The Maronite Sisters Of The Holy Family Village

Village 1 Redevelopment

ESD Report / prepared for Jackson Teece Architecture

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1 Introduction

1.1 Preamble

This report supports a State Significant Development Application (SSD-69377980) for new residential care facility. This SSDA is submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act* (EP&A Act).

The proposed development is located at 28 Marrickville Avenue, Marrickville (also known as 194-210 Wardell Road) – see Figure 1 below. It involves the redevelopment of a residential care facility known as 'Village 1' to provide a four-storey, 99-bedroom (100-bed) facility located on Marrickville Avenue.

The Maronite Sisters of the Holy Family have provided high-quality care in Marrickville since 1991. The new residential care facility will enable the Maronite Sisters of the Holy Family to continue their mission to provide holistic quality care for residents in order to meet individual needs in a comfortable, safe and supportive environment with a focus on restoring and promoting optimal independence and dignity.

Figure 1.1 – Proposed Development Site

To facilitate the development with minimal interruption to residents, construction is proposed in stages as follows:

- **Stage 1**: Transfer residents from Village 1 to Village 2.
- **Stage 2**: Demolish Village 1.
- **Stage 3**: Build the new Village 1 residential care facility.
- **Stage 4:** Move residents from Village 2 to the new Village 1.

In accordance with section 4.39 of the *Environmental Planning & Assessment Act 1979* (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) for SSD-69377980 have been issued. This report has been prepared to respond to the issued SEARs.

1.2 Purpose

Waterman has been engaged to prepare a ESD Report for the purpose of addressing the relevant Secretary's Environmental Assessment Requirements (SEARs) - Seniors Housing listed in the 9. Ecologically Sustainable Development (ESD) section for the proposed aged care development.

This ESD Report lists the sustainability initiatives and attributes currently considered for the project. The project team will endeavour to ensure that all aspects of the design listed within this report are fully implemented into the design documents and the constructed building.

1.3 General Scope of Work

The proposed new aged care facility is located at the South-East-side of the aged care village site, 28 Marrickville Avenue, Marrickville NSW 2204. The facility shall be accessible from Marrickville Avenue.

The facility shall contain approximately 9,530m^2 of new bedrooms, communal, collaboration, staff and wellbeing areas located over 5 floors:

- 100 bedrooms over ground floor to level 3.
- 21 car parking spaces at basement floor.
- A chapel/multi-purpose hall at ground level.
- Communal areas including lounges, dinning areas, lobbies, office, nurse stations over ground floor to Level 3.
- A Hair Salon at Level 3.

