ENERGY
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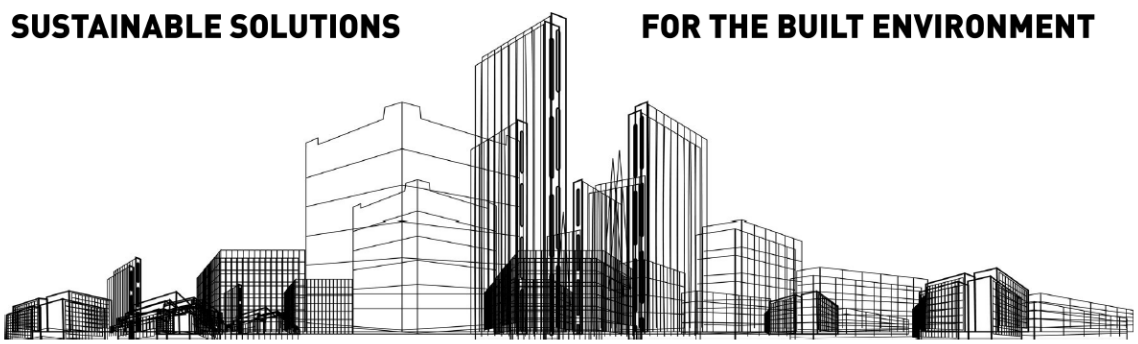
BAPTCARE HOUSING DEVELOPMENT – KEILOR DOWNS

SUSTAINABILITY MANAGEMENT PLAN

VERSION 4

27TH SEPTEMBER 2021

SUSTAINABLE SOLUTIONS FOR THE BUILT ENVIRONMENT



Date:	27/09/2021
Project Number:	PJ521
Project Title:	Baptcare Housing Development – Keilor Downs
To:	Georgina Campbell (CHC) Department of Environment, Land, Water and Planning
From:	Patrick Phelan

Document Title: Sustainability Management Plan – V4

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1. Executive Summary

The purpose of this ESD Submission is to show the results and initiatives included in a Sustainability Management Plan (SMP) for the Baptcare Housing Development Project - Keilor Downs development for review by the Department of Environment, Land, Water and Planning. The project is located at Copernicus Way, Keilor Downs. The development has been assessed against DELWP Clause 52.20, Brimbank City Council Council Planning Scheme requirements, Homes Victoria requirements and the National Construction Code energy efficiency regulations. The proposed design meets best practice as set out by these items.

Table 1 below is a checklist showing compliance with the various environmentally sustainable design requirements.

Table 1 : SMP Checklist for Baptcare Housing Development Project - Keilor Downs Development

Item	In Documents / Will be achieved	Required / Recommended by	Reference if Applicable
Minimum 7.5 Star average under the House Energy Rating scheme	✓	National Construction Code (6 Star) Green Star Target (7.5 Star)	Refer to Section 2
Green Star Homes (Self-Certification)	✓	Baptcare Commitment Brimbank City Council planning scheme	Refer to Section 4
An SMP describing sustainable initiatives for the development, targets and implementation	✓	DELWP Clause 52.20 Brimbank City Council planning scheme	Refer to Sections 3 setting out initiatives, targets and implementation
Water Sensitive Urban Design	✓	Brimbank City Council planning scheme	Refer to Section 5 and FMG WSUD Report
Green Travel Plan	✓	Brimbank City Council planning scheme	Refer to Appendix A

The implementation of the initiatives within the Sustainability Management Plan are the responsibility of the project team and Baptcare Housing Developments.

Where operational practices are required they will be organized between tenants, Baptcare Housing Developments (as owners/tenancy managers) and Council.

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2. NatHERS Assessments

All dwellings have been designed to achieve a minimum individual compliance of 7.5 Stars under the National House Energy Rating Scheme. This standard shall be achieved using the following initiatives:

- High performance double glazing – U-value=2.3 for overall system and solar heat gain coefficient =0.49
- Minimum of R2.5 insulation for walls (total wall system value)
- Minimum R5.0 insulation for roof (total roof system)
- Floor insulation to all dwellings (R1.5 below and R1.0 around slab)
- External shading in the form of eaves where required

As a part of this ESD submission, a selection of dwellings were rated using the FirstRate5 house energy rating software. The average house energy rating was 7.86 Stars with all dwellings achieving above 7.5 Stars (subject to the building fabric assumptions made in the ratings). Table 2 below shows the results for the individual units and whether it is modelled or estimated.

