SUSTAINABLE DESIGN ASSESSMENT

Build Environment Sustainability Scorecard

Job Number: 758307 758308 758309

Address: Lot 40 (#89) Ninth Avenue ROSEBUD 3939

Local Government Authority: Mornington Peninsula Shire

Date: 19/05/2026

Commissioned by: Metricon Homes

energy advance

Sustainable Design Assessment Report
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1.0 Executive Summary

The purpose of this report is to confirm that the proposed development at Lot 40 (#89) Ninth Avenue ROSEBUD 3939 meets the sustainability requirements outlined in the development's Planning Application identifies the following key categories to be addressed:

1. Indoor Environment Quality
2. Energy Efficiency
3. Water Resources
4. Stormwater Management
5. Building Materials
6. Transport
7. Waste Management
8. Urban Ecology
9. Innovation
10. Construction and Building Management

To assess the development's performance, the BESS tool, STORM calculator, and NatHERS software have been used. BESS—developed by an association of councils led by Moreland City Council—evaluates energy and water efficiency, thermal comfort, and overall environmental sustainability, producing a score from 1% to 100%. A minimum score of 50% is required in energy, water, stormwater, and IEQ, while an overall score of 50% represents "Best Practice" and 70% indicates "Excellence."

The STORM calculator checks stormwater management to ensure best practice standards are met. NatHERS provides a star rating (out of ten) for potential heating and cooling energy use based on a home's design, materials, and local climate. This report should be read in conjunction with the planning drawings and the associated BESS, STORM, and NatHERS assessments. The development is expected to achieve best practice sustainability from the design stage through to construction and operation, satisfying relevant ESD objectives where applicable.

2.0 Indoor Environment Quality (IEQ)

Objectives:

- Provide a healthy indoor environment that supports occupant well-being by incorporating fresh air intake, cross ventilation, and ample natural daylight.
- Achieve comfortable indoor temperatures with minimal dependence on mechanical heating, cooling, and ventilation systems.
- Reduce indoor air pollutants by selecting materials with low or no toxic chemicals and emissions.
- Rely primarily on passive lighting and ventilation strategies to lower energy use and enhance occupant comfort.
- Minimise noise levels and transfer, promoting a calm indoor atmosphere within and between buildings as well as in adjacent outdoor areas.

Examples of Design Decisions:

- Installing windows and openings that maximise natural daylight and encourage cross ventilation.
- Utilising passive design measures (e.g., orientation, shading) to maintain thermal comfort.
- Choosing building finishes and furnishings with low chemical emissions.

2.1 IEQ Score

The development achieves an Indoor Environment Quality (IEQ) score of 80%, surpassing best practice benchmarks and contributing 17% to the overall sustainability rating. This high score reflects the project's emphasis on creating a healthy, comfortable indoor environment for occupants.

2.2 Access to Daylight and Natural Ventilation

All habitable rooms feature direct (not borrowed) openings that optimise natural daylight. In accordance with requirements, windows (excluding roof lights) must constitute at least 10% of the room's floor area, measured free of framing or other obstructions. These windows should open to a clear sky, a court, or an equivalent open area such as a verandah or carport.

Where a window faces a neighbouring boundary, it must be placed at least 900 mm away, ensuring both adequate light penetration and effective ventilation.

2.3 Access to Winter Sun and Thermal Comfort

Dwellings 1 and 2 capitalise on their northern orientation, enabling the front façade to receive ample sunlight during winter. The use of high-performance glazing helps these dwellings maintain a comfortable indoor temperature, satisfying NCC 2022 NatHERS Heating load limits. This approach reduces reliance on mechanical heating and enhances overall thermal comfort.

2.4 Reduction in Volatile Organic Compounds (VOCs)

Low-VOC paints and adhesives will be used throughout the development to diminish indoor air pollutants. This choice not only supports occupant health and well-being but also aligns with broader sustainability goals by minimising toxic emissions.

3.0 Energy Efficiency

Objectives:

- Improve energy efficiency by incorporating ESD initiatives during the design phase.
- Decrease overall greenhouse gas emissions through optimised building performance.
- Mitigate peak energy demand by integrating design measures such as appropriate orientation, shading for glazed surfaces, and sufficient space for solar panels and mechanical systems.

