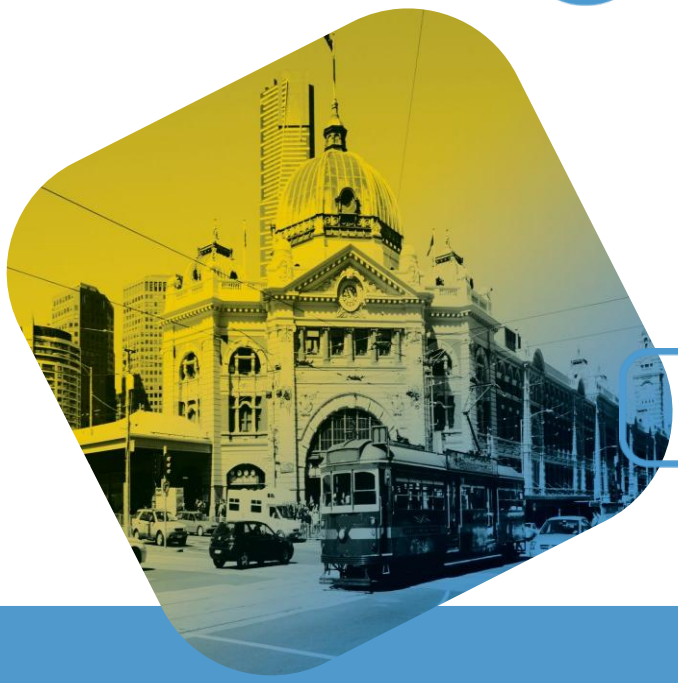
37°48'16.4"S
144°54'16.9"E

Residential Development: 71 Whitehall Street, Footscray



Traffic and Transport Assessment

27 June 2025
Prepared for B and J Housing Development

IMP2505027TTA01D01

Impact

Company Information

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Document Information

Client	B and J Housing Development
Report Title	Residential Development: 71 Whitehall Street, Footscray
Report Reference	IMP2505027TTA01D01
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Version	Date	Author
F01	27 June 2025	Will Kelso
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Contents

Tables

Figures

Appendices

1 IMPACT® Snap Shot

Development Proposition

Location	37° 48' 16" S 144° 54' 17" E	71 Whitehall Street, Footscray
Use	Residential	
Yield	Eight (8) three-bedroom townhouses	
Car Parking	Nine (9) spaces provided in 8x single garages & 1x double garage	

Statutory Controls

Overlays

Schedule 2 to Clause 45.09 Parking Overlay
Footscray Metropolitan Activity Centre - Outer Parking Precinct

Requirement vs Provision	Between eight (8) and 12 spaces required. Nine (9) spaces provided
Adequacy of Provision	The proposed provision meets the associated statutory car parking requirements.

Particular Provisions

Clause 52.06 - Car Parking

Design	The proposed garages and accessways have been assessed and determined to have satisfied the relevant design guidelines.

Traffic Considerations

Traffic Generation	The projected level of traffic anticipated to be generated by the proposed eight (8) dwellings will result in the road network carrying an additional 52 vehicle movements per weekday, post-development. Approximately 5 of these movements are anticipated to occur during morning and evening commuter peak periods.
Traffic Impact	Post-development traffic volumes are expected to fall within the road network's capacity thresholds.

Conclusion

- The proposed development satisfies relevant statutory requirements and where the statutory requirements are not explicitly met, the development is deemed to satisfy decision guidelines that allow for a reduction or waiver of the said requirement.
- There are no traffic and transport grounds that should prohibit the issue of a permit.

2 Introduction

2.1 Engagement

IMPACT® have been engaged by B and J Housing Development to undertake a Traffic and Transport Impact Assessment for the proposed residential development at 71 Whitehall Street, Footscray.

2.2 Scope of Engagement

This Traffic and Transport Impact Assessment has been prepared to accompany a town planning submission.

In preparing this assessment we have referenced the following:

- Development plans prepared by five7 Architects;
- Maribyrnong Planning Scheme, specifically:
  - Clause 52.06 - Car Parking
  - Clause 52.29 - Land Adjacent to the Principal Road Network
  - Clause 52.34 Bicycle Facilities

3 Existing Conditions

3.1 Location

The subject site is located on the south side of Whitehall Street as illustrated in Figure 1 and Figure 2.

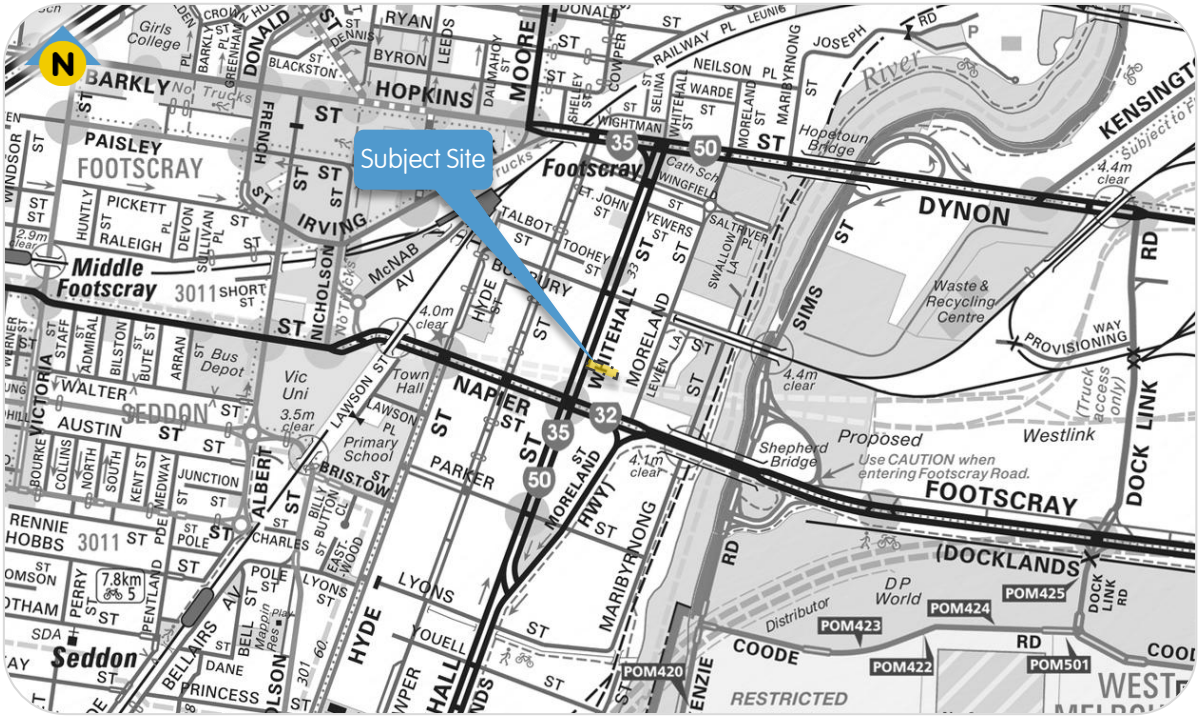


Figure 1 Location of Subject Site

Figure 2 Aerial View of Subject Site

The site is symmetrical in shape with a frontage of approximately 14 metres to Whitehall Street.

3.2 Planning Zone

The subject site is located within the Activity Centre Zone (ACZ1) as illustrated in Figure 3.

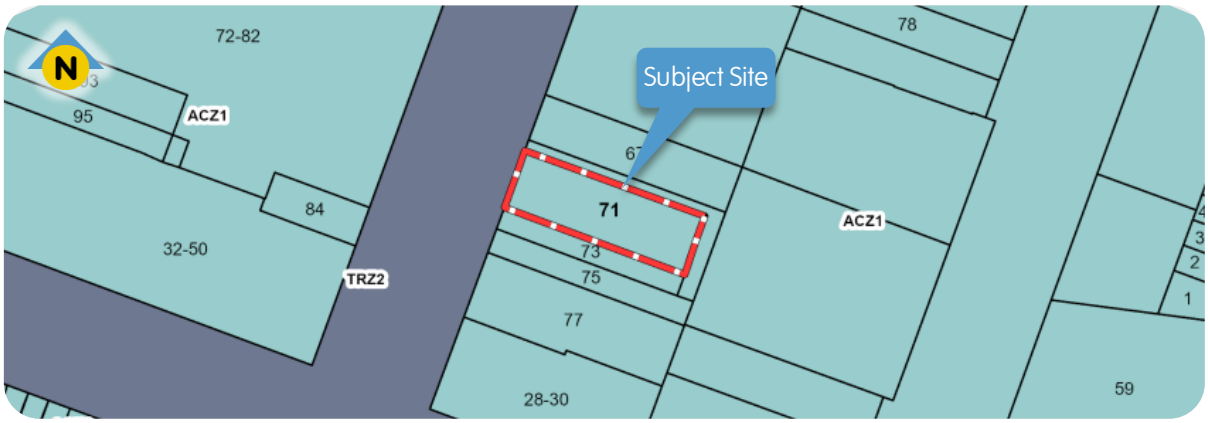


Figure 3 Land Use Planning Zone

The purpose of this zone is to:

- To encourage a mixture of uses and the intensive development of the activity centre:
  - As a focus for business, shopping, working, housing, leisure, transport and community facilities.
  - To support sustainable urban outcomes that maximise the use of infrastructure and public transport.
- To deliver a diversity of housing at higher densities to make optimum use of the facilities and services.
- To create through good urban design an attractive, pleasant, walkable, safe and stimulating environment.
- To facilitate use and development of land in accordance with the Development Framework for the activity centre.

3.3 Road Network

3.3.1 Whitehall Street

Classified as a primary state arterial road. Generally aligned in a north-south direction between Nielson Place to the north and Francis Street to the south

Along the site frontage, Whitehall Street comprises an approximate 24 metre road pavement that provides two (2) trafficable lanes on each of its east and west carriageways, in addition to auxiliary right turn lanes at its signalised intersections. Its typical cross-section is illustrated in Figure 4.

Figure 4 View of Whitehall Street facing south adjacent the subject site

Kerb side lanes are subject to 4P restrictions between 8am-6pm Monday to Friday and 8am-1pm Saturday.

3.4 Public Transport

The site has good access to public transport and is located proximate to a number of heavy rail and road based options. The site in the context of local public transport options is shown below in Figure 5.

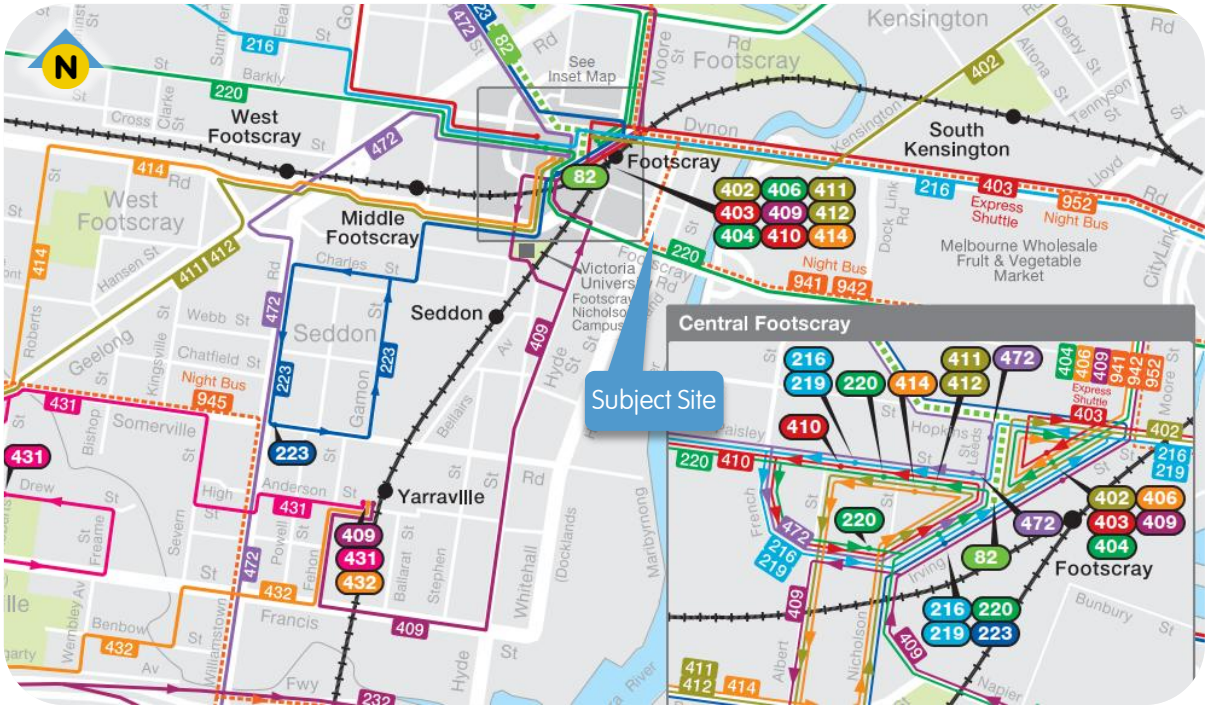


Figure 5 Public Transport Network Map

Details of nearby public transport options are listed below in Table 1.

Table 1 Public Transport Options

Service	Route	Nearest Station / Stop	Distance to Site
Train	Sunbury / Werribee Line	Footscray Station	450m / 6 min
Bus	220 - Sunshine Station - City via Footscray Rd	Whitehall St/Napier St	100m / 1 min

In recognition of the site's access to public transport options, we note that it is located within the Principal Public Transport Network (PPTN) area, as shown in Figure 6. The PPTN reflects routes where high-quality public transport services are or will be provided, and is intended to support integrated transport and land use planning, by encouraging more diverse and dense development near high-quality public transport to help support public transport usage.

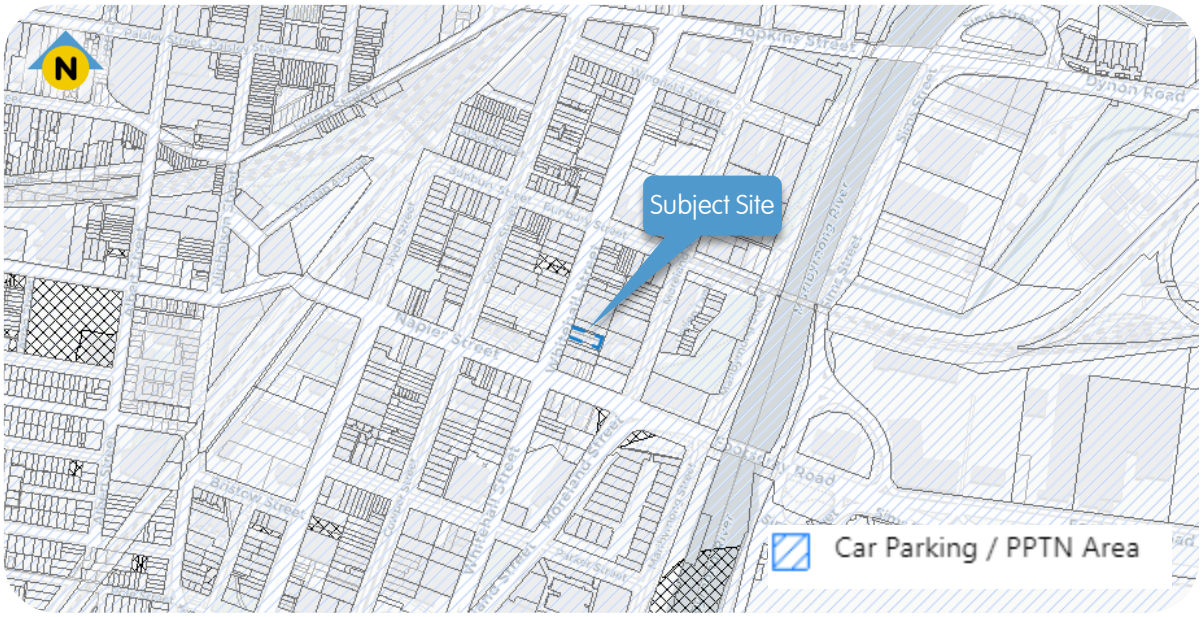


Figure 6 Public Transport Network Area Map (PPTN)

3.5 Bicycle Network

The site has access to the Principal Bicycle Network.

