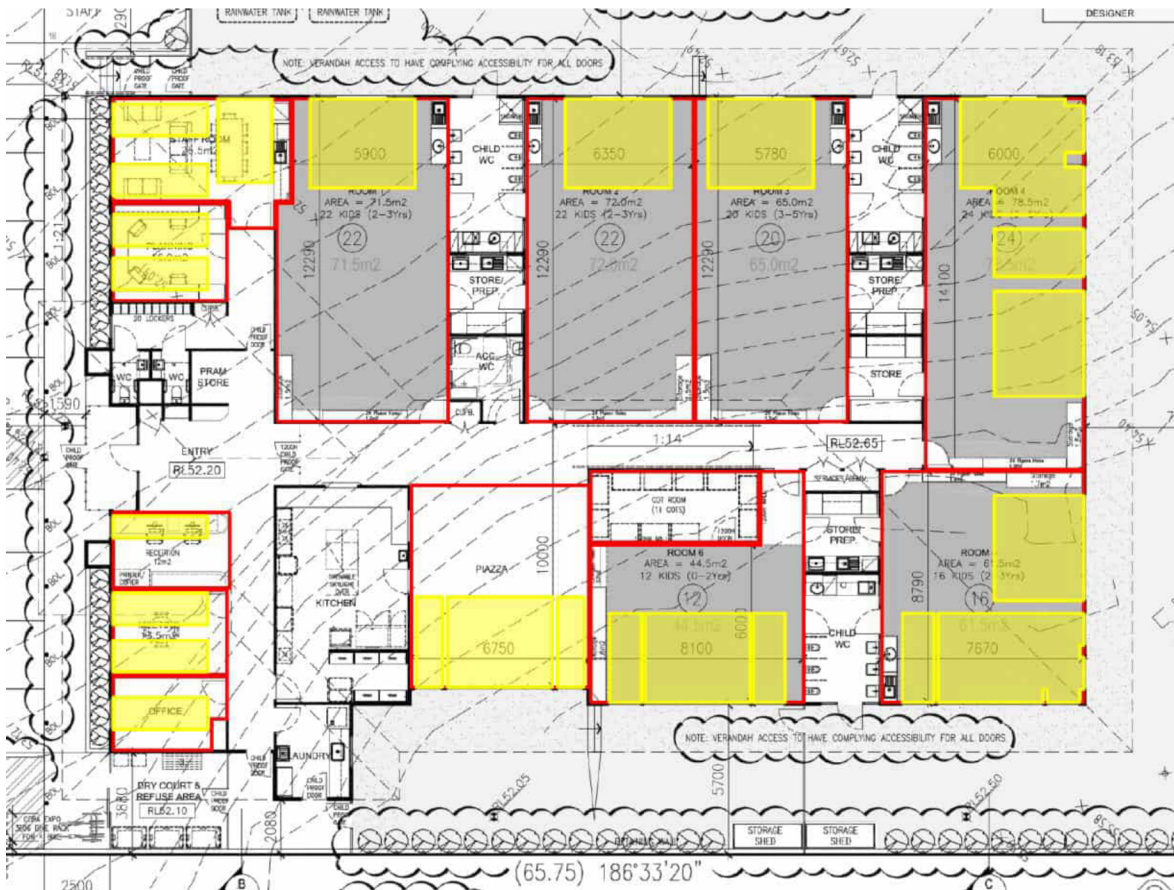
Additional copies of “Keeping Our Stormwater Clean – A Builder’s Guide” booklet can be obtained from Melbourne Water by ringing on 131 722 or be downloaded from the following website:

- https://www.clearwatervic.com.au/user-data/resource-files/Keeping_Our_Stormwater_Clean-A_Builders_Guide%5b1%5d.pdf