Table 2 : House Energy Rating Results

Dwelling Type	Number	Star Rating	Compliant with 7.5 Star Standard	Modelled or Estimated
Type A – Driveway to South	9	8.4	✓	Modelled (Preliminary)
Type A – Driveway to West	4	7.9	✓	Modelled (Preliminary)
Type B – Driveway to South	2	8.1	✓	Modelled (Preliminary)
Type B – Driveway to West	4	7.7	✓	Modelled (Preliminary)
Type C – Driveway to East	4	7.5	✓	Estimated
Type D – Driveway to East (G)	6	7.7	✓	Modelled (Preliminary)
Type D – Driveway to East (1st)	6	7.6	✓	Modelled (Preliminary)
Type D – Driveway to West (G)	6	7.8	✓	Modelled (Preliminary)
Type D – Driveway to West (1st)	6	7.8	✓	Modelled (Preliminary)
Total / Weighted Average	**47**	**7.86**		

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3. ESD Initiatives

The following sections outline the ESD initiatives and management processes that are proposed for the Baptcare Housing Development – Keilor Downs development. These are based on consideration of the following categories:

- Indoor Environment Quality (IEQ)
- Energy Efficiency
- Water Efficiency
- Stormwater Management
- Building Materials
- Transport
- Waste Management
- Urban Ecology
- Innovation
- Construction and Building Management

Each of the above categories have been broken down into sub-categories and then into particular initiatives in the tables below.

The implementation of the initiatives within the Sustainability Management Plan are the responsibility of the project team and Baptcare Housing Developments.

Where operational practices are required they will be organized between tenants, Baptcare Housing Developments (as owners/tenancy managers) and Council.

3.1 Indoor Environment Quality (IEQ)

Table 2 : IEQ Sub-Categories and Initiatives

IEQ Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target	Schedule of Initiatives and Responsibility
Daylight	▪ On average over 80% of living areas across the development will meet a 1% daylight factor ▪ On average 80% of bedroom areas across the development will meet a 0.5% daylight factor ▪ Refer to Section 4.2 for daylight calculations	▪ Daylight in 80% of living areas across the development will meet a 1% daylight factor ▪ Daylight 80% bedroom areas across the development will meet a 0.5% daylight factor	▪ Design phase: Architect ▪ Construction phase: Builder, window contractor
Hazardous Materials	▪ No hazardous waste shall be used in construction materials	▪ No hazardous waste shall be used in construction materials	▪ Implemented as part of construction of design drawings (mechanical contractor responsibility)
Acoustics	▪ All mechanical equipment shall meet the Australian Standards for noise levels	▪ To meet Australian Standards for noise levels	▪ Design phase: Architect ▪ Construction phase: Builder
Natural Ventilation	▪ Openable doors and windows to all living spaces	▪ Achieve NCC requirements	▪ Design phase: Architect ▪ Construction phase: Builder
Thermal Comfort	▪ External shading in combination with insulation, internal blinds, ceiling fans to living areas, air conditioning systems and solar PV are all implemented to provide high level of thermal comfort and reduce peak electricity demand	▪ No standard	▪ No standard

3.2 Energy Efficiency

Table 3 : Energy Efficiency Sub-Categories and Initiatives

Energy Efficiency Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Operating Energy and Building Fabric	▪ A minimum of 7.5 Stars NatHERS for each dwelling shall be achieved via high performance double glazing, minimum of R2.5 insulation for walls (total wall system value), minimum R5.0 insulation for roof (total roof system), floor insulation to selected dwellings as required to meet the standards, external shading where required in the form of horizontal shading. Noting that this external shading in combination with the insulation values above, internal blinds, ceiling fans to living areas, air conditioning systems and solar PV are all implemented to provide high level of thermal comfort and reduce peak electricity demand	▪ 7.5 NatHERS	▪ Design phase: Architect ▪ Construction phase: Builder
Heating and Cooling	▪ Cooling shall be provided via split system air conditioners	▪ 3 Star heating and cooling rating	▪ Design phase: Architect, mechanical designer ▪ Construction phase: Builder, mechanical contractor
Lighting Power Density	▪ Lighting power density shall be 20% lower than those stipulated by the National Construction Code in Part J6 for all NCC class types components. LED lighting will be implemented	▪ Lighting power densities to meet the 20% reduction target	▪ Design phase: Architect, Electrical Designer ▪ Construction phase: Electrical Contractor
Domestic Hot Water	▪ Hot water system must be an electric heat pump with requisite on-site hot water storage tanks as per Australian standards or alternative fossil fuel free domestic hot water system that doesn't use more energy than an electric heat pump meeting the above requirements. ▪ For the electric heat pump, the minimum heat pump Coefficient of Performance (COP) must be >= 3.0 at winter design conditions.	▪ Green Star Homes Standard	▪ Design phase: Architect, hydraulic designer ▪ Construction phase: Hydraulic contractor
External Lighting	▪ External lighting will be controlled via a time switch and motion detection	▪ BESS benchmarking (refer Appendix B.1)	▪ Design phase: Architect, Electrical Designer ▪ Construction phase: Electrical Contractor
Solar PV	▪ Minimum 5.5kW (total) solar PV system per dwelling	▪ 5.5 kW solar PV system per dwelling	▪ Design phase: Architect, Electrical / PV Designer ▪ Construction phase: Electrical / PV Contractor