The Principal Bicycle Network (PBN) is a network of existing and proposed cycle routes identified to help people ride to major destinations around metropolitan Melbourne. This network is complemented by Strategic Cycling Corridors (SCCs).

The location of the site relative to the Principal Bicycle Network (PBN) and Strategic Cycling Corridors (SCCs) is illustrated in Figure 7.

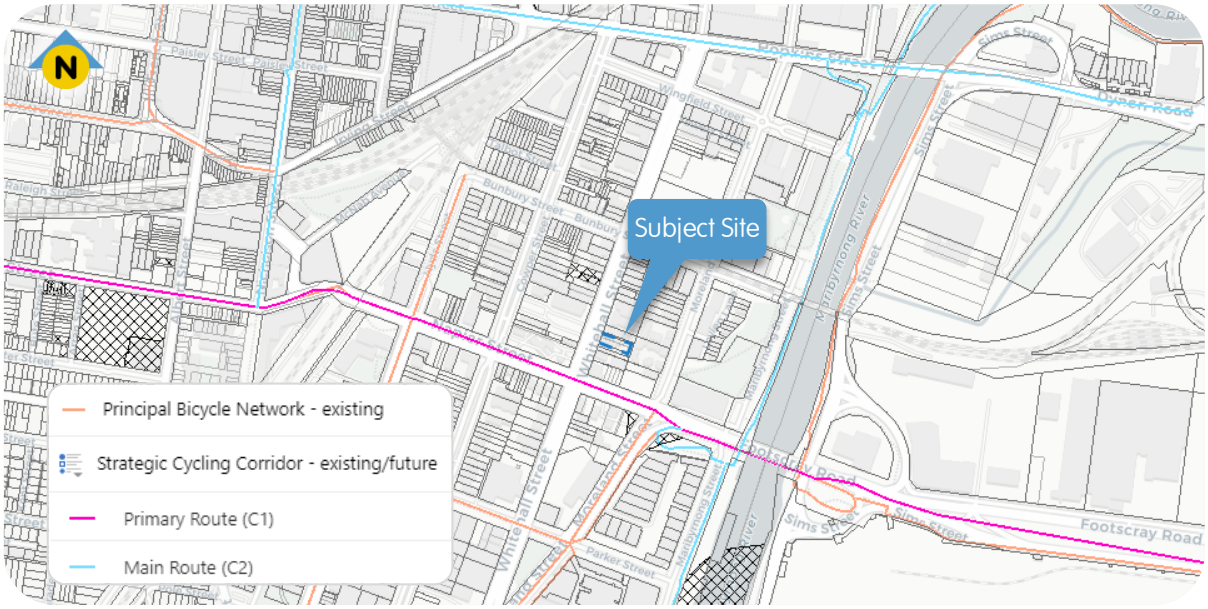


Figure 7 Strategic Cycling Corridors

4 Development Proposition

4.1 Use and Yield

It is proposed the develop the site for the purposes of a residential development to provide eight (8) three-bedroom dwellings.

4.2 Car Parking & Access

A total of 9 car parking spaces are proposed in the form of garage car spaces. Access to these spaces is afforded via the right of waw connecting to Whitehall Street via an existing crossover.

The ground floor plan is shown below in Figure 8

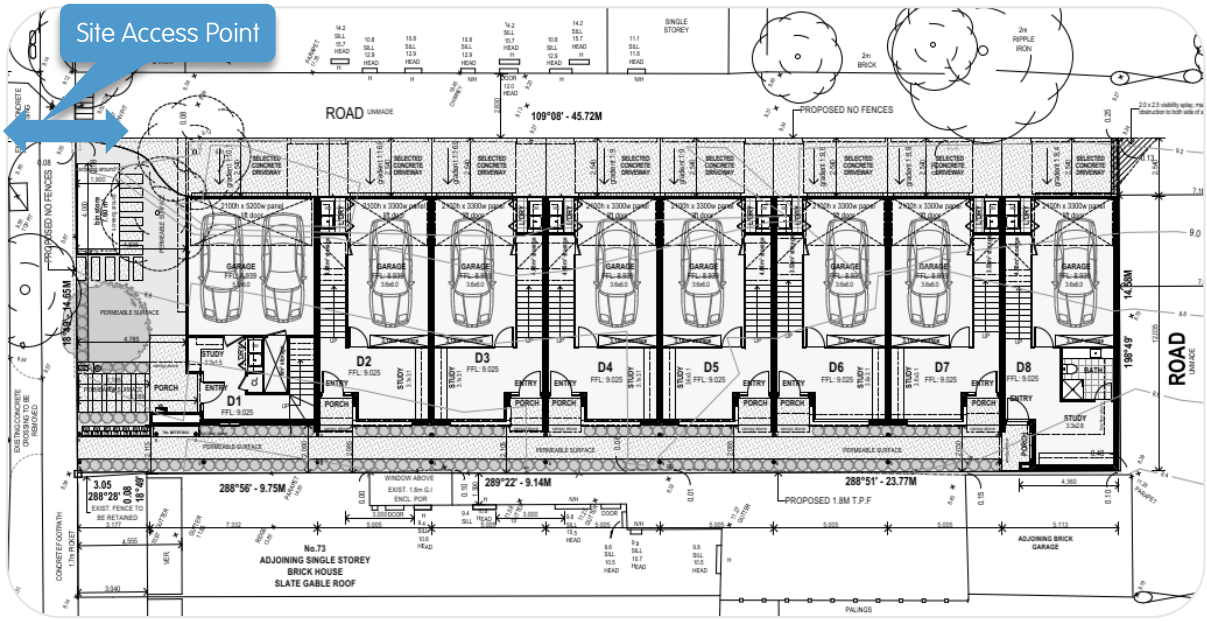


Figure 8 Site Layout Plan

4.3 Waste Collection

Waste is proposed to be collected on-street utilising Council's waste collection service.

Further detail on the waste management strategy can be sought from the Waste Management Plan prepared for the proposal.

5 Statutory Controls

The relevant traffic and transportation Statutory Controls are:

Overlays/Local Policy:

- Clause 45.09 - Schedule 1 to Parking Overlay

Particular Provisions

- Clause 52.06 - Car Parking
- Clause 52.29 - Land Adjacent to the Principal Road Network
- Clause 52.34 - Bicycle Facilities

5.1 Clause 45.09 - Schedule 2 to Parking Overlay

The objective of this overlay is to identify appropriate car parking rates for various uses within the outer area of the Footscray Metropolitan Activity Centre.

5.1.1 Provision Requirements

Clause 3 to Schedule 2 to the Parking Overlay requires that:

- The minimum number of car parking spaces that can be provided for the use is calculated by multiplying the Minimum Rate specified for the use by the accompanying Measure
- The maximum number of car parking spaces that can be provided for the use is calculated by multiplying the Maximum Rate specified for the use by the accompanying Measure.

Table 1 to Clause 3 provides a minimum and maximum rate for the provision of car parking spaces for each land use category. The following applies to the proposed development:

Dwelling (3 or more bedrooms): Minimum rate of 1.0 spaces per dwelling / Maximum rate of 1.5 spaces per dwelling.

Application of this rate to the proposal results in a minimum of 8 spaces and a maximum of 12 spaces required for the development.

5.1.2 Car Parking Provision

The development is planned with a total of **9 spaces**.

5.1.3 Adequecy of Proposed Provision

This outcome is consistent with the requirements of Clause 3 to Schedule 1 to the Parking Overlay and is considered acceptable.

5.2 Clause 52.06 - Car Parking

5.2.1 Purpose

The purpose of Clause 52.06 is:

- To ensure that car parking is provided in accordance with the Municipal Planning Strategy and Planning Policy Framework.
- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
- To support sustainable transport alternatives to the motor car.
- To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
- To ensure that car parking does not adversely affect the amenity of the locality.
- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

5.2.2 Provision and Design Requirements

To satisfy the above purpose, Clause 52.06 of the Maribyrnong Planning Scheme specifies requirements relating to the provision and design of car parking as follows:

5.2.3 Car Parking Provision Requirements - Clause 52.06-5

As discussed in Section 5.1, Clause 3 to Schedule 2 to the parking overlay controls the parking requirements of the site.

5.2.4 Proposed Provision

The development plans for a total 9 car parking spaces as outlined in Section 5.1.2.

5.2.5 Adequacy of Proposed Provision

The provision of 9 car parking spaces is consistent with the requirements of Clause 3 to Schedule 2 to the parking overlay and is considered appropriate.

5.2.6 Conclusion - Car Parking Provision

We can conclude that an adequate number of spaces are provided to cater for the projected demand.

Accordingly, the development proposition satisfies the purpose of Clause 52.06, specifically:

- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.

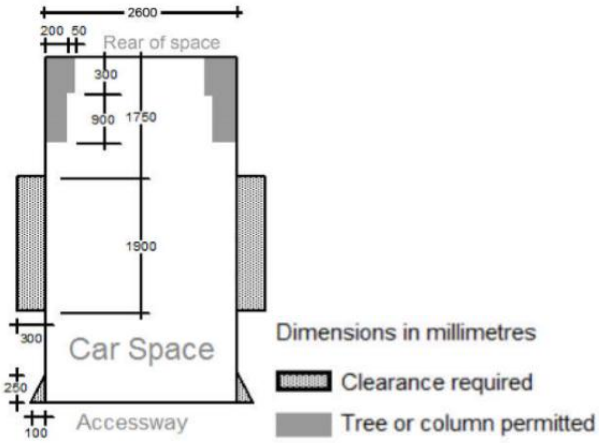
5.2.7 Design Standard for Car Parking - Clause 52.06 - 9

We have assessed the proposed car parking design and access arrangements against the requirements of Clause 52.06-9 of the Maribyrnong Planning Scheme. Our findings are as follows:

5.2.7.1 Design Standard 1 - Accessways

Requirements		Design Response	Status
Accessways Must:			
1	Be at least 3 metres wide.	Accessways are at least 3.1 metres wide throughout.	**Comply**
2	Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide	No changes of direction proposed.	**N/A**
3	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.	Car park is not a public car park.	**N/A**
4	Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	All garages are to provide at least 2.1 metres height clearance	**Comply**
5	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.	All vehicles can exit the site in a forward direction	**Comply**
6	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.	Accessway does not serve ten or more car parking spaces and is not more than 50 metres long.	**N/A**
7	Have a corner splay or area at least 50 percent 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.	Adequate sight splays are provided at the site access points. Any structure or landscaping within these zones is to remain below 900mm height.	**Comply**
8	If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6 metres from the road carriageway.	Access to the car spaces is at least 6 metres from the road carriageway.	**Comply**

5.2.7.2 Design Standard 2 - Car Parking Spaces

<table>
<tr><th></th><th>Requirements</th><th>Design Response</th><th>Status</th></tr>
<tr><td>1</td><td>Car parking spaces and accessways must have the minimum dimensions in Table 2 of Clause 52.06-9.
<table>
<tr><th>Angle of car parking spaces to access way</th><th>Accessway width</th><th>Car space width</th><th>Car space length</th></tr>
<tr><td>Parallel</td><td>3.6 m</td><td>2.3 m</td><td>6.7 m</td></tr>
<tr><td>45°</td><td>3.5 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td>60°</td><td>4.9 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td>90°</td><td>6.4 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.8 m</td><td>2.8 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.2 m</td><td>3.0 m</td><td>4.9 m</td></tr>
<tr><td></td><td>4.8 m</td><td>3.2 m</td><td>4.9 m</td></tr>
</table></td><td>All parking spaces proposed are in the form of garages.</td><td>N/A</td></tr>
<tr><td>2</td><td>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 of the design standard
A structure, which may project into the space if it is at least 2.1 metres above the space.
 
</td><td>All parking spaces proposed are in the form of garages.</td><td>N/A</td></tr>
<tr><td>3</td><td>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.</td><td>Single car garages provided are at least 6m long and 3.5m, and double car garages are at least 6m long and 5.5m wide.</td><td>Comply</td></tr>
<tr><td>4</td><td>Where parking spaces are provided in tandem (one space behind another) an additional 500mm in length must be provided between each space.</td><td>No tandem spaces are proposed.</td><td>N/A</td></tr>
<tr><td>5</td><td>Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.</td><td>All spaces are undercover.</td><td>Comply</td></tr>
<tr><td>6</td><td>Disabled car parking spaces must be designed in accordance with AS 2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 500mm.</td><td>No disabled car parking proposed.</td><td>N/A</td></tr>
</table>

5.2.8 Conclusion - Car Park Design

The proposed car park and accessways have been assessed and determined to have satisfied the relevant design guidelines.

Accordingly, the proposal satisfies the purpose of Clause 52.06, specifically:

- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

5.3 Clause 52.29 - Land Adjacent to the Principal Road Network

5.3.1 Purpose

The purpose of Clause 52.29 is to:

- Ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network; and
- Ensure appropriate subdivision of land adjacent to the Principal Road Network or land planned to form part of the Principal Road Network.

5.3.2 Permit Requirement

A permit is required to:

- Create or alter access to:
  - A road in a Transport Zone 2;
  - Land in a Public Acquisition Overlay if a transport manager (other than a municipal council) is the acquiring authority and the acquisition is for the purpose of a road.
- Subdivide land adjacent to:
  - A road in a Transport Zone 2;
  - Land in a Public Acquisition Overlay if a transport manager (other than a municipal council) is the acquiring authority and the acquisition is for the purpose of a road

In response to the above, it is noted that:

- The proposal seeks to alter access to Whitehall Street(Transport Zone 2).

Specifically:

  - The proposal contemplates removing one of two existing crossovers to Whitehall Street.

A permit under Clause 52.29 is therefore required.

5.3.3 Decision Guidelines

Before deciding on an application, in addition to the decision guideline in Clause 65, the responsible authority must consider:

- The Municipal Planning Strategy and the Planning Policy Framework;
- The view of the relevant road authority;
- The effect of the proposal on the operation of the road and on public safety; and
- Any policy made by the relevant road authority pursuant to Schedule 2, Clause 3 of the Road Management Act 2004 regarding access between a controlled access road and adjacent land.

5.3.4 Response to Decision Guidelines

5.3.4.1 Effect of the Proposal on the Operaton of the Road

The proposal seeks to close off the southern crossover, with kerb and channel to be reinstated. As only one (1) crossover will service the subject site, the number of conflict points along Whitehall Street will be reduced, increasing the overall safety of the road.

It is noted that with the removal of the southern crossover, there will be sufficient space to provide an additional on-street car parking space.

To this end, the proposal is not expected to have any adverse effects on the operation of Whitehall Street.

