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TOWN PLANNING REPORT

Application for
the development of the land
with a warehouse and reduction
to car parking at
382 Somerville Road
West Footscray

1.0 Introduction

This report substantiates and justifies the town planning merits of the application. The application is for the development of the land with one warehouse at 382 Somerville Road West Footscray.

The proposal has been considered with respect to the site and the context of the surrounding development and is consistent with:

- The relevant Planning Policy Framework
- Industrial 3 Zone;
- Development Contributions Overlay Schedule 2
- The requirements of all the relevant particular provisions including Clause 52.06 Car Parking.

This report:

- Outlines the relevant planning controls and policies and the relevant decision guidelines of the Maribyrnong Planning Scheme: and
- Outlines the merits of the proposal having regard to the relevant decision guidelines.

The report accompanies the following documentation, which collectively constitutes the application for planning permit:

- Planning Permit Application Form and associated fee:
- Plans for consideration and endorsement:
- A recent copy of the land title and encumbrances.

2.0 Project Summary

Address	382 Somerville Road West Footscray
Proposal	Planning Application – Warehouse
Zoning	Industrial 3 Zone
Overlays	Development Contributions Overlay Schedule 2
Permit Triggers	Clause 33.01-1 - IN1Z – A permit is required for development with a warehouse Clause 52.06 .
Applicable Clauses of Planning Scheme	**SPPF** Clause 11 Settlement Clause 15 Built Environment Clause 17 Economic Development **MSS / LPPF** Clause 21.04 Strategic Land use Vision Clause 21.05-5 Economic Development Clause 21.06 Built Environment Clause 21.08 Economic Development Clause 21.10 Infrastructure **ZONES** Clause 33.03 – Industrial 3 Zone **OVERLAYS** Clause 45.06 - Development Contributions Overlay **PARTICULAR / GENERALPROVISIONS** Clause 52.06 Car Parking

2.0 Subject Site

Somerville Road functionally operates as a major road which runs in an east west direction and provides access between Whitehall Street to the east and Fairbairn Road to the west.

The site is currently occupied by a collection of industrial buildings which is setback from the site frontage approximately 11.5 metres. The building appears to consist of one main building, with a number of additional included at later stages.

The land is also rectangular in shape and abuts industrial lots with one to the north, east and west all of which have access to Someville Road.

The land has is relatively flat and has the following dimensions:

North	19.50 metres
South	19.50 metres
East	31.73 metres
West	31.73 metres

Figure 1 – Subject Site

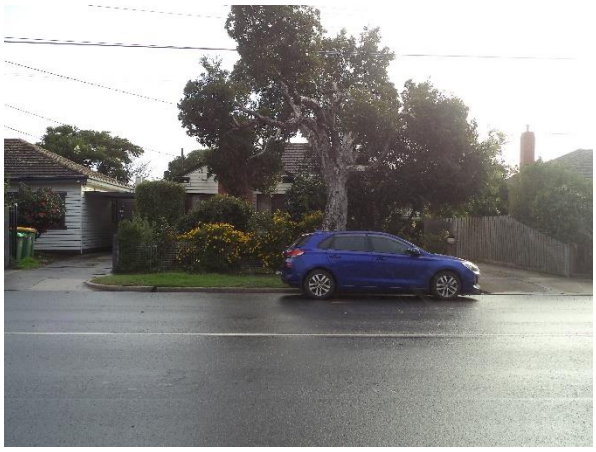
3.0 The Surrounds

Surrounding land uses are of an industrial form with the area undergoing incremental change as a number of historically developed sites are being re constructed with industrial and warehouse buildings. As the neighbourhood is undergoing change, a number of varying architectural styles exist.

Significant variations exist in construction styles with significant variations in building style and forms, with buildings usually constructed with either pre-cast concrete panels, brick veneer, steel, colourbond materials or a combination of materials whilst an administration building is sometimes located along the frontage of the building.

Car parking is usually located either along the frontage or to the side of the sites. The buildings within the area display variable levels of maintenance and upkeep with landscaping seldom located on the site.

Figure 2 – Photos of Surrounding Sites

380 Somervile Road West Footscray 	378 Somerville Road West Footscray 
376 Somerville Road West Footscray 	400 Somerville Road West Footscray 
373 Somerville Road West Footscray 	Across the road from the site 

2.0 Site Surrounds

Figure 2 – Locality Map

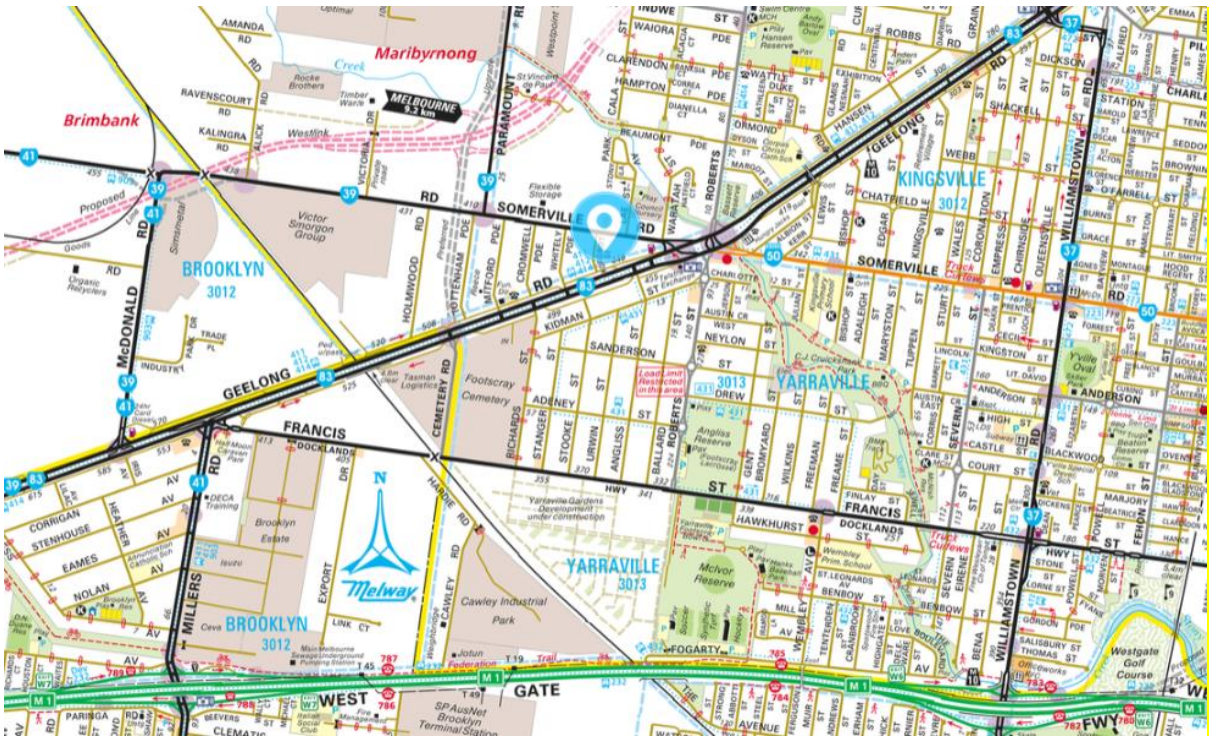


Figure 3 – Aerial Photo

3.0 The Proposal

The application seeks a planning permit for the construction of one speculative warehouse (ie users unknown) and a reduction to the requirements as set out in the clause 52.06 Car Parking of the Maribyrnong Planning Scheme.

Buildings and Works

The proposal seeks to construct one warehouses. Typical of many industrial/warehouse sites, the proposal is to include landscaping and car parking along the frontage with the main building to act as the backdrop to the site, with the office to be cantilevered over part of the car park.

The buildings include various components which are the following:

- Landscaping along the front title boundary with a width of three metres;
- At total of 10 car parking spaces each. The car parking is to be located along the frontage of the site;
- The office component is to be centrally along the eastern side of the building frontage;

5.0 The zoning of the land

5.1 The site is zoned Industrial 3 with the site also affected by a Development Contributions Overlay.

The purpose of the Industrial 3 Zone (under clause 33.03 of the Maribyrnong Bay planning Scheme) is as follows:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To provide for industries and associated uses in specific areas where special consideration of the nature and impacts of industrial uses is required or to avoid inter-industry conflict.*
- *To provide a buffer between the Industrial 1 Zone or Industrial 2 Zone and local communities, which allows for industries and associated uses compatible with the nearby community.*
- *To allow limited retail opportunities including convenience shops, small scale supermarkets and associated shops in appropriate locations. To ensure that uses do not affect the safety and amenity of adjacent, more sensitive land uses.*

5.2 The site is also affected by the Development Contributions Overlay. The purpose of the overlay is the following:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence.*

M- Plan Response

The proponent seeks to use the site for warehouses purposes. As such, the proposed use is appropriate taking into consideration the proximity of the site from the residentially zoned land which is located to the east of the site.

Additionally, the proposed development of the site is consistent with the other types of industrial and commercial uses which exist within close proximity of the site and is consistent with other requirements such as clause 19.03 Economic Development.

As such, the proposed development is considered to be a more than suitable candidate for the development proposed.

Figure 5 – Zoning Map

Figure 5 –Overlay Map

The following is an assessment against the relevant decision guidelines of the industrial 3 Zone

Decision Guidelines Buildings and works	
The Municipal Planning Strategy and the Planning Policy Framework.	(Refer to the below)
Any natural or cultural values on or near the land.	N/A – As the site is not located within an area which is culturally sensitive.
Streetscape character. & Built form.	The subject site is essentially within an industrial precinct with a low amenity character. Despite the low amenity of the industrial precinct, the proposal will be a welcome addition to the streetscape. The proposal includes a pre cast tilt slab construction which will provide for an durable built form, whilst the location of the office along the frontage will promote passive surveillance of the street.
Interface with non-industrial areas.	N/A
Parking and site access.	The site is afforded is access whilst the parking layout is designed in accordance with clause 52.06 Car parking
Loading and service areas.	The proposed warehouse has been designed with a loading bay which will provide ease of access to the site.
Outdoor storage..	No storage areas are proposed along the site frontage and therefore will be concealed within the building.
Lighting.	Lighting can be easily accommodated on the site
Stormwater discharge	The site can be easily connected to a legal point of discharge.
Landscape treatment.	A 3.2 metre landscape strip is proposed along the site frontage.

7.0 Planning controls

The following is an assessment according to the State Planning Policy Framework, the Local Planning Policy Framework of the Melton Planning Scheme, Council's Municipal Strategic Statement and the relevant particular provisions. The following clauses are most relevant to the application.

15 BUILT ENVIRONMENT AND HERITAGE

Planning is to recognise the role of urban design, building design, heritage and energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods. Planning should ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context. Planning should protect places and sites with significant heritage, architectural, aesthetic, natural, scientific and cultural value. Planning should incorporate measures to protect culturally significant heritage places in locations exposed to climate related hazards.

Planning must support the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments, through the appropriate location of use and development and through high quality buildings and urban design.

Planning should promote excellence in the built environment and create places that:

Are enjoyable, engaging, and comfortable to be in.
Support human health and community wellbeing.
Accommodate people of all abilities, ages and cultures.
Contribute positively to local character and sense of place.
Reflect the particular characteristics and cultural identity of the community.
Enhance the function, amenity and safety of the public realm.
Planning should promote development that is environmentally sustainable and minimise detrimental impacts on the built and natural environment.

Planning should facilitate development that:

Is adapted and resilient to climate related hazards.
Supports the transition to net zero greenhouse gas emissions.
Minimises waste generation and supports resource recovery.
Conserves potable water.
Supports the use of, and access to, low emission forms of transport.
Protects and enhances natural values.
Minimises off-site detrimental impacts on people and the environment.

15.01 BUILT ENVIRONMENT

15.01-1S

Urban design

Objective

To create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity.

Strategies

Require development to respond to its context in terms of character, cultural identity, natural features, surrounding landscape and climate.
Ensure development contributes to community and cultural life by improving the quality of living and working environments, facilitating accessibility and providing for inclusiveness.
Ensure the interface between the private and public realm protects and enhances personal safety.
Ensure development supports public realm amenity and safe access to walking and cycling environments and public transport.
Ensure that the design and location of publicly accessible private spaces, including car parking areas, forecourts and walkways, is of a high standard, creates a safe environment for users and enables easy and efficient use.
Ensure that development provides landscaping that supports the amenity, attractiveness and safety of the public realm.
Ensure that development, including signs, minimises detrimental impacts on amenity, on the natural and built environment and on the safety and efficiency of roads.
Promote good urban design along and abutting transport corridors.

15.01-1R Urban design - Metropolitan Melbourne

Objective

To create a distinctive and liveable city with quality design and amenity.

Strategies
Support the creation of well-designed places that are memorable, distinctive and liveable.
Integrate place making practices into road space management.
Strengthen Melbourne's network of boulevards.
Create new boulevards in urban-growth areas and selected existing road corridors across Melbourne.
Provide spaces and facilities that encourage and support the growth and development of Melbourne's
cultural precincts and creative industries.

15.01-2S Building design

Objective
To achieve building design and siting outcomes that contribute positively to the local context, enhance the public realm and support environmentally sustainable development.

Strategies
Ensure a comprehensive site analysis forms the starting point of the design process and provides the basis for the consideration of height, scale, massing and energy performance of new development.
Ensure development responds and contributes to the strategic and cultural context of its location.
Minimise the detrimental impact of development on neighbouring properties, the public realm and the natural environment.
Improve the energy performance of buildings through siting and design measures that encourage:
Passive design responses that minimise the need for heating, cooling and lighting.
On-site renewable energy generation and storage technology.
Use of low embodied energy materials.
Restrict the provision of reticulated natural gas in new dwelling development.
Ensure the layout and design of development supports resource recovery, including separation, storage and collection of waste, mixed recycling, glass, organics and e-waste.
Encourage use of recycled and reusable materials in building construction and undertake adaptive reuse of buildings, where practical.
Encourage water efficiency and the use of rainwater, stormwater and recycled water.
Minimise stormwater discharge through site layout and landscaping measures that support on-site infiltration and stormwater reuse.
Ensure the form, scale, and appearance of development enhances the function and amenity of the public realm.
Ensure buildings and their interface with the public realm support personal safety, perceptions of safety and property security.
Ensure development is designed to protect and enhance valued landmarks, views and vistas.
Ensure development considers and responds to transport movement networks and provides safe access and egress for pedestrians, cyclists and vehicles.
Encourage development to retain existing vegetation.
Ensure development provides landscaping that responds to its site context, enhances the built form, creates safe and attractive spaces and supports cooling and greening of urban areas.

15.01-5S Neighbourhood character

Objective
To recognise, support and protect neighbourhood character, cultural identity, and sense of place.

Strategies
Support development that respects the existing neighbourhood character or contributes to a preferred neighbourhood character.
Ensure the preferred neighbourhood character is consistent with medium and higher density housing outcomes in areas identified for increased housing.
Ensure development responds to its context and reinforces a sense of place and the valued features and characteristics of the local environment and place by respecting the:
Pattern of local urban structure and subdivision.
Underlying natural landscape character and significant vegetation.
Neighbourhood character values and built form that reflect community identity.

M – *Plan* Response

The current proposal includes a warehouse development which is to be constructed of pre-cast concrete panels with highly articulated facades facing Somerville Road. In order to achieve this end the proposal seeks to use a number of design responses which include the following:

- The use of protruding offices which provide substantial depths
- The partial cantilevering of the office provides for recesses to be included along the ground floor;
- The use of different fenestration types and sizes provides substantial articulation
- The use of a different combination of window sizes whilst the windows are both vertically and horizontally framed.
- The use of roiled on textured finish pattern in order to provide an appropriate mix of materials.

Additionally, the office designed as an ancillary feature of the proposal. This is apparent in the design of the office as it is designed in proportion with the remainder of the warehouse.

EMPLOYMENT 17.01-1S

Diversified economy

Objective
To strengthen and diversify the economy.

Strategies
Protect and strengthen existing and planned employment areas and plan for new employment areas.
Facilitate regional, cross-border and inter-regional relationships to harness emerging economic opportunities.
Facilitate growth in a range of employment sectors, including health, education, retail, tourism, knowledge industries and professional and technical services based on the emerging and existing strengths of each region.
Improve access to jobs closer to where people live.
Support rural economies to grow and diversify.

17.01-1R Diversified economy - Metropolitan Melbourne

Strategies
Support the Central City to become Australia's largest commercial and residential centre by 2050, by planning for office, retail, residential, education, health, entertainment and cultural activity spaces.

Plan for the redevelopment of Major Urban-Renewal Precincts in and around the Central City to deliver high-quality, distinct and diverse neighbourhoods offering a mix of uses.

Facilitate the development of National Employment and Innovation Clusters by ensuring they:
Have a high level of amenity to attract businesses and workers.
Are supported by good public transport services and integrated walking and cycling paths.
Maximise investment opportunities for the location of knowledge intensive forms and jobs.
Support the employment and servicing role of Health and Education Precincts by:

- Focussing on improving access, particularly public transport access.
- Encouraging co-location of facilities to better utilise existing infrastructure.
- Supporting and facilitating growth of associated businesses and industries.
- Reinforcing their specialised economic functions while also providing opportunities for ancillary retail, commercial, accommodation and supporting services.

Support diverse employment generating uses, including offices, innovation and creative industries in identified areas within regionally significant industrial precincts, where compatible with adjacent uses and well connected to transport networks.
Consider how land use change proposals can respond to local and regional employment demand or identify how it can be accommodated elsewhere.
Plan for industrial land in suitable locations to support employment and investment opportunities.
Facilitate investment in Melbourne's outer areas to increase local access to employment.

17.02 COMMERCIAL

17.02-1S Business

Objective
To encourage development that meets the community's needs for retail, entertainment, office and other commercial services.

Strategies
Plan for an adequate supply of commercial land in appropriate locations.
Ensure commercial facilities are aggregated and provide net community benefit in relation to their viability, accessibility and efficient use of infrastructure.
Locate commercial facilities in existing or planned activity centres.
Provide new convenience shopping facilities to provide for the needs of the local population in new residential areas and within, or immediately adjacent to, existing commercial centres.
Provide small scale shopping opportunities that meet the needs of local residents and workers in convenient locations.
Provide outlets of trade-related goods or services directly serving or ancillary to industry that have adequate on-site car parking.
Locate cinema based entertainment facilities within or on the periphery of existing or planned activity centres.
Apply a five year time limit for commencement to any planning permit for a shopping centre or shopping centre expansion of more than 1000 square metres leasable floor area.
Regulate the use and development of land for a sex services premises in commercial and mixed use areas in the same way as for other types of shop.
Ensure that planning for the use and development of land for a sex services premises and home based business is consistent with decriminalisation of sex work and provides for the reduction of discrimination against, and harm to, sex workers.

17.03 INDUSTRY

17.03-1S Industrial land supply

Objective
To ensure availability of land for industry.

Strategies
Provide an adequate supply of industrial land in appropriate locations including sufficient stocks of large sites for strategic investment.
Identify land for industrial development in urban growth areas where:
Good access for employees, freight and road transport is available.
Appropriate buffer areas can be provided between the proposed industrial land and nearby sensitive land uses.
Protect and carefully plan existing industrial areas to, where possible, facilitate further industrial development.
Preserve locally significant industrial land for industrial or employment generating uses, unless long-term demand for these uses can be demonstrably met elsewhere.
Avoid approving non-industrial land uses that will prejudice the availability of land in identified industrial areas for future industrial use.

17.03-2S Sustainable industry

Objective
To facilitate the sustainable operation of industry.

Strategies
Ensure that industrial activities requiring substantial threshold distances are located in the core of industrial areas.
Encourage activities with minimal threshold requirements to locate towards the perimeter of the industrial area.
Minimise inter-industry conflict and encourage like industries to locate within the same area.
Protect industrial activity in industrial zones from the encroachment of commercial, residential and other sensitive uses that would adversely affect industry viability.
Encourage industrial uses that meet appropriate standards of safety and amenity to locate within activity centres.
Support the retention of small-scale industries servicing established urban areas through appropriate
zoning.
Provide adequate separation and buffer areas between sensitive uses and offensive or dangerous industries and quarries to ensure that residents are not affected by adverse environmental effects, nuisance or exposure to hazards.
Encourage manufacturing and storage industries that generate significant volumes of freight to locate close to air, rail and road freight terminals.

M – *Plan* Response

The subject site is currently occupied by a building since the early post war period with a dwelling type building located along the frontage. Whilst the development of the land may have been appropriate for industrial standards in the past, the current level of development of the site is not effective for contemporary warehouse requirements particularly for staff amenities.

The current proposal seeks to provide for a development which is contemporary in design and will likely seek to attract a new tenant which will seeks to make use of the site proximity to the local arterial network whilst being within close proximity to the Melbourne docks and cbd.

20 LOCAL PLANNING POLICY FRAMEWORK

This section sets out the Municipal Strategic Statement and the Local Planning Policies that apply to the area covered by this planning scheme, and includes provisions about their operation.

21 MUNICIPAL STRATEGIC STATEMENT

21.03 COUNCIL VISION

Council Plan

The Council Plan is the overarching strategic document for the city. The plan sets out Council's vision and objectives for the city, and details the strategies, actions and commitments that will achieve these. A primary objective of the Council Plan is to protect and promote the wellbeing of the community. This objective informs all Council policy, strategy and actions.
The vision for the city of Maribyrnong as stated in the Council Plan 2009-13 is:
A diverse, vibrant, and proud city focused on people-based places, environmentally sustainable practices, and opportunities to enhance community health and wellbeing through education, responsive services and participation in community life.

The six key commitment areas of the Council Plan are:
1. Building community spirit, engagement and places
2. Prosperity
3. Moving around the city
4. Amenity
5. Environmental sustainability
6. Organisational performance

Many aspects of the Council Plan's vision and objectives will be realised through the city's land use planning and development approval. The Maribyrnong Planning Scheme implements the land use and development components of the Council Plan by setting policies and objectives that support Council's overall vision and the wellbeing of the community.

Land Use Vision
By 2030 the city of Maribyrnong will be a popular inner city municipality with a vibrant and diverse community, a strong identity and a prosperous modern economy. The city's adaptation to climate change will make it more environmentally sustainable and more resilient to future changes. Significant redevelopment will transform the city and give it a greater residential character. The city's valued heritage and neighbourhood character will be complemented by new development on key redevelopment sites and within activity centres. More people will be living and working in the city attracted by its choice of housing, accessibility and employment opportunities. A broad economic base will strengthen local employment through a strong retail sector, new offices and business services, a growing arts base and the renewal of the city's industrial areas. New facilities and infrastructure will meet the needs of the community. The network of open spaces and trails will be enhanced and offer an improved range of recreational facilities and activities for the community, while the Maribyrnong River will be more accessible and offer a range of recreational, cultural and tourism experiences.

ENVIRONMENT AND LANDSCAPE VALUES

21.05-1 Landscape values

The Maribyrnong River is a highly valued metropolitan waterway and its valley forms an important regional open space corridor. The river valley and escarpment are dominant landforms that provide an attractive setting. The character of the river varies within the city. The Maribyrnong River Valley Design Guidelines (2010) has identified six main character lengths along the river:

Steele Creek – secluded river,
Maribyrnong – a suburban river,
Racecourse – river flats,
Footscray – an urban river,
Footscray Wharf – an urban river, and
Port – a working river.