Figure 1.2 – Location Plan

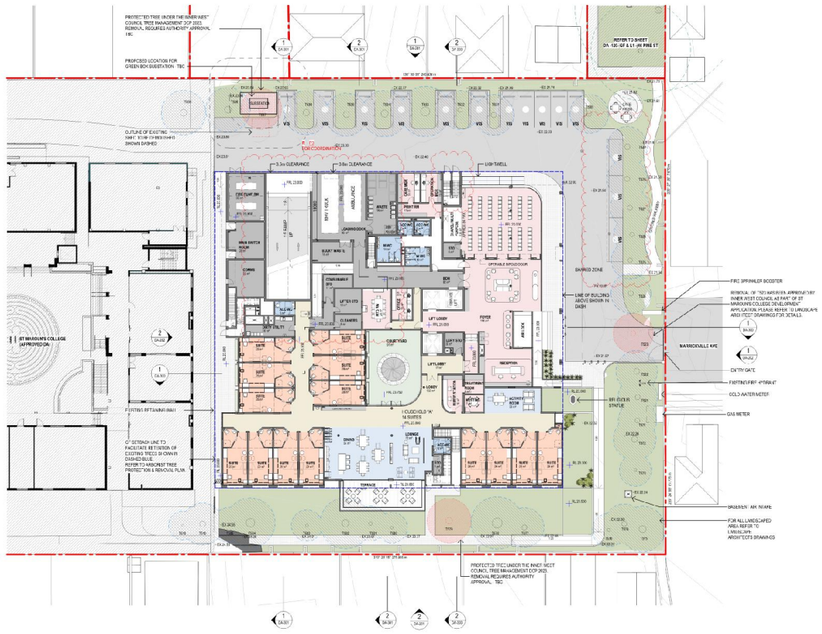


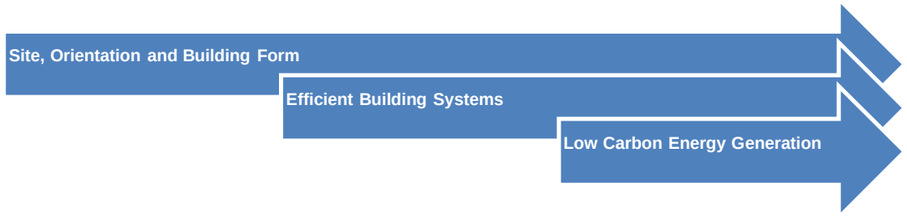
Figure 1.4 – Proposed Level 2 Floor Plan

Figure 1.3 – Proposed Ground Floor Plan

1.4 Design Philosophy

Sustainability has been integrated into the heart of this development with careful consideration given to sustainable outcomes from the initial siting, massing and orientation of the building.

In addition to these core features, this project has included wide ranging initiatives to ensure the building is a healthy, energy and water efficient building with a minimal ecological footprint.



The proposed building services arrangements presented within this report have been based on the above briefing information, discussions / directions from the Client, and our relevant experience in comparable facilities.

1.5 Sources of Information and Limitations

This report has been based on the following architectural information:

- Jackson Teece. Project No.: 2022104. Architectural Drawing Set – Amendments For Coordination, Rev: P3. Date: 26/08/2024.

This ESD Report is based on our interpretation of the architectural documentation and project briefing requirements issued to us to date. It is also based on our understanding of the key design considerations that we believe are beneficial to a development of this type and size in order to reduce the development's impact on the environment.

This report has been specifically prepared for the organisation noted on the cover of the report.

No responsibility or liability to any third party is accepted for any loss or damage arising from the use of this report by any third party. Any third party wishing to act upon any material contained in this report should confer with Waterman for detailed advice to take into account that party's particular requirements.

2 Summary and Conclusions

This report outlines a number of sustainable design initiatives which are to be integrated into the design and specification of the proposed development in order to reduce the development's environmental impact.

The performance outcomes presented in this report demonstrate that the proposed development meets the relevant planning requirements of the relevant authorities.

- State Environmental Planning Policy (Sustainable Buildings) (SEPPs) 2022.
- National Construction Code Section J 2022.
- Secretary's Environmental Assessment Requirements (SEARs) – Seniors Housing.