5.4 Clause 52.34 - Bicycle Facilities

5.4.1 Purpose

The purpose of Clause 52.34 is to encourage cycling as a mode of transport, and provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities.

5.4.2 Provision Requirements - Clause 52.34.3

To satisfy the above purpose, Clause 52.34-3 of the Maribyrnong Planning Scheme specifies the bicycle parking provision requirements for a variety of different uses within Table 1.

Rates applicable to the proposed uses are:

Residential Dwellings	Residents:	1 to each 5 dwellings if more than four storeys; and
	Visitors:	1 to each 10 dwellings if more than four storeys

In this instance, no residential dwelling is proposed to be four or more storeys, and accordingly does not trigger a requirement for any on-site bicycle parking.

5.4.3 Conclusion - Bicycle Parking

We can conclude that bicycle parking provided as part of this development satisfies the purpose of Clause 52.34, specifically:

- To encourage cycling as a mode of transport, and provide secure, accessible and convenient bicycle parking spaces.

6 Traffic Considerations

6.1 Traffic Generation

The Roads and Maritime Services of New South Wales' (RMS) publication 'Guide to Traffic Generating Developments' (October 2002) sets out traffic generation rates based on survey data collected for a range of land uses. The guide is referred to in the Austroads Guide which is used by VicRoads and is generally regarded as the standard for metropolitan development characteristics.

The RTA Guide suggests that medium density residential developments generate vehicle movements at the following rates:

- Small Units and Flats (up to 2 bedrooms):
  - Daily vehicle trips: 4.0 - 5.0 per dwelling
  - Weekday peak hour vehicle trips 0.4 - 0.5 per dwelling

- Larger Units and Townhouses (3 or more bedrooms):
  - Daily vehicle trips: 5.0 - 6.5 per dwelling
  - Weekday peak hour vehicle trips 0.5 - 0.65 per dwelling

Conservatively applying the higher generation rates to the eight (8) three-bedroom dwellings, the development is projected to generate:

- Daily: **52 movements**
- Weekday Peak **5 movements**

6.2 Traffic Impact

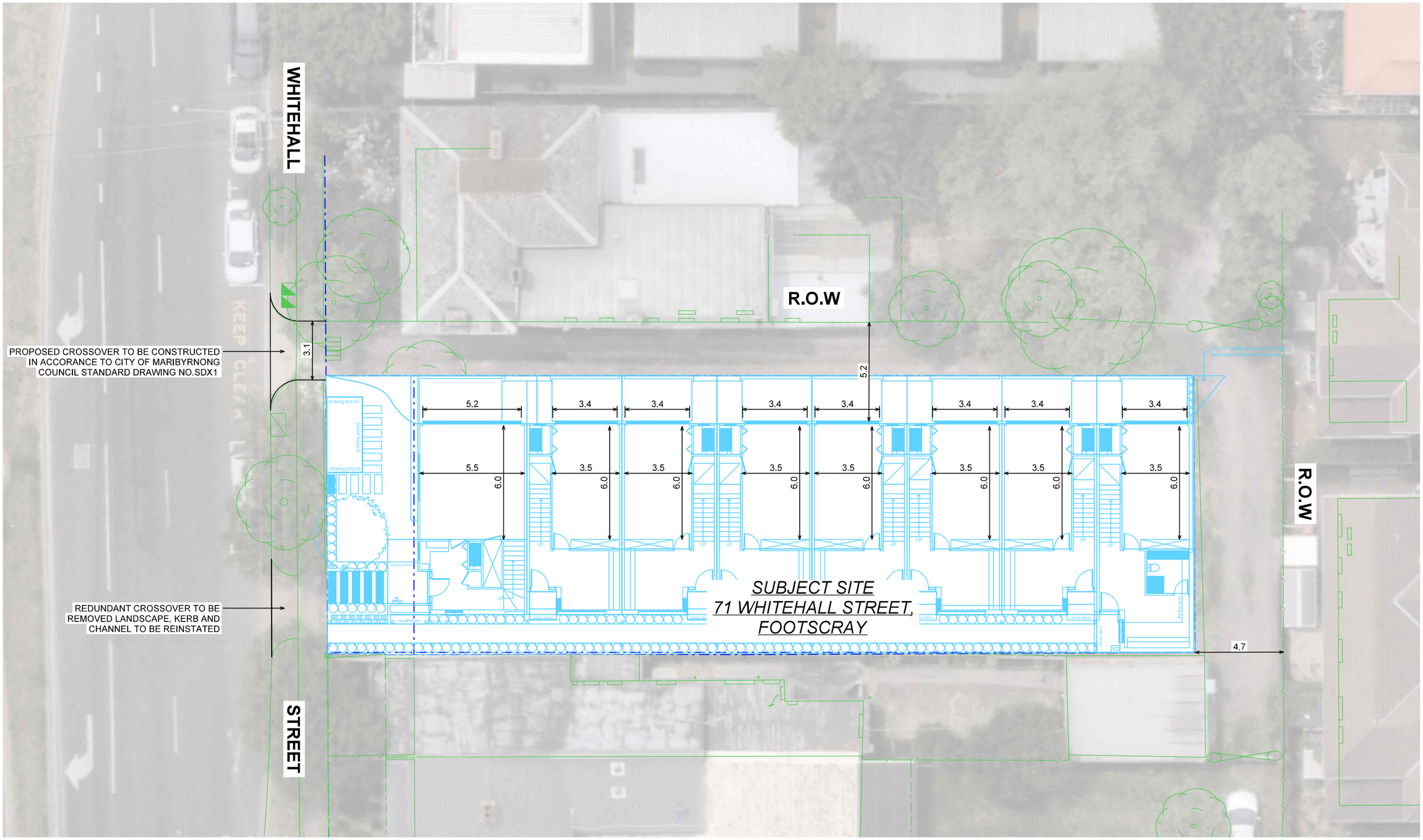
The projected level of traffic anticipated to be generated by the proposed eight (8) dwellings will result in the road network carrying on average an additional 52 vehicle movements per weekday post-development. Approximately 5 of these movements are anticipated to occur during morning and evening commuter peak periods.

Post-development traffic volumes are expected to fall within the network's capacity thresholds, with any additional traffic generated by the proposed development expected to be comfortably accommodated without detriment to safety or road performance.

APPENDIX A
Scaled Site Plan & Swept Path Analysis

Design Vehicles:

- B99 Car
- B85 Car



GENERAL NOTES:

1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. DECLARED ROADS - WHITEHALL STREET (SPEED ZONE 60KM/H).
3. BASE INFORMATION FROM NEARMAP AERIAL PHOTOGRAPHY DATED 01.12.2024 AND FIVE 7 DRAWING 8323 f7 TP 71 Whitehall St_Plans.dwg DATED 27.06.2025

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B AND J HOUSING DEVELOPMENT

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MELWAY ONLINE REF:MAP 2S H10

SCALE
1:200 @ A3

Client
B AND J HOUSING DEVELOPMENT

Date **2025-06-27**
Drawn / Approved **WK / DH**

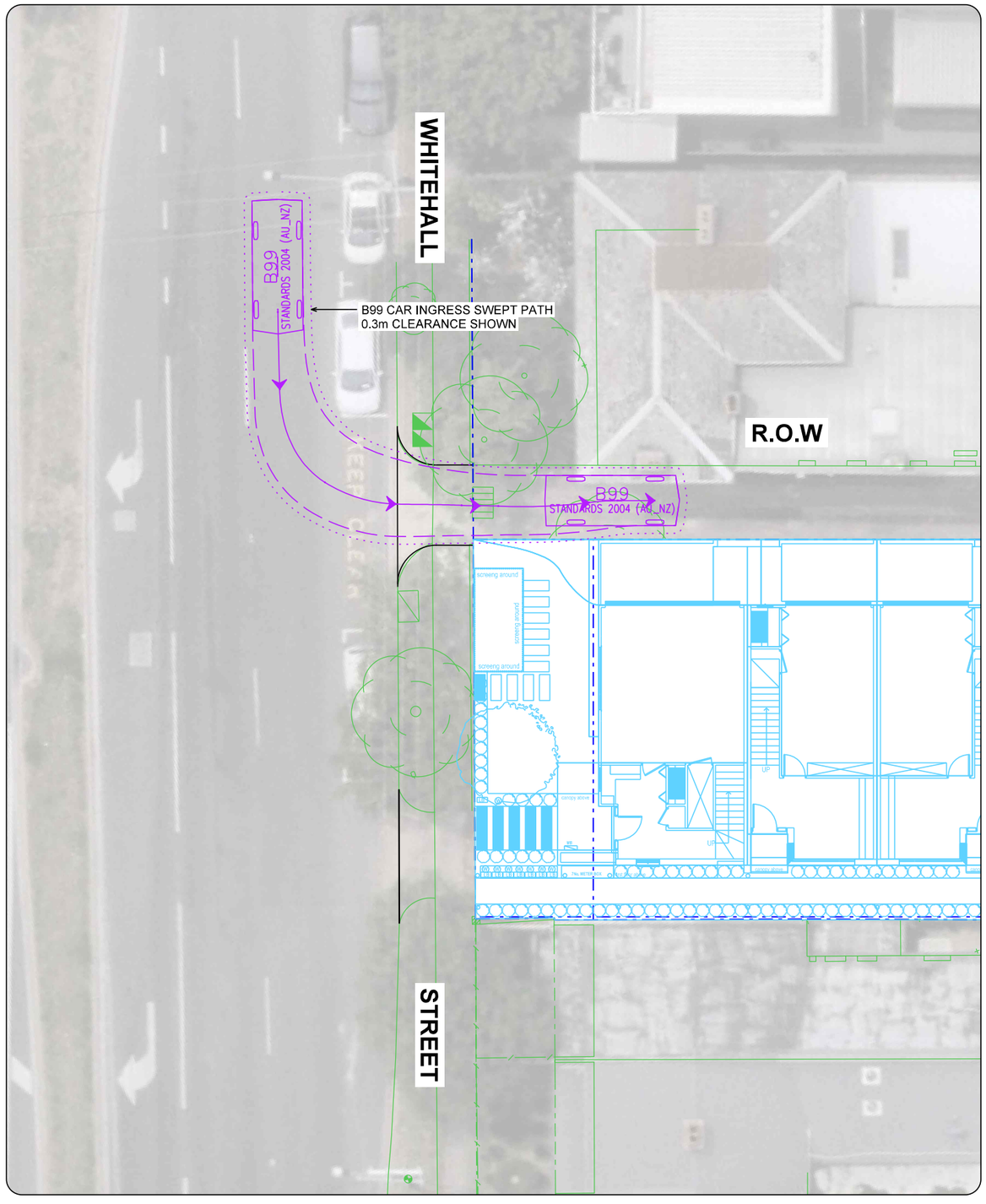
Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

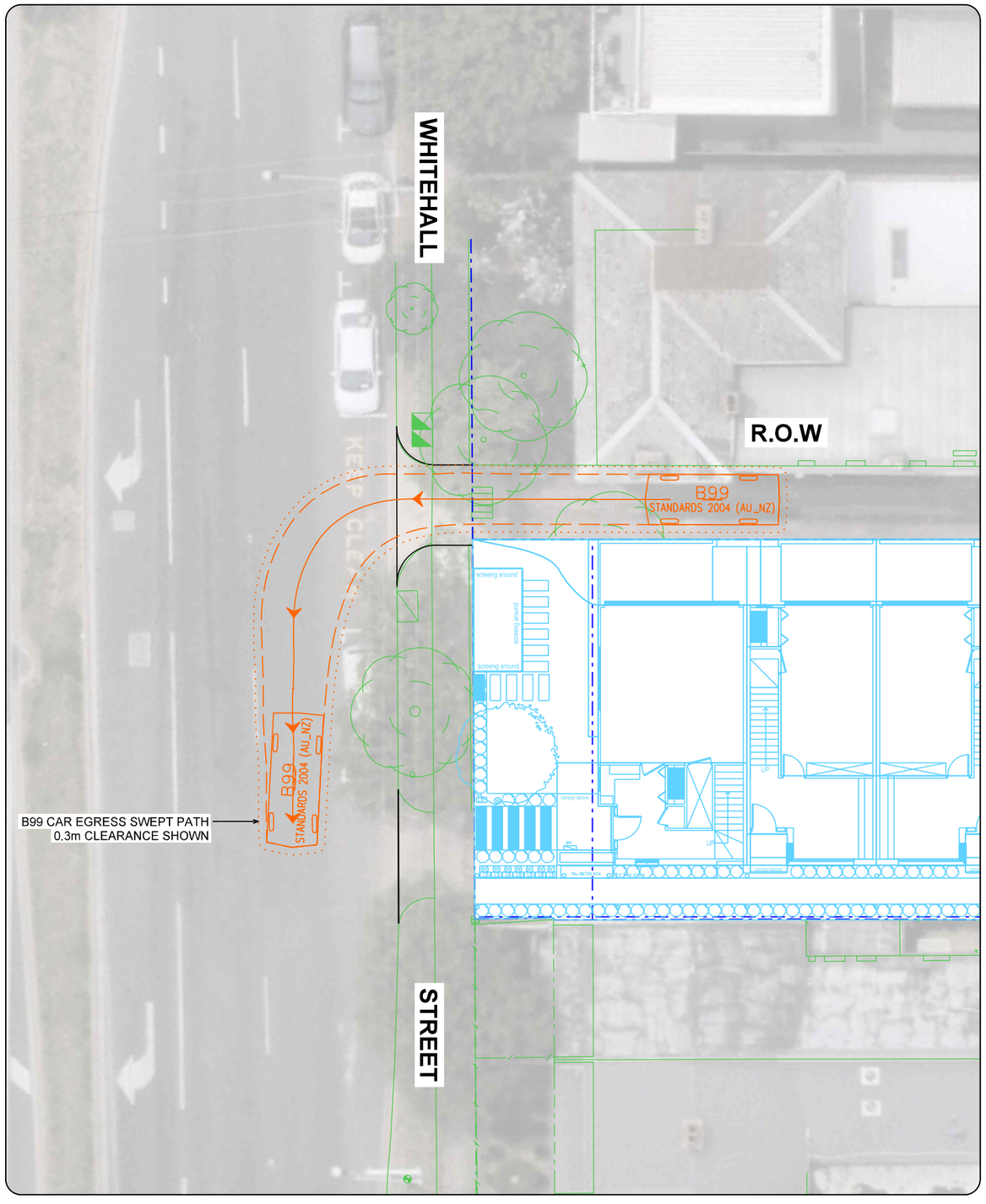
Title
TRAFFIC AND TRANSPORT ASSESSMENT
SITE LAYOUT PLAN

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-01

Revision
A





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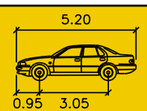

0.95 3.05

B99 CAR

	METERS
WIDTH	: 1.94
TRACK	: 1.84
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 33.9

B AND J HOUSING DEVELOPMENT

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MELWAY ONLINE REF:MAP 2S H10

SCALE

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Client
B AND J HOUSING DEVELOPMENT

Date **2025-06-27**
Drawn / Approved **WK / DH**

Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B99 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-02