There are opportunities to enhance the landscape character along the river, in particular the steeply sided valley and escarpments in Braybrook and Maribyrnong. Development of the Maribyrnong Defence Site will open up the river front for public access, add open spaces and enable completion of the shared river trail.
There is significant potential to expand and enhance the open space corridor along Stony Creek and improve links as opportunities arise. However, the potential to extend the shared trail west of Paramount Road is limited due to private land ownership and physical barriers. Access to this section of the creek will be from local roads that will form key nodes along the creek.

Objective 1
To enhance the landscape character along the Maribyrnong River and Stony Creek.

Strategies
Create a diverse mix of environments within the Maribyrnong River valley from a natural indigenous vegetation corridor in the upper reaches to more hard-edged urban environments in the lower reaches.
Enhance the interpretation of the cultural heritage of the Maribyrnong River and Stony Creek environs.
Encourage development that enhances the environmental qualities of the Maribyrnong River

Valley.
Encourage development that complements existing activities along the river.

21.05-2 Climate Change

The City will need to adapt to the impacts of climate change and to meet targets for reducing greenhouse gas emissions. Council is committed to creating an environmentally sustainable city and has set a target for the city to become carbon neutral by 2020. A more sustainable city will strengthen the city's economy and its social well being.
The Maribyrnong City Council Carbon Neutral Action Plan 2008 adopts a best practice carbon reduction hierarchy with regard to:
Avoiding waste energy,
Efficient use of energy,
Purchase of green power, and
Offset any remaining carbon emissions.
The city's inherent strengths, including its convenience, compact form, good public transport, range and network of activity centres, local employment and opportunities for new development provides resilience to potential climate change impacts and can form a foundation for improving the city's future sustainability. Encouraging more intensive development within key activity centres and close to public transport, reducing car dependency and encouraging uses that will provide local employment will produce a more sustainable city.
Local energy production using solar power and wind turbines could be provided in strategic redevelopment sites to help reduce greenhouse gas emissions. There is potential for a large wind turbine adjacent to the Westgate Freeway.

Objective 2
To ensure that the city adapts to the impacts of climate change.

Strategies
Plan and design according to the latest findings regarding the impacts of climate change such as rising sea levels, and weather events.
Encourage risk management strategies to address identified climate change probabilities.
Encourage development that reduces car dependency especially for short journeys and work trips.
Encourage uses that will provide local employment.
Promote landscaping that provides habitat, open spaces, food resilience and climate control.
Ensure planning scheme amendments and development applications consider and respond to the changing effects of climate change.

Objective 3
To ensure that the city is carbon neutral by 2020.

Strategies
Encourage developments that reduce energy usage and greenhouse gas emissions.
Encourage industry to develop on-site renewable energy and new emerging low carbon technologies.
Encourage renewable energy at household level and at strategic redevelopment sites.
Promote waste management that reduces waste and improves management of emissions from land

M - *Plan* Response

The proposal is accompanied by an ESD assessment which will allow for the proposal to meet the broader environmental objectives of the policy.

21.06 BUILT ENVIRONMENT AND HERITAGE

21.06-1 Urban Design

Council is dedicated to a well designed urban environment that enhances the image, aesthetics and amenity of the city. The changing pattern of land uses and extensive development occurring in the city affords opportunities to achieve high standards of urban design and architecture. Excellence in urban design can improve streetscapes and public spaces. It can also help to achieve more sustainable development and a more attractive and liveable city.
Increasingly new residential developments are occurring on laneways, either within established suburbs or laneways designed as part of new developments. In established areas laneways should be reconfigured to provide safe, accessible and attractive settings for residents, which may require redesign and reconstruction to cater for the new development.

Objective 1
To support a sense of place and community in activity centres.

Strategies
Encourage facilities, services and places in activity centres that support the health and well being of residents, visitors and workers.
Maintain and enhance the built form character which contributes to each activity centre's individual identity.
Require appropriate development responses to gateway locations within activity centres.
Require the supply of new areas of open space in activity centres to meet the recreation needs of residents, visitors and workers.

Objective 2
To create activity centres with a high quality public realm.

Strategies
Provide friendly and safe access pathways, good lighting, quality landscaping, street furniture, conveniences and spaces for people to meet.
Encourage appropriate weather protection in front of buildings in centres with a strong convenience retailing role.
Encourage day-to-day retail uses on the ground floor in all centres with a defined convenience retailing role.
Improve the appearance, comfort and safety of public spaces.
Ensure landscaping is included to provide shade and visual relief in both pedestrian networks and car park areas.
Require the design of new public open space to comply with Council's landscape design guidelines.

21.06-2 Environmentally Sustainable Design

The extent of redevelopment occurring in the city affords an opportunity for more sustainable design and development outcomes which can reduce greenhouse gas emissions. A large part of the city's development will be residential, and as a sector that contributes significantly to greenhouse
gas emissions this offers opportunities to reduce emissions, energy consumption, waste and use of potable water.
Development will need to meet new design and development requirements, adopt new and emerging
technologies and achieve best practice. Council is committed to encouraging best practice and improving the sustainability of development. Sustainability principles will therefore strongly influence the design, siting and servicing of buildings (especially residential). Council has adopted the Sustainable Tools for Environmental Performance Strategy (STEPS) for residential developments and Sustainable Design Scorecard (SDS) for commercial developments, as evaluation tools which will be used to assess the sustainability of new developments.
New developments will be expected to incorporate water re-use technology and Water Sensitive Urban Design (WSUD). Water conservation practices are needed to manage water resources and reduce reliance on potable water for non-drinking purposes.

Objective 5
To provide sustainable building design.

Strategies
Encourage development that encompasses best practice environmental sustainable design principles and operating practices.
Encourage developments that meet the requirements of STEPS or SDS evaluation tools.
Encourage the siting of new buildings and works to protect existing solar collecting devices and passive solar elements on adjoining buildings or land.
Encourage the use of sustainable building materials, the reuse and recycling of waste building materials and reduce the amount of building waste generated.
Encourage sustainable demolition and construction practices.
Ensure that any Framework Plans, Development Plans, and Urban Design Guidelines consider and require environmental sustainable design.

Objective 6
To improve stormwater quality.

Strategies
Encourage WSUD in all new developments where suitable, to meet or exceed best practice standards
and reduce the impacts of stormwater on the bay and catchments.
Treat stormwater prior to discharge into the Maribyrnong River and Stony Creek.

Objective 7
To ensure that water resources are managed in a sustainable manner.

Strategies
Encourage developments that capture, store and re-use and recycle water for non-drinking purposes.
Encourage drought proof landscaping and protection of existing vegetation considering reduced water availability, increased cost and uncertainty of supply.
Encourage roof top gardens in multi level developments to provide opportunity for green spaces and food growing.

M – *Plan* Response

The current proposal includes a warehouse development which is to be constructed of pre-cast concrete panels with highly articulated facades facing Somerville Road. In order to achieve this end the proposal seeks to use a number of design responses which include the following:

- The use of protruding offices which provide substantial depths
- The partial cantilevering of the office provides for recesses to be included along the ground floor;
- The use of different fenestration types and sizes provides substantial articulation
- The use of a different combination of window sizes whilst the windows are both vertically and horizontally framed.
- The use of roiled on textured finish pattern in order to provide an appropriate mix of materials.

Additionally, the office designed as an ancillary feature of the proposal. This is apparent in the design of the office as it is designed in proportion with the remainder of the warehouse.

Additionally, as the proposal is supported by an ESD assessment, the proposal will provide for a number of ESD initiatives which will support Council objectives for lowering carbon emissions whilst seeking to improve the environmental performance of the building.

11.0 Particular Provisions

11.1 Clause 52.06 Car Parking

Please refer to report prepared by Salt3

12.0 Conclusion

The Maribyrnong Planning Scheme makes provision for the development of the site for the purpose of a store. The site also includes a number of locational and physical attributes which makes this site more than a viable candidate for the use of the land as a warehouse.

Whilst the site is considered a suitable candidate for such a use, the operator of the site through this application has clearly demonstrated that the development of the site will be consistent with the planning scheme objectives for the use and development of the land for the purpose of warehouse.

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26 June 2024

Po Leong
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Sustainable Transport Surveys Pty Ltd
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Dear Po

Re: **382 Somerville Road, West Footscray – Traffic Engineering Assessment**
Project No: **24162**

I refer to your request for SALT to undertake a traffic engineering assessment in relation to the proposed warehouse development at 382 Somerville Road in West Footscray. Maribyrnong City Council has issued an RFI in response to the town planning application, which requests the following information:

Traffic Report

- *A Traffic Report, prepared by a suitable qualified engineer which provides details on:*
  - *The justification for the reduction in the statutory parking rate*
  - *Turning circles as required*
  - *Types of vehicles using the site and whether the access arrangements can accommodate these.*

Our assessment is provided as follows. This takes into account the above.

1 EXISTING CONDITIONS

1.1 LOCATION & LAND USE

The subject site is in West Footscray with a southern frontage to Somerville Road. It is bordered by warehouses in the north, east, and west. The location of the site with respect to the surrounding road network is shown in **Figure 1**, followed by an aerial view of the site **Figure 2**.

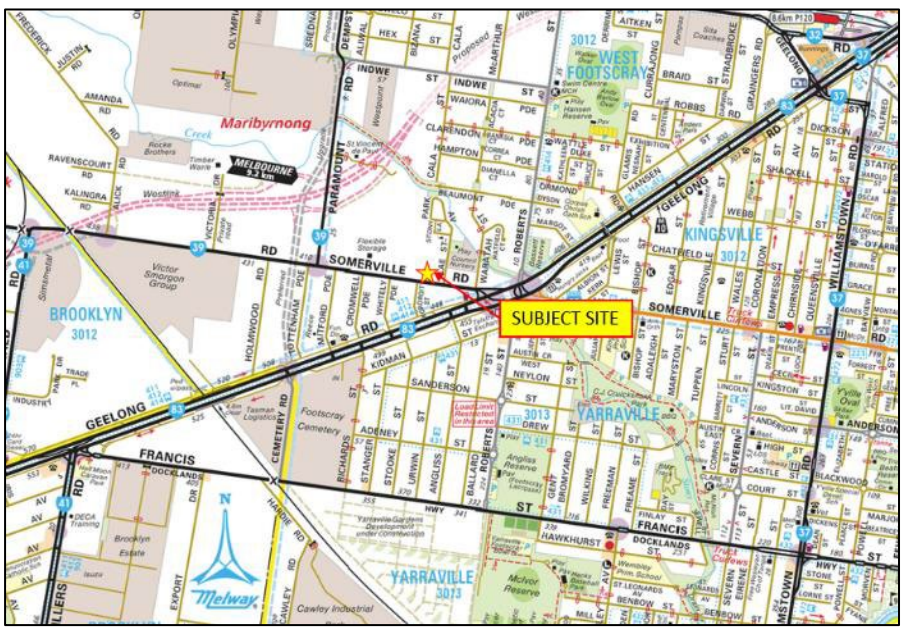


Figure 1 Subject site location (Source: Melway)

Figure 2 Aerial view of subject site (Source: Google Earth Pro)

The site is rectangular in shape, covers an area of approximately 925 m^2, and is currently occupied by a vehicle repair service establishment. Access to the site is provided via two (2) crossovers to Somerville Road.

Maribyrnong City Council is the responsible authority, and the site is situated within an area zoned as Industrial 3 Zone (IN3Z). The site is subject to a Development Contributions Plan Overlay – Schedule 2 (DCPO2). The site is not subject to a parking overlay; however, it is included within the Principal Public Transport Network (PPTN) Area, as shown in **Figure 3**.

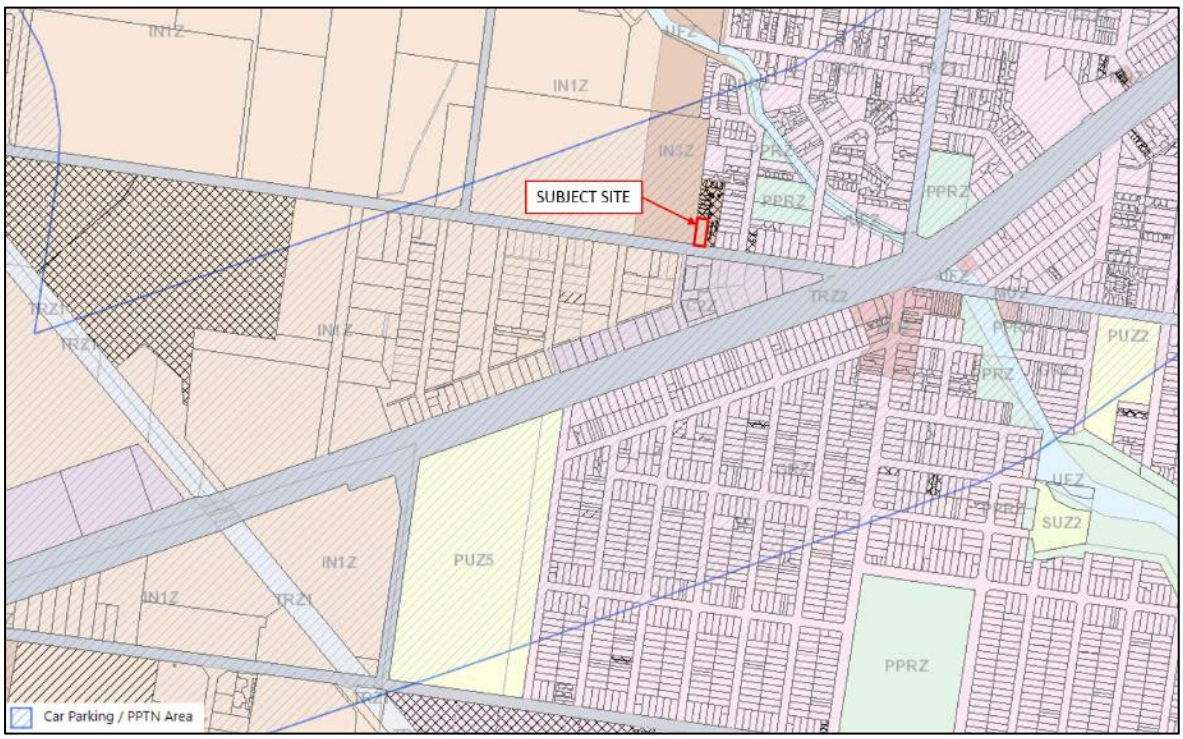


Figure 3 PPTN Area (Source: VicPlan)

The zoning of the surrounding area is mixed and includes the following:

- Commercial 2 Zone (C2Z);
- General Residential Zone – Schedule 1 (GRZ1);
- Industrial 1 Zone (IN1Z);
- Industrial 3 Zone (IN3Z);
- Public Park and Recreation Zone (PPRZ); and
- Transport Zone 2 (TRZ2).

The area is already established with all the surrounding lots being occupied, and the warehouse development on the property that neighbours the site in the north and east was constructed recently.

1.2 ROAD NETWORK

Somerville Road is a sealed declared arterial road that follows an east-west alignment and is under the care and management of the Department of Transport and Planning (DTP). The carriageway is approximately 13.4m wide and accommodates two-way vehicular movement, and on-street parking is permitted. Generally, paved footpaths that are about 1.3 – 1.5m wide have been provided on both sides of Somerville Road, although in some areas the footpaths are discontinuous. Near the site, the footpath has been provided on the northern side, i.e., along the site's frontage to Somerville Road. The posted speed limit is 60 km/h.

1.3 SUSTAINABLE TRANSPORT

1.3.1 Walkability

The site has good access to pedestrian facilities with paved footpaths provided on at least one side of all the surrounding roads, and the wider area encompasses a well-connected footpath network.

1.3.2 Cycling

There are no bicycle lanes or paths in the vicinity of the site and cycling occurs as a shared mode of transport on the roadways and footpaths.

1.3.3 Bus Network

The subject site has reasonably good connectivity to the bus network, with the nearest bus stop at Somerville Road / Geelong Road, approximately 400m (about 6-minute walk) from the subject site. This stop serves the following routes, all of which are operated by Public Transport Victoria (PTV):

- 411: Laverton Station – Footscray via Altona Meadows & Altona & Millers Rd;
- 412: Laverton Station – Footscray via Altona Meadows & Altona & Mills St;
- 414: Laverton Station – Footscray via Geelong Rd; and
- 947: Footscray – Newport Station via Altona North.

Figure 4 shows the bus services that operate in the vicinity of the site.

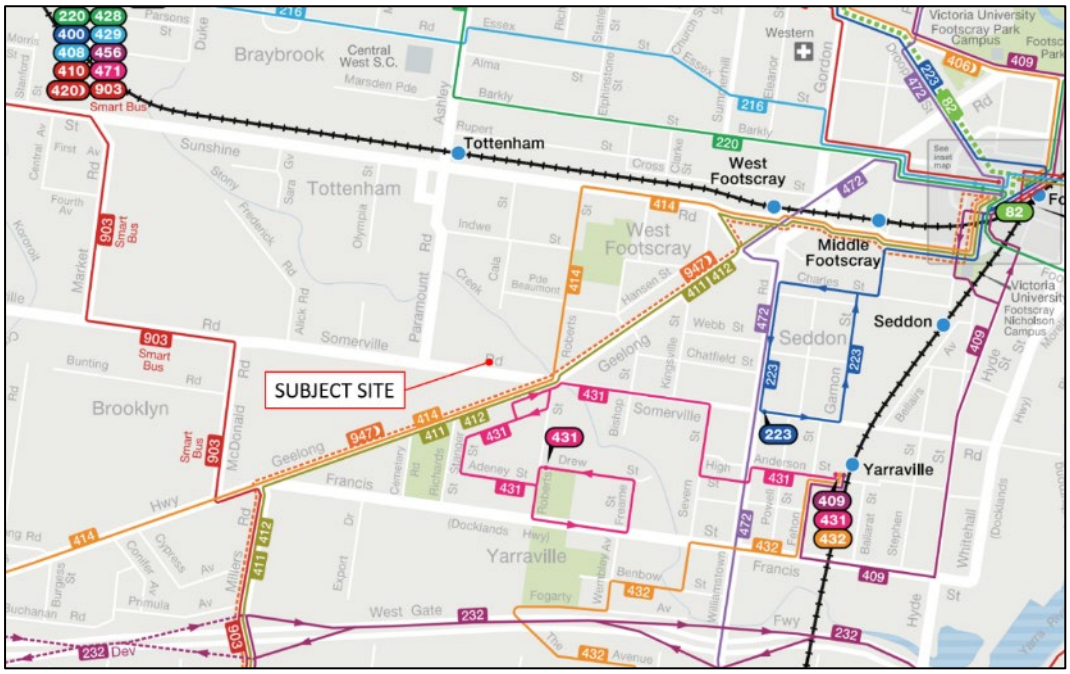


Figure 4 Bus services (Source: Public Transport Victoria)

1.3.4 Rail Network

The subject site has good connectivity to the rail network via the bus network in the area, with all the nearby bus routes providing convenient access to West Footscray, Middle Footscray, and Footscray Stations. West Footscray and Middle Footscray Stations serve Sunbury Line, and Footscray Station serves Sunbury, Werribee, and Williamstown Lines. Several V/Line services are also served by these stations.

Figure 5 shows the rail services that operate in the vicinity of the site.

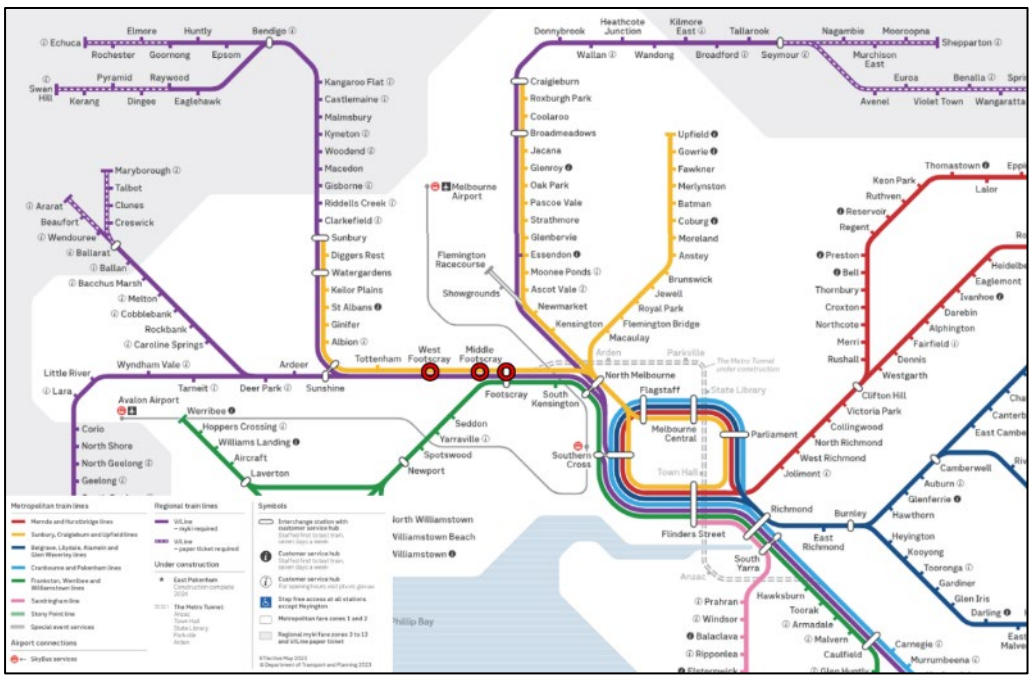


Figure 5 Rail services (Source: Public Transport Victoria)

1.4 CRASH STATISTICS

An assessment of the crash statistics along Somerville Road was carried out based on DTP's Open Data Hub for *Victorian Road Crash Data*. The data was last updated on 13 May 2024. **Figure 6** shows the section that was assessed, which is between Geelong Road and McDonald Road.

Figure 6 Crash statistics review area (Source: DTP Open Data Hub)

The most recent 5-year period is between 27 June 2018 – 18 August 2023 and includes a total of eight (8) reported incidents. It is noted that the available crash statistics do not include only the last 5-year period as has previously been the case; rather, the provided data goes back to 7 February 2012 for the area; however, this assessment is restricted to the most recent 5-year period.

A review of the crash data highlighted the following:

- In total, 16 people were involved in crashes on the section, with injuries summarised as follows:
  - 0 fatalities;
  - 2 'serious' injuries;
  - 7 'other' injuries; and
  - 7 sustaining no injuries.

Table 1 provides a summary of the most recent 5-year crash history.

Table 1 Most recent 5-year crash history summary

No.	Date	DCA Description	Type	Severity
1	27/06/2018	Left off carriageway into object/parked vehicle	Collision with a fixed object	Serious
2	15/03/2020	Right far (intersections only)	Collision with vehicle	Other
3	26/12/2020	Head on (not overtaking)	Collision with vehicle	Other
4	29/08/2022	Head on (not overtaking)	Collision with vehicle	Other
5	10/10/2022	Right through	Collision with vehicle	Serious
6	13/10/2022	Vehicle collides with vehicle parked on left of road	Collision with vehicle	Other
7	23/06/2023	Ped walking with traffic	Struck pedestrian	Other
8	18/08/2023	Right through	Collision with vehicle	Other

Table 1 shows that the recent crashes were typically not characterised by high severities. There were also no crashes involving vehicles accessing driveways.

