D22-278182

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Bogong Avenue Carpark – City of Monash
1-5 Bogong Avenue, Glen Waverley VIC 3150

Sustainability Management Plan

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1 Introduction

Compass Engineering Group has been engaged by Katz Architecture on behalf of City of Monash to provide Environmentally Sustainable Design (ESD) consulting services for Bogong Avenue Carpark, located at 1-5 Bogong Avenue, Glen Waverley VIC 3150.

The proposed development consists of a four-storey extension to an existing four-storey above-ground carpark.

This Sustainability Management Plan has been prepared to inform City of Monash of the proposed development's ESD initiatives and performance targets and to demonstrate that the development, where applicable, meets or exceeds Monash Planning Scheme requirements, defined in Clause 22.13 of the planning scheme.

2 Site Description

The proposed development is located at 1-5 Bogong Avenue, Glen Waverley VIC 3150 and comprises:

- Site area of 6,400 m^2.
- Existing carpark of approximate 3,800 m2 footprint.
- The existing carpark consists of Ground Floor and three above-ground storeys.
- The proposed development includes an additional four storeys above the existing carpark, of the same area.

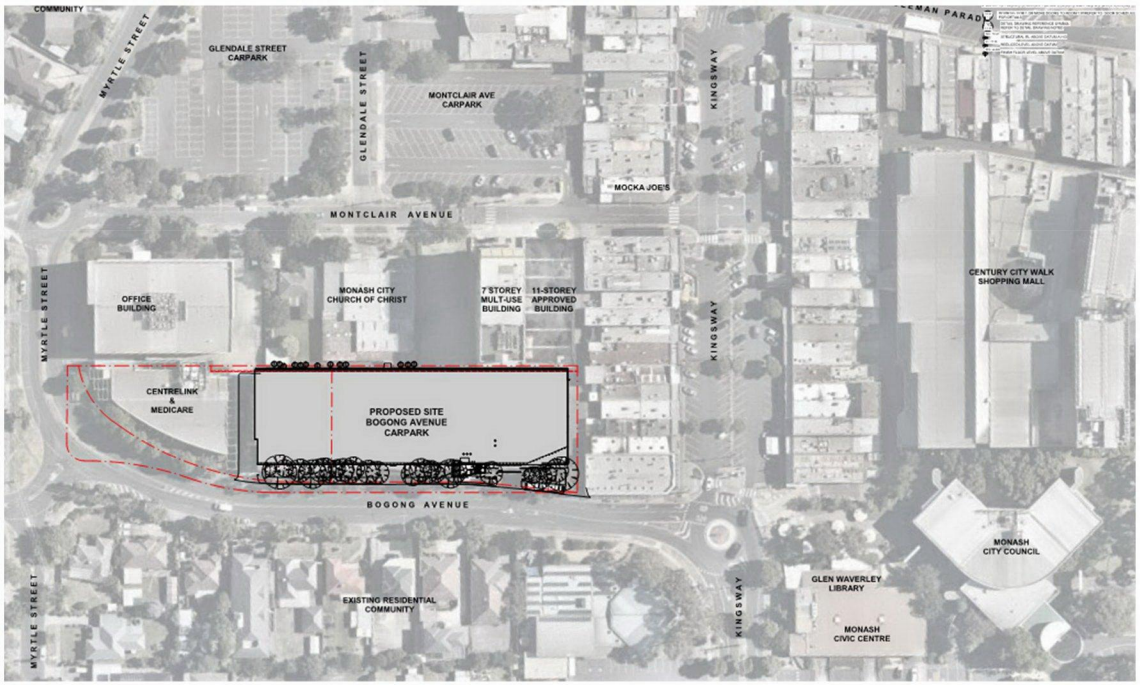

Figure 2.1 Site Locality Plan

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3 Referenced Documents

The following documents and design plans have been referenced in compilation of this project:

1. Architectural Plans listed below provided by Katz Architecture and received by Compass Engineering Group on 21st June 2022 (Design Development pack).
2. City of Monash Environmental Sustainability Strategy 2016 – 2026.
3. Monash Planning Scheme 22.13 – Environmentally Sustainable Development Policy.
4. Email correspondence and responses to information between City of Monash, Katz Architecture and Compass Engineering Group.