Revision
A

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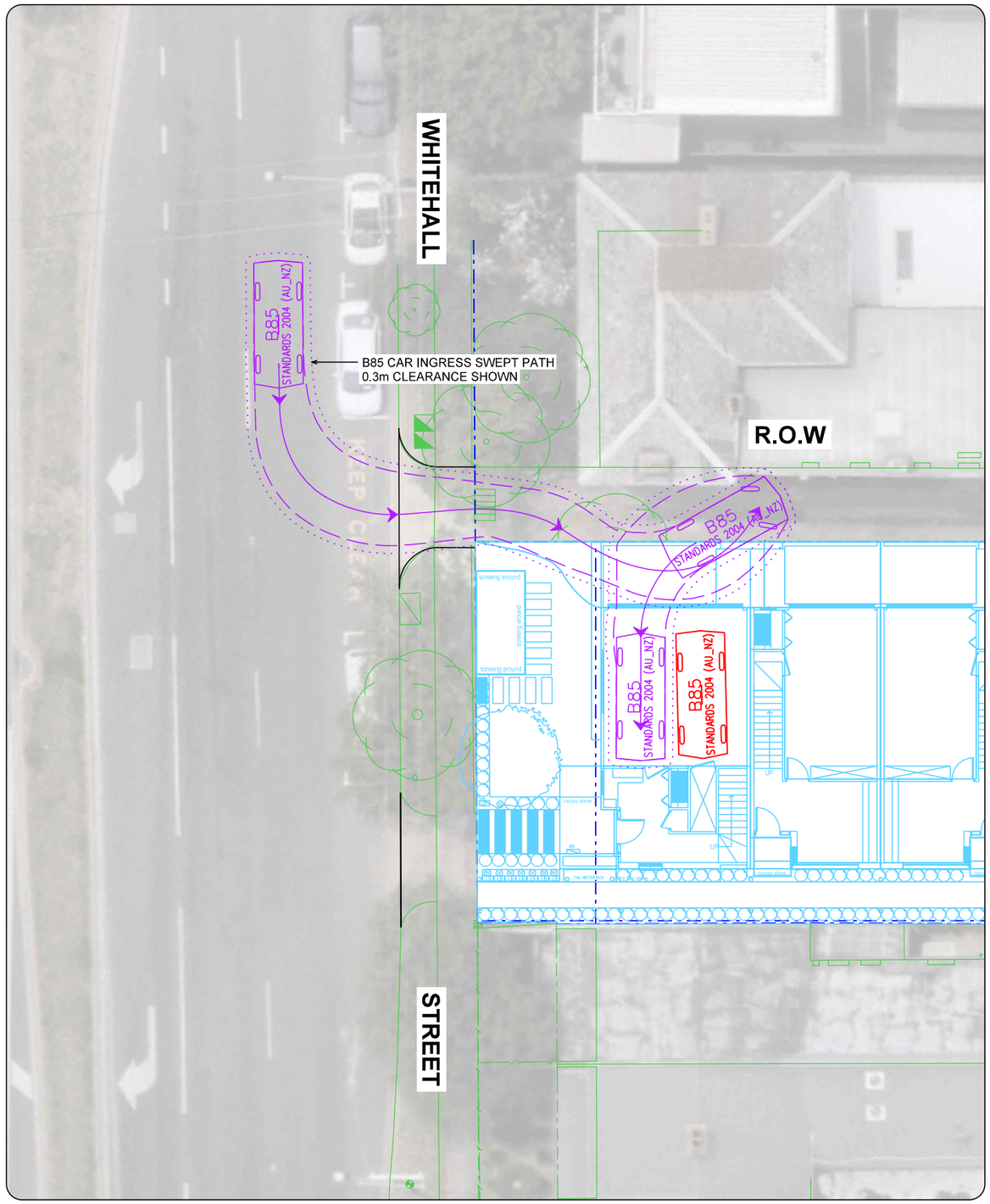

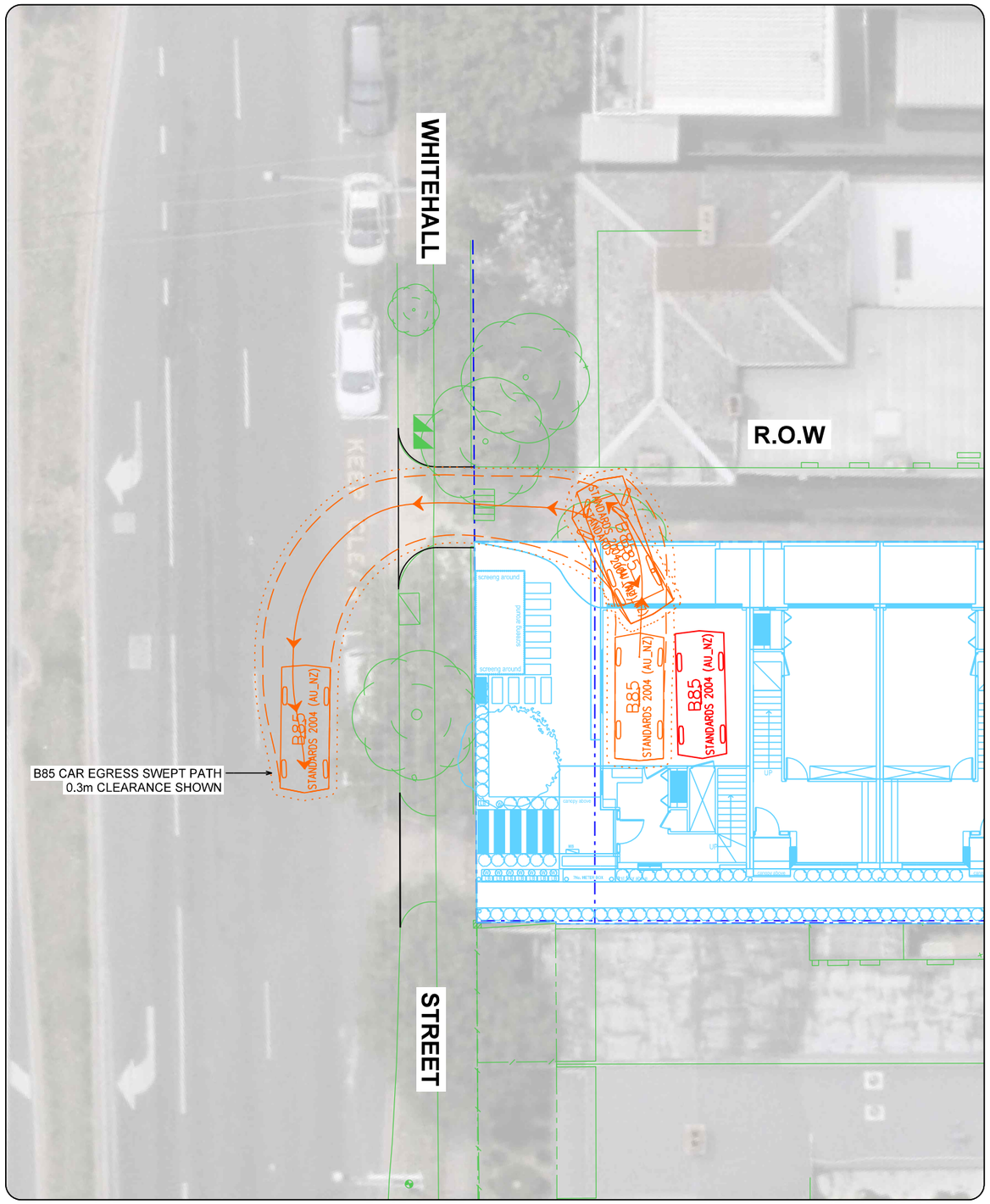

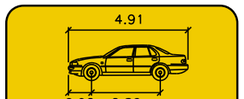

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1:200 @ A3

Client
B AND J HOUSING DEVELOPMENT

Date **2025-06-27**
Drawn / Approved **WK / DH**

Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-03

Revision
A

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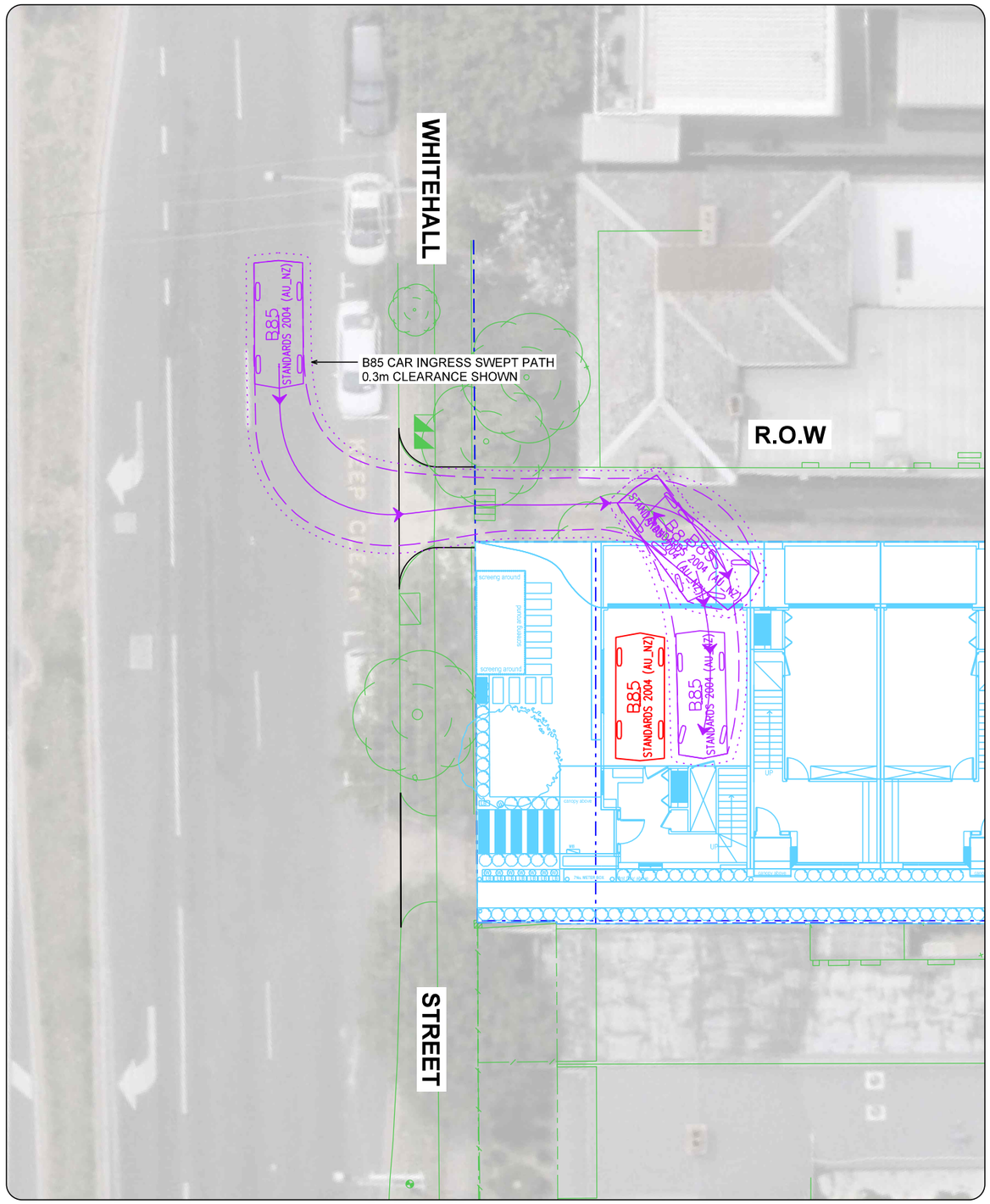

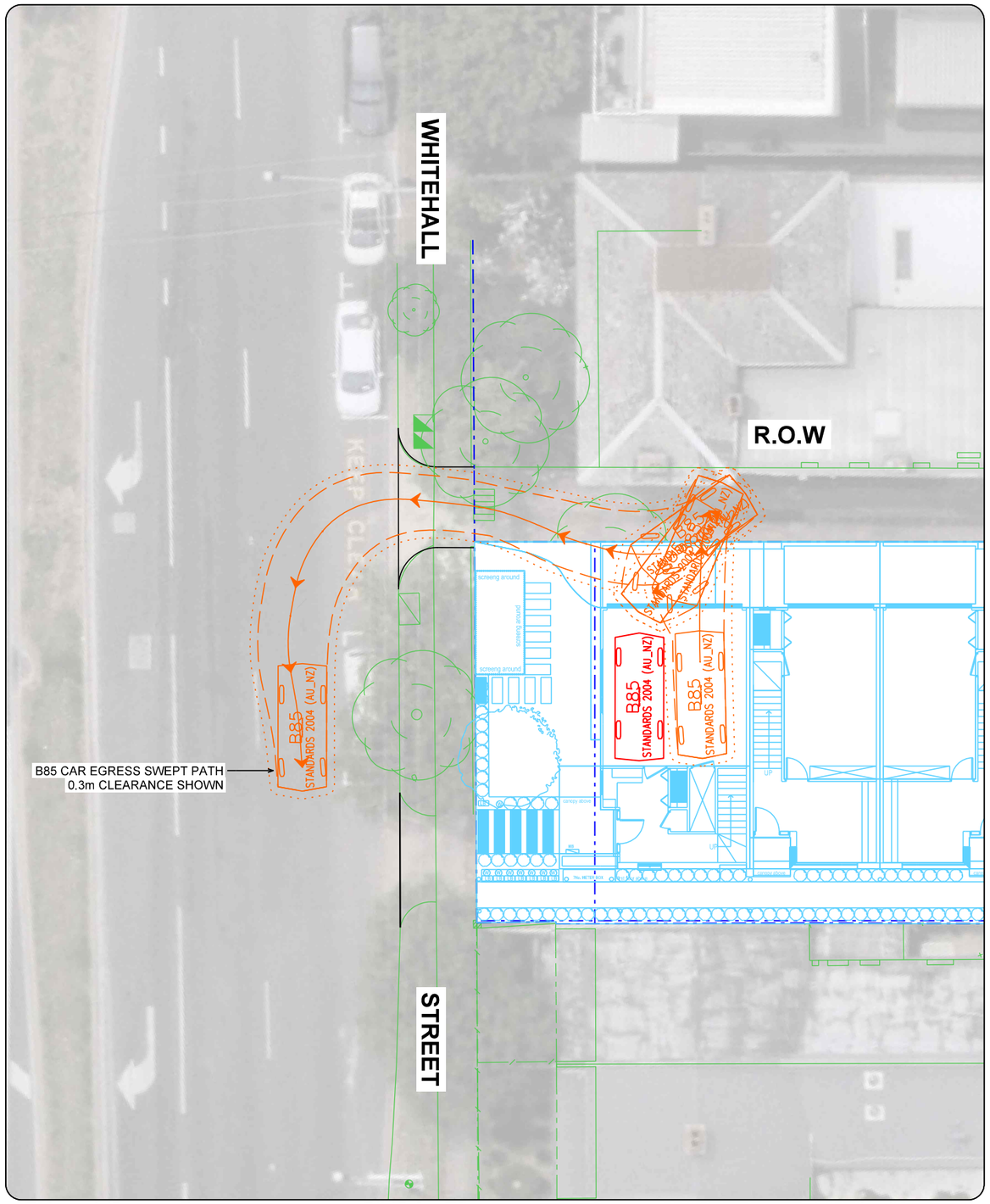

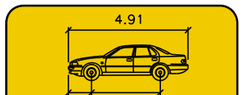

B85 CAR

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TRACK	: 1.77
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 34.1