3.3 Water Efficiency

Table 4 : Water Efficiency Sub-Categories and Initiatives

Water Efficiency Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target	Schedule of Initiatives and Responsibility
Minimising Amenity Water Demand	▪ Kitchen and laundry to be 4 Star WELS rated and bathroom basin taps to be 5 Star WELS rated. Toilets shall be 4 Star WELS rated. Showers shall be 4 Star WELS rated with a flow rate of 7.5 litres per minute. Washing machines and dishwashers (if provided) shall be 4 and 5 Star WELS rated respectively. Landscape irrigation (if provided) shall be drip system irrigation only. Rainwater harvesting systems shall be sized accordingly	▪ As per star rating targets specified. ▪ BESS benchmarking (refer Appendix B.1)	▪ Design phase: Architect / Hydraulic Designer ▪ Construction phase: Builder and hydraulic contractor
Rainwater Harvesting	▪ A 1,000 litre tank per dwelling shall catch a minimum roof surface area of 50m^2 and shall be used to flush all toilets as part of the scope of works	▪ BESS benchmarking (refer Appendix B.1)	▪ Design phase: Architect / Hydraulic Designer ▪ Construction phase: Builder and hydraulic contractor
Heat Rejection Water	▪ Air conditioning units shall use air-cooled condenser components.	▪ No water to be used in cooling.	▪ Design phase: Architect / Mechanical Designer ▪ Construction phase: Builder and Mechanical Contractor
Water Efficient Landscaping	▪ Water efficient garden	The landscape schedule is yet to be finalised however drought tolerant tree, shrub and grass species shall make up the majority of the landscaping	▪ Design phase: Architect / Landscape Designer ▪ Construction phase: Builder and Landscape Contractor

3.4 Stormwater Management

Table 5 : Stormwater Management Sub-Categories and Initiatives

Stormwater Management Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target	Schedule of Initiatives and Responsibility
MUSIC Modelling	▪ The calculated MUSIC modeling outputs for the entire masterplan are: ▪ Flow ML/year = 1.6% reduction ▪ Total Suspended Solids kg/year = 84.9% reduction ▪ Total Phosphorus kg/year = 72.4% reduction ▪ Total Nitrogen kg/year = 49.1% reduction	▪ Total Suspended Solids kg/year = 80% reduction ▪ Total Phosphorus kg/year = 45% reduction ▪ Total Nitrogen kg/year = 45% reduction	▪ Design phase: Architect / ESD Consultant / Hydraulic Designer / Civil Designer / Landscape Consultant ▪ Construction phase: Builder, civil contractor, landscape contractor and hydraulic contractor
Discharge to Sewer	▪ Low flow fittings and fixtures shall be used and shall reduce the discharge to sewer.	Kitchen and laundry to be 4 Star WELS rated and bathroom basin taps to be 5 Star WELS rated. Toilets shall be 4 Star WELS rated. Showers shall be 4 Star WELS rated with a flow rate of 7.5 litres per minute. Washing machines and dishwashers (if provided) shall be 4 and 5 Star WELS rated respectively.	▪ Implemented as part of construction of design drawings (contractor responsibility)
Watercourse Pollution	▪ A combination of buffer strips and rainwater harvesting tanks as detailed in Section 5	▪ Total Suspended Solids kg/year = 80% reduction ▪ Total Phosphorus kg/year = 45% reduction ▪ Total Nitrogen kg/year = 45% reduction	▪ Design phase: Architect / ESD Consultant / Hydraulic Designer / Civil Designer / Landscape Consultant ▪ Construction phase: Builder, civil contractor, landscape contractor and hydraulic contractor

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3.5 Building Materials

Table 6 : Building Materials Sub-Categories and Initiatives

Building Materials Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Storage for Recycling Waste	▪ Appropriate bin storage space including space for recycling bins has been allocated.	▪ Refer to Waste Design Assessment for details.	▪ Design phase: Architect ▪ Construction phase: Builder
Environmental Toxicity	▪ Both refrigerants and insulation materials shall be specified to be non-ozone depleting in both composition and manufacture.	▪ Zero ozone depleting materials used in both composition and manufacture.	▪ Design phase: Architect ▪ Construction phase: Builder

3.6 Transport

Table 8 : Transport Management Sub-Categories and Initiatives

Transport Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Bike racks	▪ 1 secure bike rack per bedroom	▪ 1 secure bike rack per bedroom	▪ Design phase: Architect ▪ Construction phase: Builder