1.5 PARKING AVAILABILITY

SALT has reviewed recent Nearmap aerial imagery to determine the typical car parking availability on the streets in the surrounding area. **Figure 7** shows a map of the area that was surveyed, and the dates with accompanying aerial photographs are presented in **APPENDIX 1** at the end of this letter.

The results are summarised in **Table 2**.

Figure 7 Parking survey area

Table 2 Desktop parking survey results

Street	Supply	Friday 10 Nov. 2023	Wednesday 23 Aug. 2023	Thursday 6 Jul. 2023	Monday 24 Apr. 2023
Somerville Road	78	14	14	12	12
Lae Street	32	10	9	7	9
Kororoit Street	20	9	9	7	4
Total Occupied	**130**	**33**	**32**	**26**	**25**
Total Available	**130**	**97**	**98**	**104**	**105**

Table 2 shows that the on-street parking demand in relation to the availability is low in the vicinity of the site, with a maximum of 33 out of 130 (about 25.4%) spaces occupied.

2 PROPOSAL

It is proposed to demolish the existing structures and construct a warehouse development on the site, which will comprise one (1) tenancy with associated admin/display/office areas, as detailed in **Table 3**.

Table 3 Development proposal

Use	Floor	Area
Ground floor	Warehouse[1]	572m^2
	Loading Bay	*38 m^2*
	Stair & Void	*7.7 m^2*
First floor	Office	199 m^2
	Stair & Void	*7.7 m^2*
Net Floor Area[2]		**717.6 m^2**

[1] The ground floor warehouse area includes the reception, kitchen, lunch and toilet areas, as these are typical components of a warehouse. The reception area is also commonly used for display of goods.

[2] The Net Floor Area excludes the areas of the loading bay and stairs/voids as per Planning Scheme definitions.

Table 3 shows that the proposed development will have a total net floor area of 717.6m^2. The first-floor office is ancillary and will comprise 199m^2 (about 27.8%) of the net floor area.

Access to the site will be provided via the existing western crossover, while the existing eastern crossover will be decommissioned/demolished. This will increase the supply of on-street parking by 1 space.

A total of nine (9) car parking spaces are proposed, which includes one (1) DDA-compliant space.

The proposed site layout is attached as **APPENDIX 2** at the end of this letter.

3 CAR PARKING MATTERS

3.1 STATUTORY CAR PARKING REQUIREMENTS

Statutory car parking requirements are specified in Clause 52.06 of the Maribyrnong Planning Scheme. Table 1 to Clause 52.06-5 provides the required car parking rates for different land uses.

As detailed in **Section 2**, the office will constitute about 27.7% of the net floor area of the proposed development. A common reasonable/typical agreement is that an office proportion of no more than 25% of the gross area should be considered ancillary to the main land use, with anything above 25% treated as office. This means that 2.7% of the floor area (approx. 20m^2) should be treated as office, and the remainder as warehouse. However, in this case 20m^2 is a negligible amount that would in effect trigger a parking requirement of 0 spaces for the office component if it was treated separately. As such, we find it appropriate to treat the entire development as a warehouse.

Based on this, an assessment of the required number of car parking spaces for the proposed development is summarised in **Table 4**. It is noted that the subject site is located within the PPTN Area, therefore the parking rate in Column B applies.

Table 4 Statutory car parking requirements

Land Use	Planning Scheme Car Parking Requirement	Net Floor Area (sqm)	Spaces Required	Spaces Provided
Warehouse	2 to each premises plus	-	2	2
	1 to each 100 sqm of net floor area	717.6 m^2	7	7
	Total	**717.6 m^2**	**9**	**9**

From **Table 4**, the proposed development has a statutory requirement to provide a total of 9 car parking spaces. With nine (9) spaces provided on the site, the proposed car parking provision meets the statutory requirement.

3.2 WAREHOUSE CASE STUDY DATA

Whilst the Planning Scheme car parking requirement is met, we nonetheless provide the following supporting case study data for the proposed parking supply,, based on parking demand surveys at several existing warehouse developments containing warehouse tenancies of similar sizes to that proposed. The findings are summarised in **Table 5**.

Table 5 Surveyed parking demand rates

Location	Size (sqm)	Description	Demand Rate (per 100 sqm)
40 Rickets Road, Mount Waverley	6,000	Contains multiple warehouse tenancies, including office / showroom tenancies.	1.12
174-176 Atlantic Drive, Keysborough	3,000	Contains multiple warehouse tenancies.	1.0
69-77 Mark Anthony Drive, Dandenong South	8,900	Contains multiple warehouse tenancies.	0.75
35-37 Canterbury Road, Braeside	2,097	Contains multiple warehouse tenancies with an average net floor area of 179 sqm, including ancillary office.	1.05
25-39 Cook Road, Mitcham	5,235	Conatains multiple warehouse tenancies with sizes ranging from 72 – 393 sqm net floor area.	1.17
Average Rate (per 100 sqm)			**1.0**
85th Percentile Rate (per 100 sqm)			**1.14**

Additional relevant case study data was collected by Ratio Consultants, which is provided in **Table 6**.

Table 6 Additional case study data – Ratio Consultants

Location	Size (sqm)	Description	Demand Rate (per 100 sqm)
11 Bryants Road, Dandenong South	13,377	Contains multiple warehouse tenancies with sizes ranging from 148 – 768 sqm net floor area.	0.70
262 Chesterville Road, Moorabbin	3,999	Contains multiple warehouse tenancies with sizes ranging from 63 – 276 sqm net floor area.	0.92
Highbury Road, Burwood	11,163	Contains multiple warehouse tenancies with sizes ranging from 224 – 410 sqm net floor area.	1.01
8A & 8B Railway Avenue, Oakleigh	1,663	Contains multiple warehouse tenancies with sizes ranging from 73 – 96 sqm net floor area.	1.44
Average Rate (per 100 sqm)			**1.0**
85th Percentile Rate (per 100 sqm)			**1.25**

Table 5 and **Table 6** show that both car parking demand assessments yielded similar results, with the results of both sets of data, when combined, showing an 85th percentile parking demand of **1.16 spaces per 100 sqm.**

Based on the above, applying the relevant case study average parking rate of 1.0 per 100 sqm to the warehouse land use translates into a parking demand of 7 spaces.

Conversely, applying the relevant 85th percentile parking rate of 1.16 per 100 sqm translates into a parking demand of 8 spaces.

The proposed supply of 9 parking spaces exceeds both these figures, and hence it is clear that adequate car parking will be provided. Further:

- There is abundant availability of on-street car parking in the unlikely event of any parking overflow – refer **Section 2.1**; and
- The removal of one existing crossover will increase the supply of on-street parking by 1 space.

3.3 ACCESSIBLE PARKING

The Building Code of Australia specifies the number of accessible parking spaces required for various land uses. As per the NCC, the proposal can be classified as a storage-type building (Class 7 building), which is a building that is used for storage, or display of goods or produce for sale by wholesale.

The applicable requirement is one (1) accessible space for every 100 car parking spaces or part thereof. The proposal includes one (1) on-site accessible car parking space and therefore complies with the requirement.

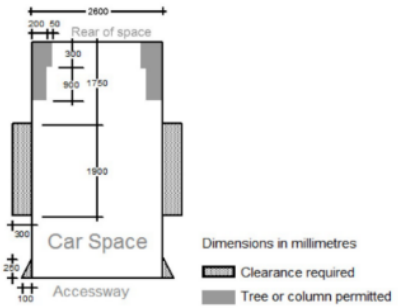
4 CAR PARK ACCESS & LAYOUT

Clause 52.06-9 of the Maribyrnong Planning Scheme specifies the design standards and related requirements for the car parking area and access arrangements. An assessment against these requirements is provided below in **Table 9**.

Table 7 Clause 52.06-9 design requirements

Requirement	Response
Design Standard 1: Accessway	
Accessways must:	
Be at least 3m wide	Complies. Both accessways will be at least 5.0m wide.
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	Complies. Both accessways will be wider than 4.2m.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Complies. The end parking spaces will be provided with a full aisle extension that is 1.2m long, which exceeds the minimum requirement of 1.0m based on the provisions of AS2890.1-2004. Refer to the swept path diagrams shown in **APPENDIX 3** attached at the end of this letter.
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheelbase of 2.8 metres.	Complies.
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	Complies.
Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or Transport Zone 3.	Not required. Although the accessway connects to a road in a Transport Zone 2, it will serve fewer than 10 car parking spaces. Refer to the proposed site layout shown in **APPENDIX 2** attached at the end of this letter.

Requirement	Response
Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	Does not comply. A full visibility splay cannot be provided on the exit side at the site access as it will be obstructed by a car in the adjacent parking space. A convex mirror will instead be provided that will allow exiting drivers to see pedestrians on the footpath. The short accessway will also ensure that cars exit at low speed.. The existing fence, which is at least 50 per cent clear of visual obstruction, will be maintained along the site's frontage to Somerville Road. Refer to the proposed site layout shown in **APPENDIX 2** attached at the end of this letter.
Design Standard 2: Car Parking Spaces	
Car parking spaces and accessways must have the following minimum dimensions: Table 2: Minimum dimensions of car parking spaces and accessways **Angle of car parking spaces to access way** / **Accessway width** / **Car space width** / **Car space length** Parallel / 3.6 m / 2.3 m / 6.7 m 45° / 3.5 m / 2.6 m / 4.9 m 60° / 4.9 m / 2.6 m / 4.9 m 90° / 6.4 m / 2.6 m / 4.9 m 5.8 m / 2.8 m / 4.9 m 5.2 m / 3.0 m / 4.9 m 4.8 m / 3.2 m / 4.9 m *Some dimensions in Table 2 vary from those shown in the Australian Standard AS2890.1-2004 (off street). The dimensions shown in Table 2 allocate more space to aisle widths and less to marked spaces to provide improved operation and access.*	Complies. On-site car parking spaces are proposed as follows: - Angled parking at 90°; - Accessway widths of 6.95m, exceeding the minimum requirement of 6.4m; - Car space widths of 2.6m; and - Car space lengths of 4.9m. All parking spaces will be adequately accessible by an Australian Standard B85 vehicle, with ingress to and egress from key parking spaces provided as shown in the attached **APPENDIX 3**.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1, other than: *A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1.* *A structure, which may project into the space if it is at least 2.1 metres above the space.*	Complies.

Requirement	Response
Diagram 1 Clearance to car parking spaces  	
Car spaces in garages or carports must be at least 6 metres long and 3.5 metres wide for a single space and 5.5 metres wide for a double space measured inside the garage or carport.	Not applicable. No garages or carports are proposed.
Where parking spaces are provided in tandem (one space behind the other) an additional 500 mm in length must be provided between each space.	Not applicable. Car parking spaces in tandem are not proposed.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	Not applicable. No dwellings are proposed.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 500mm.	Complies. The accessible and shared spaces will be 5.4m long x 2.4m wide with line marking and bollard in compliance with AS2890.6-2022.
Design Standard 3: Gradients	
Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	Complies.
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 and be designed for vehicles travelling in a forward direction. Table 3: Ramp gradients **Type of car park** / **Length of ramp** / **Maximum grade** Public car parks / 20 metres or less / 1:5 (20%) longer than 20 metres / 1:6 (16.7%) Private or residential car parks / 20 metres or less / 1:4 (25%) longer than 20 metres / 1:5 (20%)	Not applicable. No ramps are proposed.

Requirement	Response
Where the difference in grade between two sections of ramp or floor is greater that 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.	Not applicable. No ramps are proposed.
Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.	Not required.
Design Standard 4: Mechanical Parking – *Not Applicable* **Design Standard 5: Urban Design** – *Not a traffic engineering consideration* **Design Standard 6: Safety**	
Car parking must be well lit and clearly signed.	Complies. It is anticipated that the car parking areas will be provided with suitable lighting and signage.
The design of car parks must maximise natural surveillance and pedestrian visibility from adjacent buildings.	Complies. The car parking areas will be visible from adjacent buildings and the street frontage.
Pedestrian access to car parking areas from the street must be convenient.	Complies.
Pedestrian routes through car parking areas and building entries and other destination points must be clearly marked and separated from traffic in high activity parking areas.	Not applicable. Marked pedestrian routes are not considered necessary, given that the parking areas will not be 'high activity' areas.
Design Standard 7: Landscaping – *Not a traffic engineering consideration*	

5 BICYCLE PARKING

Table 1 to Clause 52.34-5 of the Maribyrnong Planning Scheme specifies the relevant bicycle parking rates for various land uses. There is no bicycle parking rate specified for a warehouse, meaning that the proposal is not required to provide any bicycle parking.

6 LOADING & WASTE COLLECTION

The site will be limited to vehicle sizes up to 6.4m long (an Australian Standard Small Rigid Vehicle or SRV for short). Swept path analyses have been undertaken using AutoTURN (attached as **APPENDIX 3**), which indicate convenient truck access to the service bay, as well as the truck being able to enter and exit the site in a forward direction. It is noted that the truck will need to partly drive underneath the office (first floor) to reverse into the service bay. An overhead clearance of 3.5m will be provided, which complies with AS2890.2-2018.

The service bay will comply with AS2890.2-2018. Specifically, the service bay will be 5.0m wide x 7.6m long, and the service bay door will be 5.0m wide x 4.8m high. The proposed layout will thus adequately accommodate the loading requirements of the proposed development.

It is expected that waste collection would be managed privately, with bins kept inside the premises. The site can accommodate access by a typical 6.4m long low-profile waste collection vehicle.

7 TRAFFIC IMPACT

The TfNSW (formerly RMS/RTA) Guide to Traffic Generating Developments provides a daily trip generation rate of 4 vehicle trips per 100 sqm gross floor area, and a morning peak hour rate of 0.5 vehicle trips per 100 sqm gross floor area for warehouses.

Applying these rates to the proposed development, 771 m^2 GFA, is thus expected to result in the following:

- 31 daily trips; and
- 4 morning peak hour trips.

This is on average 1 vehicle movement every 15 minutes during the morning peak hour, which is considered to constitute a negligible impact in traffic engineering terms.

Accordingly, we are satisfied that the traffic likely to be generated by the proposed development will be readily accommodated by Somerville Road and the surrounding road network and intersections without resulting in any detrimental impacts.

8 RESPONSE TO COUNCIL RFI

As described at the start of this letter, Council has issued an RFI that requires the preparation of a Traffic Report that provides justification for the reduction in the parking requirements, and that demonstrates the suitability of vehicle access and manoeuvring on the site.

The justification for the reduction in the parking requirements is provided in **Section 3.2** of this letter. The assessment is based on previous case studies that have shown the actual observed parking demands at similar warehouses to consistently be lower than the required parking rate specified in the Planning Scheme. Additionally, the availability of on-street parking has been assessed in **Section 1.5**, and although it is not anticipated that the proposal will generate any demand for on-street parking, an abundance of spaces are nevertheless available.

Swept path diagrams have also been prepared, which are attached as **APPENDIX 3** at the end of this letter, that demonstrate vehicles being able to safely and efficiently access and manoeuvre on the site.

Additional concerns were raised in the RFI, which are addressed in **Table 10**.

Table 8 Response to RFI

The access and parking arrangements appear to be poor and need improvement:	
Concern	Response
The existing crossovers proposed to be retained have been used to access the land used as a dwelling. New considerations for the site's use as a warehouse need to be made, and whether proposed trucks of any size are able to safely utilise these crossovers. More information of the maximum truck size accessing the site needs to be provided, as well as turning diagrams show safe and forward egress from the site. Crossovers may need widening.	Matters pertaining to the required car park access and layout are detailed in **Section 4** of this letter, and the turning diagrams are attached as **APPENDIX 3** at the end of this letter. Truck sizes up to 6.4m long SRVs will access the site, and they will be able to enter and exit the site in a forward direction. The swept path diagrams also show that the existing western crossover will adequately accommodate the design vehicle, and widening is therefore not required. The existing eastern crossover will be decommissioned/demolished.

In addition, internal circulation diagrams for heavy vehicles are required to show safe internal manoeuvring within the site.	The swept path diagrams at **APPENDIX 3** show that trucks will be able to manoeuvre safely and efficiently on the site.
Parking spaces 10 and 5 require turning circles to demonstrate exit from the parking space in a single manoeuvre, followed by forward egress from the site. All other vehicles must egress the site in a forward manner.	The car park layout has been updated, as shown on the proposed site layout attached as **APPENDIX 2** at the end of this letter. The swept path diagrams at **APPENDIX 3** show suitable access to key car parking spaces, as well as forward egress from the site.
No car spaces can be within 6m of a Transport Zone 2 road, rendering spaces 1 and 6 unacceptable and requiring removal.	The updated proposed site layout at **APPENDIX 2** shows that the car park has been redesigned and that it complies with this condition.
The parking rate calculated on plans is incorrect and should be as below: Rate per use (Rate Column B): Warehouse: 1 space/100sqm + 2 spaces; Office: 3 space/100sqm Total per use: 489/100=4.89*1 =4.89+2= 6.89; 286/100=2.86*3 =8.58 Total of both uses: 6.89+8.58= 15.47 Total parking spaces required (rounded down): 15 spaces required	The statutory parking requirements are detailed in **Section 3.1** of this letter, and the following points are relevant: ▪ The parking requirement is based on the net floor area; it would appear that the RFI has based the parking requirement on the gross floor area. ▪ The parking requirement of the office land use should be based on only the portion that exceeds 25% of the total floor area, which is commonly the reasonable/typical agreed upon upper limit for considering an office as ancillary to a warehouse use. In this instance, the portion higher than / in addition to the 25% is only 2.7%. Accordingly, the parking requirement is 9 spaces, which is met by the proposal.
The above calculation therefore required a parking dispensation of 5 spaces (or more if other issues raised in this letter are addressed). The required traffic report will need to justify the proposed dispensation in parking.	As above, the statutory car parking requirement is met.
The provided disability space does not appear to be compliant with Australian Standard AS2890.6-2009 (disabled). Dimensions are required to be shown in compliance with this Standard.	The updated proposed site layout at **APPENDIX 2** shows that the provided disability space complies with the relevant requirements of AS2890.6-2009.
The eastern accessway appears not to comply with the minimum 4.8m required for access to car parking spaces at 90 degrees to the accessway.	The updated proposed site layout at **APPENDIX 2** shows that the eastern accessway will be decommissioned, and furthermore that all other accessways will be at least 4.8m wide. Notably, this will increase the supply of on-street parking by 1 space.

9 CONCLUSION

Based on the considerations outlined in this report, it is concluded that:

- The proposed development has a statutory requirement to provide a total of 9 car spaces.
- The proposed provision of 9 spaces meets the statutory requirement, as well as meeting the anticipated parking demand of 7 – 8 spaces based on case study data;
- The proposed car park layout and access arrangements comply with the relevant requirements of the Planning Scheme and Australian Standards and will provide for convenient and efficient access, with the exception of the pedestrian visibility splay requirement. The proposed convex mirror, coupled with low vehicle exit speeds due to the short driveway, will serve to mitigate against this;
- The proposed development does not have a statutory requirement to provide bicycle parking.
- The proposed loading arrangements will adequately accommodate the appropriate design vehicle (6.4m SRV); and
- The level of traffic that is likely to be generated by the proposed development is low and will be readily accommodated by Somerville Road and the surrounding road network and intersections, without any detrimental impacts.

Accordingly, I find no traffic engineering grounds to deny the granting of a Planning Permit.

If there are any enquiries in relation to this assessment, I can be contacted on the number below.

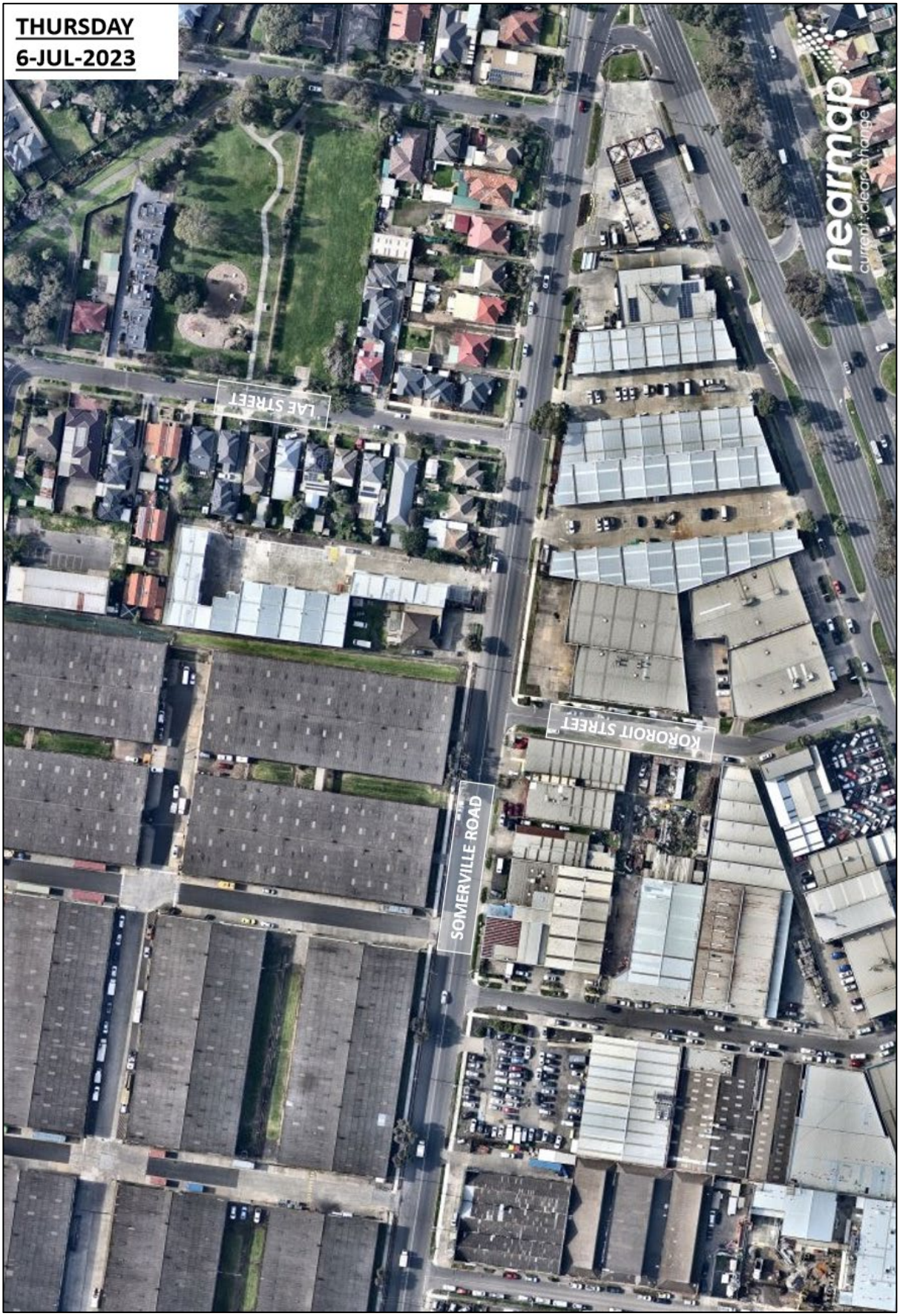
Yours sincerely,

Jarrod Wicks
Director
SALT
T: 9020 4225
M: 0439 340 139
jarrod.wicks@salt3.com.au

APPENDIX 1 NEARMAP PARKING SURVEY DATES


FRIDAY
10-NOV-2023
LAE STREET
KOROROIT STREET
SOMERVILLE ROAD
nearmap
current. clear. change.