2.1 Design Response to SEARs Requirements

SEARs Section 9 ESD Requirements	Design Response
• Identify how ESD principles (as defined in clause 7(4) of Schedule 2 of EP&A Regulation) are incorporated in design and ongoing operation of the development.	The principles of ESD defined in clause 193 of Schedule EP&A Regulation 2022 are as follows, (a) precautionary principle, (b) inter-generation equity, (c) conservation biological diversity and ecological integrity (d) improved valuation, pricing and incentive mechanisms The proposed development aims to meet the ESD standards listed in the Chapter 3.2 of SEPPS for its design and construction. The ESD principles implemented into the proposed design include • avoiding serious or irreversible damage to the environment via compiling various SEPPs standards. • maintaining health, diversity and productivity of the environment for future generations via minimising consumption of energy, water resource and materials resources under the SEPPs. • minimising ecological impact from the proposed development via Central Atrium Space and landscape area provided with native vegetation as priority and preferred. • ensuring the operation performance of the proposed development is generally equivalent to a NABERS 4 Star rating under the NABERS Retiring Living Energy and Water tools
• Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.	• NCC Section J4 assessment to ensure the building envelope performance be sufficient to the current NCC 2022 Section J requirements. • MUSIC modelling assessment to ensure the best practices performance to be achieved by the development on-site stormwater management. • NABERS 4 ratings on operational energy and water consumptions via efficient thermal envelope, efficient fitting and fixtures and facility management to ensure the Signifies performance that is above average under the NABERS Retirement Living tools.
• Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero by 2050) and consumption of energy, water (including water sensitive urban design) and materials resources.	The proposed strategy towards net carbon emissions for the development is based on the following framework: **High performance building envelope** • Building fabric insulation performance according to the current NCC 2022 Section J4 requirements • High performance window systems – thermally improved. **Energy Efficient appliances and services systems** • Specification of high star rating built in appliances • Specification of high efficiency invertor drive air conditioning systems. • Specification of high efficiency LED light fittings throughout. • Specification of flexible lighting controls including motion sensors to limited access areas. **On-site solar generation** • Provide PV system to the suitably orientated roof areas to allow onsite power generation to be maximized. • The PV system will be carefully integrated into the developments roof design for occupant amenity and wellbeing
	Remove reliance on Fossil Fuel usage • No gas fired appliances (domestic hot water, cooktops etc) to be specified. • Building to be fully electric to maximise usage of on-site generation and provide the mechanism to offset emissions via the purchase of Green Power.

SEARs Section 9 ESD Requirements	Design Response
	Future commitment of renewable energy purchasing of Green Power. • Once a 'real life' energy consumption profile is established with the building in operation a staged procurement plan can be established for the progressive purchase of Green Power. Green Power purchasing is proposed to be established in a staged manner with levels of Green Power purchased increasing over time and the development moves towards Net Zero Emissions.
	Water Resources • High Star Rated fittings and fixtures. • Rainwater harvesting system.
	Materials • Reused and Recycled content. • Sustainably Certified Products and Materials. • Preference to locally sources materials. • Material selections to target longevity, adaptation, disassembly, re-use and recycling where possible.

2.2 Project Commitments

A list of the initiatives proposed to be included within the design has been provided in Section 6.1 Implementation Plan.

3 Water Resources

3.1 Water Balance

A carefully designed, holistic water strategy can reduce the reliance of a building on potable water supply and local water catchment areas, while improving the local biodiversity. A typical water strategy will include the following objectives.

- Reduce water demand through efficient fittings and fixtures.
- Collect and reuse rainwater for irrigation in lieu of potable water supply.
- Treat outflows from the site to minimise pollutants in the local stormwater systems.

3.2 Water Efficiency

This project will incorporate efficient fittings and fixtures designed to minimise water use within the building.

Kitchen Taps	*5 Star WELS*
Vanity Taps	*5 Star WELS*
Dual Flush Toilets	*4 Star WELS*
Urinals	*5 Star WELS*
Shower Head	*3 Star WELS (>=6.0 L/min. but <=7.5 L/min.)*
Dishwasher	*3 Star WELS*
Washing Machine	*3 Star WELS*

3.3 On-Site Stormwater Management

This project includes a stormwater management system to support the proposed development. The stormwater treatment solutions provided include rainwater tank collection from various non-trafficable roof areas.

The rainwater is to be collected from 1,350 m² non-trafficable roof area as the minimum for reuse in a 40,000L rainwater tanking and used for toilet flush to the building and irrigation.

A MUSIC modelling assessment is to be undertaken to verify the project Water Sensitive Urban Design strategies.

3.4 NABERS 4 Star Rating - Water

The operation performance of the proposed development is targeting a NABERS 4 Star rating under the NABERS Retiring Living Water tool which is generally equivalent to the Signifies performance that is above average.

4 Renewable Energy

The proposed Roof Plan shows around 260 m² of roof area which may be suitable for a solar PV installation.

As such at this stage it is recommended to target to 20 kWe of rooftop solar of plant equipment on the roof level.