B AND J HOUSING DEVELOPMENT

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MELWAY ONLINE REF:MAP 2S H10

SCALE
1:200 @ A3

Client
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Date **2025-06-27**
Drawn / Approved **WK / DH**

Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-04

Revision
A

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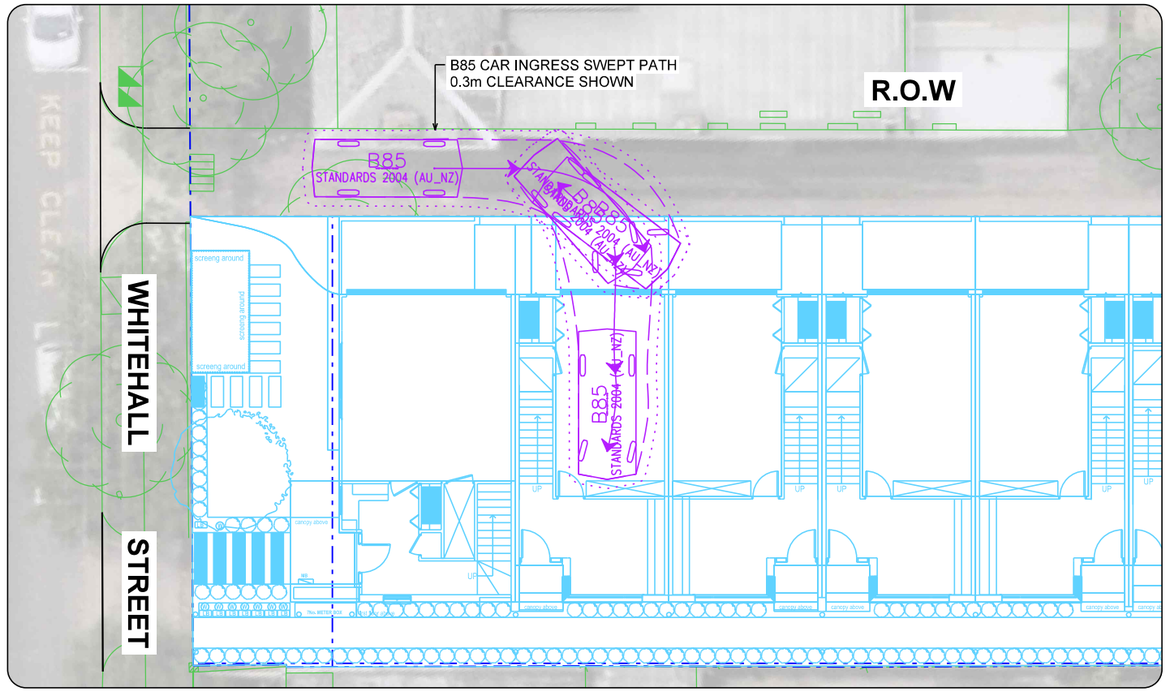

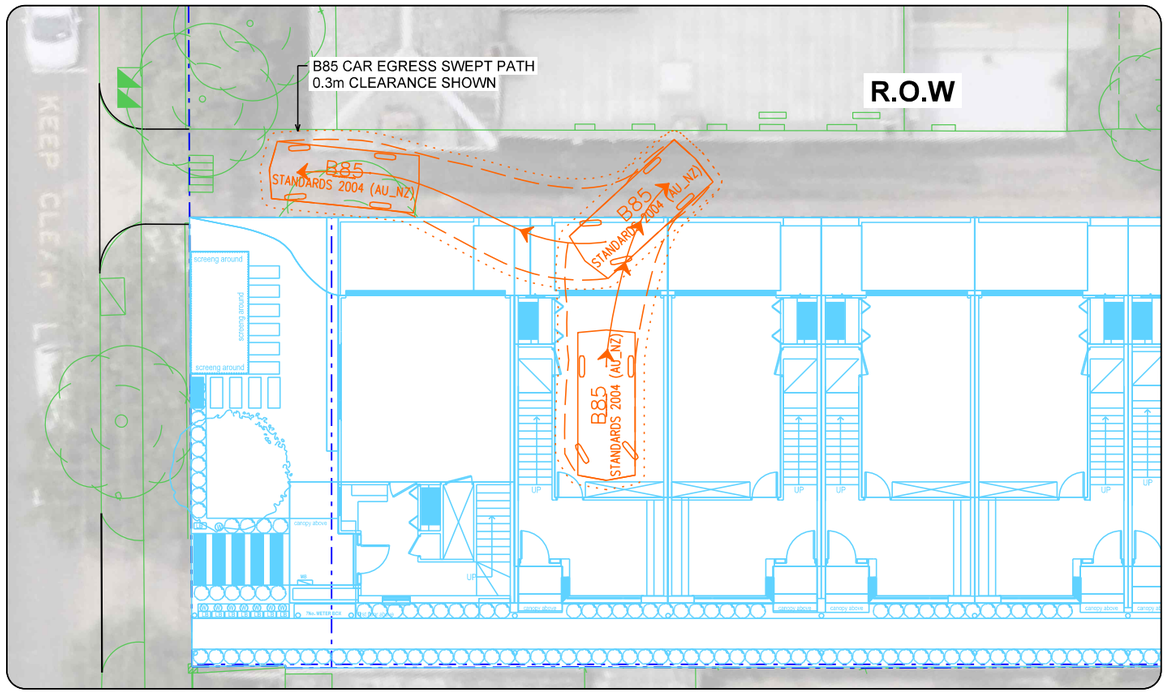

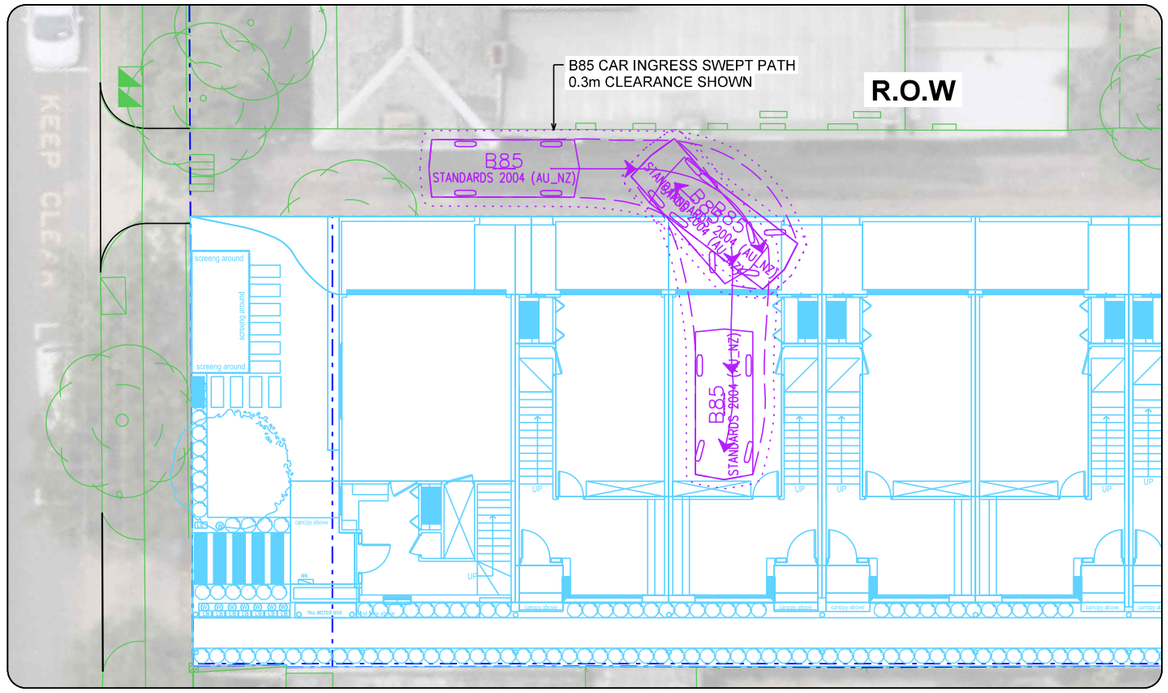

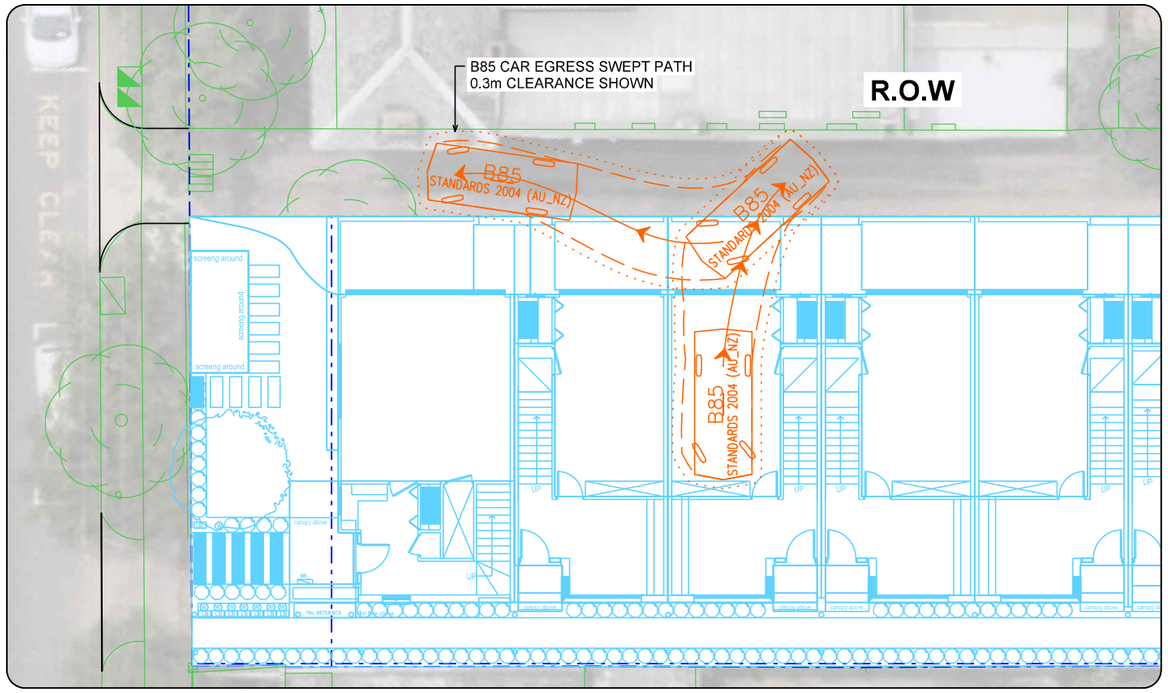

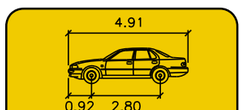

B85 CAR

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TRACK	: 1.77
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 34.1

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MELWAY ONLINE REF:MAP 2S H10

SCALE
1:200 @ A3

Client
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Date **2025-06-27**
Drawn / Approved **WK / DH**

Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-05

Revision
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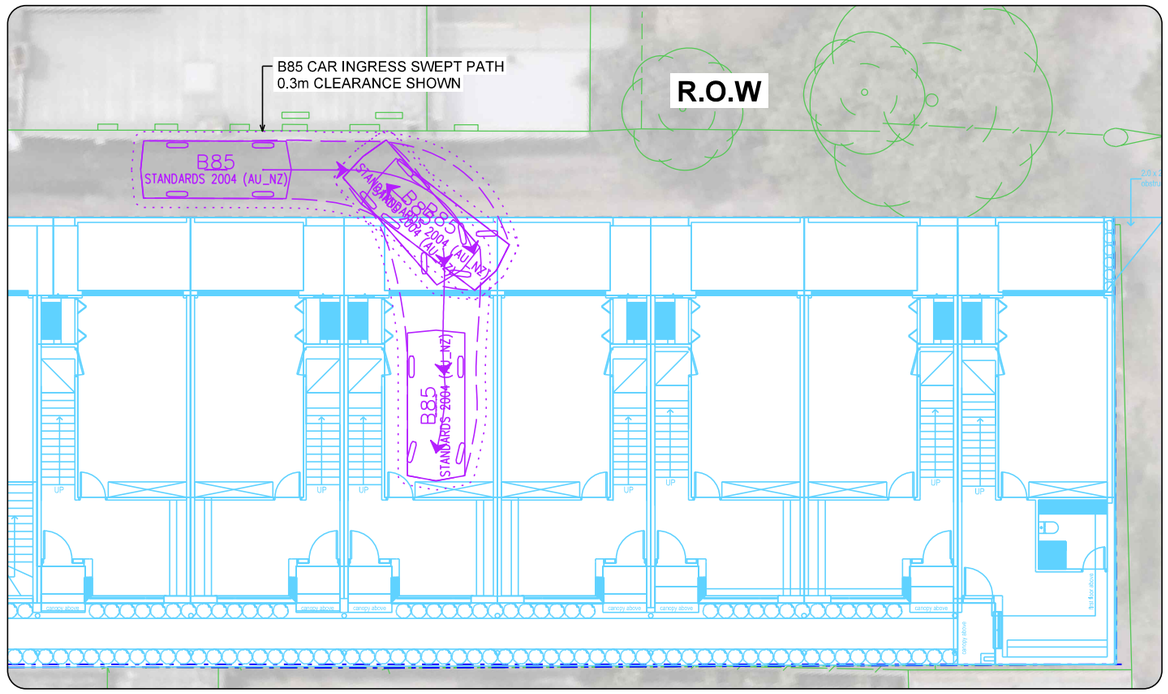