WEDNESDAY
23-AUG-2023
nearmap
current. clear. change
LANE STREET
KORORIT STREET
SOMERVILLE ROAD


THURSDAY
6-JUL-2023
LAE STREET
KORORIT STREET
SOMERVILLE ROAD
nearmap
current : clear : change


MONDAY
24-APR-2023
LANE STREET
KORORIT STREET
SOMERVILLE ROAD
nearmap
current, clear, change

APPENDIX 2 PROPOSED SITE LAYOUT

EXISTING SERVICE LEGENT

- F.H — STREET FIRE HYDRANT
- SW — STORMWATER PIT
- SW — STORMWATER PIT (SIDE ENTRY)
- S.P — STORMWATER GRATE
- E.P — ELECTRICAL PIT
- W — WATER METER
- SE — SEWER PIT
- NBN — NBN PIT
- STREET LIGHT POLE
- S.S — STREET SIGNAGE
- 25.21 — EXISTING LEVEL
- 24.11 — PROPOSED LEVEL
- ELECTRICAL SWITCHBOARD

PROPOSED FENCING

- 2100MM HEIGHT - BLACK PLASTIC COATED CYCLONE FENCE
- 2100MM HEIGHT - BLACK PAINTED STEEL PICKET FENCE

EXISTING TREE

- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED

USE OF LAND REQUIREMENTS

- THE PROPOSED DEVELOPMENT IS SPECULATIVE ONLY WITH NOT KNOW OCCUPY
- THERE WILL NOT LIKELY EFFECT, IF ANY, ON THE NEIGHBOURHOOD, INCLUDING;
  - NOISE LEVELS
  - AIR-BORNE EMISSIONS
  - EMISSIONS TO LAND OR WATER
  - TRAFFIC, INCLUDING THE HOURS OF DELIVERY AND DESPATCH
  - LIGHT SPILL OR GLARE

SITE COVERAGE

TOTAL SITE AREA - 925 SQ.M.

SITE AREA	925 SQ.M.

WAREHOUSE	489 SQ.M.
OFFICE	83 SQ.M.
TOTAL GROUND FLOOR	572 SQ.M.

FIRST FLOOR

OFFICE	199 SQ.M.

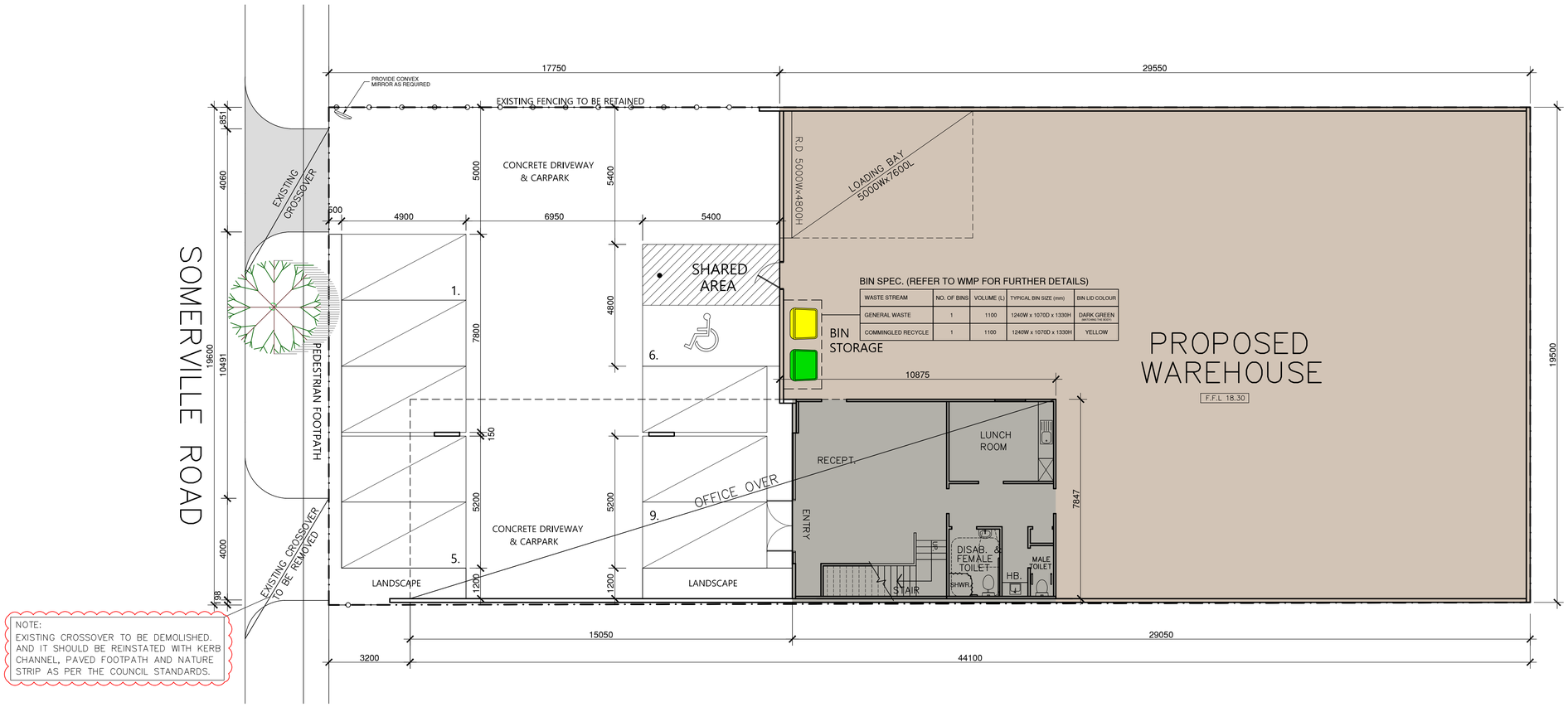
TOTAL FLOOR AREA (GROUND & FIRST FL)	771 SQ.M.

CAR PARKING ANALYSIS FLOOR AREA

SUBTRACT

LOADING BAY	38 SQ.M.
STAIR & VOID	15 SQ.M.

CARPARKING REQUIRE @1.5/100 SQ.M. + 2	12 SPACES
CARPARKING SPACES PROVIDED ON SITE	9 SPACES



NOTE:
EXISTING CROSSOVER TO BE DEMOLISHED. AND IT SHOULD BE REINSTATED WITH KERB CHANNEL, PAVED FOOTPATH AND NATURE STRIP AS PER THE COUNCIL STANDARDS.

PROPOSED DEVELOPMENT PLAN

SCALE 1:100

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

REVISIONS

No.	DESCRIPTION	DATE	APPROVAL

PROJECT:
PROPOSED WAREHOUSE DEVELOPMENT

SITE:
382 SOMERVILLE RD
WEST FOOTSCRAY

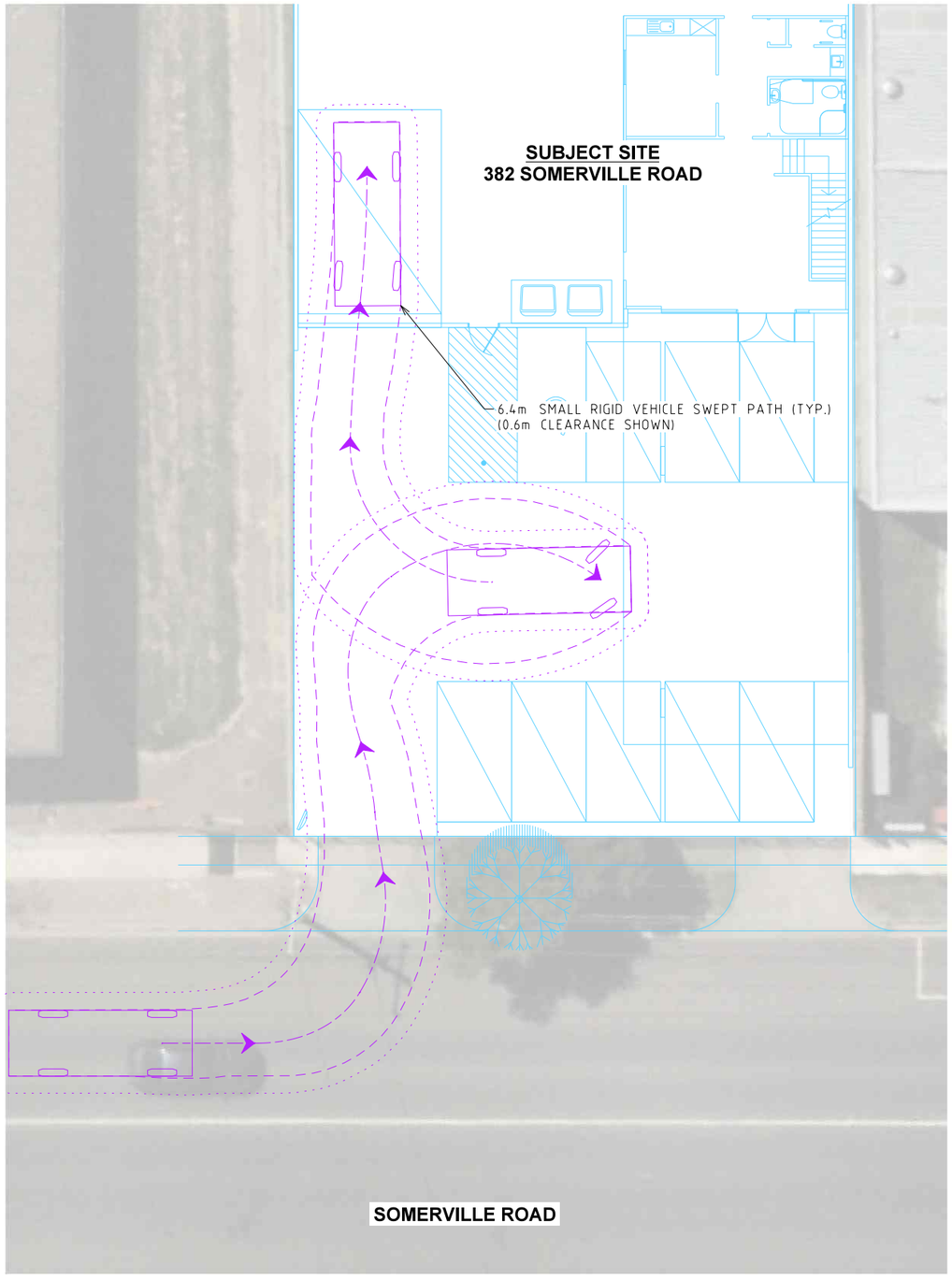
CLIENT:
SHAUN MARCHESE

DATE	ISSUE DATE	SCALE	PROJECT NO.	REV.	STATUS	DWG NO.
MAY 2023	04.06.2024	AS SHOWN	SHA2335I-A	A-2	TP	01

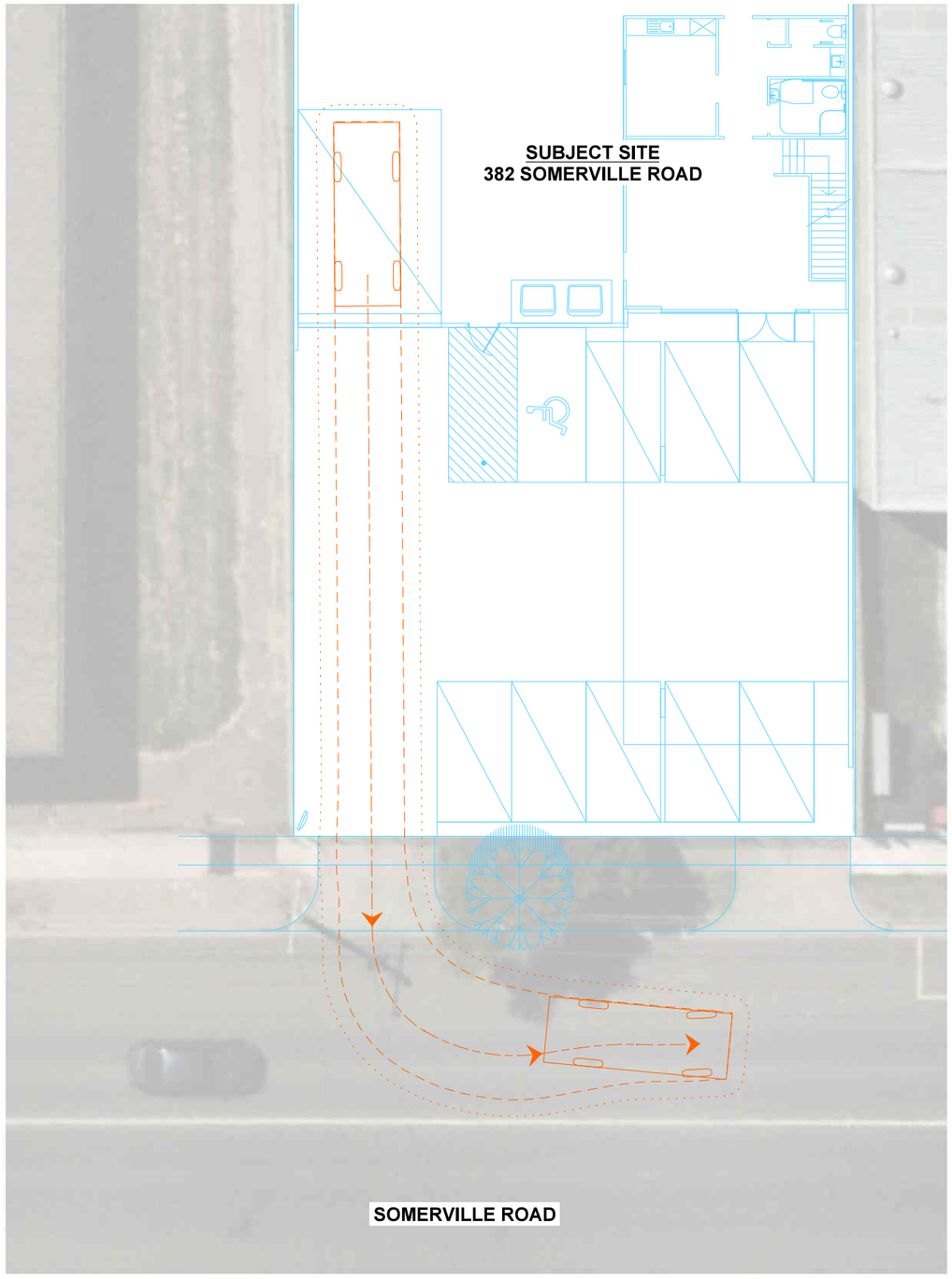
PLgroup PTY. LTD.
1326/401 DOCKLANDS DRIVE DOCKLANDS VIC 3008
T. (03) 9329 6691 F. (03) 9329 2015
E. PD@PLGROUP.NET.AU

APPENDIX 3 SWEPT PATH DIAGRAMS

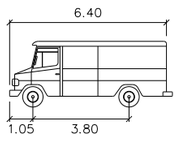
INGRESS MOVEMENT



EGRESS MOVEMENT



DESIGN VEHICLE



SRV

	meters
Width	: 2.30
Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

P.L. GROUP

WAREHOUSE DEVELOPMENT

382 SOMERVILLE ROAD, WEST FOOTSCRAY

SWEPT PATH ANALYSIS

8.8m SERVICE VEHICLE

SALT³
Service.
Approachability.
Loyalty.
Transparency.
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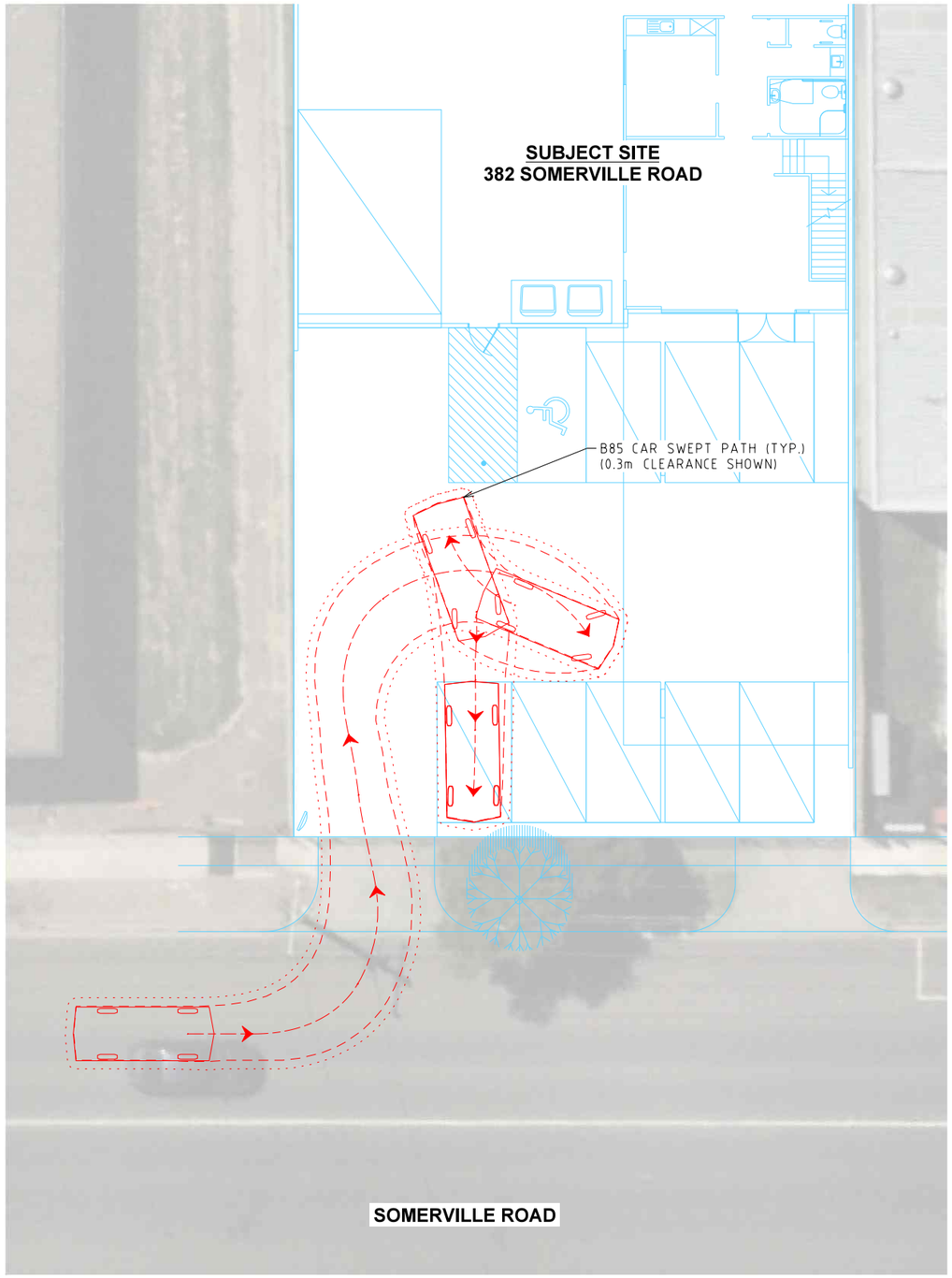
0 1 2 4
SCALE: 1:200 @ A3

MELWAY MAP REF
41 F7

DRAWN / CHECKED	DATE	SIZE
EC / JW	17.06.2024	A3
DRAWING NUMBER		REVISION
SALT-24162-SK-001		1

INGRESS MOVEMENT



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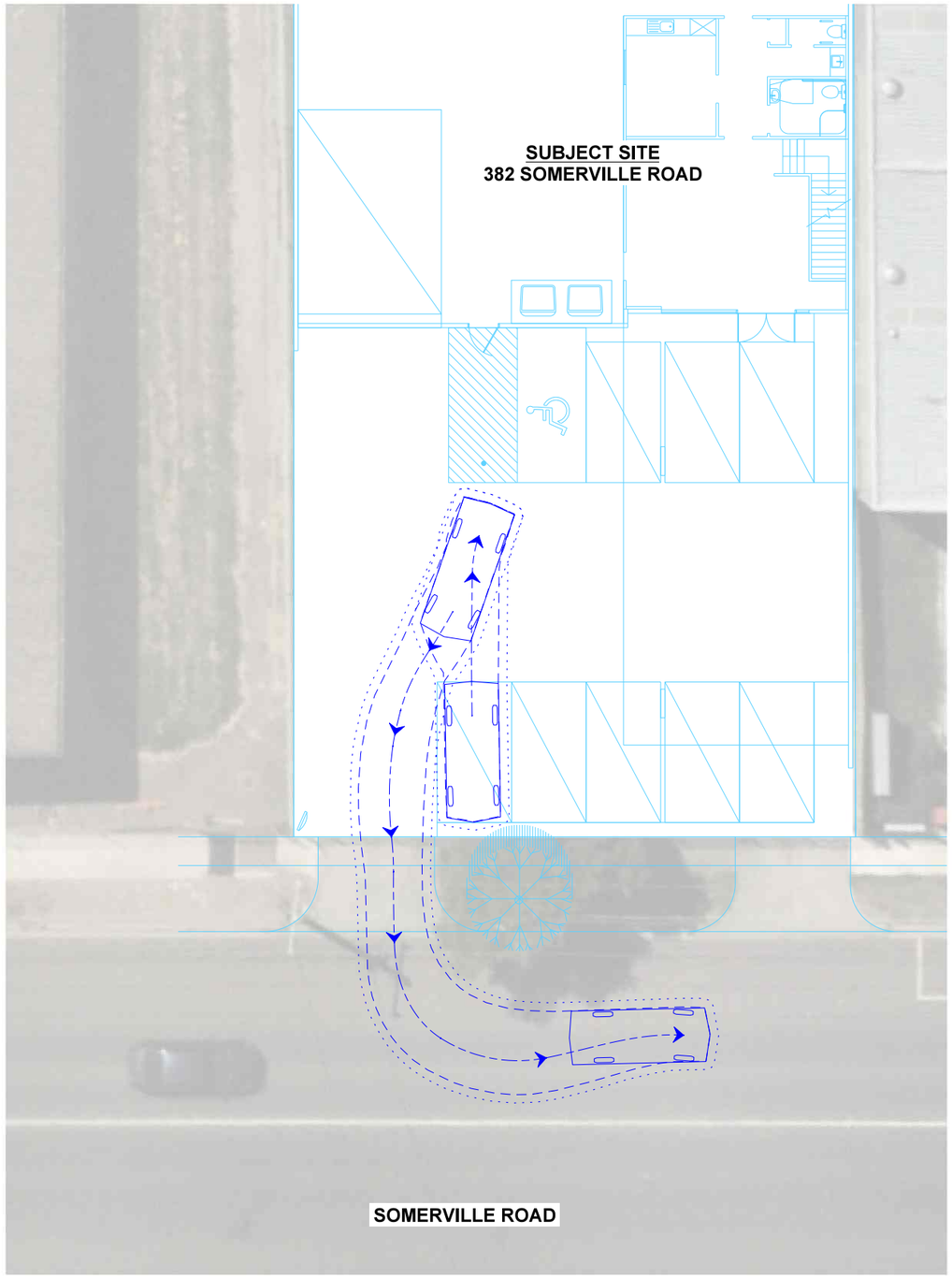
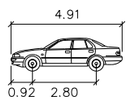