Energy efficiency lies at the core of sustainable development and directly impacts both operational costs and environmental performance. By thoughtfully selecting materials and systems—and by emphasising passive design strategies—the project can minimise energy consumption while creating a comfortable, resilient living environment.

Examples of Design Decisions:

- Implementing efficient shading devices.
- Upgrading the building fabric beyond the minimum BCA requirements.
- Utilising high-efficiency heating and cooling systems.

3.1 NatHERS Energy Assessment Results

Dwellings 1, 2 and 3 exceed the 7.0-star minimum NatHERS requirement. Dwelling 1 achieves 7.1 stars, Dwelling 2 achieves 7.3 stars, and Dwelling 3 achieves 7.6 stars. Refer to the accompanying NatHERS Assessments for detailed information on modelling inputs and results. All porch, outdoor room, and eave shading solutions used to achieve these ratings are marked on the plans.

3.2 Heating and Cooling System Types and Associated Energy-Efficiency Ratings

A MEPS minimum reverse-cycle ducted air-conditioning system (both heating and cooling) has been modelled in the BESS Assessment for each dwelling. These ratings are based on the Australian Government's appliance star rating system outlined at Energy Rating - Air Conditioners. The development balances performance with cost-effectiveness by selecting reverse-cycle units with a MEPS minimum efficiency.

3.3 Hot Water System Type and Associated Benchmark

An electric heat pump hot water system has been specified for these dwellings. Heat pump technology reduces energy use compared to conventional electric storage systems, helping to further lower greenhouse gas emissions.

3.4 Location of Fixed Clothes Drying Lines/Racks

Outdoor clotheslines have been designated on the floor plans. By maximising natural ventilation and sunlight, clothes can be dried efficiently without relying on energy-intensive appliances.

3.5 Lighting Strategy

The allowable lamp power density (LPD) for artificial lighting must not exceed:

- 4 W/m² in a Class 1 building
- 4 W/m² for a Verandah, balcony, or similar area attached to a Class 1 building
- 3 W/m² in a Class 10a building associated with a Class 1 building

All lighting selections and layouts will adhere to these limits, ensuring compliance with energy efficiency requirements while maintaining adequate illumination.

4.0 Water Resources

Objectives:

- Improve overall water efficiency.
- Reduce the use of potable (mains) water throughout the development's lifespan.
- Encourage on-site stormwater collection and reuse.
- Promote the use of alternative water sources, such as greywater, wherever feasible.

Ensuring responsible water management is essential for sustainable development. By minimising reliance on mains water and incorporating efficient fixtures, fittings, and irrigation strategies, the project can conserve resources, lower operating costs, and reduce its environmental impact.

Examples of Design Decisions:

- Installing high-efficiency fixtures and fittings compliant with WELS standards.
- Using alternative water sources (e.g., rainwater, greywater) for landscape irrigation.
- Avoiding mains water wherever possible by capturing and reusing stormwater.

4.1 WELS Fixtures and Fittings

All specified tapware, showerheads, and toilet cisterns will meet or exceed the following WELS star ratings to ensure water conservation without compromising functionality:

- Showerheads: Minimum 4-star rating, with a maximum flow of 6.0 L/min.
- Kitchen Tapware: Minimum 4-star rating.
- Bathroom Tapware: Minimum 4-star rating.
- Toilet Cisterns: Minimum 4-star rating.

Dwelling 1, 2 and 3 will each have a 5,000L tank, capturing 100% of its practical roof area. Tanks will be located where feasible against each dwelling, allowing harvested rainwater to be used for irrigation or other suitable applications.

4.2 Water Efficient Landscaping

The proposed landscaping will incorporate drought-tolerant plant species that, once established, require minimal or no irrigation. This approach significantly reduces potable water demand and supports a low-maintenance garden.

The final submissions will include a comprehensive landscape plan detailing plant selections and any short-term watering needs during the initial growth phase.

5.0 Stormwater Management

Objectives:

- Reduce the impact of stormwater runoff on the environment.
- Improve the quality of stormwater discharge.

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- Achieve best practice stormwater quality outcomes.
- Incorporate Water Sensitive Urban Design (WSUD) initiatives, including on-site reuse of collected rainwater.