4 Summary of ESD Initiatives

A detailed assessment has been undertaken for the development across a range of categories as outlined below:

Management	Integrated Water Management	Construction and Demolition Waste
Lighting	Indoor Environment Quality	Transport
Renewable Energy	Materials	Metering and Monitoring

A summary of the key sustainable design initiatives are as follows:

- Rainwater harvesting for irrigation.
- Solar photovoltaic (PV) systems.
- Bicycle, motorbike/moped and electric vehicle parking.
- Responsible building materials

Water Sensitive Urban Design (WSUD) has not been considered as part of this report as this is not relevant to this development, as the existing building footprint is being retained.

5 ESD Initiatives

The main design provisions to be implemented as part of this development are summarised in the below table.

Category / Credit	Development Provision	Project Phase
Management		
Metering and Monitoring	Utility meters shall be provided for all utility services – electrical and water. There is no gas to the development. Energy meters shall be provided and configured to enable the individual time-of-use energy consumption data recording, of the energy consumption of: i. Mechanical plant ii. Artificial lighting iii. Appliance power iv. Internal transport devices (lifts) v. Other ancillary plant All energy meters shall be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed, and reviewed. The system shall be capable of producing reports on hourly, daily, monthly, and annual energy use for each meter.	Design
Building Users Guide	The Head Contractor shall provide comprehensive operations and maintenance information, made available to the facilities management team and relevant and current building user information to all relevant stakeholders.	Construction
Responsible Construction Practices	The Head Contractor shall implement an Environmental Management Plan to manage the environmental impacts during construction.	Construction
Responsible Construction Practices	The Head Contractor shall have a formalised approach to planning, implementing, and auditing in place during construction, to ensure conformance to the EMP.	Construction
Responsible Construction Practices	The Head Contractor shall promote positive mental and physical health outcomes and enhance site worker's knowledge on sustainable practices.	Construction
Water		
Rainwater Reuse	Provide 5kL rainwater tank connected to new roof (solar panel array) for re-use with irrigation.	Design
Energy		
Solar PV	The development shall be provided with solar photovoltaic (PV) systems at roof level. Total size / capacity to be confirmed.	Design
Carpark Ventilation	The carpark shall be designed to the "Open Deck" carpark criteria stipulated in NCC 2019 to ensure mechanical ventilation fans are not required.	Design
Greenhouse Gas Emissions	The actual installed aggregate illumination power density shall be 30% less that the maximum illumination power densities defined in Table J6.2a and automated lighting control systems shall be installed to 95% of the nominated area.	Design
Greenhouse Gas Emissions	A supply contract shall be put in place to procure at least 50% of the building's electricity consumption through accredited GreenPower products. The length of time of the commitment is for a minimum period of 10 years after Practical Completion.	Construction Occupancy

Category / Credit	Development Provision	Project Phase
Indoor Environmental Quality (IEQ)		
Lighting Comfort	Provide lighting that is flicker-free and accurately addresses the perception of colour in the spaces.	Design
Lighting Comfort	Provide lighting levels and quality to meet best practice illuminance.	Design
Indoor Pollutants	At least 95% of all internally applied paints, adhesives, sealants, and carpets shall meet the "Total VOC Limits".	Design Construction
Transport		
Bicycle Parking	Provide a minimum of six (6) dedicated bicycle parking spaces.	Design
Electric Vehicle Infrastructure	Provide a minimum of two (2) electric vehicle charging points, including appropriate signage and charging infrastructure.	Design
Motorbikes / Mopeds	Provide a minimum of eleven (11) motorbike/moped parking spaces.	Design
Waste		
Building Re-use	Reuse of existing structure is considered through design process. New works are extension of existing structure. All specified materials shall be chosen based on high quality as well as recyclable and reusable properties where possible.	Design
Construction and Demolition Waste	Construction waste going to landfill shall be minimised when compared against a typical building.	Design Construction
Materials		
Life Cycle Impacts	Concrete shall contain 40% minimum supplementary cementitious materials (SCM) (averaged over the project) and 40% minimum recycled coarse aggregate. Limited demolition of existing building and re-use of materials and equipment. Minimum 95% (by weight or volume) of all disassembled materials (non-hazardous) must either be reused or recycled.	Design Construction
Responsible Building Materials	Steel (including reinforcing steel) to be sourced from a Responsible Steel Maker.	Design Construction
Responsible Building Materials	90% (by cost) of all permanent formwork, pipes, flooring, blinds, and cables shall not contain PVC and have a recognised product declaration.	Design Construction
Responsible Building Materials	More than 50% of paints specified shall have a maximum TVOC content of 5g/L.	Design Construction
Emissions		
Light Pollution	Design any outdoor lighting to AS4282:1997. No external lights shall have a ULOR (Upward Light Output Ratio) that exceeds 5%.	Design
Microbial Control	No cooling towers to be installed.	Design

6 Conclusion

This report provides a summary of the environmentally sustainable design (ESD) provisions to be provided as part of the Bogong Carpark development childcare development at 1-5 Bogong Avenue, Glen Waverley VIC 3150.