DESIGN VEHICLE



B85

	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

P.L. GROUP

WAREHOUSE DEVELOPMENT

382 SOMERVILLE ROAD, WEST FOOTSCRAY

SWEPT PATH ANALYSIS

B85 CAR

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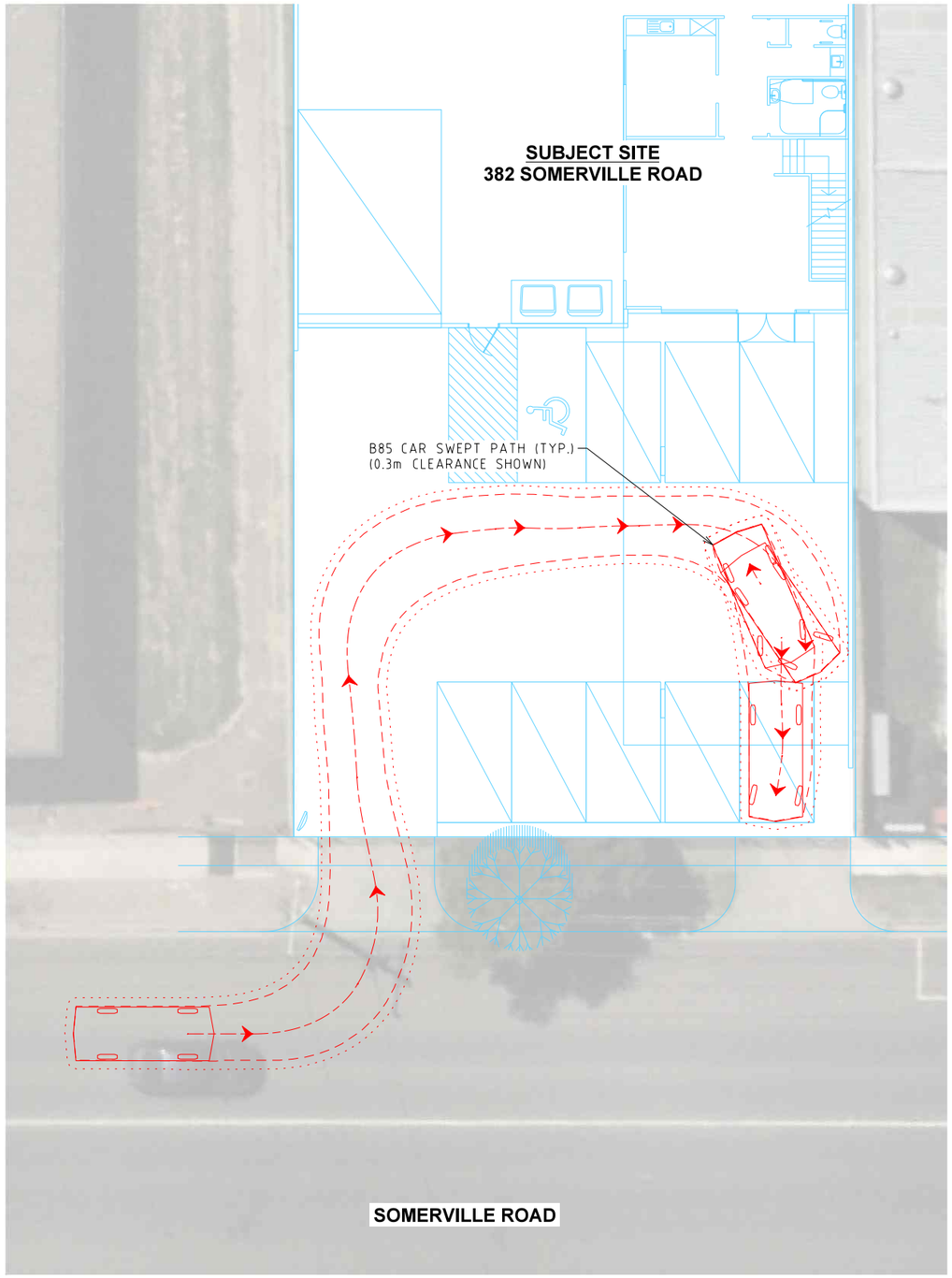
0 1 2 4
SCALE: 1:200 @ A3

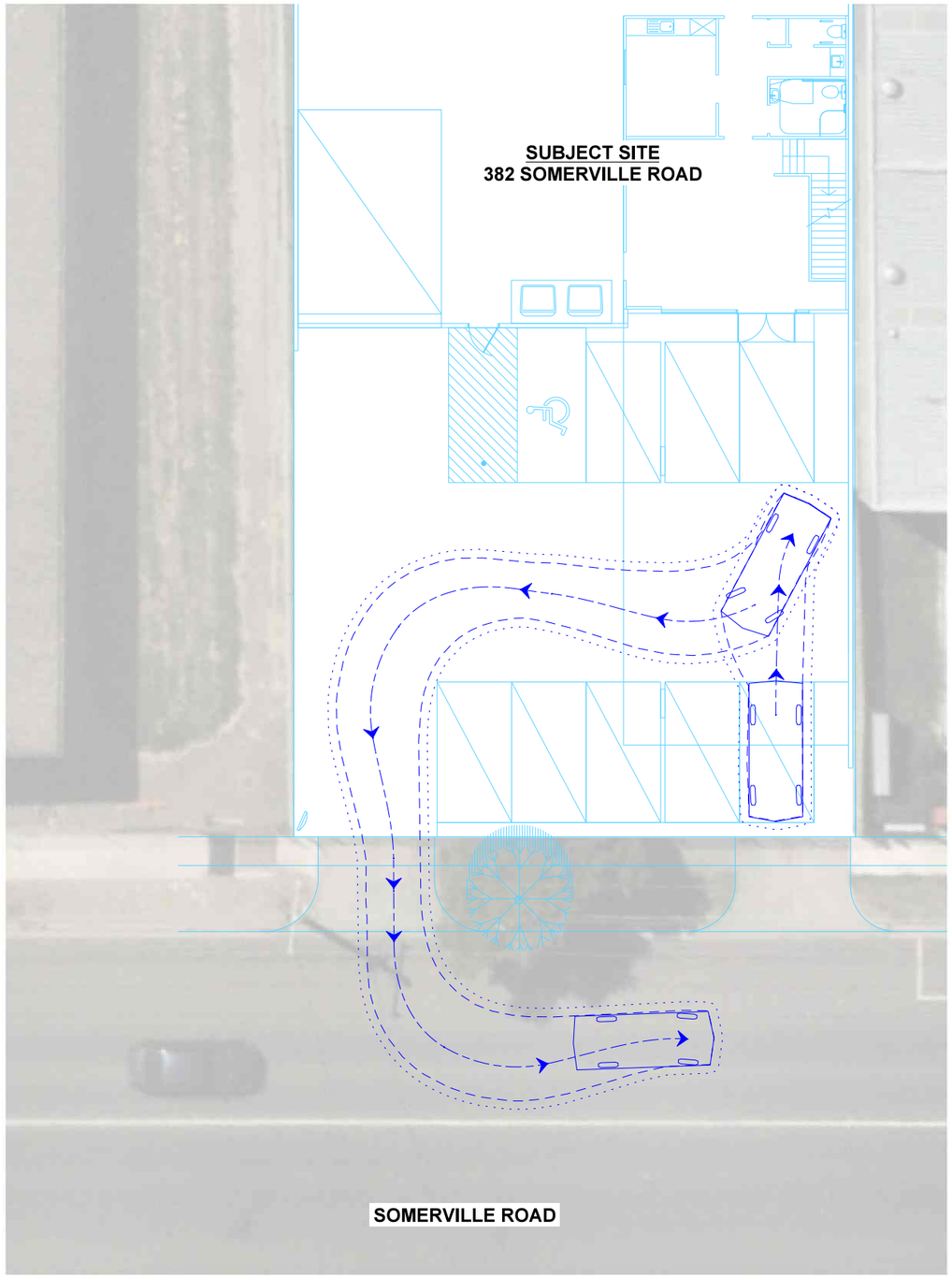
MELWAY MAP REF
41 F7

DRAWN / CHECKED	DATE	SIZE
EC / JW	17.06.2024	A3
DRAWING NUMBER		REVISION
SALT-24162-SK-002		1

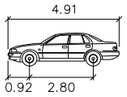
INGRESS MOVEMENT



EGRESS MOVEMENT



DESIGN VEHICLE



B85

	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

P.L. GROUP

WAREHOUSE DEVELOPMENT

382 SOMERVILLE ROAD, WEST FOOTSCRAY

SWEPT PATH ANALYSIS

B85 CAR

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0 1 2 4
SCALE: 1:200 @ A3

MELWAY MAP REF
41 F7

DRAWN / CHECKED	DATE	SIZE
EC / JW	17.06.2024	A3
DRAWING NUMBER		REVISION
SALT-24162-SK-003		1

BY: egan.cook
DATE: 06/11/24 15:16:50
FILE: Y:\2024\24162 - 382 Somerville Road, West Footscray\04 Design\DGN\02 Sketches\SALT-24162-SK-003.dgn

Waste Management Plan

Date: 26 June 2024

Assessment of: Proposed Industrial Development | 382 Somerville Rd, West Footscray VIC 3012

Commissioned by: P. L Group

CITY OF MARIBYRNONG
ADVERTISED PLAN

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Contents

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27/148 Chesterville Road, Cheltenham VIC 3192

Document Control

Job Title	382 Somerville Rd, West Footscray VIC 3012			
Document Title	Waste Management Plan			
File Name	21565_WMP_382 Somerville Rd, West Footscray VIC 3012_V0			
Version	**Date**	**Description:**	Final Report	
0	26/06/2024	Prepared by	Checked by	Approved by
		FC	KK	DS

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Executive Summary

This Waste Management Plan (WMP) is prepared for the proposed Industrial Development at 382 Somerville Rd, West Footscray VIC 3012.

The development is within the jurisdiction of Maribyrnong City Council and for a development of this size, the Council requires a WMP to be produced as part of its planning approval process.

The WMP is required to assess the building's approach to waste management with respect to the local Council law and other statutory requirements.

This Waste Management Plan for 382 Somerville Rd, West Footscray VIC 3012 includes details regarding:

- Land use
- Waste generation
- Waste system
- Bin quantity, size and colour
- Collection frequency
- Bin storage area
- Signage
- Waste collection

The following implementation steps are proposed:

- It is proposed that this development will use **private waste collection service** with once-a-week collection.
- Both waste bins streams (General Waste and Commingled Recycling) will be storage within the warehouse in a location that does not obstruct doorways or passages and in an enclosed space shielded from rain to prevent the splitting of wastewater. Additionally, the location will be near the entry/exit door, facilitating the smooth movement of bins in and out of the warehouse. The placement of the bins will be close to the warehouse gate to ensure adequate ventilation around the bins, maintaining accessibility and privacy through enclosure. This arrangement aims to prevent odors and contamination issues.
- The required number of bins and collection frequency are resumed as follows:

Waste Stream	Bin Quantity	Bin Size	Collection Frequency
General Waste	1	660	Once a week
Commingled Recycling	1	660	Once a week

Table 1. Details of number of bins and collection frequency

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1. Introduction

1.1 Purpose of this Report

Hexicon has been engaged to provide a Waste Management Plan (WMP) for the proposed Industrial Development at 382 Somerville Rd, West Footscray VIC 3012.

This WMP has been prepared based on the Maribyrnong City Council Waste Management Guideline. Where information unavailable for this specific project type, the waste generation rates have been based on the Sustainability Victoria - Better Practice Guide for Waste Management and Recycling in Multi-unit Developments.

1.2 Council Requirements

This report assesses the development against the Maribyrnong City Council's policy that requires the development application to be accompanied by a Waste Management Plan in accordance with the relevant guidelines and the Request for Further Information – Application No: TP48/2024(1).

1.3 Basis of Assessment

This assessment has been based on the following documents:

- Architectural drawings by P. L Group dated on 29/11/2023.
- Waste Management Policy 2019 - Maribyrnong City Council.
- Maribyrnong City Council - Waste Management planning guidelines for multi-unit dwellings.
- Sustainability Victoria - Better Practice Guide for Waste Management and Recycling in Multi-unit Developments.
- Discussions and correspondence with the Client.

1.4 Development Summary

The development outlined in this Waste Management Plan (WMP) report is located at 382 Somerville Rd, West Footscray VIC 3012 and it entails the construction of an industrial facility featuring a warehouse in the ground floor and an office space in the first floor.

Development Description	
Total Site Area (m²)	925 m²
Total Built up Area (m²)	489 m²
Built Up Area considered for the waste calculations	282 m²
Land Use Zoning	Industrial 3 Zone – IN3Z

Table 2. Project details

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2. Waste Generation Estimates

The waste generation rates used for General Waste and Commingled Recycling are based and aligned with Sustainability Victoria "Waste Management and Recycling in Multi-Unit Developments – A Better Practice Guide 2018. As per council guidelines, generation rate for Food and Garden Organics does not apply for this specific project (small commercial).

Relevant Waste Generation Rates		
Development	**General Waste (L/100m² floor area/day)**	**Commingled Recycling (L/100m² floor area/day)**
Warehouse	10	10
Office	10	10

Table 3. Waste generation rates

Based on the waste generation rates mentioned above and **considering 5 days a week operation,** the total waste volume for the development is as follows:

Industrial Development Waste Estimation			
Total Floor Area (m²)	**Frequency**	**General Waste (L)**	**Commingled Recycling (L)**
771	Weekly Generation	539.7	539.7

Table 4. Waste estimation of the project

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3. Bin Requirements and Collection Frequency

Based on the previous volume of waste calculated and adopting the Maribyrnong City Council and Sustainability Victoria Guidelines, the following bin size, number of bins required, bin colours, and corresponding volume of each waste stream are suggested:

Suggested Bin Size, Collection Frequency and Quantity		
	General Waste	**Commingled Recycling**
Suggested Bin Dimensions and Quantity of Bins	1 x 660	1 x 660
Collection Frequency	Once a week	Once a week
Collector	Private collection	Private collection

Table 5. Bin requirements and collection frequency

Table 6 below provides a guide to bin dimensions as per Sustainability Victoria Guideline.

Bin Dimensions (guide only)					
Material	**Capacity (L)**	**Height (mm)**	**Width (mm)**	**Depth (mm)**	**Area (m^2)**
HDPE	80	870	450	530	0.24
HDPE	120	940	485	560	0.27
HDPE	240	1080	580	735	0.43
HDPE	360	1100	600	885	0.53
HDPE	**660**	**1250**	**1370**	**850**	**1.16**
HDPE	770	1425	1370	1100	1.50
HDPE	1100	1470	1370	1245	1.70

Table 6. Bin dimension details

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3.1 Bin Colour and Signage Requirements

Private contractor should provide the bins in the following colors:

Bin Colors			
Provider	**Bin**	**Lid**	**Body**
Private Collection	General Waste	Red / Dark Green *	Dark Green
Private Collection	Commingled Recycling	Yellow	Dark Green

Table 7. Standard bin colours

*To be confirmed with the Private Contractor.

Signs will be necessary at drop-off points and within the bin area to promote proper recycling and minimize contamination. These signs can be obtained from the Council website and are suitable as educational signage for General Waste and Commingled Recycling. The private contractor is responsible for providing these signs; otherwise, the development administration team should ensure they are available. These visual aids, such as those shown in Figures 1 and 2 below, will help ensure correct disposal of various types of waste.

Figure 1. Example signage to be installed within the bin storage location

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4. Waste System for Managing Waste

The waste management system is summarised as follows:

- Owner corporation and/or building manager to manage General Waste and Commingled Recycling waste to be collected by the private contractor.
- Owner corporation and/or building manager to provided smaller communal bins for the two waste streams inside the office space and manage their disposal in the bigger bins within the warehouse space.
- It is responsibility of all occupants to separate the waste into these two waste streams.
- Waste volumes here are an estimate only; owner's corporation/users should review actual waste volumes and adjust as required.

Waste streams summarised as follows:

General Waste:	All general waste to be stored in general waste bins provided by the Private Contractor. General Waste comprises everyday items that do not fall into the categories of recyclable, and hazardous. These include items commonly disposed of in standard waste bins and eventually sent to landfills.
Commingled Recycling:	All commingled recyclables to be stored in recycling bins provided by the Private Contractor. Recyclable items include paper, cardboard, PET, glass, aluminium, steel, and HDPE containers.
FOGO Waste:	Given the type of development, its level, and occupancy, FOGO waste is deemed impractical for this site as the generation would be minimal. If FOGO waste destination is desired by the building users this would be implemented & managed at their own discretion.
Hard Waste:	Given the type of development, its level, and occupancy, Hard Waste is deemed impractical for this site. If Hard Waste is desired by the building users this would be implemented & managed at their own discretion.
Compost:	Composting at the development level is considered impractical, as there would be minimal onsite demand for compost. If composting is desired by the building users this would be implemented & managed at their own discretion.
Other Waste Streams:	The disposal of hard/electronic/liquid waste, and home detox (paint/chemicals), etc shall be organised with the assistance of the operator and the appropriate contractor.

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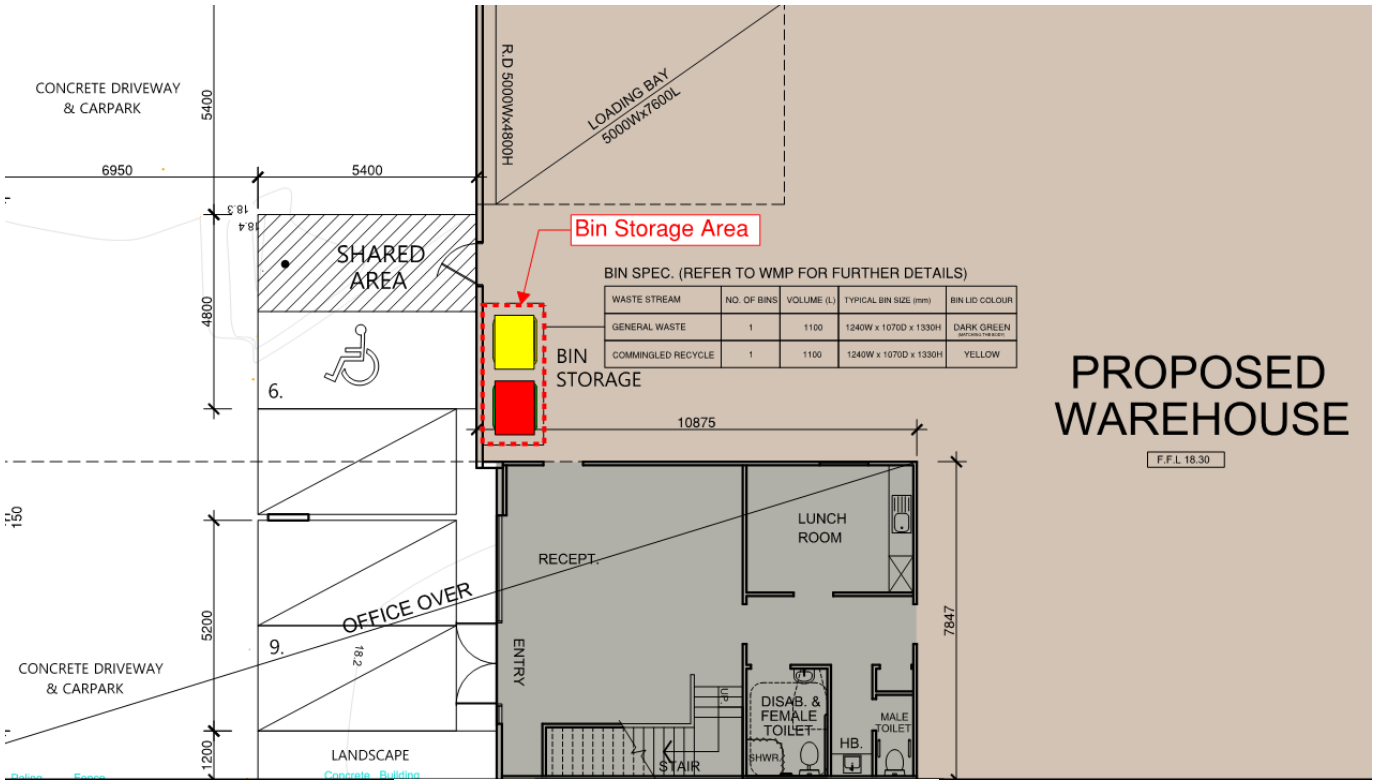
5. Waste Storage Facilities

The designated Bin Storage area within the warehouse will accommodate both types of bins (General Waste and Commingled Recycling), as shown in Figure 2. It will be spacious enough to hold all operational waste quantities between the weekly collections, allowing for easy maneuvering of the bins. The bins will be stored inside the warehouse, away from doorways or passages, in a sheltered area to prevent rainwater from causing spillage.

To facilitate smooth movement, the storage location will be near the entry/exit door. This positioning ensures adequate ventilation, accessibility, and privacy through enclosure, mitigating odor and contamination issues. Additionally, it offers convenient internal access for each commercial staff/visitor.

The building administration team will maintain cleanliness and accessibility of the bin storage area, preventing vermin infestation and ensuring unobstructed access for all users.



Legend	
	1 x 660L Commingled Recycling Bin
	1 x 660L General Waste Bin

Figure 2. Designated bin storage area

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6. Waste Collection Arrangement – Private Collection

The development will engage a Private Waste collection service for all waste types, encompassing both General Waste and Commingled Recycling.

On scheduled collection days, the owner corporation and/or building manager will be responsible to transport the bins from the designated storage area within the warehouse to the outside in front of the warehouse, as depicted in Figure 3.

The truck of the private collector will enter the site and collect the waste and leave the site in a forward direction, using the share space area to turn.