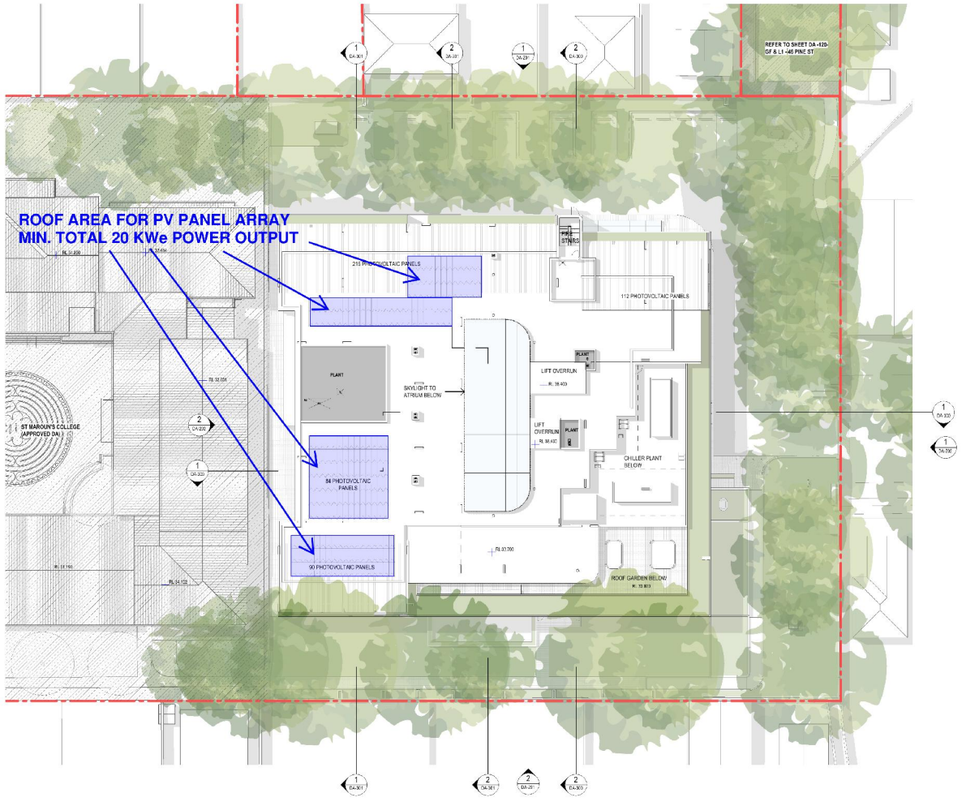


Figure 4.1 – Roof Area Markups for PV Panel Array

5 Materials

5.1 Material Preference

The following opportunities will be considered to limit the environmental impact of the building and furnishing materials:

- Reused products or products with recycled content.
- Reduced impact concrete:
  - Cement reduction
  - Aggregate reduction
  - Potable water reduction
- Certified timber (FSC or PEFC)
- Low impact PVC (best practice certified)
- Selection of third-party certified products (i.e. GECA, Greengage etc.)
  - Flooring
  - Joinery
  - Furniture
  - Ceilings
  - Plasterboard
  - Insulation
  - Blinds

The external cladding will be designed with durability and low maintenance requirements in mind.

5.2 Toxic Emissions

All paints, adhesives, sealants and carpets will be selected to be low VOC and comply with the Green Star VOC requirements.

All joinery will have low formaldehyde emissions where possible.

5.3 Locally Sourced Supply Chain

Products which must be sourced from overseas will be avoided unless there are no local alternatives.

5.4 Timber

All timber used onsite will be reused, recycled or from a sustainably managed forestry operation (i.e. FSC or PEFC certified timber).

5.5 Durability and Flexibility

Building components, such as structural framing, roofing and cladding will be designed for longevity, adaptation, disassembly, re-use and recycling where possible.

5.6 Dematerialisation

The following dematerialisation strategies will be explored as the design progresses:

- Minimising the use of external cladding (over and above that required for weatherproofing etc.)