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3.7 Waste Management

Table 7 : Waste Management Sub-Categories and Initiatives

Waste Management Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Construction Environmental Management Plan	▪ A construction environmental Design Assessment will be required to be implemented by the lead contractor.	▪ Production and implementation of an EMP.	▪ Architectural preliminaries to require a CEMP ▪ Lead contractor responsibility
Waste Management Plan	▪ Construction phase environmental Design Assessment to be implemented.	▪ Minimum 80% of construction waste to be reused or recycled. ▪ BESS benchmarking (refer Appendix B.1)	▪ Architectural preliminaries to require a WMP ▪ Lead contractor responsibility
Operational Waste	▪ Green and garden waste and recycling waste shall be separated from general waste and disposed / re-used accordingly	▪ Waste initiatives, requirements and instructions for both garden waste and recycling shall be incorporated into the building users guide.	▪ Architect in the design phase and BC in the operation phase

3.8 Urban Ecology

Table 8 : Urban Ecology Sub-Categories and Initiatives

Urban Ecology Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Landscaped Areas	▪ Landscaping will be provided as shown in Landscape drawings.	▪ The landscape schedule is yet to be finalised however drought tolerant tree, shrub and grass species shall make up the majority of the landscaping	▪ Design phase: Architect / Landscape Architect ▪ Construction phase: Builder / Landscape Contractor

3.9 Innovation

There are no initiatives that cannot be categorized within the other 9 categories, therefore the innovation category is not applicable.

3.10 Construction and Building Management

Table 9 : Construction and Building Management Sub-Categories and Initiatives

Construction and Building Management Sub-Categories	Proposed Baptcare Housing Development – Keilor Downs Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Construction Environmental Design Assessment	▪ A construction environmental Design Assessment will be required to be implemented by the lead contractor.	▪ Production and implementation of an EMP.	▪ Architectural preliminaries to require a CEMP ▪ Lead contractor responsibility
Stormwater Construction Design Assessment	▪ A stormwater construction Design Assessment will be implemented as part of the construction environmental Design Assessment.	▪ Council requirements.	▪ Architectural preliminaries to require a SMP ▪ Lead contractor responsibility
Home User Guide	▪ A home user guide to be handed over to all owners after construction.	▪ Sustainability and maintenance information to be included in home user guide.	▪ Project team

4. Green Star Homes Standard

4.1 Green Star Homes Standard Pathway

The Green Star Pathway and major ESD initiatives to be implemented into the design and construction listed in the table below. The responsibility column shows the responsible party / parties in each of the design and construction phase.

Note that some of these initiatives double up with the initiatives and targets set out in Section 3.

Category	Credit	Initiative to Achieve Credit	Responsibility
Positive	- NatHERS	A minimum of 7.5 Stars NatHERS for each dwelling shall be achieved via high performance double glazing, minimum of R2.5 insulation for walls (total wall system value), minimum R5.0 insulation for roof (total roof system), floor insulation, external shading where required	-Design phase: Architect -Construction phase: Lead contractor
	- Window System	Window systems to be U-value=2.3 for overall system and solar heat gain coefficient =0.49 shall be calculated using AFRC methods	-Design phase: Architect -Construction phase: Lead contractor
	- Airtightness	Air tightness shall be tested and meet a maximum permeability of 5 $m^3/hr \cdot m^2$ @50Pa. testing to be conducted as per AS/NZS ISO 9972:2015 – Thermal performance of buildings – Determination of air permeability of buildings -Fan pressurization method. Method 1 – Building in Use.	-Design phase: Architect -Construction phase: Lead contractor
	- Hot Water	Credit shall be met by domestic hot water system must be an electric heat pump with requisite on-site hot water storage tanks as per Australian standards or alternative fossil fuel free domestic hot water system that doesn't use more energy than an electric heat pump meeting the above requirements. For the electric heat pump, the minimum heat pump Coefficient of Performance (COP) must be >= 3.0 at winter design conditions.	-Design phase: Architect, hydraulic services consultant -Construction phase: Lead contractor, hydraulic services contractor
	- Appliances	Appliances shall be electric cooktops and ovens, refrigerator (if provided) of 4 Stars MEPS, washing machine (if provided) of 4 Stars (MEPS) and Dishwasher (if provided) of 4 Stars MEPS, clothes dryers (if provided) of 4 Stars MEPS. Air conditioners to be 3 Star rated Cook tops shall be all electric	-Design phase: Architect (if applicable), Baptcare -Construction phase: Lead contractor