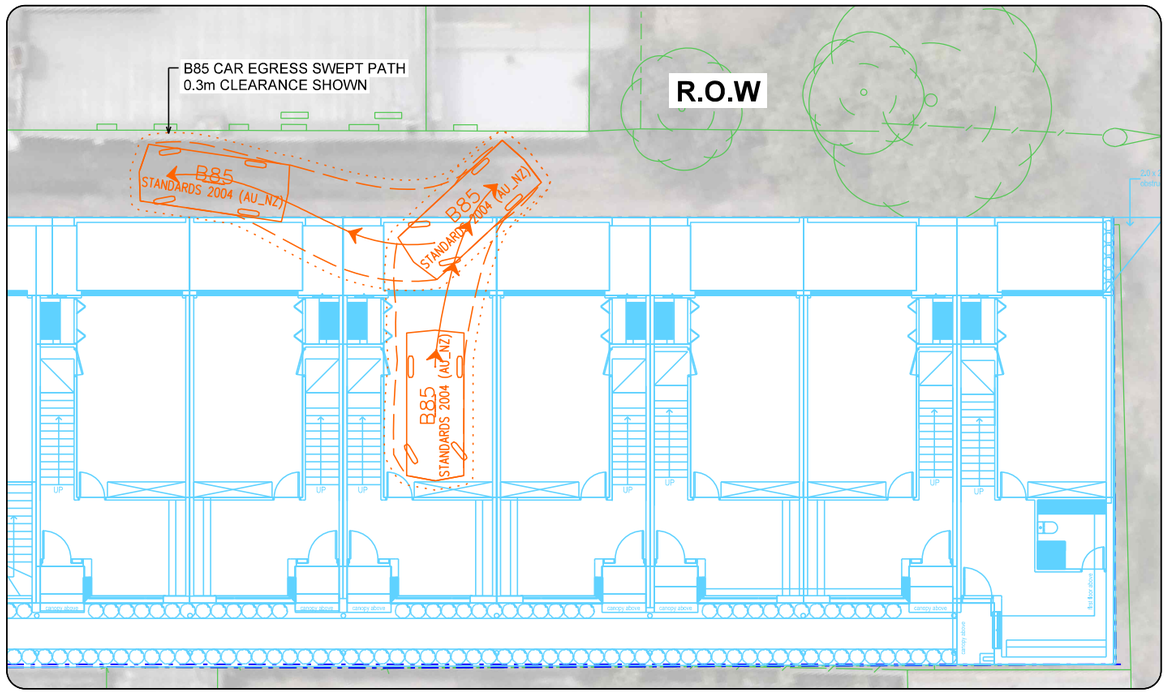

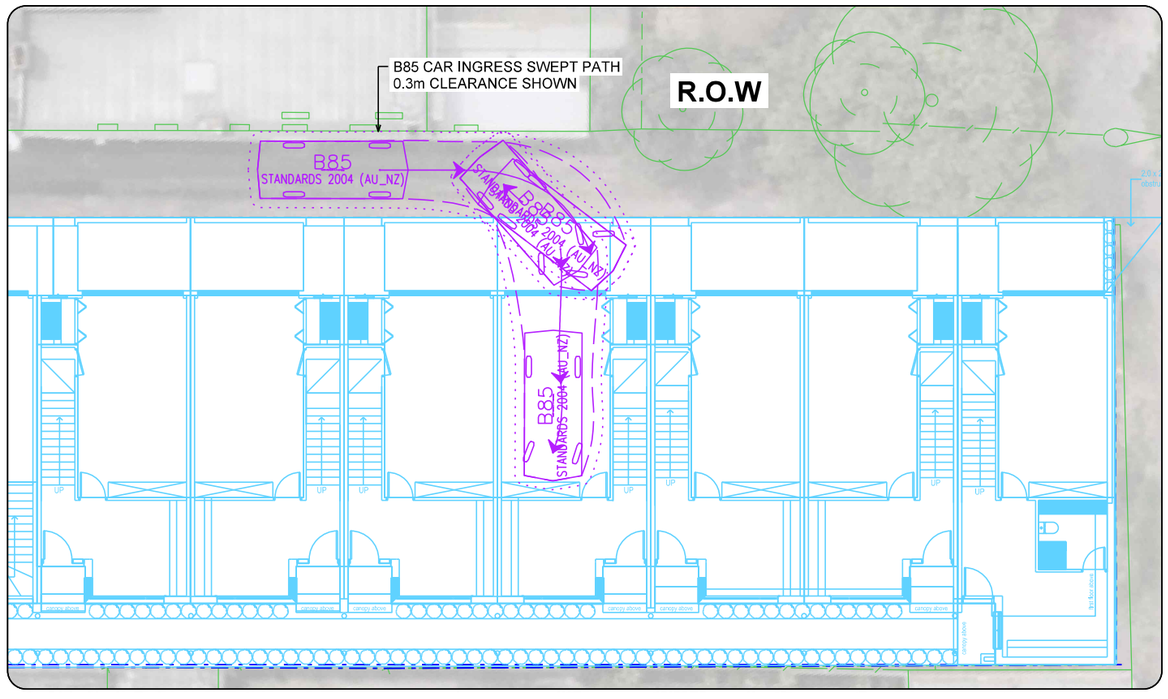

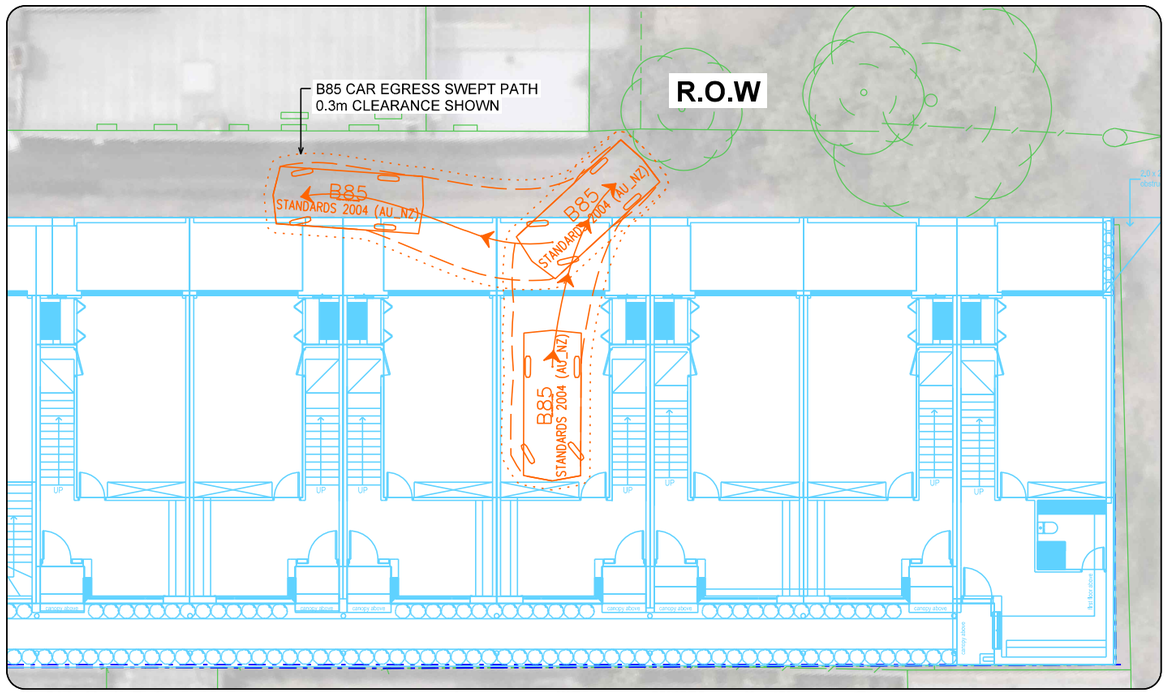

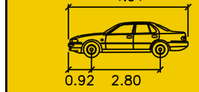

B85 CAR

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TRACK	: 1.77
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 34.1

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MELWAY ONLINE REF:MAP 2S H10

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Project
PROPOSED RESIDENTIAL DEVELOPMENT
71 WHITEHALL STREET, FOOTSCRAY
CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-06

Revision
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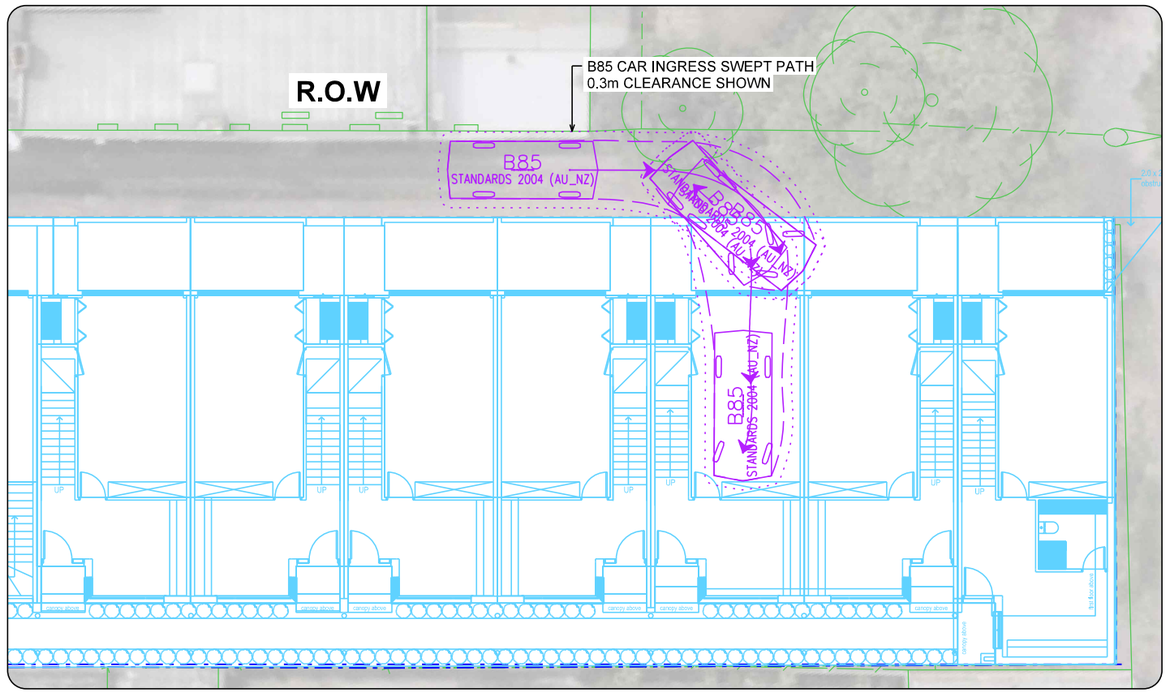

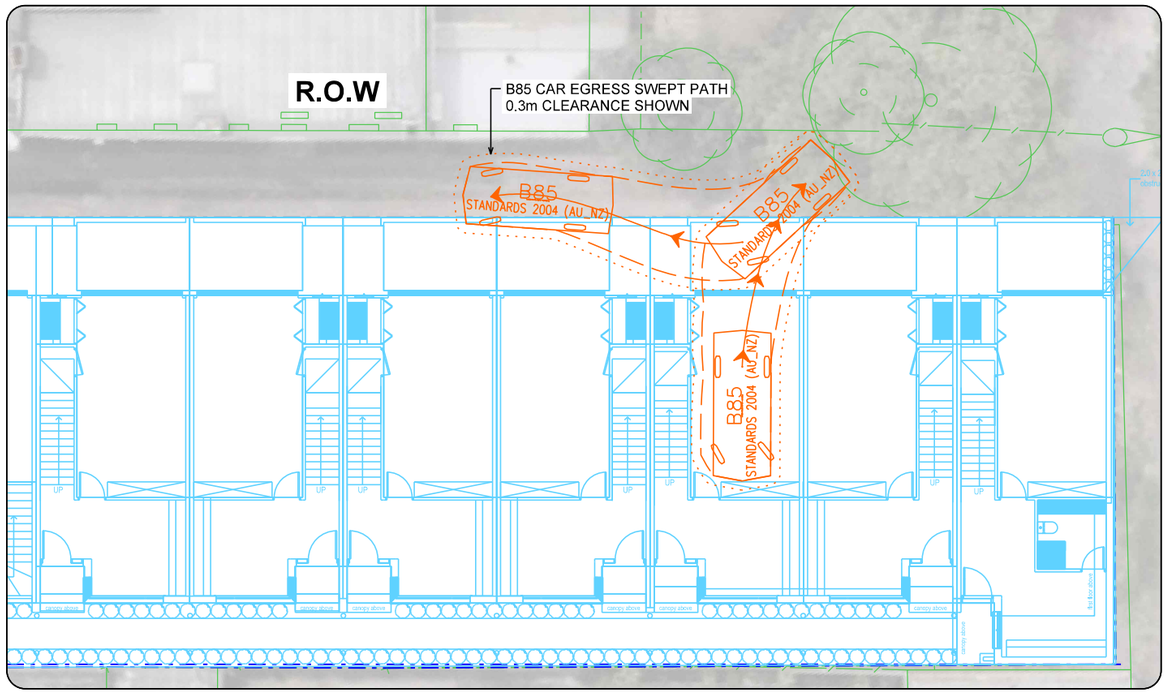

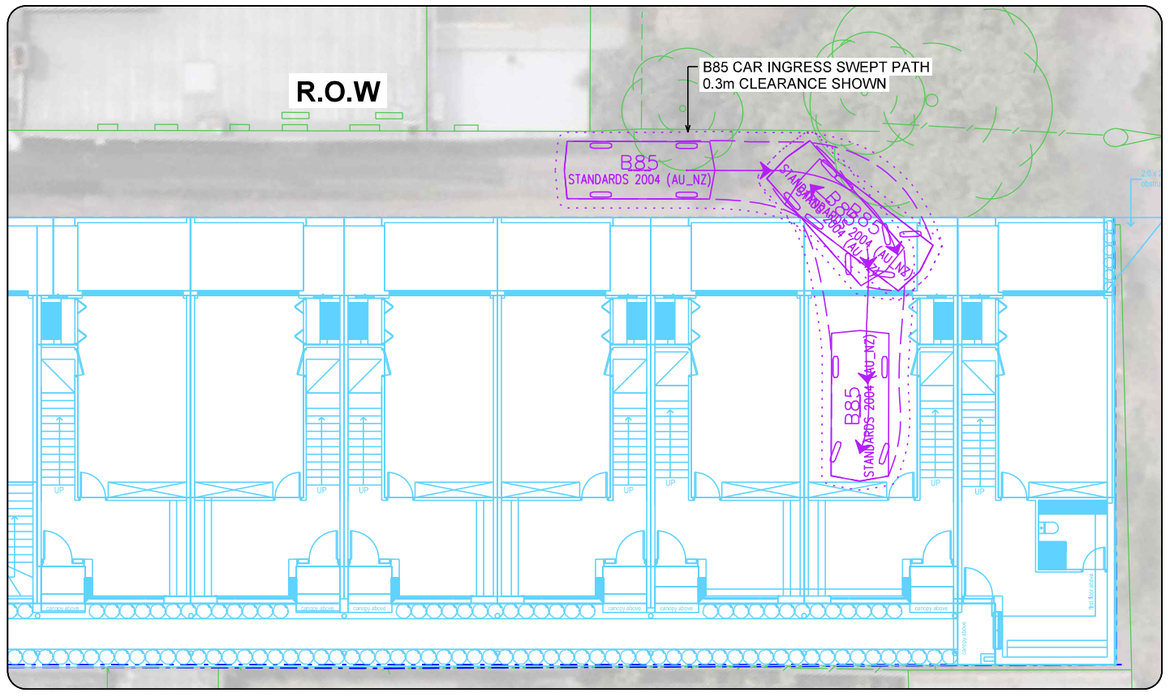

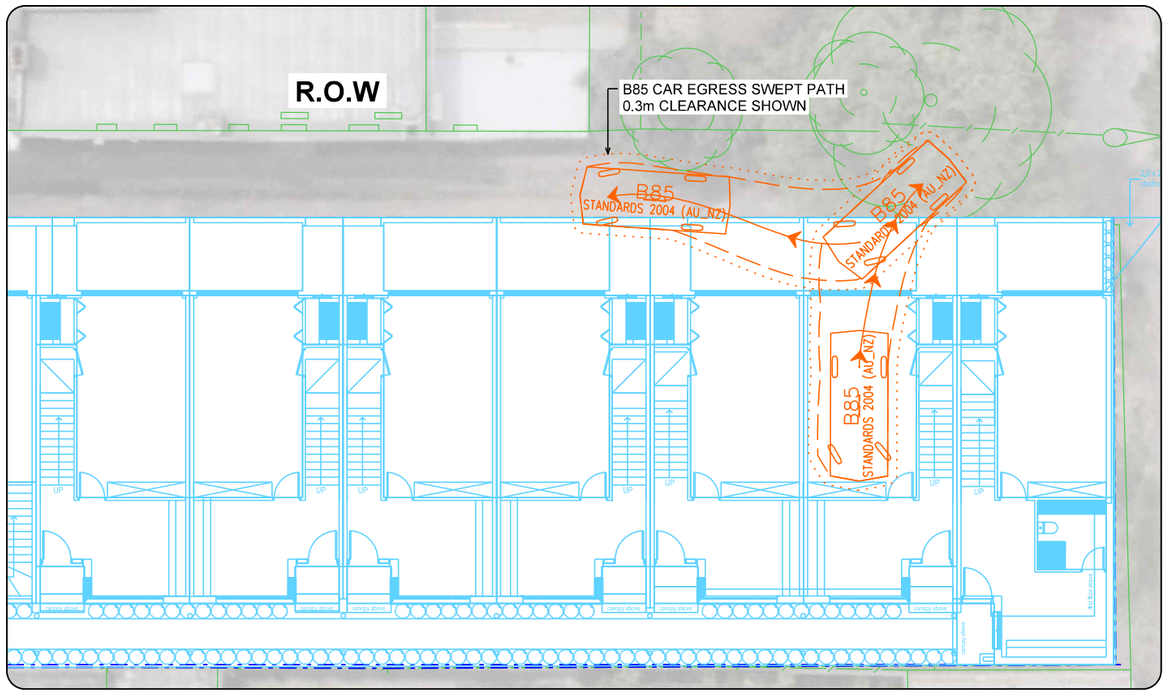

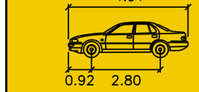

B85 CAR

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Project
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CITY OF MARIBYRNONG

Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-07

Revision
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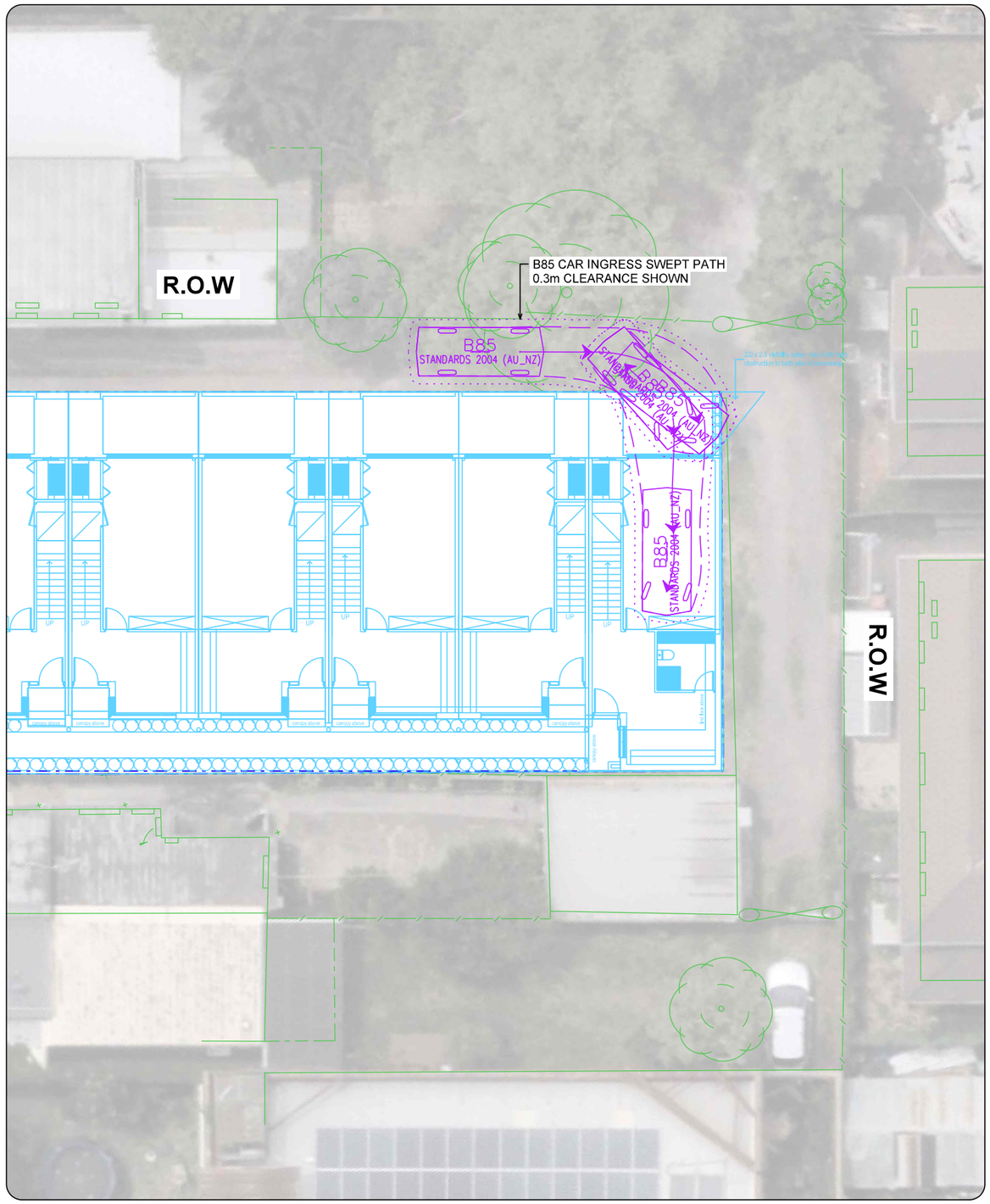

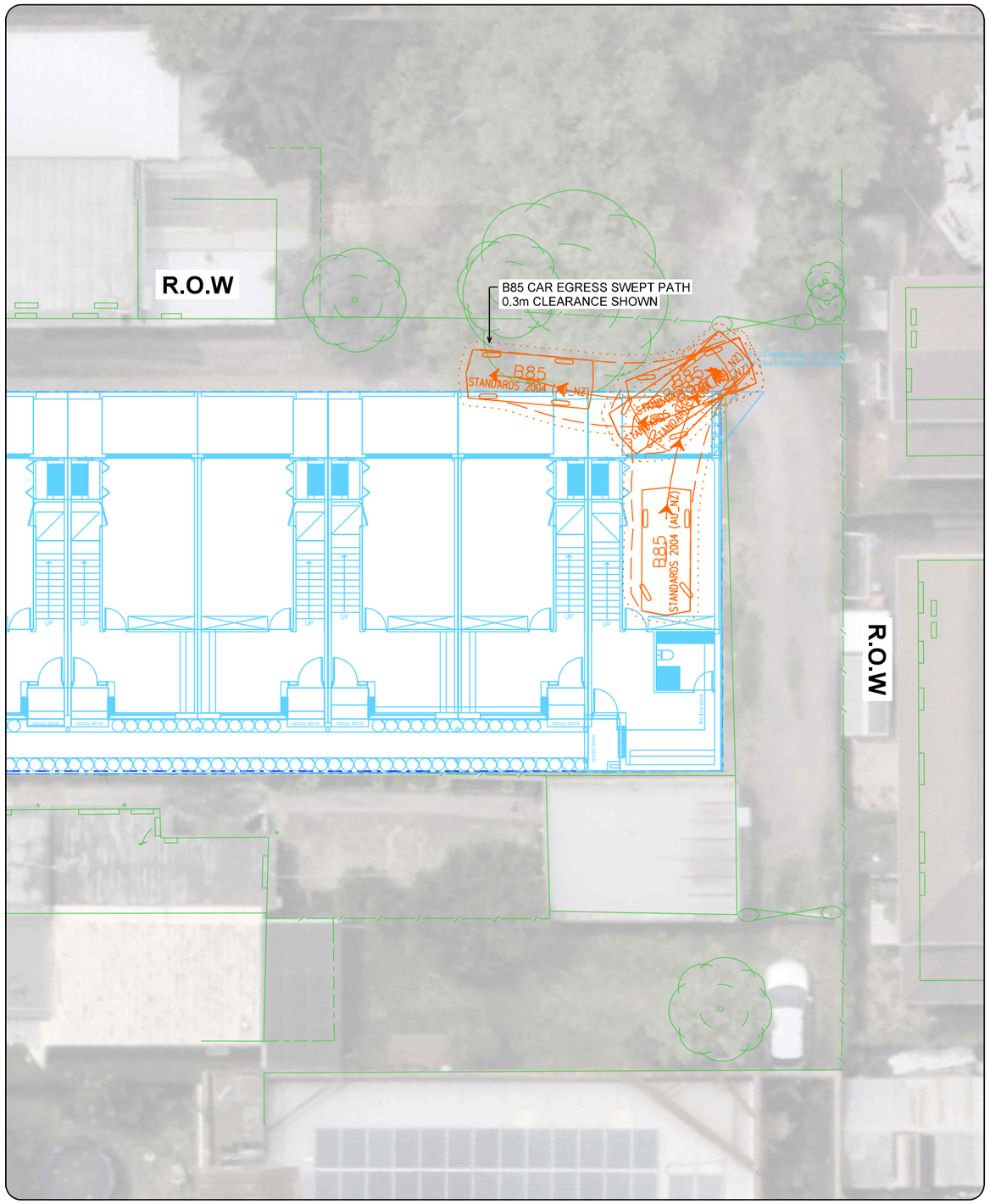

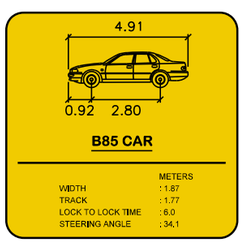

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Title
TRAFFIC AND TRANSPORT ASSESSMENT
SWEPT PATH ANALYSIS
B85 CAR - DESIGN VEHICLE

Status
PRELIMINARY

Drawing Number
IMP2505027 - DRG-01-08

Revision
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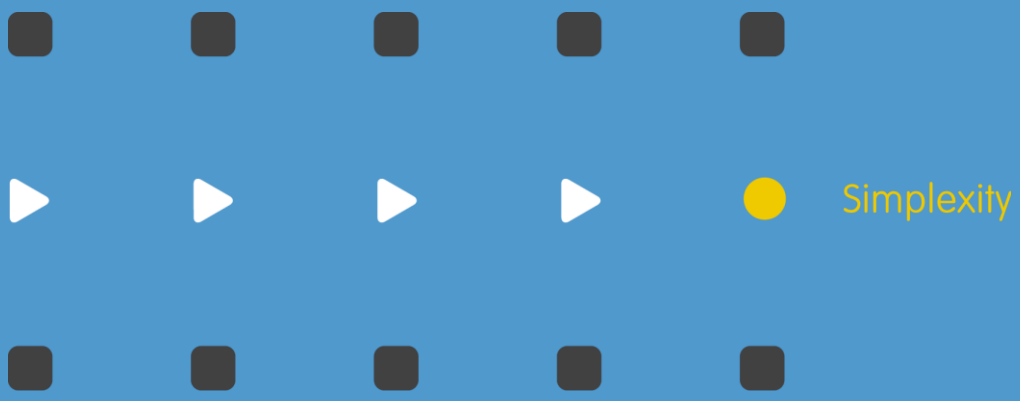

Simplexity

Sustainable Design Assessment

71 Whitehall Street, Footscray

28th August 2025

Admin@msconsultants.com.au

Melbourne Sustainability Consultants.

Table of Contents

Document History

Version	Date	Status	Author	Approved
0	28/08/2025	First Issue	YL	DM

Introduction & Council's Requirements

Melbourne Sustainability Consultants has been commissioned to provide guidance on achieving environmentally Sustainable Development outcomes for the proposed townhouse development located at 71 Whitehall Street, Footscray.

The assessment is being carried out in compliance with Maribyrnong City Council's sustainability requirements specifically addressing Planning Policy Clause 15.01-2L-03 *Environmentally Sustainable Development*.

Clause 15.01-2L-03 of the policy outlines the key categories that the City of Maribyrnong has identified as crucial to be addressed in the assessment. These categories include Energy Performance, Water Resources, Stormwater Management, Indoor Environment Quality, Construction, Building & Waste Management, Building Materials, Transport, and Urban Ecology.

Stormwater quality management and its impact on the environment have been acknowledged by the City of Maribyrnong. As per the requirements of Clause 53.18 *Stormwater Management in Urban Development,* this report presents a solution to address the quality aspect of stormwater management.

Site & Proposed Development Description

The 670m^2 site is located at 71 Whitehall Street, Footscray within Maribyrnong local authority. The site is currently as shown in the image below:

Figure 1: Site location and surroundings sourced from Google Maps

The proposed development is comprised of eight townhouses (8 x 3-bedroom). Each dwelling is proposed to have access to a private driveway. Each unit will have access to a garage.

ESD Assessment Tools

BESS

BESS has been built and is maintained by local governments and is the only dedicated tool in Victoria for assessing sustainable design at the planning permit stage.

BESS evaluates the energy and water efficiency, thermal comfort, and overall environmental sustainability performance of new buildings or modifications. It was created to ensure that new development adheres to sustainability requirements as part of a planning permit application.

A BESS assessment has been conducted for the proposed development, providing a benchmark for the level of sustainability achieved by the project in line with the SDAPP 10 Key Sustainable Building Categories.

Each target area within the BESS tool typically receives a score ranging from 1% to 100%. To meet the energy, water, stormwater, and IEQ requirements, a minimum score of 50% is necessary. An overall project score of 50% represents 'Best Practice,' while a score above 70% represents 'Excellence.

INSITE

InSite Water, developed by Organica Engineering, is an integrated water management platform designed to help cities and developers manage water resources more sustainably. The platform combines advanced engineering, modelling, and data analysis capabilities to optimize water treatment and reuse, reduce water consumption, and improve the health of local waterways.

The InSite assessment can be found in Appendix 1.

Summary of Initiatives

Category	Requirement
Management	80% of all construction and demolition waste to be diverted from landfill
	Separate utility meter for each unit
Water Efficiency	Minimum WELS rating of fittings and fixtures: 4 Star Toilets / 5 Star Taps / 4 Star (6.0-7.5 L/min) Showerhead and 5 Star Dishwasher
	2,000L underground tanks for each unit collecting water from part of the roof of each unit – Water to be used for toilet flushing and laundry – Gutter guard, first-flush and filter installed for laundry reuse
Energy Efficiency	Maximum 4 W/m^2 lighting density within the dwelling
	Retractable clotheslines in POS
	Sensors (motion, daylight, timers) for external lighting
	Electric heat pump
	Minimum 7.0 Star average NatHERS rating
	HVAC system chosen within one star of the best available
Stormwater	2,000L underground tanks for each unit collecting water from part of the roof of each unit – Water to be used for toilet flushing and laundry – Gutter guard, first-flush and filter installed for laundry reuse
IEQ	Double Glazing for all habitable room
	Separate dedicated exhaust fan for all kitchen (range-hood) directly exhausted outside
	All paint, adhesives, sealants and flooring to be low VOC – refer to Appendix 2 for limits
	All engineered wood will be low formaldehyde with E0 or better certification
Transport	One bike space per unit – Not installed over the bonnet
Waste	3-bin system (Rubbish, Recycling, FOGO) + Provision of space for future glass waste
Urban Ecology	At least 10% of the site is covered with vegetation
Materials	Timber framing if used to be certified PEFC, AFS or FSC – No rainforest timber to be used
	Steel to be sourced from steel maker with ISO 14001 facility a member of the World Steel Association's (WSA) Climate Action Program (CAP).
	Carpet and underlay with third-party sustainable certification (GECA, Carpet institute ECS etc.)

Initiatives listed above should be reflected on TP drawings either graphically on the plan (e.g. bike spaces, RWT etc.) or with a clear note. All WSUD initiatives listed in Appendix 1 should be clearly noted on drawings including all areas diverting to the proposed treatment (e.g. RWT, raingarden etc.) – Refer to Appendix 1.