It is considered that implementation of the proposed initiatives shall meet the requirements stipulated in Class 22.13 of the Monash Planning Scheme.

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7 Appendices

7.1 Monash Planning Scheme – 22.13 Environmentally Sustainable Development Policy

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22.13 ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT POLICY

31/08/2017
GC72

This policy applies throughout the City of Monash to residential and non residential developments that require a planning permit, in accordance with the thresholds in Table 1 of this Policy.

22.13-1 Policy Basis

29/09/2016
C113

Monash City Council is committed to make Monash a more sustainable place to live, work and play. Critical to achieving this commitment is for development to meet appropriate environmental design standards. This policy aims to integrate environmental sustainability into land use planning, new developments and redevelopment of existing infrastructure.

This policy provides a framework for early consideration of environmental sustainability at the building design stage in order to achieve the following efficiencies and benefits:

- Easier compliance with building requirements through passive design;
- Reduction of costs over the life of the building;
- Improved affordability over the longer term through reduced running costs;
- Improved amenity and liveability;
- More environmentally sustainable urban form; and
- Integrated water management.

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.

This policy does not prescribe performance outcomes. The policy enables the provision of information and provides decision guidelines which will assist in the assessment of whether development meets environmentally sustainable development objectives.

This policy complements a range of non-statutory measures aimed at encouraging environmentally sustainable development. These measures include educating residents and applicants, assisting applicants to use Environmentally Sustainable Development (ESD) tools, leading by example with Council projects, promotion of exemplary private projects and promotion of use of materials with favourable life cycle impacts.

22.13-2 Objectives

29/09/2016
C113

The development should achieve best practice in environmentally sustainable development from the design stage through to construction and operation.

In the context of this policy best practice is defined as a combination of commercially proven techniques, methodologies and systems, appropriate to the scale of development and site specific opportunities and constraints, which are demonstrated and locally available and have already led to optimum ESD outcomes. Best practice in the built environment encompasses the full life of the build.

It is a policy objective to encourage innovative technology, design and processes in all development, which positively influence the sustainability of buildings.

The following objectives should be satisfied where applicable:

Energy efficiency

- To improve the efficient use of energy, by ensuring development demonstrates design potential for ESD initiatives at the planning stage.
- To reduce total operating greenhouse gas emissions.

- To reduce energy peak demand through particular design measures (eg. appropriate building orientation, shading to glazed surfaces, optimise glazing to exposed surfaces, space allocation for solar panels and external hearing and cooling systems).

Water resources

- To improve water efficiency.
- To reduce total operating potable water use.
- To encourage the collection and reuse of stormwater.
- To encourage the appropriate use of alternative water sources (eg. greywater).

Indoor Environment Quality

- To achieve a healthy indoor environment quality for the wellbeing of building occupants, including the provision of fresh air intake, cross ventilation and natural daylight.
- To achieve thermal comfort levels with minimised need for mechanical heating, ventilation and cooling
- To reduce indoor air pollutants by encouraging use of materials with low toxic chemicals.
- To reduce reliance on mechanical heating, ventilation, cooling and lighting systems.
- To minimise noise levels and noise transfer within and between buildings and associated external areas.

Stormwater Management

- To reduce the impact of stormwater run-off.
- To improve the water quality of stormwater run-off.
- To achieve best practice stormwater quality outcomes.
- To incorporate the use of water sensitive urban design, including stormwater re-use.

Transport

- To ensure that the built environment is designed to promote the use of walking, cycling and public transport, in that order.
- To minimise car dependency.
- To promote the use of low emissions vehicle technologies and supporting infrastructure.

Waste management

- To promote waste avoidance, reuse and recycling during the design, construction and operation stages of development.
- To ensure durability and long term reusability of building materials.
- To ensure sufficient space is allocated for future changes in waste management needs, including (where possible) composting and green waste facilities.

Urban Ecology

- To protect and enhance biodiversity within the municipality.