6 Summary of Initiatives and Implementation Plan

This development includes a wide range of holistic sustainability measures, which have been carefully integrated into the preliminary design of the development so that the occupants will have the opportunity to reduce their environmental footprint without compromising quality of life.

The initiatives in the Implementation Plan have been committed to as part of the planning process. In a typical design process, each initiative will need to be incorporated into the project at the project stages nominated in the table. The nominated Project Manager needs to ensure that all parties are aware of the project requirements and that the documentation reflects the design intent at each project stage. We note that all projects are delivered differently and the project manager may alter the responsibilities to ensure the plan remains relevant to the project.

Typically, the following activities need to occur at each stage to ensure all initiatives are carried through to construction.

Town Planning Documents – ESD Consultant is appointed, drawings show relevant information

Tender Documents – drawings / contract includes all sustainability initiatives so that the builder prices accordingly.

Construction Documents – drawings and specifications are consistent with the design intent.

Construction & Completion – the builder is to carry out the design intent during construction.

6.1 Implementation Plan

Initiative	Discipline(s)	Project Stage			
		Town Planning Documents	Tender Documents	Construction Documents	Construction & Completion
CONSTRUCTION AND BUILDING MANAGEMENT					
Utility meters to be provided for energy and water for the building.	Electrical Hydraulic		Y	Y	Y
All major services to be sub-metered separately for energy. Major uses in this project are considered to be: • Lighting • Mechanical Services • Domestic Hot Water	Electrical Mechanical Hydraulic		Y	Y	Y
The builder will be required to implement a site specific Environmental Management Plan (EMP) for the project. The EMP will be required to include measures to limit stormwater impacts during construction, including but not limited to those listed in the WSUD Response section of this report.	Builder		Y		Y
Building Users' Guide is to be developed and provided to occupant. Details of all aspects that will be covered in the Building Users Guide. The Building Users Guide is committed to cover at a minimum: • Energy and Environmental Strategy • Monitoring and Targeting • Building Services • Transport Facilities • Materials and Waste Policy • References and Further Information	Builder		Y		Y
A 12 month building tuning process will be adopted for this project.	Builder				Y
INDOOR ENVIRONMENT QUALITY					
All bedrooms have direct external view provided for at least 6 m from the room window.	Architect		Y	Y	Y
All areas are to have sufficient artificial lighting to achieve the minimum lighting levels in AS1680:2006.	Electrical		Y	Y	Y

Initiative	Discipline(s)	Project Stage			
		Town Planning Documents	Tender Documents	Construction Documents	Construction & Completion
CO_2 sensors are provided for demand control of the mechanical outside air ventilation systems and to maintain CO_2 concentration at or below 800 ppm.	Mechanical		Y	Y	Y
All paints, adhesives, sealants and carpets are to be low VOC, in accordance with the latest Green Star criteria.	Architect		Y	Y	Y
All engineered wood products are to be E0.	Architect		Y	Y	Y
ENERGY					
All roof and exposed flooring will achieve the minimum NCC Section J4 requirements Min. R_T3.2. All roof and exposed flooring will achieve the minimum NCC Section J4 requirements Min. R_T2.0.	Architect ESD		Y	Y	Y
Wall-glazing performance to meet the minimum NCC Section J4 requirements.	Architect ESD		Y	Y	Y
Lighting power density is to improve on the maximum allowance in the NCC Section J7 by 10%.	Electrical		Y	Y	Y
All heating and cooling systems are to achieve one of the following benchmarks: • COP/EER not less than 85% that the most efficient equivalent capacity unit available. • Energy rating within one star of the most efficient equivalent capacity unit available.	Mechanical		Y	Y	Y
All common area lighting is to be controlled via motion sensors and/or a timer.	Electrical		Y	Y	Y
All external lighting will be controlled via a time clock and daylight sensors. Motion sensors will be installed in applicable areas.	Electrical		Y	Y	Y
Domestic hot water will be provided by an electric source central heat pump hot water system	Hydraulic		Y	Y	Y
All lights will be LED type.	Electrical		Y	Y	Y
Daylight and movement sensors will be included to external areas and internal limited access areas such as storerooms, corridors, and other common areas in addition to other switching.	Electrical		Y	Y	Y
Lighting in perimeter zones of higher daylight will be controlled by daylight sensors.	Electrical		Y	Y	Y
NABERS 4 Star rating for operational energy consumption	Architect Mechanical Electrical Hydraulic ESD	Y	Y	Y	Y
TRANSPORT					
A Green Travel Plan needs to be prepared by the Traffic Consultant. The Green Travel Plan considers the campus in a holistic manner and is not limited to the scope of the proposed building in isolation.	Traffic	Y	Y	Y	Y
WATER / STORMWATER					
The following fixtures and fitting benchmarks are to be met: • Kitchen Taps: 5 Star WELS • Bathroom Taps: 5 Star WELS • Dual Flush Toilets: 4 Star WELS • Urinals: 5 Star WELS • Shower Heads: 3 Star WELS (≥6.0 L/min. but ≤ 7.5 L/min.) • Dishwasher: 3 Star WELS • Washing Machine: 3 Star WELS	Architect		Y	Y	Y
The following initiatives will be implemented in the design: • Water will be collected from the non-trafficable roof area, 1,300 m². • Water will be treated via a minimum **40,000L** rainwater tanking, connected to all toilets in the building and irrigation.	Hydraulic Civil Landscape	Y	Y	Y	Y