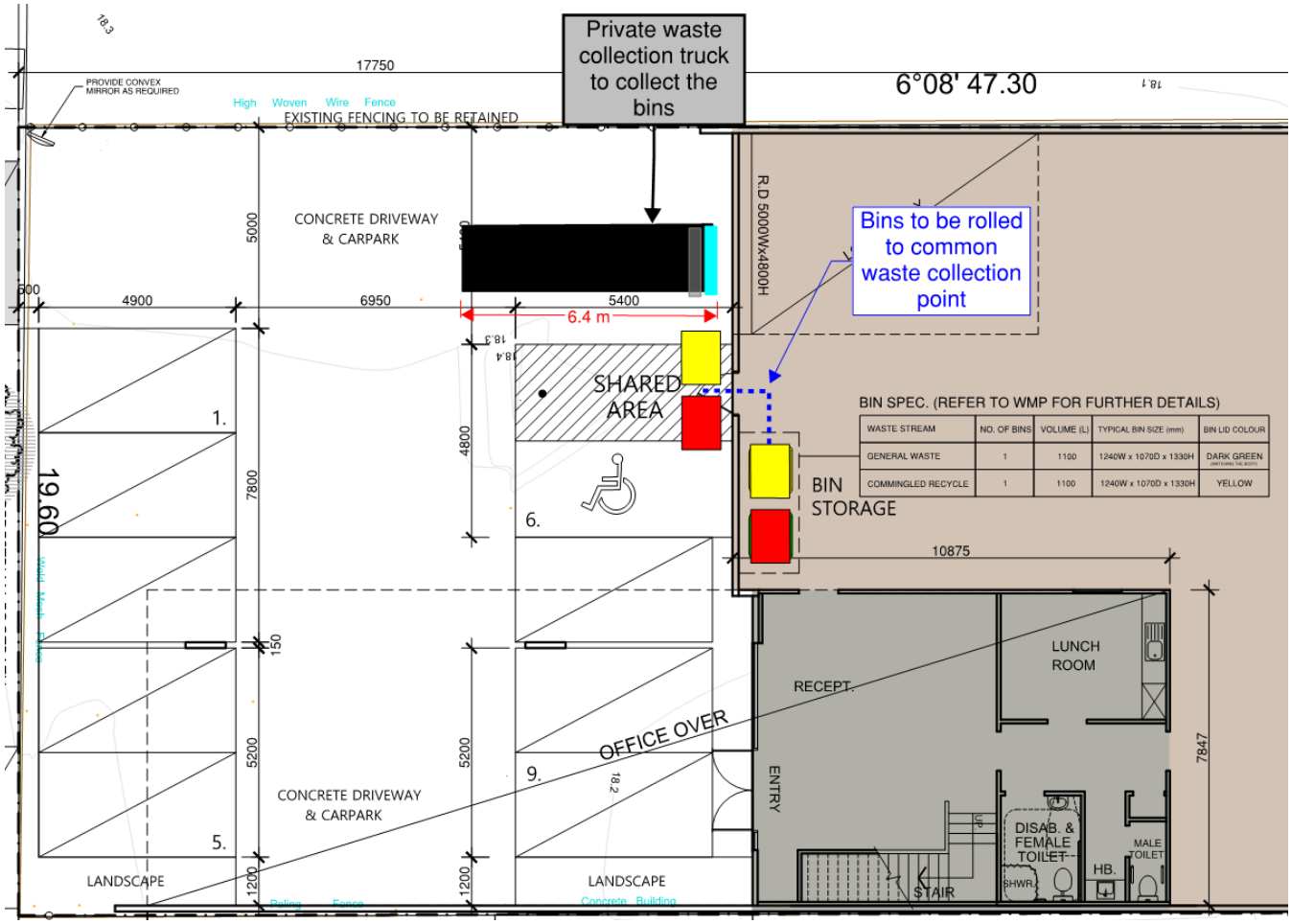

Figure 3. Indicative route for transferring bins to the collection point.

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As the collection of the bins is to be made at the determined location, it is proposed that a Waste Wise Mini Rear Loader or a similar vehicle be used for these collections. The Waste Wise Mini Rear Loader is approximately 2.08m high, 6.35m long and 1.7m wide and are smaller than any Council waste trucks. The Waste Wise Mini Rear Loader truck will be able to enter and exit the site in a forward direction. Refer to Figure 4 below for proposed collection model vehicle specifications.

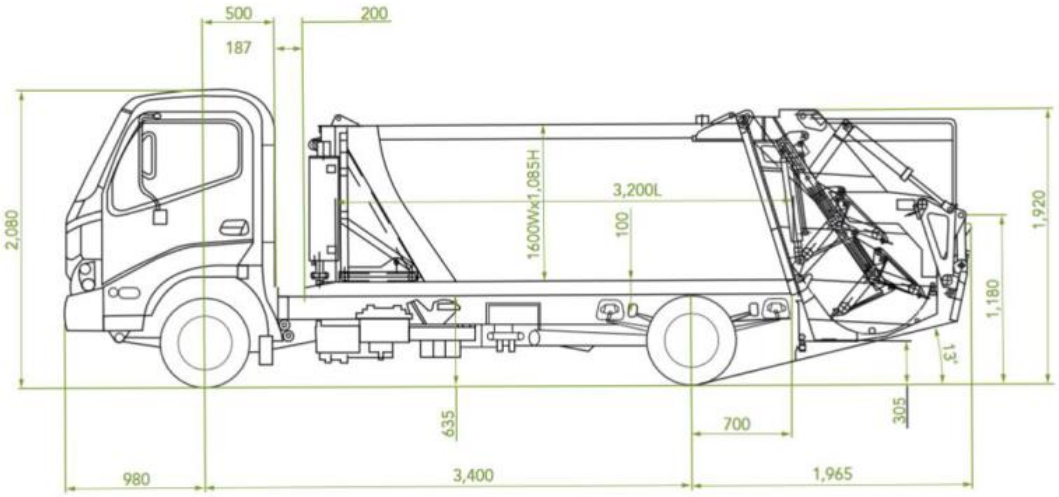

Figure 4. Waste Wise Mini Rear Loader

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7. Waste Management Communication Strategy

The administration team should receive a copy of this waste management plan to assist them in overseeing waste collection and management processes. The responsibility for implementing this plan falls on the building manager or owner's corporation. Should significant alterations be made to the design, it becomes imperative to update the waste management plan accordingly to reflect these changes.

8. Limitations

The purpose of this report is to document a Waste Management Plan, as part of the Planning Application. Limitations of the Waste Management Plan:

- Scope: This report focuses only on residential operational waste and does not encompass waste generated during demolition, construction stages, or other maintenance activities conducted during the operational phase.
- Exclusion of Maintenance Garden Waste: The plan does not include provisions for managing garden waste generated by maintenance of the garden in communal spaces. The responsibility for disposing of such waste generated during garden maintenance lies with the private company contracted for this service.
- Reliance on Drawings: The plan is developed based on the drawings provided and may be subject to change based on actual site conditions.
- Estimates: Figures presented in this report are estimates and may vary depending on factors such as occupancy rates, waste generation intensity, and the approach taken by the waste management operator.
- Non-Applicability for Cost Estimation or Operational Documentation: This report should not be used for estimating operational costs or documenting operational or safety procedures. Its purpose is solely to outline the Waste Management Plan for the Planning Application.

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27/148 Chesterville Road, Cheltenham VIC 3192

Sustainable Design Assessment

Date: 26 June 2024

Assessment of: Proposed Industrial Development | 382 Somerville Rd, West Footscray VIC 3012

Commissioned by: P. L Group

CITY OF MARIBYRNONG
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Contents

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Document Control

Job Title	382 Somerville Rd, West Footscray VIC 3012			
Document Title	Sustainable Design Assessment			
File Name	21565_SDA_382 Somerville Rd, West Footscray VIC 3012_V0			
Version	**Date**	**Description:**	Final Report	
0	26/06/2024	**Prepared by**	**Checked by**	**Approved by**
		FC	KK	DS

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27/148 Chesterville Road, Cheltenham VIC 3192

ESD Initiatives

ESD Initiatives	
Proposed Industrial Development	382 Somerville Rd, West Footscray VIC 3012
Category	**Implementations**
Rainwater harvesting and stormwater management system	- 12,000L Rainwater harvesting tanks for the industrial development. * - All Rainwater tanks connected to toilet flushing throughout the development.
	A 3.0 m² raingarden with a 300mm extended detention depth treating at least 205 m² of runoff from the office roof. *
Water efficient fixtures / fittings	To ensure the efficient use of water and thereby reduce total operating potable water use, fixtures & fittings will have the following WELS ratings.
	- 4 Star WELS Showerhead (>= 6.0 but <= 7.5)
	- 4 Star WELS rated toilets
	- 5 Star WELS kitchen & bathroom taps
J1V3 Compliance	The development commits to achieve minimum NCC 2022 Section J requirements.
Energy Efficiency	- The development will be all electric. - Double glazing to be provided for better energy performance and less energy consumption.
Solar PV	Total of 20kW solar PV system will be provided on the roof of the development (15 degrees angle and facing east). *
HVAC System	Heating and cooling systems will be chosen within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available.
Hot Water System	Electric instantaneous or electric storage water heating systems will be chosen within one star of the best available, or 85% or better than the most efficient equivalent capacity unit.
Lighting	- Maximum illumination power density (W/m²) of the development will meet the requirements in Table J7D3a of the NCC 2022 Vol 1. - Energy efficient LED lights to be installed throughout.
	- Suggested installing motion sensors to control external lighting.
EV Charging	- 1 x Electric vehicle charging point (Level 2 - 32 Amp min) will be provided in the carpark to allow for future installation of EV chargers as per the requirements of NCC 2022 (JPD4). *
Building Materials	- Low VOC paints, adhesives and sealants to be used. - Aluminium framing for the windows. - All the carpets, engineered timber and adhesives/sealants meet the Green-star Benchmark for VOC's and emissions.

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ESD Initiatives	
Proposed Industrial Development	382 Somerville Rd, West Footscray VIC 3012
Category	**Implementations**
	- Use of engineered wood products of E1 or E0 grade (MDF, plywood, engineered-wood flooring). - Use of timber certified by the Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) or recycled/reused.
IEQ	33% of the floor area of the proposed development has at least 2% daylight factor (applicable to regularly occupied spaces in the conditioned area – office and reception).
	Mechanical ventilation will be provided in the conditioned spaces – office and reception. All HVAC systems will provide outside air at a rate that exceeds the minimum required rate per person outlined in AS 1668.2:2012, by a minimum of 50%, to provide a comfortable and healthy internal environment to the occupants throughout (applicable to regularly occupied spaces in the conditioned area – reception and office).
	All north, east, and west facades are effectively shaded (applicable to regularly occupied spaces in the conditioned area - office), with vertical shading provided for the west facade window on the first floor. *
Waste	The recycling and general waste will be provided in the same storage area.
	The development is committed to recycling 80% of the construction and demolition waste.
Urban Ecology	- 47 m² of entry, reception and lunch room areas are considered as communal space for social exchange in the development. - Efficient landscaping to be installed.
Urban heat island	Light or Medium coloured roof and driveway will be provided to mitigate urban heat island impact, where possible.

Table 1: ESD Initiatives

* Please note that the drawings will be amended as per SDA report suggestions.

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1. Executive Summary

Hexicon has been engaged by P. L Group to provide a Sustainable Design Assessment (SDA) for the proposed warehouse development at 382 Somerville Rd, West Footscray VIC 3012.

The development is within the jurisdiction of the Maribyrnong City Council and for a development of this size, the council requires an SDA to be produced as part of its planning approval process.

We have used BESS to support the proposed development's planning application for ESD. The BESS (Built Environment Sustainability Scorecard) has been used to quantify all sustainable design criteria, with the exception of building materials. BESS is an online sustainability assessment tool purpose built for Sustainable Design Assessment in the planning process. The report summarises the sustainable design initiatives being incorporated in the proposed development and benchmarks them against industry best practice. The following table provides a summary of the BESS assessment targets and results for this project.

Categories	Minimum score required	Project's category score	Overall Contribution	Compliance
Management	-	0%	4.5%	-
Water	50%	59%	9.0%	**PASS**
Energy	50%	63%	27.5%	**PASS**
Stormwater	100%	100%	13.5%	**PASS**
Indoor Environment Quality (IEQ)	50%	65%	16.5%	**PASS**
Transport	-	25%	9.0%	-
Waste Management	-	33%	5.5%	-
Urban Ecology	-	12%	5.5%	-
Innovation	-	0%	9.0%	-
Overall BESS Score	**50%**	**52%**	**(PASS - Best practice Standards)**	

Table 2: BESS Score Card

Based on the above results, the project achieves the overall minimum passing score under the BESS assessment. This report describes an overall sustainable assessment and the ESD achievements of the proposed development.

The Sustainable Design Assessment is prepared to support the town planning application in accordance with the 21.06-2 for Environmentally Sustainable Development and Clause 53.18 for Stormwater Management as mentioned in the City of Maribyrnong Planning Scheme.

2. Project Overview

The proposed development at 382 Somerville Rd, West Footscray VIC 3012 has been covered in this SDA report is an industrial development with a warehouse and office space over two levels. The following site plan indicates the location of the site.

Figure 1. Locality view of the subject site

3. Assessment and Documentation

This report is based on the following.

- Project discussions and email correspondences with P.L Group.
- The architectural drawing by P.L Group dated 29/11/2023 – Drawing No. 1.
- RFI from Council - TP48/2024(1).
- Council Referral/Planning Scheme.

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4. Development Summary

Project Details	
Site Area (m^2)	925
Total Build Up Area (m^2) – Warehouse	489
Total Build Up Area (m^2) – Office	282

Table 3: Project Details

To quantify the project's sustainability performance against an industry benchmark, this report uses the Built Environment Sustainability Scorecard (BESS), released by CASBE to support the Sustainable Design Assessment in the Planning Process (SDAPP) program.

BESS assesses overall environmental sustainability performance of building projects. It was created to assist builders and developers to demonstrate that they meet sustainability best practice standards as part of planning permit applications.

As part of the BESS assessment, we have used Melbourne water's STORM calculator to assess the stormwater score of the site. Results from STORM were entered into BESS to support the assessment.

5. Sustainability Categories

This SDA Report addresses the 10 sustainability categories in line with the BESS tool and overall best practice ESD assessment guidelines, noted in the table below.

No.	SDAPP ESD CATEGORIES	BENCHMARK
1	Energy Efficiency	BESS (mandatory 50%)
2	Water Efficiency	BESS (mandatory 50%)
3	Stormwater Management	BESS (mandatory 100%)
4	Indoor Environment Quality (IEQ)	BESS (mandatory 50%)
5	Waste Management	BESS
6	Transport	BESS
7	Innovation	BESS
8	Construction & Building Management	BESS
9	Urban Ecology	BESS
10	Building Materials	Industry Best Practices

Table 4: Categories showing BESS best practice assessment guidelines

For this assessment, categories 1 to 9 have been assessed using BESS tool while the 10th category, building material, has been assessed against industry best practice standards.

As noted above, the BESS tool sets out minimum standards to achieve compliance for the four major categories:

- Energy
- Water
- Stormwater (100%)
- Indoor Environment Quality (IEQ)

To comply, the development must achieve a minimum score of 50% in the categories mentioned above.

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6. ESD Assessment

The following is a summary of the ESD initiatives included in each of the BESS benchmark categories, as well as the scores obtained in the rating.

6.1 Management

We have not aimed to target any points in the innovation category.

6.2 Water

We propose to use, water efficient fixtures and fittings throughout the development. The following is a summary of the water efficiency features in the proposed development.

BESS Credit	Water Efficiency Features	Responsibility
1.1	To ensure the efficient use of water and thereby reduce total operating potable water use, fixtures & fittings will have the following WELS ratings.	**Architect/Builder**
	- 4 Star WELS Showerhead (>= 6.0 but <= 7.5)	
	- 4 Star WELS rated toilets	
	- 5 Star WELS kitchen & bathroom taps	
	To provide a 33% reduction in main water consumption, the building includes a rainwater harvesting tank and re-use system for the development. 100% of the roof area will drain to 12,000L rainwater tank(s). Captured rainwater will be used for toilet flushing throughout the development.	
3.1	Water efficient landscaping will be installed in the development. A water efficient garden should have no irrigation system and not require watering after an initial period when plants are getting established.	**Landscape Architect/Builder**
	Final Water Score	**59%**

Table 5: Water Efficiency Features

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6.3 Energy Efficiency

Below is a summary of the energy efficiency features & specification for the development. Generally, the strategy includes efficient building services and design features that contributes to low energy consumption and decrease the greenhouse gas emissions.

BESS Credit	Energy Efficiency Features	Responsibility
1.1, 2.1, 2.7	The development commits to achieve NCC 2022 Section J compliance.	**ESD Consultant/ Services Engineer / Builder**
	Heating and cooling systems will be chosen within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available.	
2.6	The development will be all electric.	
3.2	Electric water heating systems will be chosen within one star of the best available, or 85% or better than the most efficient equivalent capacity unit.	
3.7	Maximum illumination power density (W/m²) in at least 90% of the relevant building class meeting the requirement by Table J7D3a of the NCC 2022 Volume 1. LED lighting will be installed throughout the development. Suggested installing motion sensors to control external lighting.	
4.2	20kW solar PV system will be provided on the roof of the development (15 degrees angle and facing east). This will off-set a portion of greenhouse gas emissions and energy use for the project (lighting, pumps etc.). *	
Best Practice	Double glazing to be provided for better energy performance and less energy consumption.	
	Final Energy Score	**63%**

Table 6: Energy Efficiency Features

* Please note that the drawings will be amended as per SDA report suggestions.

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Table J7D3a: Maximum illumination power density

Space	Maximum *illumination power density* (W/m²)
Auditorium, church and public hall	8
Board room and conference room	5
Carpark - general	2
Carpark - entry zone (first 15 m of travel) during the daytime	11.5
Carpark - entry zone (next 4 m of travel) during the day	2.5
Carpark - entry zone (first 20 m of travel) during night time	2.5
Common rooms, spaces and corridors in a Class 2 building	4.5
Control room, switch room and the like - intermittent monitoring	3
Control room, switch room and the like - constant monitoring	4.5
Corridors	5
Courtroom	4.5
Dormitory of a Class 3 building used for sleeping only	3
Dormitory of a Class 3 building used for sleeping and study	4
Entry lobby from outside the building	9
Health-care - infants' and children's wards and emergency department	4
Health-care - examination room	4.5
Health-care - examination room in intensive care and high dependency ward	6
Health-care - all other *patient care areas* including wards and corridors	2.5
Kitchen and food preparation area	4
Laboratory - artificially lit to an ambient level of 400 lx or more	6
Library - stack and shelving area	2.5
Library - reading room and general areas	4.5
Lounge area for communal use in a Class 3 or 9c building	4.5
Museum and gallery - circulation, cleaning and service lighting	2.5
Office - artificially lit to an ambient level of 200 lx or more	4.5
Office - artificially lit to an ambient level of less than 200 lx	2.5

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Space	Maximum *illumination power density* (W/m^2)
Plant room where an average of 160 lx vertical illuminance is required on a vertical panel such as in switch rooms	4
Plant rooms with a horizontal illuminance target of 80 lx	2
Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks	14
Retail space including a museum and gallery whose purpose is the sale of objects	14
School - general purpose learning areas and tutorial rooms	4.5
Sole-occupancy unit of a Class 3 or 9c building	5
Storage	1.5
Service area, cleaner's room and the like	1.5
Toilet, locker room, staff room, rest room and the like	3
Wholesale storage area with a vertical illuminance target of 160 lx	4
Stairways, including *fire-isolated stairways*	2
Lift cars	3

Figure 2: Maximum Illumination power density

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6.4 Stormwater Management

<table>
<tr><th>BESS Credit</th><th colspan="3">Stormwater Management Features</th><th>Responsibility</th></tr>
<tr><td rowspan="6">1.1</td><td colspan="3">Melbourne water has developed the STORM calculator to provide an assessment of the rainwater/stormwater treatment methods and design score. This calculator assesses quality and quantity of the stormwater runoff from the development. The table below shows the Impervious area breakdown and the proposed treatment:</td><td rowspan="6">Builder</td></tr>
<tr><td>Surface</td><td>Area (m²)</td><td>Stormwater Treatment</td></tr>
<tr><td>Site Area</td><td>925</td><td>-</td></tr>
<tr><td>Roof Catchment Area to RWT</td><td>490</td><td>12,000 L Rainwater Tank(s) connected to toilets</td></tr>
<tr><td>Roof Catchment Area to Raingarden</td><td>205</td><td>4 m^2 raingarden with 300mm extended detention depth*</td></tr>
<tr><td>Impervious Carpark (Untreated)</td><td>225</td><td>-</td></tr>
<tr><td colspan="2">Final STORM rating</td><td>101%</td></tr>
<tr><td colspan="4">Final Stormwater Score</td><td>100%</td></tr>
</table>

Table 7: Details for Stormwater Management

*The final location of the raingarden will be defined by the civil engineer. The raingarden should have a distance of 0.3 meters from the boundary. The raingarden should have extended detention depth of 300mm. The extended detention depth is defined as the vertical distance from the surface level of the system to the top of the overflow weir. A greater extended detention depth allows for more water to be retained in the raingarden before it overflows into the stormwater connection drain, thus increasing the volume of water that can be treated.

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The result of the stormwater assessment conducted is as per below:

Melbourne Water **STORM Rating Report**

TransactionID:	0	
Municipality:	MARIBYRNONG	
Rainfall Station:	MARIBYRNONG	
Address:	382 Somerville Rd	
	West Footscray	
	VIC	3012
Assessor:	Hexicon - FC	
Development Type:	Industrial	
Allotment Site (m2):	925.00	
STORM Rating %:	101	

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof Catchment Area to RWT	490.00	Rainwater Tank	12,000.00	15	136.20	89.40
Roof Catchment Area to Raingarden	205.00	Raingarden 300mm	3.00	0	127.30	0.00
Impervious Carkpark Untreated	225.00	None	0.00	0	0.00	0.00

Date Generated: 20-Jun-2024 Program Version: 1.0.0

Figure 3. Storm Rating Report

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We employed the Insite Water Tool to calculate occupant usage for rainwater utilization in the Stormwater Melbourne Calculator, considering the Warehouse space as industrial warehouse - classification as a Class 7, and considering the Office space as Class 5. According to the drawings, the indoor area spans 489 m² to the warehouse and 286 m², accommodating a total of 13.7 occupants, rounded to 15 for calculation purposes.