Category	Credit	Initiative to Achieve Credit	Responsibility
	- Renewable Energy	A solar PV system shall be installed on each dwelling of minimum capacity 5.5kW as per the Green Star Homes requirement	-Design phase: Architect, electrical services consultant -Construction phase: Lead contractor, electrical services contractor
	- Home User's Guide	A home user guide shall be produced and provided in digital format to the home users and shall include the following: ▪ Operations and maintenance requirements related to the installed ventilation system including guidance on change of filters to maintain optimal performance; ▪ Best usage patterns to maintain net zero energy performance of home; ▪ Recommendations on energy and water efficiency of appliances; ▪ Information on the Climate Active carbon neutral building standard; and ▪ Resources or recommendations on sustainable living (e.g. Waste management, native planting, food growing, managing ▪ water, sustainable transport etc).	-Design phase: Architect, ESD consultant -Construction phase: Lead contractor, ESD consultant, Architect, Baptcare
Healthy			
	- Air Quality	All buildings shall be naturally ventilated with appropriate breeze paths	-Design phase: Architect -Construction phase: Lead contractor
	- Moisture Management		
	○ External Moisture	All houses shall have a weather protected barrier that is installed with care at the connection point between walls and windows and the roof systems shall provide measures to provide a drainage path for external moisture that has penetrated the roof cladding	-Design phase: Architect -Construction phase: Lead contractor
	○ Internal Moisture	The layer immediately internal to the insulation shall be designed and installed allow moisture to escape outward	-Design phase: Architect -Construction phase: Lead contractor
	○ Thermal Bridging	Slab edge insulation shall be R1.0 including de-rating impact of thermal bridging	-Design phase: Architect, structural engineer -Construction phase: Lead contractor

Category	Credit	Initiative to Achieve Credit	Responsibility
	- Light Quality	Artificial lighting shall meet the following requirements: ▪ Minimum Colour Rendering Index (CRI): average Ra ≥ 80, R9 > 0; ▪ Adjustable colour temperature to closely match natural sunlight and to minimize blue light in the evening; ▪ Reduce eye strain by meeting the following requirements: ○ Flicker: Pst LM ≤ 1,0 at full-load ○ Stroboscopic effect: SVM ≤ 0,4 at full-load (except for light sources intended for use in outdoor applications).	-Design phase: Architect, electrical services consultant -Construction phase: Lead contractor, electrical services contractor
	- Material Toxicity		
	○ Paints, Adhesive, Sealants and Carpets	Paints, adhesives, sealants and carpets shall be low VOC as per Max TVOC limits and testing standards stipulated by Green Star	-Design phase: Architect -Construction phase: Lead contractor
	○ Engineered wood products	Engineered wood products to meet VOC and formaldehyde emissions limits and testing standards stipulated by Green Star	-Design phase: Architect -Construction phase: Lead contractor
Resilient	- Water Management	Bathroom basin taps to be 5 Star WELS rated. Toilets shall be 4 Star WELS rated. Kitchen and laundry taps to be 4 Star WELS rated. Showers shall be 4 Star WELS rated with a flow rate of 7.5 litres per minute. Washing machines and dishwashers (if provided) shall be 4 and 5 Star WELS rated respectively. Landscape irrigation (if provided) shall be drip system irrigation only. Rainwater harvesting systems shall be sized accordingly and connected to toilet flushing	-Design phase: Architect, hydraulic services consultant, Baptcare, landscape consultant -Construction phase: Lead contractor, hydraulic services contractor, landscape contractor
	- Heat Stress	Heat stress shall be met by either a site or community level by adhering to minimum solar reflective indexes for hard materials and incorporation of landscaping	-Design phase: Architect, landscape consultant -Construction phase: Lead contractor, landscape contractor
	- Resilience Rating	The structure shall meet increased storm requirements as per Green Star targets. Ceiling fans, air conditioning, external shading and natural ventilation shall meet requirements of thermal resiliance	- ESD consultant to confirm

4.2 Green Star Daylight Calculations

A daylight assessment has been undertaken using the IES VE Software.

The analysis showed that daylight targets of 1% daylight factor is achieved for over 99% of the room area for 86% of living areas.

The analysis also showed that daylight targets of 0.5% daylight factor is achieved for over 99% of the room area for all bedroom areas.

The following table shows the daylight factor for each level and the total weighted daylight factor.

Apartment	% of Living Area With Daylight Factor Over 1%	% of Bedroom 1 Area With Daylight Factor Over 0.5%	% of Bedroom 2 Area With Daylight Factor Over 0.5%	% of Bedroom 3 Area With Daylight Factor Over 0.5%
Type A	96%	86%		
Type B	93%	90%	83%	
Type C	86%	88%	86%	66%
Type D	89%	88%		