Initiative	Discipline(s)	Project Stage			
		Town Planning Documents	Tender Documents	Construction Documents	Construction & Completion
All landscaping is to consist of low water use plant selections where practical, include mulching and use an efficient irrigation system (surface or sub-surface drip irrigation with moisture sensors).	Landscape	Y	Y	Y	Y
No water-based air-conditioning system has been included in the services design.	Mechanical	-	-	-	-
NABERS 4 Star rating for operational water consumption.	Architect Mechanical Electrical Hydraulic ESD	Y	Y	Y	Y
MATERIALS & WASTE MANAGEMENT					
All timber used onsite will be reused, recycled or from a sustainably managed forestry operation (*i.e.* FSC or PEFC certified timber).	Architect		Y	Y	Y
Preference will be given to sustainable materials, and materials with a recycled content.	Architect		Y	Y	Y
Preference is to be given to products with a third-party environmental certification such as Ecospecifier or GECA.	Architect		Y	Y	Y
Waste storage to include a dedicated food and/or garden waste disposal.	Waste	Y	Y	Y	Y
Recycling is to be at least as convenient as general waste disposal.	Waste	Y	Y	Y	Y
The project will adopt a 90% diversion from landfill target during demolition and construction will be adopted.	Builder		Y	Y	Y
URBAN ECOLOGY					
A Light roof colour is to be provided where the roof upper surface is required to have a solar absorptance not more than 0.45.	Architect		Y	Y	Y

Table 6.1 – Implementation Plan

Appendix A

NCC 2022 Section J4 DTS Assessment

NCC 2022 Section J4 DTS Assessment

According to the NCC, the proposed development is a Class 9c aged care building and located in Climate Zone 5 for the location of Marrickville, NSW.

The proposed design is targeting to achieve compliance over the NCC 2022 Section J4 minimum requirements, and as such the performance targets recommended for the proposed design and the façade calculator results are summarized as follows,

- *Thermal performance requirements to be adopted for compliance for the proposed building façade design assessed via NCC Section J4 DTS Method:*
-

Facade item	***DTS Min. Compliance Requirements***
Section J4D4 *Roofing forming the thermal envelope*	
Roofing system to conditioned spaces	• Min. R_T3.7 m².K/W to the roof insulation • Max. Solar Absorption: 0.45 to upper surface
Exposed ceiling system to conditioned spaces	• Min. R_T3.7 m².K/W to the ceiling insulation • Max. Solar Absorption: 0.45 to upper surface
Section J4D6 *Walls and glazing forming the thermal envelope*	
External Walls to conditioned spaces	• Min. R_T1.4 m².K/W to the wall insulation
External Glazing including glazing items adjacent to Atrium	• Max. U_W 3.0 W/m²K & Max. $SHGC_W$0.20
Section J4D7 *Floor forming the thermal envelope*	
Ground Floor Concrete Slab On Ground to conditioned spaces	• No insulation requirements
Suspended Concrete Slab Floor to conditioned spaces above non-conditioned spaces or ambient	• Min. R_T2.0 m².K/W to the floor insulation