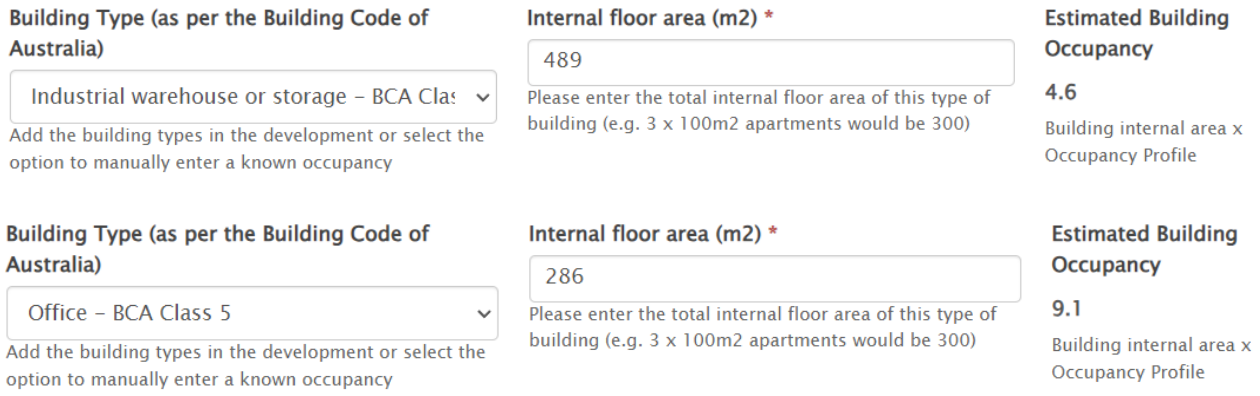

Figure 4: Estimated Occupants calculations from Insite water tool

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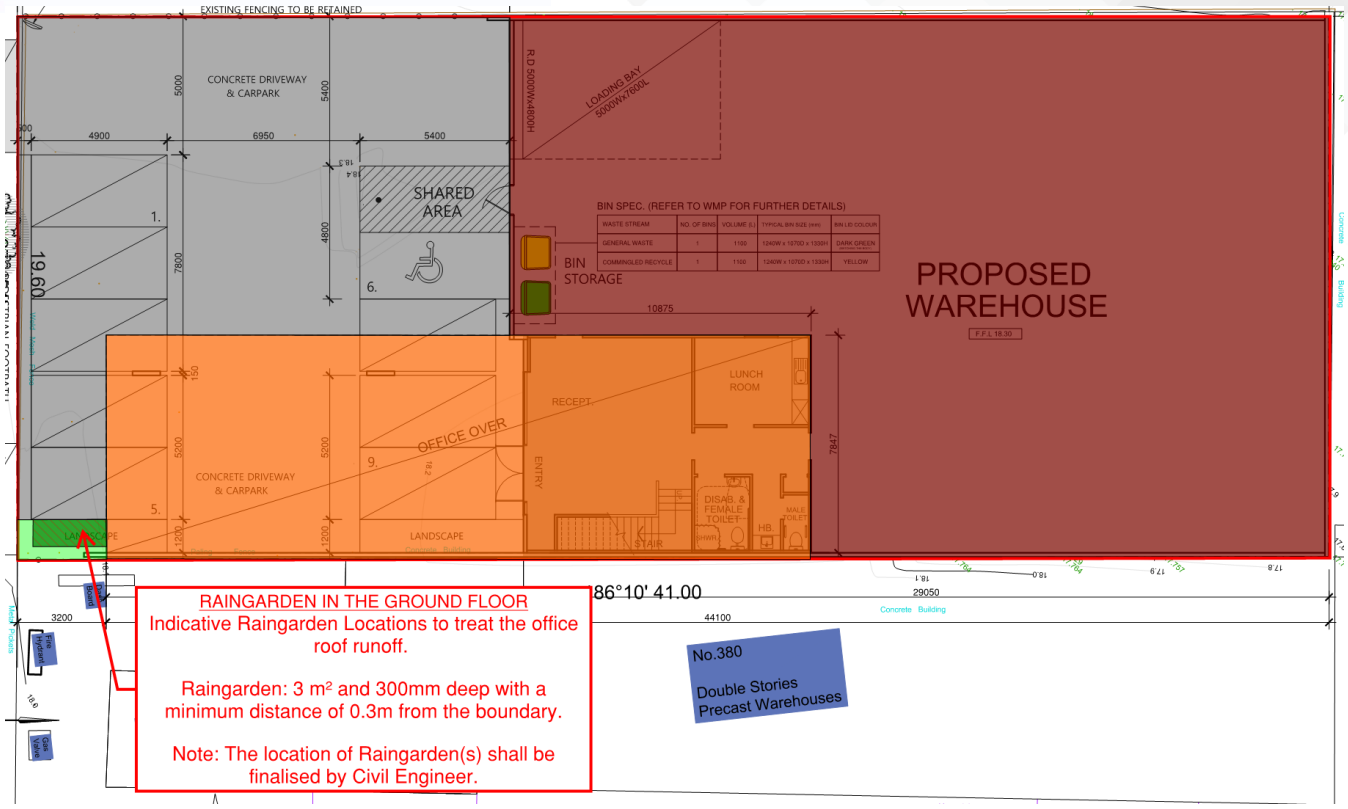

Legend			
	Description	Quantity	Unit
	Impervious Carkpark Untreated	225	sq m
	Permeable Area - Landscape	5	sq m
	Roof Catchment Are to RWT	490	sq m
	Roof Catchment Area to Raingarden	205	sq m
	Site Area	925	sq m

Figure 5. Area delineation for STORM assessment*

Please note that the above is subject to final drainage/civil/hydraulic design and location of the legal point of stormwater discharge. The full civil, hydraulic design and drainage plan will be carried out by the engineering consultants at the design development phase.

* RWT and Raingarden locations to be updated in the drawings as per SDA report suggestions.

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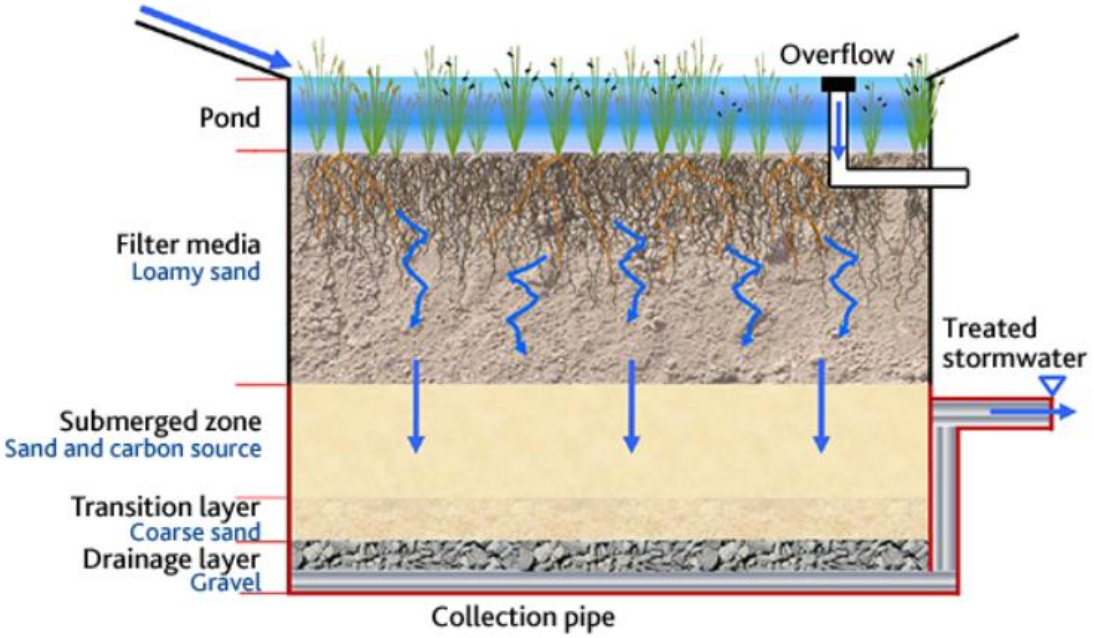

Figure 6: Typical Raingarden Detail (https://www.melbournewater.com.au/)

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6.5 Indoor Environment Quality

Below is a summary of the performance against indoor environment quality benchmarks. For the IEQ analysis, only the conditioned area was considered regularly occupied spaces being the reception in the ground floor (20 m²) and all the office space in the first floor (179 m²).

BESS Credit	Indoor Environment Quality Performance & Features	Responsibility
1.4	33% of the floor area of the proposed development has at least 2% daylight factor. Refer to Section 6.5.1 for details.	**ESD Consultant & Architect**
2.3	Mechanical ventilation will be provided in the conditioned regularly occupied spaces – office and reception. All HVAC systems will provide outside air at a rate that exceeds the minimum required rate per person outlined in AS 1668.2:2012, by a minimum of 50%, to provide a comfortable and healthy internal environment to the occupants throughout.	
3.4	100% of the glazing to North, East and West Facades is sufficiently shaded. West-facing glazing in the first floor will be shaded by external vertical shading. * Refer to Section 6.5.3 for details.	
Best Practice	Double glazing to be provided for better energy performance and less energy consumption.	
4.1	- All paints, sealants and adhesives will meet the maximum total indoor pollutant emission limits. - All carpet will meet the maximum total indoor pollutant emission limits. - All engineered wood will meet the maximum total indoor pollutant emission limits. Accepted standards include meeting current GECA, Global GreenTag GreenRate, Carpet Institute Australia Environmental Classification Scheme Level 2, Green Star or WELL standards for TVOC in paints, adhesives and sealants (by volume) and carpets (by area) as well as for Formaldehyde in engineered wood (by area). Refer to Appendix C for VOC and Formaldehyde emission limits.	**Builder**
	Final IEQ Score	**65%**

Table 8: Indoor Environmental Quality Features

* Please note that the drawings will be amended as per SDA report suggestions.

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6.5.1 Green Star Daylight Hand Calculation

For the regular occupied space, Green Star hand calculation has been undertaken. As a result, 33% of the floor area achieves more than 2% daylight factor. Green Star hand calculation results for office space are as shown below:

Depth of the Zone of Compliance = h x 2

'w' width of the Zone of Compliance = Width of Glazing

Zone of Compliance = h x 2 x w

Compliance % = (Area with Daylight factor >2 / Area Modelled) x 100

Daylight calculation results are summarized as follows:

Level	Nominated Room	Area Modelled [m²]	Area with DF >2 [m²]	Compliance [%]
Ground Floor	Reception	20.0	0.0	0%
First Floor	Office	179.0	65.9	37%
	Total	199.0	65.9	33%
			Total	**33%**

Table 9: Daylight Calculations

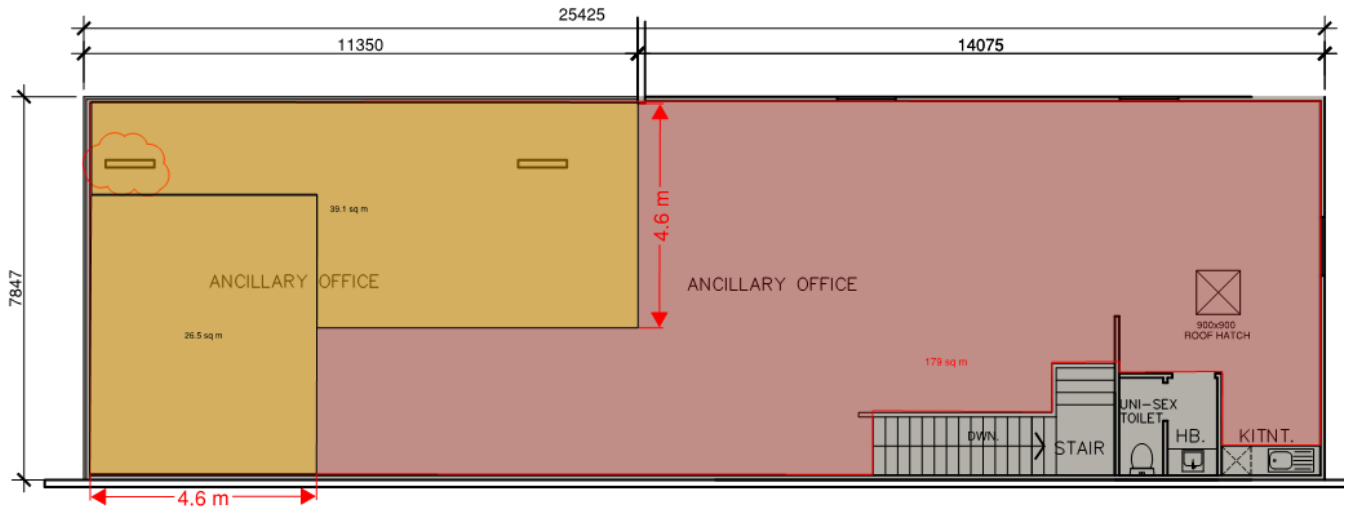

Figure 7. Daylight Compliant Zone on Office Space in the First Floor

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6.5.2 Crossflow Ventilation

Mechanical ventilation will be provided in the conditioned regularly occupied spaces – office and reception. All HVAC systems will provide outside air at a rate that exceeds the minimum required rate per person outlined in AS 1668.2:2012, by a minimum of 50%, to provide a comfortable and healthy internal environment to the occupants throughout.

6.5.3 Shading

As per Energy Smart Housing Manual[1], the following shading strategies are considered as effective

- for north facing glazing, horizontal shading with depth of at least 25% of the height of the glazing.
- for east and west facing window:
    - adjustable vertical shading; or
    - horizontal shading with depth of the around twice of the window height.

For the development, there are no north and east facing glazing of regularly occupied spaces. The window in the west-facing façade will receive external vertical shading. *

A variety of shading options are suitable for east and west facing glazing, including vertical shading structures such as adjustable louvres, as well as sliding screens, pergolas and roof overhangs, awnings, and verandas.

The below table summarises the glazing area on North, East and West Façades. Glazing that is sufficiently shaded is marked as yellow in the markups.

With that, 100% of the glazing to North, East and West Facades is sufficiently shaded.

Facade	Total	Effectively Shaded
North Facing Glazing (m²)	0.0	0.0
East Facing Glazing (m²)	0.0	0.0
West Facing Glazing (m²)	23.3	23.3*
	Total	**100%**

Table 10: Effective Shading Calculations

*Please note that the drawing will be amended as per the SDA report suggestions.

Glazing that is sufficiently shaded is marked as yellow in the markups below:

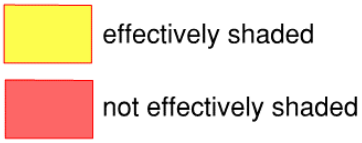

Figure 8: Legend for the shading markup

[1] https://assets.sustainability.vic.gov.au/susvic/Guide-Energy-Smart-Housing-Manual.pdf

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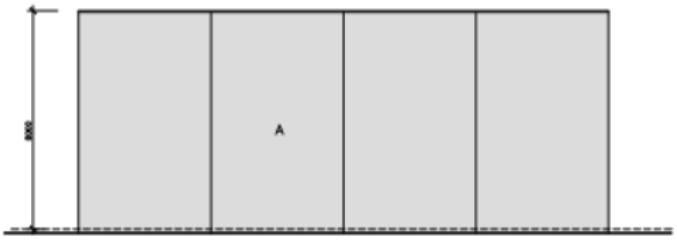

Figure 9: External shading markup of North façade – no windows

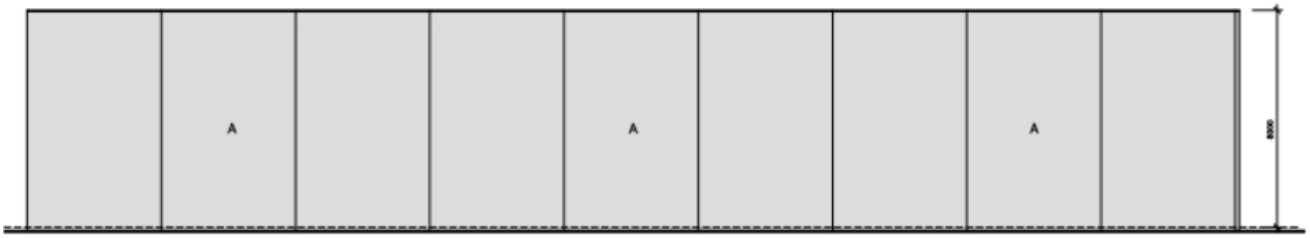

Figure 10: External shading markup of East façade – no windows

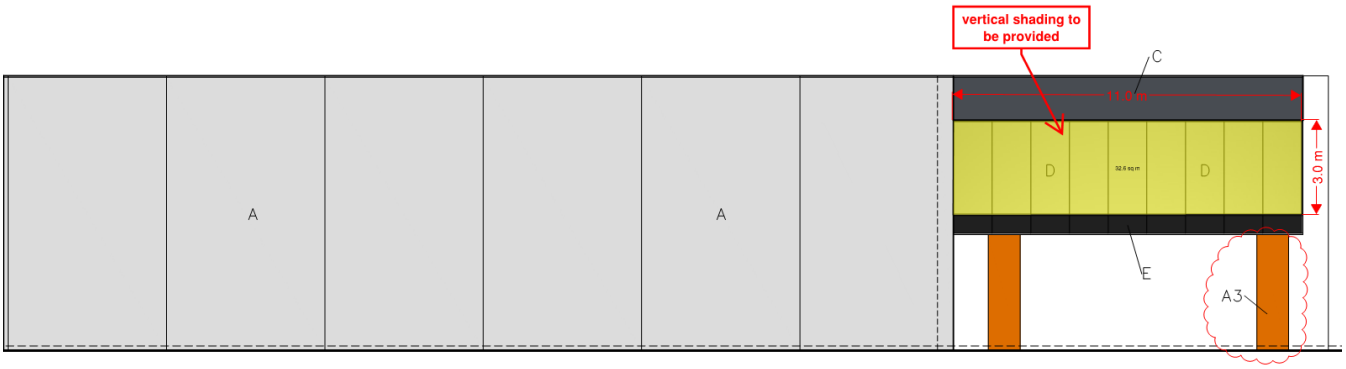

Figure 11: External shading markup of West façade – Vertical Shading to be provided

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6.6 Transport

Below is a summary of the performance against transport benchmarks.

BESS Credit	Transport Features	Responsibility
2.1	1 x Electric vehicle charging point (Level 2 - 32 Amp min) will be provided in the carpark to allow for future installation of EV chargers as per the requirements of NCC 2022 (J9D4). *	**Builder**
	Final Transport Score	**25%**

Table 11: Transport Features

6.7 Waste Management

Below is a summary of the performance against waste benchmarks.

BESS Credit	Waste Features	Responsibility
2.2	The recycling and general waste will be provided in the same storage area.	**Waste Consultant**
-	The development is committed to recycling 80% of the construction and demolition waste.	**Builder**
	Final Waste Management Score	**33%**

Table 12: Waste Management Features

6.8 Urban Ecology

Below is a summary of Urban Ecology features used in the proposed development.

BESS Credit	Urban Ecology Features	Responsibility
1.1	Communal space are places where people gather for social exchange. A total of 47 m² of communal space will be provided consisting in the reception and lunch room areas.	**Architect & Builder**
	Final Urban Ecology Score	**12%**

Table 13: Urban Ecology Features

6.9 Innovation

We have not aimed to target any points in the innovation category.

*Please note that the drawing will be amended as per the SDA report suggestions.

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6.10 Building Material

BESS does not include a category dealing with sustainable building materials. As such, the project has reverted to the previous benchmark which was the STEPS tool. Refer to Appendix C for more information.

The following material specification achieves the minimum score under STEPS:

- Low VOC paints and sealants
- Aluminium framing for the windows
- All the carpets, engineered timber and adhesives/sealants meet the Green-star Benchmark for VOC's and emissions.
- Use of engineered wood products of E1 or E0 grade (MDF, plywood, engineered-wood flooring)
- Light colored roofs and concrete driveways (where possible) are considered in the development to help mitigate the Urban heat island effect.

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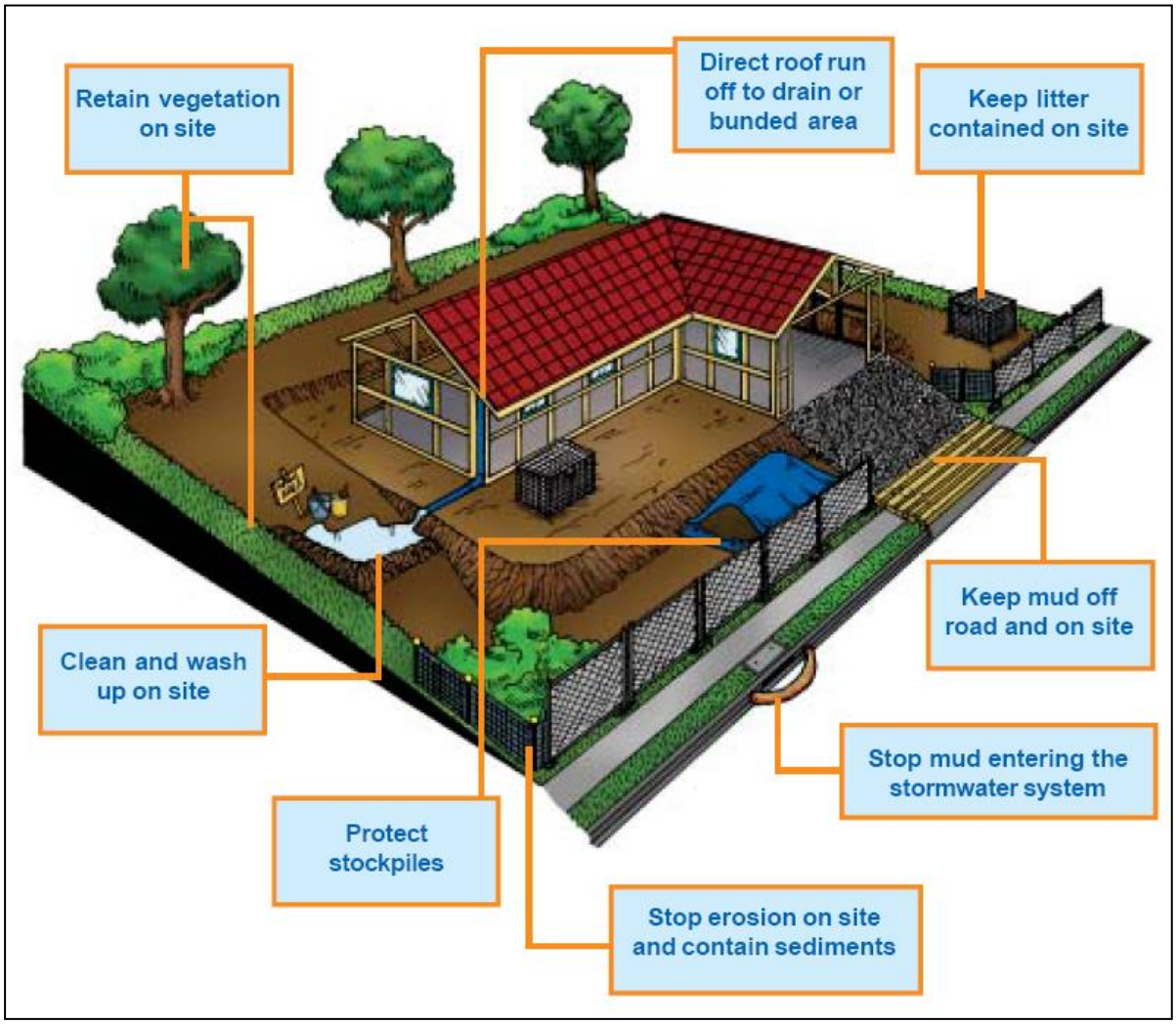
7 Stormwater Management at Construction Site

To manage stormwater management in the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will mean ensuring buffer strips are in place, sediment traps are installed, and the site will be kept clean from any loose rubbish. The builder will follow the process outlined in "Keeping Our Stormwater Clean – A Builder's Guide".



Copies of "Keeping Our Stormwater Clean – A Builder's Guide" booklet can be obtained from Melbourne Water by ringing on 131 722 or can be downloaded from the following website.
https://www.melbournewater.com.au/sites/default/files/Keeping-our-stormwater-clean-builders-guidelines.pdf

8 Conclusion

The project achieves all the minimum requirements under BESS, the new industry ESD best practice benchmark, achieving a rating of 52%. For items not covered by BESS, performance was shown to be in line with industry best practice. The proposed development located at 382 Somerville Rd, West Footscray VIC 3012 has a minimum scoring under the BESS assessment. The assessment results demonstrate that the design achieves the best practice standard established by the BESS.

The Sustainable Design Assessment is prepared to support the town planning application in accordance with the Clause 21.06-2 for Environmentally Sustainable Development and Clause 53.18 for Stormwater Management as mentioned in the City of Maribyrnong Planning Scheme.