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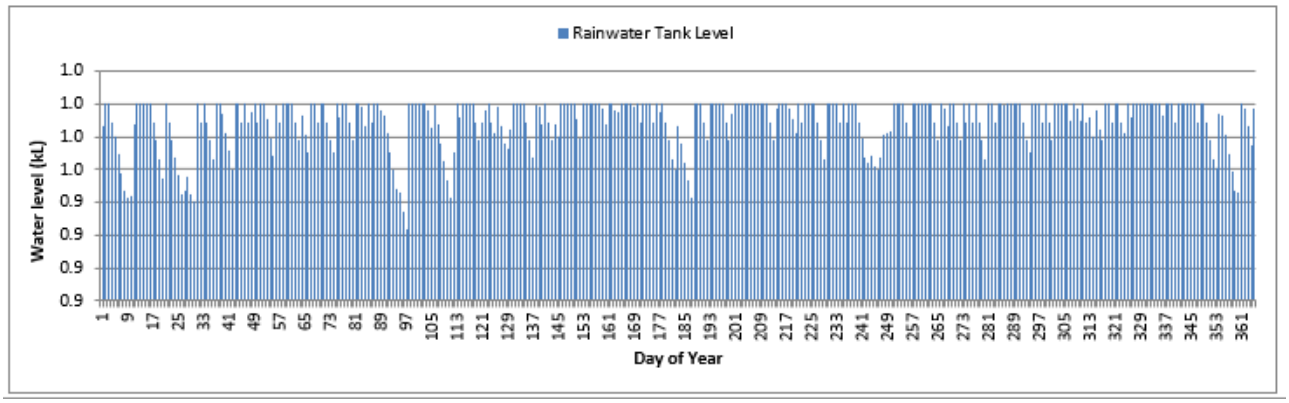
4.3 Green Star Potable Water Calculator Results

The Potable Water Calculator screenshot below shows the inclusion of 1,000 litre rainwater harvesting tanks per dwelling and at least 50m^2 per dwelling going to the tanks. Further detail on the rainwater harvesting system will be included in later revisions of the report.

Rainwater Collection

Rainfall collection area (m2)		50
Run-off co-efficient	Pitched roof with profiled metal sheeting	0.9
Storage capacity (kL)		1
Rainwater tank reliability %		100%