Effective stormwater management is essential for minimising urban development's impact on local waterways. By capturing and reusing runoff, projects can reduce flooding risk, lower pollution levels, and contribute to healthier ecosystems.

Examples of Design Decisions:

- Minimising pollutants entering watercourses.
- Maximising stormwater capture through dedicated infrastructure.
- Reusing collected stormwater (e.g., for toilet flushing and landscape irrigation).

The project achieves a 102% Blue Factor rating, demonstrating excellence in stormwater quality management. The submission provides detailed STORM calculations.

Project # 49AA56E7 - 758307/308/309 - Wang
lot 40/89 Ninth Ave, Rosebud VIC 3939, Australia
12 January 2026 8:51 a.m.

BLUE FACTOR

758307/308/309 - Wang

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

102%
SCORE

Project details

Name	758307/308/309 - Wang
Street address	lot 40/89 Ninth Ave, Rosebud VIC 3939, Australia
Municipality	Mornington Peninsula
Site area	961 m^2
Planning Number	Not Applicable

6.0 Building Materials

Objectives:

- Reduce the embodied energy and carbon footprint of construction materials.
- Prioritise responsibly sourced materials.
- Maximise the use of recycled and reclaimed content.
- Encourage reusing materials whenever practical.
- Minimise the use of high-VOC or otherwise harmful products.

Examples of Design Decisions

- Providing convenient, secure bike storage to encourage active transportation.
- Ensuring access to showers and lockers in workplaces to support cycling and walking.

- Developing a Green Travel Plan for residents, visitors, and staff.

Refer to Section 8.0 (Waste Management) for details regarding material reuse and disposal.

6.1 Embodied Energy

Embodied energy refers to the total energy required to mine, process, manufacture, transport, and deliver building materials to the site. It varies significantly between products:

- Concrete has relatively high embodied energy due to cement production, yet its thermal mass can help reduce heating and cooling demands over a building's lifespan.
- Bricks also require energy during manufacturing, but their durability and recyclability often compensate for this investment over time.
- Timber typically has a lower embodied energy than metals or plastics, particularly when sourced from sustainably managed plantations (see 6.2 Sustainable Timber).
- Steel (such as Colorbond or zincalume roofing) has high embodied energy, but its 20% recycled content and 100% recyclability help offset its initial impact.

6.2 Sustainable Timber

Framing timber for this development is generally sourced from sustainably managed Australian plantations. Timber typically generates fewer greenhouse gas emissions than other framing materials in its processing and transportation.

In some cases, timber can even result in a net reduction of atmospheric carbon dioxide, making it a highly sustainable choice.

6.3 Toxicity

All paints, sealants, adhesives, and engineered wood products (e.g., MDF, plywood, engineered wood flooring) used in this project will be low in volatile organic compounds (VOCs). E1- or E0-grade materials will be specified wherever possible to limit the release of harmful substances, ensuring a healthier indoor environment for occupants.

7.0 Transport

Objectives:

- Encourage walking, cycling, and public transport use by designing the built environment with these modes as priorities.
- Reduce car dependence through thoughtful planning and infrastructure.
- Support the adoption of low-emission vehicles by providing suitable facilities and infrastructure.

Incorporating sustainable transport options into a development benefits the environment, promotes health, social interaction, and long-term cost savings for residents and visitors.

Examples of Design Decisions

- Providing secure, conveniently located bike storage to encourage cycling.
- Offering shower and locker facilities (end-of-trip amenities) in workplace settings.
- Develop a Green Travel Plan that outlines sustainable transport options for residents, visitors, and staff.

This development achieves a BESS Transport Score of 50%.

7.1 Convenient, Secure Bike Storage and End-of-Trip Facilities

A minimum of three bicycle parking spaces will be provided. These spaces will be visible and easily accessible from the building entrance, with clear wayfinding signage to direct users. All change and shower facilities are located within each dwelling, ensuring privacy and convenience for residents.

7.2 Access to Public Transport and Car Share Services

A bus stop is located within a five-minute walk, offering a convenient public transport option. Car share services, such as GoGet, Flexicar, and Car Next Door, are readily available online and provide flexible alternatives to private vehicle ownership.