If any part of the building fabric cannot achieve the requirements (and is required to meet full compliance by the building surveyor) it may be possible to offset this element against the following via a J1V3 energy modelling assessment.

Figure B.1 – NCC 2022 Section J4D6 Façade Calculator Report

Appendix B

Water Sensitive Urban Design

WSUD Response

The Sydney Water Police, Stormwater Quality Targets, are the mandatory requirements for the project to meet as the on-site treatment performance objectives for stormwater quality.

The objectives of these clauses are:

- To achieve best practice stormwater quality:
  - Gross Pollutants (greater than 5mm) – 90% retention of typical urban annual load.
  - Total Suspended Solids (TSS) – 85% retention of typical urban annual load.
  - Total Phosphorus (TP) – 60% retention of typical urban annual load.
  - Total Nitrogen (TN) – 45% retention of typical urban annual load.
- To promote stormwater re-use.
- To mitigate the detrimental effect of development on downstream waterways.
- To minimise peak stormwater flows and stormwater pollutants.
- To reintegrate urban water into the landscape to facilitate benefits such as microclimate cooling, local habitat and provision of attractive spaces for community use and well being.

A development is required to demonstrate that they meet the objectives of the clause by:

- Meeting the required discharge quality using the MUSIC rating tool

Additionally, adequate maintenance and management procedures are required to ensure the stormwater treatment / reuse measures work as intended.

Initiatives Proposed

The following initiatives will be implemented in the design:

- Water is recommended to be collected over 80% non-trafficable roof area, 1,350 m², as the minimum.
- Water will be treated via a minimum **40,000L** rainwater tanking connected to all toilets in the building and irrigation.
- 80% irrigation will be rainwater collected.

Design Details

Rainwater Tank
A rainwater tank(s) is to be installed for the project with a minimum total storage capacity as noted within the Initiatives Proposed section of this report. This storage capacity is to be in addition to any onsite detention requirements for the project.

Water falling on the surfaces nominated in the Initiatives Proposed section of this WSUD Response are to be directed to the rainwater tank(s), with appropriate overflow measures when the rainwater tank(s) reaches maximum capacity.

A first flush diverter system and fine filter mesh is to be installed to treat water prior to entering the storage tank.

Site Management Plan

The following requirements are to be met during onsite works to prevent excessive pollutants entering the local waterways. Prior to construction, the contractor is to develop these requirements into a site specific management plan, nominating locations of treatment facilities based on proposed construction activities.

1. Temporary drains are to be installed to minimise overland water flows and prevent erosion, especially in areas where water is likely to pool.
2. Temporary silt fences are to be installed on the lower end of the site to prevent excessive sedimentation from entering the stormwater system.
3. Temporary side entry filters to be installed to council stormwater pits to prevent sediment entering the stormwater system at the kerb inlet.
4. All stockpiles to be covered to protect from rainfall.
5. Stockpiles to be located away from the predominant overland stormwater pathway.
6. All site litter to be collected and placed in bins (covered if appropriate) so that it cannot end up in the stormwater systems.
7. Waste bins to be provided onsite for workers.

Maintenance Requirements

Rainwater Tank
The following maintenance measures are required to be undertaken at 6 monthly intervals, or when it is evident that a blockage has occurred. The building management is to be responsible for the maintenance of the stormwater system.

- Roof and gutters to be cleaned to remove leaves and other debris.
- All screens to be checked for blockages and cleaned if necessary.

All pumps or specialist equipment to be installed as part of this system are to be maintained in accordance with the manufacturer's specifications.