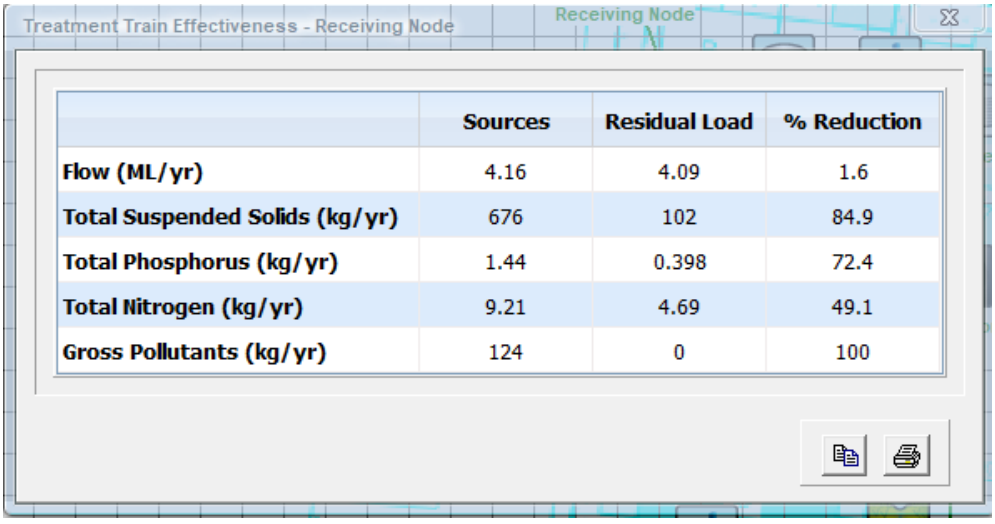


5. Water Sensitive Urban Design

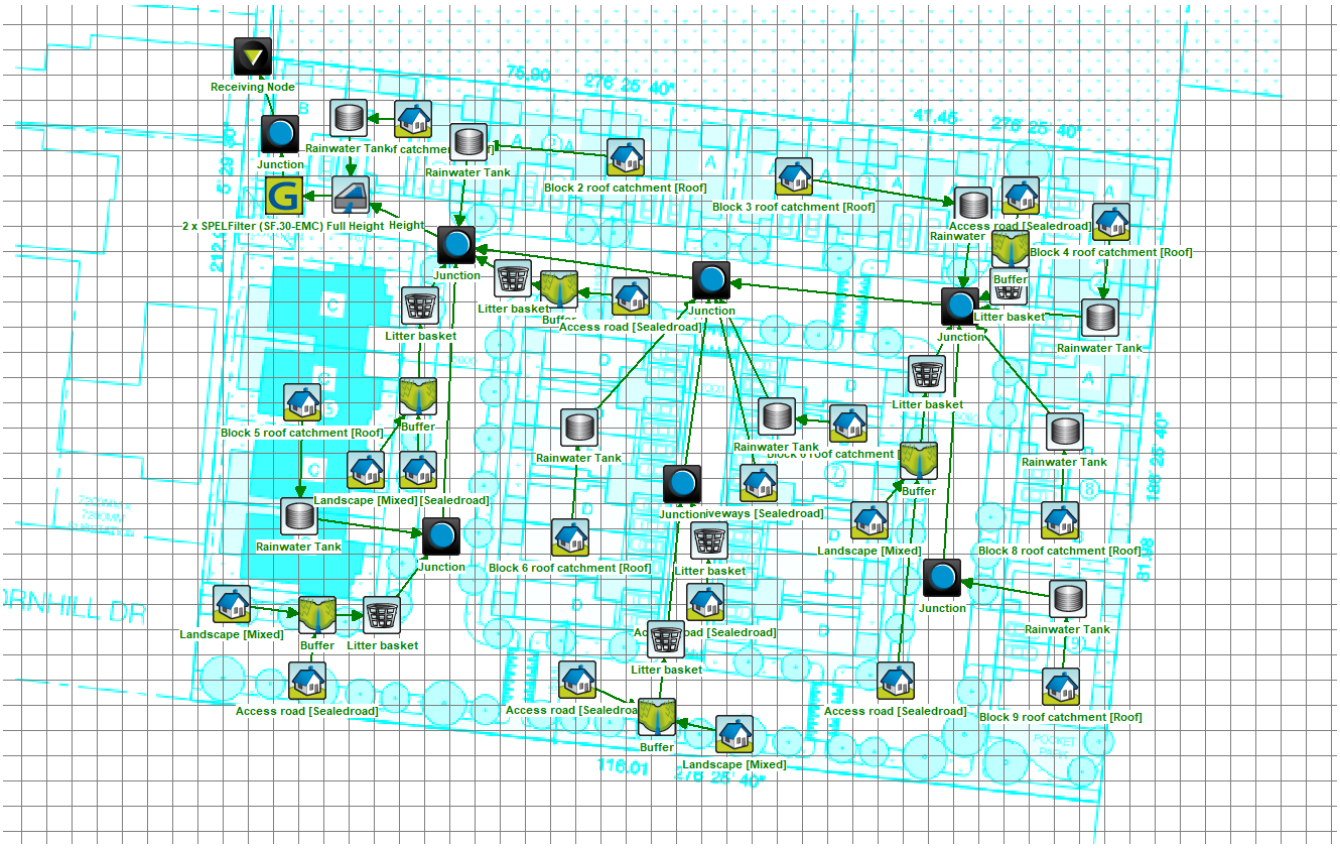
Water sensitive urban design calculations have been undertaken by FMG Engineers. Compliance with treatment targets have been shown via MUSIC modelling. The results and screenshot of the modelling are show below.

The major initiatives responsible for meeting the treatment targets are:

- All roof areas directed to rainwater harvesting tanks (1,000 litres per unit)
- Road / landscape areas directed to buffer strips / bioswales (shallow profile treatment)
- Stormwater pits with trash grate pit inserts



	Sources	Residual Load	% Reduction
Flow (ML/yr)	4.16	4.09	1.6
Total Suspended Solids (kg/yr)	676	102	84.9
Total Phosphorus (kg/yr)	1.44	0.398	72.4
Total Nitrogen (kg/yr)	9.21	4.69	49.1
Gross Pollutants (kg/yr)	124	0	100



6. Conclusion

The ESD components for the Baptcare Housing Development – Keilor Downs project have been proposed with reference to current construction code standards, the industry benchmarking tool Green Star Homes Standard and Brimbank City Council Planning Scheme ESD requirements. The proposed design meets best practice as set out by these items. The following benchmarks have been met to achieve these requirements:

- Minimum 7.5 Star average under the House Energy Rating scheme
- Green Star Homes (Self-Certification)
- Sustainability initiatives for the development, targets and implementation in line with Bimbank City Council Planning Scheme
- Surpassing Water Sensitive Urban Design targets
- Implementation of a Green Travel Plan
- DELWP Clause 52.20

Appendix A – Green Travel Plan

The Green Travel Plan for the project is attached.

Date:	27/9/2021
Project Number:	PJ521
Project Title:	Baptcare Housing Development
Document Title:	Green Travel Plan V2 Final

Green Travel Plan V2 Final

Prepared by Energy Water and Environment Consulting 27/9/2021

1) Introduction

This Green Travel Plan is intended for Baptcare Housing Development.

The Plan has been prepared with reference to the Green Star Design and As-Built Sustainable Transport (Credit 17) credit and will inform the future design from acceptance at the planning phase.

2) Aims and Objectives

The underlying objective of this Travel Plan is to reduce carbon emissions from travel and traffic congestion, to improve building occupant health, well-being and travel independence through sustainable travel options such as walking, cycling, public transport and car-pooling.