The development features a single-car garage rather than a double, effectively encouraging residents to explore car share and public transport options and helping to reduce on-site parking demand.

8.0 Waste management

Objectives:

- Encourage waste avoidance, reuse, and recycling throughout design, construction, and operation.
- Support material durability and long-term reusability.
- Allocate sufficient space for evolving waste management requirements, including composting and green waste facilities where feasible.

By reducing construction waste, reusing demolition materials, and planning for future operational needs, developments can significantly lower their environmental impact while reducing long-term costs.

Examples of Design Decisions

- Developing a comprehensive Construction Waste Management Plan.
- Setting clear demolition and construction recycling targets.
- Preparing an Operational Waste Management Plan to guide ongoing waste handling.

The project will use standardised and prefabricated materials wherever possible to minimise construction waste, reducing off-cuts and excess on-site debris. Only non-recyclable items will be sent to landfill, underscoring the commitment to responsible waste management.

9.0 Urban Ecology

Objectives:

- Protect and enhance biodiversity within the municipality.
- Foster sustainable landscapes and habitats that help mitigate the urban heat island effect.
- Encourage the retention of significant trees.
- Promote the planting of indigenous vegetation species.
- Allocate space for productive gardens, especially in larger residential developments.

A robust approach to urban ecology contributes to healthier ecosystems, improved air quality, and enhanced community well-being.

Developments can help sustain local biodiversity and reduce environmental impacts by preserving existing natural features and introducing native plant species.

Examples of Design Decisions

- Preserving and improving the ecological value of the site.
- Creating amenities that benefit both residents and local wildlife.
- Including habitats or zones that encourage biodiversity.

This development achieves a BESS Urban Ecology Score of 71%, surpassing best-practice targets by 21%. A comprehensive landscaping plan will be submitted with this proposal, incorporating indigenous plant species wherever feasible to support local habitats and ecosystems.

10.0 Innovation and ESD Excellence

Objectives:

- Encourage the adoption of innovative technologies, design strategies, and processes that significantly elevate building sustainability.

Examples of Design Decisions

- Incorporating advanced sustainable design standards beyond best practice.

- Introducing new technologies for improved efficiency and occupant comfort.
- Emphasising a robust passive design approach.

Dwellings 1, 2 and 3 exceed the 7.0-star minimum NatHERS requirement. Dwelling 1 achieves 7.1 stars, Dwelling 2 achieves 7.3 stars, and Dwelling 3 achieves 7.6 stars. Refer to the associated NatHERS Assessments for detailed analysis. In line with these assessments, all habitable areas feature upgraded double-glazing to reduce heat loss during cooler months (via the Solar Heat Gain Coefficient) and limit unwanted heat gain in warmer periods (via the Uw Value).

Additionally, the shared party wall between the two dwellings minimises the building fabric's exposure to external temperature extremes, helping stabilise indoor temperatures.

As a result, occupants can rely less on mechanical heating and cooling systems when outdoor conditions change rapidly, further improving overall energy efficiency and comfort.

11.0 Construction and Building Management

Objectives:

- Integrate sustainability measures from concept design through construction to maximise benefits at the lowest cost.
- Provide future occupants with the necessary information to operate and maintain their buildings efficiently.

The development at Lot 40 (#89) Ninth Avenue ROSEBUD 3939 surpasses the minimum star rating required by the NCC 2022. All specified upgrades have been carefully selected to enhance overall efficiency.

To promote ongoing sustainable building management, it is recommended that occupants receive a Building User's Guide (or comparable documentation) upon handover.

This assessment has been carried out by a fully qualified NatHERS Assessor, accredited with Design Matters National (DMN), the Australian Building Sustainability Association (ABSA), and recognised as a Green Star Assessor by the Green Building Council of Australia (GBCA).

12.0 Conclusion

This report outlines the Sustainable Design Assessment principles and strategies for the proposed development at Lot 40 (#89) Ninth Avenue ROSEBUD 3939.

The analysis confirms that the project meets the Mornington Peninsula Shire's sustainability requirements under the development's Planning Application.

Sincerely,

C. Sookloll

Claude-François Sookloll DMN/14/1662
Director, Energy Advance Australia Pty. Ltd. | 0424 427 344