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27/148 Chesterville Road, Cheltenham VIC 3192

Appendix A – BESS Output Report

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27/148 Chesterville Road, Cheltenham VIC 3192

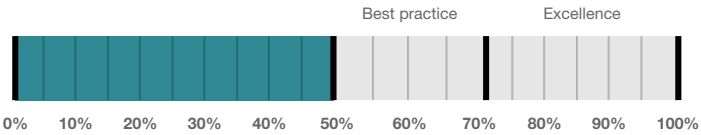
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 382 Somerville Rd West Footscray Victoria 3012. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Maribyrnong City Council.

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

Your BESS Score

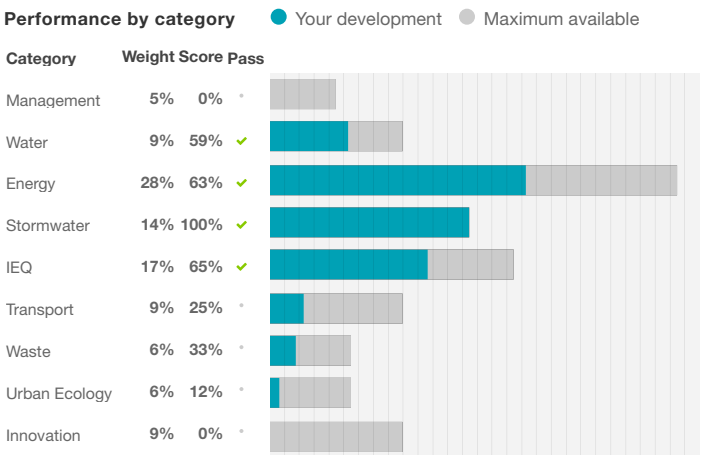


52%

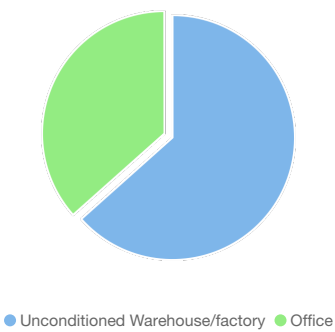
Project details

Address	382 Somerville Rd West Footscray Victoria 3012
Project no	04737E9E-R1
BESS Version	BESS-8
Site type	Non-residential development
Account	esd@hexicon.com.au
Application no.	TP48/2024(1)
Site area	925.00 m²
Building floor area	771.00 m²
Date	26 June 2024
Software version	1.8.1-B.407

Performance by category



Building Type composition



Buildings

Name	Height	Footprint	% of total footprint
Warehouse + Office Development	2	690 m^2	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Office Development	1	282 m^2	Warehouse + Office Development	36%
Total	**1**	**282 m^2**	**36%**	
Unconditioned Warehouse/factory				
Warehouse Development	1	489 m^2	Warehouse + Office Development	63%
Total	**1**	**489 m^2**	**63%**	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Water 3.1	Annotation: Water efficient garden details		-
Energy 4.2	Location and size of solar photovoltaic system		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-

Supporting evidence

Credit	Requirement	Response	Status
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 1.4	A short report detailing assumptions used and results achieved.		-

Credit summary

Management Overall contribution 4.5%

		0%
1.1 Pre-Application Meeting		0%
2.3 Thermal Performance Modelling - Non-Residential		0%
3.2 Metering - Non-Residential		N/A Scoped Out
		Only one tenant
3.3 Metering - Common Areas		N/A Scoped Out
		No common areas that require sub-metering - only one tenant.
4.1 Building Users Guide		0%

Water Overall contribution 9.0%

	Minimum required 50%	59% Pass
1.1 Potable Water Use Reduction		51%
3.1 Water Efficient Landscaping		100%
4.1 Building Systems Water Use Reduction		N/A Scoped Out
		The building does not have a sprinkler system and water-based heat rejection systems.

Energy Overall contribution 27.5%

	Minimum required 50%	63% Pass
1.1 Thermal Performance Rating - Non-Residential		12%
2.1 Greenhouse Gas Emissions		96%
2.2 Peak Demand		0%
2.6 Electrification		100%
2.7 Energy consumption		96%
3.1 Carpark Ventilation		N/A Scoped Out
		No enclosed carkpark
3.2 Hot Water		93%
3.7 Internal Lighting - Non-Residential		100%
4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A Scoped Out
		No cogeneration or trigeneration system in use.
4.2 Renewable Energy Systems - Solar		100%
4.4 Renewable Energy Systems - Other		N/A Scoped Out
		No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

	Minimum required 100%	100%	✔ Pass
1.1 Stormwater Treatment		100%	

IEQ Overall contribution 16.5%

	Minimum required 50%	65%	✔ Pass
1.4 Daylight Access - Non-Residential		75%	✔ Achieved
2.3 Ventilation - Non-Residential		43%	✔ Achieved
3.4 Thermal comfort - Shading - Non-Residential		100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
4.1 Air Quality - Non-Residential		100%	

Transport Overall contribution 9.0%

		25%	
1.4 Bicycle Parking - Non-Residential		0%	
1.5 Bicycle Parking - Non-Residential Visitor		0%	
1.6 End of Trip Facilities - Non-Residential		0%	⊘ Disabled
		Credit 1.4 must be complete first.	
2.1 Electric Vehicle Infrastructure		100%	
2.2 Car Share Scheme		0%	
2.3 Motorbikes / Mopeds		0%	

Waste Overall contribution 5.5%

		33%	
1.1 - Construction Waste - Building Re-Use		0%	
2.1 - Operational Waste - Food & Garden Waste		0%	
2.2 - Operational Waste - Convenience of Recycling		100%	

Urban Ecology Overall contribution 5.5%

		12%	
1.1 Communal Spaces		100%	
2.1 Vegetation		0%	
2.2 Green Roofs		0%	
2.3 Green Walls and Facades		0%	
3.2 Food Production - Non-Residential		0%	

Innovation **Overall contribution 9.0%**

		0%
1.1 Innovation		0%

Credit breakdown

Management Overall contribution 0%

1.1 Pre-Application Meeting		0%	
Score Contribution	This credit contributes 51.1% towards the category score.		
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?		
Question	Criteria Achieved ?		
Project	No		
2.3 Thermal Performance Modelling - Non-Residential		0%	
Score Contribution	This credit contributes 31.9% towards the category score.		
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?		
Question	Criteria Achieved ?		
Office	No		
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?		
Question	Criteria Achieved ?		
Office	No		
3.2 Metering - Non-Residential		N/A	Scoped Out
This credit was scoped out	Only one tenant		
3.3 Metering - Common Areas		N/A	Scoped Out
This credit was scoped out	No common areas that require sub-metering - only one tenant.		
4.1 Building Users Guide		0%	
Score Contribution	This credit contributes 17.0% towards the category score.		
Criteria	Will a building users guide be produced and issued to occupants?		
Question	Criteria Achieved ?		
Project	No		

Water Overall contribution 5% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools
Project Water Profile Question	
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Are you installing a rainwater tank?:	Yes
Water fixtures, fittings and connections	
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)
Bath: All	Scope out
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	Default or unrated
WC: All	>= 4 Star WELS rating
Urinals: All	Scope out
Washing Machine Water Efficiency: All	Occupant to Install
Which non-potable water source is the dwelling/space connected to?: All	RWT
Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	No
Non-potable water source connected to Hot Water System: All	No
Rainwater Tank	
What is the total roof area connected to the rainwater tank?: RWT	490 m^2
Tank Size: RWT	12,000 Litres
Irrigation area connected to tank: RWT	-
Is connected irrigation area a water efficient garden?: RWT	No
Other external water demand connected to tank?: RWT	-

1.1 Potable Water Use Reduction		51%
Score Contribution	This credit contributes 83.3% towards the category score.	
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.	
Output	Reference	
Project	1102 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	927 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	732 kL	
Output	% Reduction in Potable Water Consumption	
Project	33 %	
Output	% of connected demand met by rainwater	
Project	100 %	
Output	How often does the tank overflow?	
Project	Often	
Output	Opportunity for additional rainwater connection	
Project	556 kL	

3.1 Water Efficient Landscaping		100%
Score Contribution	This credit contributes 16.7% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	Yes	

4.1 Building Systems Water Use Reduction		N/A	Scoped Out
This credit was scoped out	The building does not have a sprinkler system and water-based heat rejection systems.		

Energy Overall contribution 18% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	No
Use the BESS Deem to Satisfy (DtS) method for Energy Unconditioned Spaces?:	No
Non-Residential Building Energy Profile	
Heating, Cooling & Comfort Ventilation - Electricity Reference fabric & services:	5,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	5,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & services:	5,000 kWh
Heating - Wood - reference fabric and services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and services:	-
Hot Water - Electricity - Reference:	1,000 kWh
Hot Water - Electricity - Proposed:	1,000 kWh
Lighting - Reference:	2,000 kWh
Lighting - Proposed:	2,000 kWh
Peak Thermal Cooling Load - Reference:	-
Peak Thermal Cooling Load - Proposed:	-
Solar Photovoltaic systems	
System Size (lesser of inverter and panel capacity):	
PV 1	10.0 kW peak
PV 2	10.0 kW peak
Orientation (which way is the system facing)?:	
PV 1	East
PV 2	East
Inclination (angle from horizontal):	
PV 1	15.0 Angle (degrees)
PV 2	15.0 Angle (degrees)
Which Building Class does this apply to?:	
PV 1	Office
PV 2	Unconditioned Warehouse/factory

1.1 Thermal Performance Rating - Non-Residential 12%

Score Contribution	This credit contributes 34.9% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?
Output	Total Improvement
Office	0 %

2.1 Greenhouse Gas Emissions	96%
Score Contribution	This credit contributes 9.3% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
Question	Percentage Achieved?
Unconditioned Warehouse/factory	-
Output	Reference Building with Reference Services (BCA only)
Office	1,865 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Office	1,865 kg CO2
Output	% Reduction in GHG Emissions
Office	0 %

2.2 Peak Demand	0%
Score Contribution	This credit contributes 4.4% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?

2.6 Electrification	100%
Score Contribution	This credit contributes 14.0% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes

2.7 Energy consumption	96%
Score Contribution	This credit contributes 18.7% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
Question	Percentage Achieved?
Unconditioned Warehouse/factory	-
Output	Reference Building with Reference Services (BCA only)
Office	7,900 MJ
Output	Proposed Building with Proposed Services (Actual Building)
Office	7,900 MJ
Output	% Reduction in total energy
Office	0 %

3.1 Carpark Ventilation	N/A Scoped Out
This credit was scoped out	No enclosed carkpark

3.2 Hot Water		93%
Score Contribution	This credit contributes 4.7% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?	
Question	Percentage Achieved?	
Unconditioned Warehouse/factory	-	
Output	Reference	
Office	1,317 MJ	
Output	Proposed	
Office	1,317 MJ	
Output	Improvement	
Office	0 %	

3.7 Internal Lighting - Non-Residential		100%
Score Contribution	This credit contributes 9.3% towards the category score.	
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?	
Question	Criteria Achieved ?	
Office	Yes	
Unconditioned Warehouse/factory	Yes	

4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A ⌖ Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.	

4.2 Renewable Energy Systems - Solar		100%
Score Contribution	This credit contributes 4.7% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Office	11,011 kWh	
Unconditioned Warehouse/factory	11,011 kWh	
Output	% of Building's Energy	
Office	376 %	
Unconditioned Warehouse/factory	450 %	

4.4 Renewable Energy Systems - Other		N/A ⌖ Scoped Out
This credit was scoped out	No other (non-solar PV) renewable energy is in use.	

Stormwater

Overall contribution 14% Minimum required 100%

Which stormwater modelling software are you using?:	Melbourne Water STORM tool
1.1 Stormwater Treatment	100%
Score Contribution	This credit contributes 100.0% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Question	STORM score achieved
Project	101
Output	Min STORM Score
Project	100

IEQ Overall contribution 11% Minimum required 50%

1.4 Daylight Access - Non-Residential	75% ✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Annotation	Kindly note that the warehouse is not categorized under regular-use areas, therefore the space is excluded from the calculation. The daylight percentage mentioned in "Unconditioned Warehouse" is for indication purposes only since there is no option available in BESS to scope out this particular area.
Question	Percentage Achieved?
Office	33 %
Unconditioned Warehouse/factory	100 %

2.3 Ventilation - Non-Residential	43% ✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.
Annotation	Kindly note that the warehouse is not categorized under regular-use areas, therefore the space is excluded from the calculation. The ventilation percentage mentioned in "Unconditioned Warehouse" is for indication purposes only since there is no option available in BESS to scope out this particular area. For the regularly occupied spaces (reception and office) compliance will be achieved as per mechanical ventilation.
Criteria	What % of the regular use areas are effectively naturally ventilated?
Question	Percentage Achieved?
Office	0 %
Unconditioned Warehouse/factory	100 %
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?
Question	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668:2012?
Office	50 %
Unconditioned Warehouse/factory	-
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?
Question	Value
Office	-
Unconditioned Warehouse/factory	-

3.4 Thermal comfort - Shading - Non-Residential	100%
Score Contribution	This credit contributes 17.6% towards the category score.
Annotation	Kindly note that the warehouse is not categorized under regular-use areas, therefore the space is excluded from the calculation. The shading percentage mentioned in "Unconditioned Warehouse" is for indication purposes only since there is no option available in BESS to scope out this particular area.

Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Office	100 %
Unconditioned Warehouse/factory	100 %

3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%
Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Office	0 %
Unconditioned Warehouse/factory	0 %

4.1 Air Quality - Non-Residential	100%
Score Contribution	This credit contributes 5.9% towards the category score.

Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	Yes

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	No carpet

Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	Yes

Transport Overall contribution 2%

1.4 Bicycle Parking - Non-Residential		0%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Office	No	
Unconditioned Warehouse/factory	No	
Question	Bicycle Spaces Provided ?	
Office	-	
Unconditioned Warehouse/factory	-	

1.5 Bicycle Parking - Non-Residential Visitor		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Office	No	
Unconditioned Warehouse/factory	No	
Question	Bicycle Spaces Provided ?	
Office	-	
Unconditioned Warehouse/factory	-	

1.6 End of Trip Facilities - Non-Residential		0% ⊘ Disabled
This credit is disabled	Credit 1.4 must be complete first.	

2.1 Electric Vehicle Infrastructure		100%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	Yes	

2.2 Car Share Scheme		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Has a formal car sharing scheme been integrated into the development?	
Question	Criteria Achieved ?	
Project	No	

2.3 Motorbikes / Mopeds		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

Waste Overall contribution 2%

1.1 - Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 - Operational Waste - Food & Garden Waste	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	No

2.2 - Operational Waste - Convenience of Recycling	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 1%

1.1 Communal Spaces		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?	
Annotation	The office and Warehouse share the entry, reception, and lunch room (a total of 47 m²) for social exchange.	
Question	Common space provided	
Office	30.0 m²	
Unconditioned Warehouse/factory	17.0 m²	
Output	Minimum Common Space Required	
Office	22 m²	
Unconditioned Warehouse/factory	9 m²	

2.1 Vegetation		0%
Score Contribution	This credit contributes 50.0% towards the category score.	
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?	
Question	Percentage Achieved ?	
Project	0 %	

2.2 Green Roofs		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	

2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	

3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Office	-	
Unconditioned Warehouse/factory	-	
Output	Min Food Production Area	
Office	6 m²	
Unconditioned Warehouse/factory	3 m²	

Innovation Overall contribution 0%

1.1 Innovation		0%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

Disclaimer

Appendix B – WSUD Maintenance Plan

This section of the document outlines the key inspection and maintenance activities for each stormwater treatment asset type and is based on Melbourne Water's WSUD Maintenance Guidelines. The implementation of the maintenance program is the responsibility of the owner's corporation. The Gross Pollutant Trap is considered in the development to prevent harmful sediments and pollutants to enter in the water. GPT maintenance is included in the following plan with Owner's responsibility and arranging regular servicing by the GPT company provider.

B.1 Rainwater Harvesting Tanks

Rainwater harvesting tanks typically collect rainwater from a building's roof or other surface relatively free of pollutants. Captured rainwater can generally be re-used for toilet flushing and landscape irrigation with minimal treatment required.

The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Roof	- Remove leaf litter and debris - Check general condition of roof for signs of leakage, including broken tiles, and rusting	1 month
Gutters and Downpipes	- Remove leaf litter and gross pollutants - Check general condition of drainage systems for signs of leakage, including damaged pipes and rusting	1 month
First Flush Device	- Inspect inlet screens for blockages or fouling - Inspect silt traps and collection pits, clean as required - Inspect diversion pit and remove any build-up of sludge blocking the diversion valve - Check all float operations and activation switches (if applicable) - Check general condition of components for loose connections, wear and tear, and signs of leakage	1 - 3 months
	- Arrange licensed EPA contractor to remove built-up sludge accrued in all pits (if applicable)	6 months
Tanks	- Ensure inlet and overflow screens are not blocked or fouled - Remove excess layers of sludge and biofilms on tank walls if affecting the color or smell of the tank water - Check general condition of tank for signs of damage or leakage	3 – 6 months
Pumps	- Pumping systems are to be maintained in accordance with the manufacturers' specifications	Refer manufacturers' details

Component	Key Activities	Typical Frequency
Vegetation	- Prune surrounding vegetation and overhanging trees to reduce leaf litter and debris.	6 months

B.2 Raingardens

Raingardens, also known as bioretention systems, biofilters, bio-infiltration systems and bioremediation systems, are vegetated infiltration systems that improve stormwater quality. Stormwater ponds on the raingarden surface, slowly infiltrates through the filter media to the base of the system and is then conveyed to the downstream drainage system. Pollutants such as nitrogen, phosphorus and suspended solids are removed as stormwater passes through the filter media. The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Filter Media	- Remove leaf litter and gross pollutants - Check for biofilms (algal biofilms may develop on the surface of filter media leading to clogging issues) - Monitor ponding of water following rainfall events - Check for permanently boggy/pooled areas	3 months & following storm events
	- Remove sediment (or scarify filter media surface if required)	Annually
Erosion	- Check for erosion/scouring - Check for evidence of preferential flow paths - Replace filter media in eroded areas - Add rock protection around inlets (if required)	3 months
Mulch	- Check depth and even distribution of mulch - Check mulch is not touching plant stems - Check for sediment/silt accumulation in mulch layer - Replace mulch (if required) - Retain mulch using jute mats or nets (if required)	3 months
Vegetation	- Inspect plant health and cover - Replace dead plants (maintain a consistent vegetation density of 6–10 plants per square metre across the raingarden filter media) - Remove weeds (avoid use of herbicides) - Prune plants (where applicable)	3 months

B.3 Tree Pit

Tree pits are mini raingardens that comprise of a tree or large shrub planted within an underground planting module (pit). Stormwater runoff from catchment areas including roads, car parks and pavements is directed to the tree pits, where it is both treated and used to passively irrigate the street trees. Similar to raingardens, tree pits comprise of a combination of media layers that allow stormwater to slowly infiltrate from the surface of the tree pit down to the underdrain system where it is discharged to the stormwater drainage system. In some situations, the tree pit may have a pervious base, and water is infiltrated directly to the surrounding soils. The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Filter Media	- Remove leaf litter and gross pollutants. - Check for biofilms (algal biofilms may develop on the surface of the filter media leading to clogging issues). - Monitor the ponding of water following rainfall events.	3 months & following storm events
	- Remove accumulated sediment (or scarify filter media surface if required).	Annually
Mulch	- Check depth and even distribution of mulch layer. - Check mulch is not touching the tree trunk. - Replace mulch (if required). - Check for sediment/silt accumulation within mulch layer.	3 months
Vegetation	- Inspect plant health (signs of disease, pests, poor growth). - Check plant stability (tree supports). - Remove weeds (avoid use of herbicides). - Prune plants (where applicable). - Water plants (if required during establishment phase).	3 months
Civil Components	- Inspect for physical damage, concrete cracking and subsidence (sinking). - Ensure inlet and outlet points are clear of sediment, litter and debris.	3 months & following storm events

	- Inspection opening:
	  ○ Check the underdrain (slotted drainage pipe) system for standing water or sediment accumulation.
	  ○ Flush the underdrain system (if required).
		Annually

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B.4 Swales

Conventional swales are simple vegetated channels that convey stormwater and provide stormwater treatment through filtration and infiltration. Bioretention swales (bio-swales) comprise of a channel with vegetation, layers of filter media and slotted drainage pipes (underdrain) arranged in a similar layout to a raingarden. Bio-swales facilitate more infiltration than conventional swales and therefore provide a higher level of treatment. The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Erosion	- Check for erosion/scouring. - Check for preferential flow paths. - Replace soil/filter media in eroded areas. - Replant eroded areas.	3 months
Vegetation	- Inspect plant health and cover. - Prune plants (where applicable). - Mow. - Remove weeds (avoid use of herbicides). - Replace dead plants (maintain a consistent vegetation density of 6–10 plants per sqm for bio-swales). - Water plants (if required during establishment phase).	3 months
Sediment Accumulation	- Check for sediment accumulation (if not intended by design). - Remove sediment (if required). - Monitor ponding of water following rainfall events. - Check for permanently boggy/pooled areas.	Annually

B.5 Permeable Paving

Permeable pavements allow stormwater runoff to infiltrate to underlying soils rather than running off hard surfaces and into the stormwater drainage system. Permeable pavements are used for a wide range of purposes including:

- Reducing stormwater runoff volumes
- Reducing sediment and pollutant loads discharged to local waterways
- Enhancing groundwater recharge
- Retarding stormwater runoff (where underdrains are present)
- Water harvesting and re-use.

The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Paving Surface	- Check for accumulated sediment. - Sweep, wet vacuum or pressure hose the surface of the pavers to remove clogging material. - Check infill material is present between pavers. - Monitor ponding of water following rainfall events.	3 months & following storm events
Bedding Material	- Check level of the pavement surface	Annually
Underdrain	- Check inspection openings for sediment accumulation. - Flush underdrain to remove sediment (if required).	Annually

B.6 Proprietary Stormwater Treatment Devices

Several proprietary treatment systems are currently available on the market. These systems come in a range of sizes and can target specific stormwater pollutants depending on the project's requirements. Example treatment systems include products such as Enviss Sentinel Pits, SPEL Stormceptor, Stormwater Management Storm Filter and Ecosol Sand Filters. The following provides a guide to the timing of inspection and maintenance activities for the typical components of this system.

Component	Key Activities	Typical Frequency
Stormwater Treatment Asset	- Assets are to be maintained in accordance with the manufacturers' specifications	Refer manufacturers' details

Appendix C – VOC & Formaldehyde Emission Limits

The following table are an extract of the Green Star Design and as built submission guidelines:

Table 13.1.1: Maximum TVOC Limits for Paints, Adhesives and Sealants

Product Category	Max TVOC content in grams per litre (g/L) of ready to use product.
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

The product complies with the Total VOC (TVOC) limits specified in the Table below.

Carpet Test Standards and TVOC Emissions Limits

Test protocol	Limit
ASTM D5116 - Total VOC limit	0.5mg/m^2 per hour
ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m^2 per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m^2 per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m^2 per hour

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Table 13.2: Formaldehyde Emission Limit Values for Engineered Wood Products

Test Protocol	Emission Limit/ Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1mg/ L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1mg/ L
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	≤1mg/ L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1mg/ L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/m²hr*
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m²hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m²hr (at 3 days)
ASTM D6007	≤0.12mg/m³**
ASTM E1333	≤0.12mg/m³***
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m³
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m²hr

*mg/m²hr may also be represented as mg/m²/hr.

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