The chief objective of the Green Travel Plan is to provide details of the design initiatives and sustainable management practices for encouraging and enabling building occupants to reduce dependence on car usage. More specifically it will:

- Identify measurable and realistic annual targets for reducing dependency on car usage (against the baseline)
- Facilitate a strong commitment to the GTP by the design team and The Development by identifying a list of actions and key responsibilities for design, construction and post-handover stage
- Provide information on the education and awareness programs available to empower residents to change their travel habits
- Outline a monitoring plan to measure the success and uptake of the Plan

3) Targets

- Achieve 15% reduction on car based commutes by one year after handover
- Achieve 30% increase (compared to the baseline) in sustainable travel uptake by building occupants and users by one year after handover

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4) Actions and Chart of Responsibilities

A list of design/management actions have been listed below to support alternative Sustainable Travel:

a. Undertake Survey of building occupants' travel habits

An access audit should be undertaken to provide the following information, which will form the basis for the Green Travel Plan:

- A brief description of the survey process
- Define a baseline for the development
- Outline the key findings – e.g. commute trips for each transport mode (public transport, cyclic paths, walking, car-pool), most common reasons for travel choices
- Outline a list of barriers and opportunities for sustainable travel
- Provide a graph or chart of the key results

b. Undertake Accessibility assessment

The Development has undertaken an Accessibility Assessment to see how accessible the development is for all different modes of transport and the design caters for the following where practicable:

- Site accessibility for pedestrians and cyclists
- Cycle access
- Public Transport Accessibility
- Access to bus/train services including shuttle buses
- Bus stop facilities

c. Actions for encouraging and enabling walking as a travel option

Action	Timeline	By whom
Produce a map showing safe walking routes to and from the site with times, not distances, to local facilities, such as shops and bus stops (e.g. Walkscore)	Design and Handover	Baptcare
Open-up short cuts for pedestrian access across/along the proposed work site	Design	Lead Contractor
Ensure pedestrian safety and access is not compromised during construction or by cross sections	Design	Lead Contractor

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d. Actions for encouraging and enabling Cycling as a travel option

Action	Timeline	By whom
Provide sufficient number of secure bicycle parking spaces, which is easily accessible, well lit and secure.	Design	Architect / Baptcare / Lead Contractor
Provide cycle parking for visitors.	Design	Architect / Baptcare / Lead Contractor
Ensure bike parking is easily accessible and clearly visible or provide signage to direct people to bike parking spaces.	Design/ Construction	Architect / Baptcare / Lead Contractor
Review condition and interconnection opportunities of existing onsite cycle routes	Design/ Construction	Architect / Baptcare /
Upgrade or provide new onsite cycle routes	Design/ Construction	Architect / Baptcare /
Ensure cycle routes are not compromised during construction or by cross sections	Construction	Lead Contractor

e. Actions for encouraging and enabling Public Transport as a travel option

Action	Timeline	By whom
A map showing public transport routes to the site	Post Handover	Baptcare

f. Actions for proper designation of Car Parking

Action	Timeline	By whom
Identify priority users of car park e.g. people with disabilities	Design/ Construction	Architect / Baptcare / Lead Contractor
Provide spaces for mopeds/motorbikes	Design/ Construction	Architect / Baptcare / Lead Contractor

g. Management practices identifying sustainable transport initiatives

Action	Timeline	By whom

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- Commitment to conducting an Access survey to set baseline and gain insights about the travel habits of the building occupants - Commitment to implementing this Green Travel Plan	Post-handover	Baptcare

5) Details of Education and Awareness Program

A program of information and awareness will be developed to facilitate, support and empower building occupants to change their travel habits. This may include the following:

- Creating a central source of information for:
  - Online maps of walking paths, cycle routes and cycle parking spots
  - A list of facilities and design features in place that support the uptake of alternative travel plans
  - Facilitation of 'buddying-up' for cycling, car-pooling and walking
  - Facilitation of interaction between building occupants on Sustainable Travel options
  - Provide links to informative websites, information about local community groups and programs and annual events etc.
  - Potentially arrange group discounts on travel cards
  - Supply and manage a building toolkit - this can consist of puncture repair equipment, a bike pump, a spare lock and lights
  - Participate in annual events such as 'Ride to Work Day'
  - Set up and manage databases and portals e.g. car pooling database

6) Monitoring & Reporting Plan

Monitoring is an essential part of the Green Travel Plan and shall be undertaken by The Development.

The following method/tools may be used to monitor the Travel Plan:

- Annual questionnaires for the building occupants
- Random on-site vehicle counts during the work-hours
- Periodical accessibility assessment to assess how accessible the development is for all different modes of transport

The monitoring reporting may also include the following:

- An assessment of travel questionnaire results and any other monitoring such as vehicle counts.
- An assessment of how the targets are being met
- Any revisions to the Travel Plan (e.g. new list of actions)

7) Useful Links and Resources

Bicycle Network
https://www.bicyclenetwork.com.au
Public Transport Victoria
http://ptv.vic.gov.au
TravelSmart

WWW.EWENVIRONMENT.COM.AU
ABN: 50 800 554 305

http://www.travelsmart.gov.au