APPENDIX C

GREEN STAR DAYLIGHT ASSESSMENT

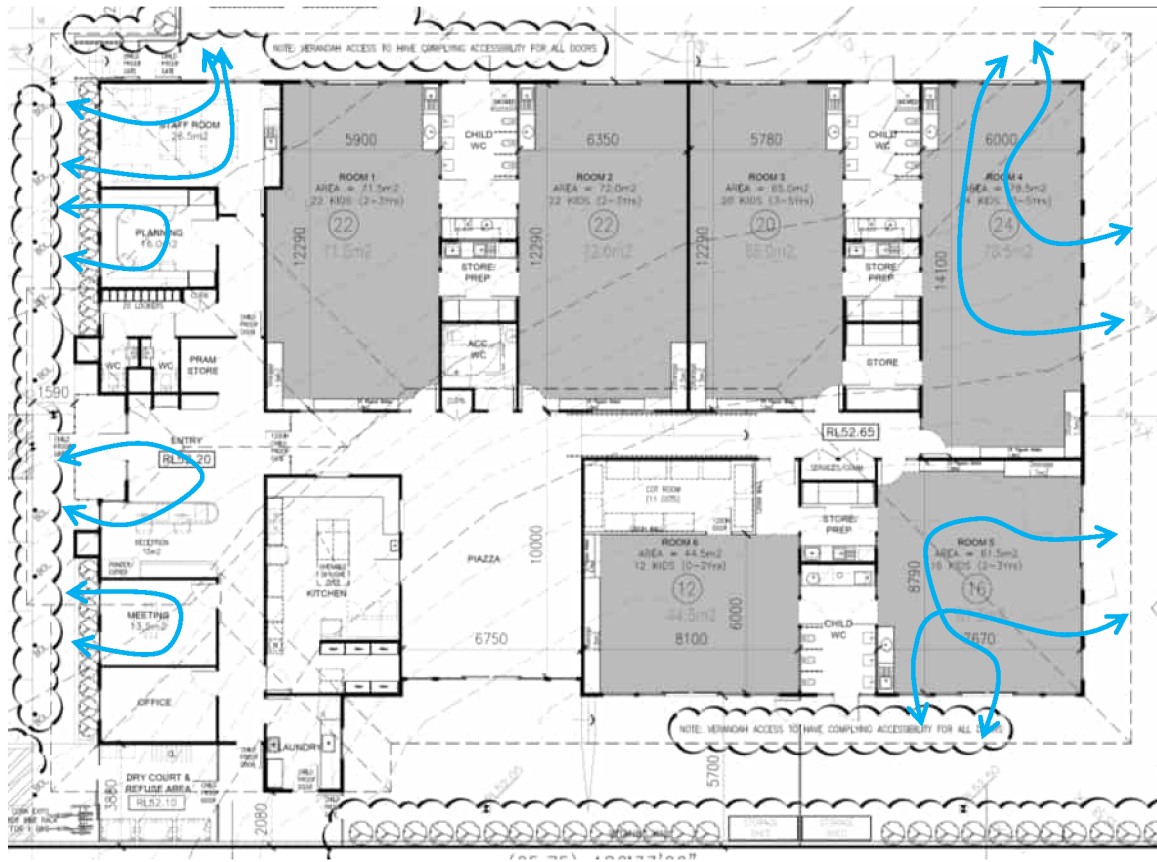
- **Depth of the Zone of Compliance** : $h \times 2$
- **“width” width of the Zone of Compliance**: *width of the glazing*
- **Zone of compliance** : $h \times 2 \times w$



- Total regular use area: 582.7 m²
- Total Zone of Daylight Compliance: 198.2 m²
- Percentage of regular use areas achieving at least 2% daylight factor: 34%

APPENDIX D

BESS IEQ 2.3 EFFECTIVE NATURAL VENTILATION



APPENDIX E

PRELIMINARY NCC 2022 FAÇADE CALCULATOR



Façade

Report



Calculator

Project Summary

Date
22/02/2026

Name
FM

Position
ESD Consultant

Building Name / Address
297-307 Roslyn Road, Highton
0

Building State

VIC

Climate Zone
Climate Zone 6 - Mild
temperate

Building Classification
Class 9b - early childhood
centres

Stores Above Ground
1

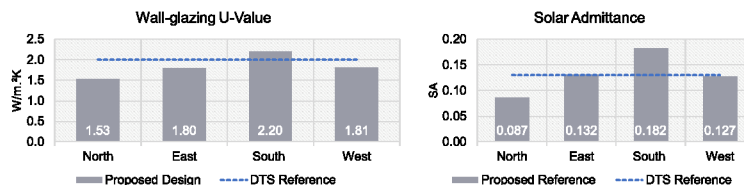
Tool Version
1.5 (May 2024)

The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Aspects).

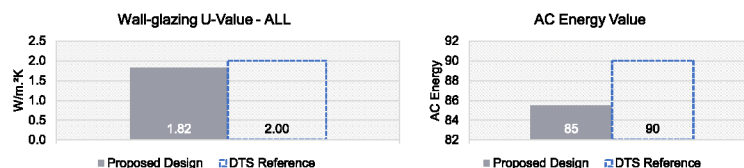
Compliant Solution =
Non-Compliant Solution =

	North	East	Method 1 South	West	Method 2 All
Wall-glazing U-Value (W/m².K)	1.53	1.80	2.20	1.81	1.82
Solar Admittance	0.09	0.13	0.18	0.13	
AC Energy Value					85

Method 1



Method 2



Project Details

	North	East	South	West
Glazing Area (m²)	24.91	45.714	39.888	46.656
Glazing to Façade Ratio	26%	37%	47%	36%
Glazing References	Awning Window Glazed Casement Fixed Window	Sliding Door Sashless Sliding Door 2 Sashless 2 Sliding Window Awning Window	Sliding Window Sliding Door Fixed Window Sliding Window 2	Fixed Window Sliding Door Sashless Sliding Door 2 Fixed Window 2
Glazing System Types	Awning Casement Fixed	Sliding Door Sashless Awning	Sliding Door Fixed	Fixed Sliding Door Sashless
Glass Types	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating
Frame Types	Aluminium	Aluminium	Aluminium	Aluminium
Average Glazing U-Value (W/m².K)	4.14	3.86	3.99	3.82
Average Glazing SHGC	0.47	0.47	0.47	0.47
Shading Systems	Horizontal Device	Horizontal Device	Horizontal Device	Horizontal Device
Wall Area (m²)	69.8	78.6	44.3	76.6
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	FC Steel 2 BV Steel_Air Gap2	FC Steel 2	FC Steel 2	FC Steel 2
Wall Thickness	130 240	130	130	130
Average Wall R-value (m².K/W)	1.68	1.68	1.68	1.68
Solar Absorptance	0.5	0.5	0.5	0.5