- To provide environmentally sustainable landscapes and natural habitats, and minimise the urban heat island effect.
- To encourage the retention of significant trees.
- To encourage the planting of indigenous vegetation.
- To encourage the provision of space for productive gardens, particularly in larger residential developments.

22.13-3 Policy

29/09/2016
C113

It is policy that applications for the types of development listed in Table 1 be accompanied by information which demonstrates how relevant policy objectives will be achieved.

22.13-4 Application Requirements

29/09/2016
C113

An application must be accompanied by either a Sustainable Design Assessment or a Sustainability Management Plan as specified in Table 1, as appropriate.

A Sustainable Design Assessment will usually not need to be prepared by a suitably qualified person. It should:

- provide a simple assessment of the development. It may use relevant tools from the example tools listed in the table or an alternative assessment approach to the satisfaction of the responsible authority; and
- identify environmentally sustainable development measures proposed in response to policy objectives, having regarding to the site's opportunities and constraints.

A Sustainable Management Plan should:

- provide a detailed assessment of the development. It may use relevant tools from the example tools listed in the table, or an alternative assessment approach to the satisfaction of the responsible authority; and
- identify achievable environmental performance outcomes having regard to the objectives of this policy (as appropriate); and
- demonstrate that the building has the design potential to achieve the relevant environmental performance outcomes; having regard to the site's opportunities and constraints; and
- document the means by which the performance outcomes can be achieved.

Various assessment tools have been listed in Table 1 which may be used to assess how the proposed development addresses the objectives of this policy, as appropriate.

Table 1 – ESD Information Required

Type of Development	Application Requirements	Example Tools
Accommodation/Mixed Use with residential component of:		
▪ 3- 9 dwellings; or ▪ Development of a building for accommodation other than dwellings with a gross floor area between 500m² and 1000m².	Sustainable Design Assessment (SDA)	BESS STORM
▪ Development of 10 or more dwellings. ▪ Development of a building for accommodation other than	Sustainability Management Plan (SMP)	BESS Green Star MUSIC

Type of Development	Application Requirements	Example Tools
dwellings with a gross floor area of more than 1000m².		STORM
Non-residential		
▪ Development of a non-residential building with a gross floor area between and including 500m² and 1000m².	Sustainable Design Assessment (SDA)	BESS MUSIC STORM
▪ Development of a non-residential building with a gross floor area of more than 1000m².	Sustainability Management Plan (SMP)	Green Star BESS MUSIC STORM

Note 1: *Development (in Table 1) has the same meaning as in Section 3 of the Planning and Environment Act 1987, but does not include subdivision. To remove any doubt, development also includes alterations and additions. In the case of alterations and additions, the requirements of the Policy apply only to the alterations and additions.*

Note 2: *Mixed Use developments are required to provide the information applicable to each use component of the development.*

22.13-5 Decision Guidelines

29/09/2016
C113

In determining an application, the responsible authority will consider as appropriate:

- The extent to which the development meets the objectives and requirements of this policy from the design stage through to construction and operation.
- Whether the proposed environmentally sustainable development performance standards are functional and effective to minimise environmental impact.
- Whether the proposed environmentally sustainable development initiatives are reasonable having regard to the type and scale of the development and any site constraints.
- Whether appropriate assessment method have been used.
- Whether an ESD plan or framework has previously been approved by the responsible authority (whether under a planning control or otherwise).

22.13-6 Reference Documents

29/09/2016
C113

BESS *(Built Environment Sustainability Scorecard)* bess.net.au, Council Alliance for a Sustainable Built Environment (CASBE), 2015

Green Star, Green Building Council of Australia www.gbca.com.au

Guide for Best Practise for Waste Management in Multi-Unit Developments, Sustainability Victoria, 2010

Nationwide House Energy Rating Scheme (NatHERS), Department of Climate Change and Energy Efficiency, www.nathers.gov.au

STORM, Melbourne Water, www.storm.melbournewater.com.au

Urban Stormwater Best Practice Guidelines, CSIRO, 2006.

Note: *The above reference documents and websites may be amended from time to time. It is intended that these documents and websites (or amended versions) are relevant reference documents to this policy.*

22.13-7 Commencement

29/09/2016
C113

The ESD Application Requirements in Table 1 do not apply to applications received by the responsible authority before the gazette date of this clause.

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22.13-8 Expiry

31/08/2017
GC72

This Policy will expire on 30 June 2019, or earlier if it is superseded by an equivalent provision of the Victoria Planning Provisions.