1. Construction and Building Management

Effective construction and building management practices are crucial for sustainable development. By minimizing construction waste and effectively monitoring building performance, these practices can significantly reduce the environmental impact of the development and enhance its long-term sustainability.

Initiative	Description	Reference
Metering and Monitoring	Separate utility meters (water and electricity) will be provided for each townhouse.	N/A
Construction Waste Management	On-site staff will receive a construction waste management plan during a site orientation session to minimise on-site waste generation and ensure proper disposal. A minimum of 80% of all construction and demolition waste created on-site will be reused or recycled.	N/A
Construction Environmental Management	The builder will identify environmental risks associated with construction and implement management strategies such as effective erosion and sediment control measures throughout construction and operation. They will also ensure that earthworks are staged appropriately to avoid bare earthworks in high-risk areas of the site during periods of dominant rainfall.	Clause 53.18

2. Water Resources

Maximising water efficiency in developments helps conserve water resources, reduces the strain on local water systems, and lower water bills for homeowners, making it an environmentally responsible and economically beneficial choice for developers. Additionally, implementing water-efficient practices and technologies can also contribute to a more sustainable and resilient community.

Initiative	Description	Reference
Fixtures and Fittings	The development will be provided with efficient fittings and fixtures. This will all be for a reduction of potable water use onsite. The following minimum Water Efficiency Labelling Scheme (WELS) star rating will be specified: • 4-Star Toilets • 5-Star Taps (Kitchen and bathrooms) • 4-Star (6.0-7.5 L/min) Showerheads All appliances provided as part of the based building will be chosen within one WELS star of the best available: • 5-Star Dishwasher	BESS Wat 1.1
Rainwater Collection and use	Part of the roof of each townhouse will have rainwater runoff collected and stored in a 2,000L underground tank. Rainwater will be installed underground to ensure that the entire roof can be diverted to it without the use of charged pipes running under slab. Tank system will be provided with gutter guard, first-flush diverted and filter for reuse in laundry. Rainwater collected will be utilised for toilet flushing and laundry, significantly reducing the development's stormwater impact and aiding in compliance with the InSite calculator (refer to Appendix 1).	BESS Wat 1.1 BESS Storm 1.1

3. Energy Efficiency

Maximizing energy efficiency in developments reduces greenhouse gas emissions and lowers utility costs for homeowners, making it an environmentally responsible and economically beneficial choice for developers. In addition, energy-efficient buildings are often more comfortable and healthier to live in, improving the quality of life for occupants.

Initiative	Description	Reference
NatHERS Commitment – Thermal Performance	The building approval stage will include the completion of energy ratings, with a commitment to meeting energy efficiency requirements of a minimum **7.0-Star.** This will be accomplished by installing appropriate insulation levels in external walls, roofs, and floors, as well as using double-glazed windows in all habitable rooms. 7.0-star results have been assumed in BESS.	BESS Ene 1.2 BESS Ene 2.1 BESS Ene 2.3
Hot water System	An electric heat pump hot water system will be installed for each unit.	BESS Ene 3.2
HVAC System	Heating and cooling will be provided with a reverse-cycle air-conditioner. HVAC unit will be chosen with a minimum 3 Star energy rating or within one star of the best available in a similar range at the time of purchase, whichever is greater. Alternatively, the unit will be chosen with COP/EER within 15% of the best available product if no star rating is available. 3 Star has been input in BESS as a minimum.	BESS Ene 2.3
All Electric Development	The development will be all-electric and will not have a gas connection. This will align the development with Councils and state targets for net zero and reduction of fossil fuel usage.	BESS Ene 2.6
Internal Lighting	LED lighting will be implemented throughout each unit resulting in lower energy consumption for artificial lighting in townhouses. Each unit will reduce lighting power densities by 20% from the NCC requirement (<4W/m^2). Additionally, the utilisation of light internal colours will enhance daylight penetration, leading to a decreased reliance on artificial lighting.	BESS Ene 3.5

Initiative	Description	Reference
External Lighting	LED lighting will be implemented for all external lighting. External lighting will be controlled with motion sensors reducing overall use and energy consumption.	BESS Ene 3.3
Clothes Drying	Outdoor clotheslines will be provided for each unit. This will allow occupants to reduce the use of an electric and its associated energy consumption.	BESS Ene 3.4

4. Stormwater Quality Management

WSUD (Water Sensitive Urban Design) is crucial for developments because it helps manage stormwater runoff, reduces flooding risks, and improves water quality by using natural systems to filter and treat water. Additionally, WSUD can enhance the aesthetic value of a development by incorporating green infrastructure and providing green spaces for occupants to enjoy.

Initiative	Description	Reference
Rainwater Collection and use	Part of the roof of each townhouse will have rainwater runoff collected and stored in a 2,000L underground tank. Rainwater will be installed underground to ensure that the entire roof can be diverted to it without the use of charged pipes running under slab. Tank system will be provided with gutter guard, first-flush diverted and filter for reuse in laundry. Rainwater collected will be utilised for toilet flushing and laundry, significantly reducing the development's stormwater impact and aiding in compliance with the InSite calculator (refer to Appendix 1).	BESS Wat 1.1 BESS Storm 1.1

5. Indoor Environment Quality

IEQ (Indoor Environmental Quality) is essential for development because it affects the health, comfort, and well-being of occupants by addressing factors such as air quality, temperature, lighting, and noise levels. Providing a high-quality indoor environment can also increase the value and desirability of a development, leading to higher occupancy rates and property values.

Initiative	Description	Reference
Daylight Access	Light internal colours will be used for the development which will result in better internal reflection of natural light, enhancing the penetration of daylight through windows or other openings. Large windows will be installed in the living room which will increase natural light access.	Clause 15.01-2L Minimum Requirement
Double Glazing	Double glazing will be installed in all habitable rooms (living, bedroom, study, rumpus etc.). This will provide better thermal comfort for occupants as well as improving condensation management.	BESS IEQ 3.1
Natural Ventilation	All units will be provided with openable windows, allowing for effective cross-flow ventilation. Magnetic door stops and catches will be provided to internal doors in each dwelling to help create effective breeze paths through the units.	BESS IEQ 2.2
Mechanical Exhaust	The range hood in the kitchen will be directly diverted to the outside, not within the ceiling or wall cavity.	Minimum Requirement
Low VOC and Low Formaldehyde	All paints, adhesives and sealants and flooring should not exceed the limits outlined in Appendix 3. Alternatively, products will be selected with no VOCs. All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better or with no formaldehyde. Providers such as Polytec and Laminex Australia offer E0 or better products in their range.	Clause 15.01-2L Minimum Requirement

6. Sustainable Transport

Sustainable transport such as cycling and public transport is essential for residential developments as it reduces the environmental impact of commuting while improving air quality and decreasing traffic congestion. Additionally, it promotes healthy lifestyles by encouraging physical activity and reducing sedentary behaviours associated with car dependence.

Initiative	Description	Reference
Resident Bike Parking	Each unit will be provided with a bicycle park within their garages. It will not be installed over the bonnet.	BESS Tran 1.1

7. Operational Waste Management

Effective operational waste management is vital for developments to minimise the amount of waste generated, reduce environmental impacts, and improve sustainability by promoting recycling and composting. Implementing efficient waste management practices can also lower operating costs, increase efficiency, and enhance the overall liveability of the development.

Initiative	Description	Reference
Operational Waste	Each unit will be provided with a three-bin system including general, recycling and food & organic (FOGO) waste. Additional space will be provided in the waste storage to accommodate the future fourth waste stream for glass waste as per the Victorian recycling policy for 2030. 	BESS Waste 2.1

8. Urban Ecology

Incorporating urban ecology principles into development promotes biodiversity, provides ecological services such as air and water purification, and enhances the overall health and well-being of residents by connecting them with nature. Additionally, creating sustainable and resilient urban ecosystems can also help mitigate the impacts of climate change and support the long-term viability of the development.

Initiative	Description	Reference
Vegetated Area	The proposed development will be covered with large areas of vegetation. As a minimum, 10% of the entire site area (67m^2) will be vegetated based on current drawings. The exact coverage will be confirmed within landscape drawings.	BESS Eco 2.1

9. Materials

Choosing the right materials for a development is crucial as it impacts the durability, energy efficiency, and overall sustainability of the buildings. Thoughtful material selection can minimize environmental impacts, improve indoor air quality, and contribute to the long-term value and desirability of the development.

Initiative	Description	Reference
Sustainable Timber	No rainforest timber will be used on site. Timber framing (if used on site) will be procured from accredited sources such as Forest Stewardship Council (FSC), Program for the Endorsement of Forest Certification (PEFC) or Australian Forestry Scheme (AFS).	Clause 15.01-2L
Carpet	Wherever used, carpet and carpet underlay will be chosen with as third party certification such as Global GreenTag, GECA or Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS).	Clause 15.01-2L
Steel	Steel for the development (structural and reinforcing) will be procured from a responsible steel maker. A responsible steel maker must have facilities with a currently valid and certified ISO 14001 Environmental Management System (EMS) in place, and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).	Clause 15.01-2L

10. Result in Summary & Implementation

The development will comply with the BESS and WSUD requirements by implementing all measures, as stated in this report. All the measures included in this report have demonstrated their efficiency and are easy to upkeep, with any faults promptly noticeable to the development's occupants. This approach ensures the development's sustainability in the long run, as the installed systems will be maintained and functional throughout the building's life cycle.

All initiatives listed in the report will be implemented by the relevant design team member at the relevant stage of the development. An implementation schedule has been prepared as follows – Full detail for each initiative is available in the body of the report (hyperlink):

ESD Implementation Table

Initiative	Responsibility	Stage
Metering and Monitoring	Services Engineer Architect	Design Development
Construction Waste Management Plan – 80% of waste diverted from landfill	Head Contractor	Construction
Construction Environmental Management Plan	Head Contractor	Construction
Water Fixtures and Fitting – Minimum WELS rating	Architect Head Contractor	Design Development
Rainwater Collection and Reuse	Architect Civil Engineer	Design Development
NatHERS Commitment – Minimum 7 Star rating	Energy Rater	Design Development
Hot Water System – Electric Heat Pump	Services Engineer Architect	Design Development
HVAC System – Split system with minimum energy rating requirements	Services Engineer Architect	Design Development
Internal Lighting Power – LED with Max 4W/m^2	Services Engineer Architect	Design Development
External Lighting – LED with sensors	Services Engineer Architect	Design Development
Clothes Drying – Clotheslines for each unit	Architect	Design Development
Double Glazing to all habitable room	Architect	Design Development
Natural Ventilation – Openable windows and door catches	Architect	Design Development

Initiative	Responsibility	Stage
Kitchen Exhaust directly to the outside	Architect	Design Development
Low VOC and Low Formaldehyde Products	Architect Head Contractor	Design Development Construction
Bike parking for residents – 1 per unit	Architect	Design Development
Three bin system in each garage + Allocation for 4th bin	Architect Waste Consultant	Design Development
Sustainable Timber	Head Contractor	DD & Construction
Carpet with third-party sustainable certification	Head Contractor	DD & Construction
Steel from Responsible Steel Maker	Head Contractor	DD & Construction

Appendix 1 –

WSUD Report

To address Clause 15.01-2L-03 and 53.18, a Water Sensitive Urban Design (WSUD) assessment of the proposed development must occur.

Under Clause 53.18, WSUD assessment and associated proposed stormwater management system should be designed to:

- Meet the current best practice performance objectives for stormwater quality as contained in the Urban Stormwater - Best Practice Environmental Management Guidelines (Victorian Stormwater Committee, 1999). Currently, these water quality performance targets are:
    - Suspended Solids - 80% retention of typical urban annual load.
    - Total Nitrogen - 45% retention of typical urban annual load.
    - Total Phosphorus - 45% retention of typical urban annual load.
    - Litter - 70% reduction of typical urban annual load.
- Minimise the impact of chemical pollutants and other toxicants including by, but not limited to, bunding and covering or roofing of storage, loading and work areas.
- Contribute to cooling, improving local habitat and providing attractive and enjoyable spaces.

By identifying the impervious surfaces within the site and implementing treatments to mitigate the impacts of stormwater leaving the site, the proposed development has successfully fulfilled the objectives listed above.

The development was evaluated using the InSite Water tool, a widely accepted tool in the industry, to verify compliance with the aforementioned best practice targets. To meet the required standards, the development must attain a minimum compliance score of 100%

1. **Stormwater Quality Management Strategies & Site Demarcation**

To achieve stormwater management objectives, it will be necessary to put in place stormwater treatment measures. The upcoming section outlines the surfaces that necessitate treatment and the specific treatment required. Effective management of stormwater flows in the building area will be crucial for the building's overall performance and its ability to meet stormwater management goals. The total site area for the WSUD assessment is 670m^2. The following treatment will be implemented on-site:

Surface	Treatment	Area	Description
Roof Unit 1	Rainwater Tank	54.6m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 2	Rainwater Tank	40.4m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.

Surface	Treatment	Area	Description
Roof Unit 3	Rainwater Tank	40.4m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 4	Rainwater Tank	40.4m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 5	Rainwater Tank	40.4m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 6	Rainwater Tank	39.7m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 7	Rainwater Tank	39.7m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Roof Unit 8	Rainwater Tank	44m^2	Part of the roof runoff of Unit 1 will be diverted into a 2,000L underground rainwater tank. The rainwater will be used for **toilet flushing and laundry**.
Permeable Areas	No treatment	121.4m^2	Part of the site will be designed as permeable. This will include landscaped areas.
Untreated Impervious Areas	No treatment	209m^2	Part of the site will be left untreated before being released at the legal point of discharge. This will include unconnected roof areas, pathways, untreated parts of driveways etc.

The development has prioritized maximizing permeable areas, resulting in decreased stormwater outflows from the site. Additionally, the proposed development includes vegetated areas, which not only reduces the heat island effect but also improves the local habitat.

2. WSUD Catchment Plan

Please refer to the next page for the full WSUD catchment plan including all treatment and areas included above.

WSUD Legend
Roof Catchment
Permeable Areas
WHITEHALL STREET
ROAD UNMADE
No.67
ADJOINING TWO STOREY
BRICK HOUSE
SLATE PITCH ROOF
(MEDICAL SUITES)
No.73
ADJOINING SINGLE STOREY
BRICK HOUSE
SLATE GABLE ROOF
No.75
SINGLE STOREY
BRICK HOUSE
GAL IRON GABLE ROOF
GRAVEL CARPARK
ADJOINING BRICK
GARAGE
BRICK
BUILDING
PROPOSED NO FENCES
PROPOSED 1.8M T.P.F
109°08' - 45.72M
288°56' - 9.75M
289°22' - 9.14M
288°51' - 23.77M
18°49' - 14.65M
198°49' 14.58M
26.01 m²
selected metal deck roof cladding @2°pitch
angled wall
T.B.M. RIVET R.L. 9.11
TRAFFIC DIRECTION
EXISTING CONCRETE CROSSING
EXISTING CONCRETE CROSSING TO BE REMOVED
EXIST. FENCE TO BE RETAINED
THE EXISTING CONCRETE CROSSING IS TO BE REMOVED AND THE AFFECTED STREETS ASSETS (FULL-HEIGHT KERB, NATURE STRIP AND FOOTPATH) TO BE REINSTATED, TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY.
90-96 MORELAND TWO STOREY B TILE GABLE

ROOF PLAN

SCALE 1:100

PROJECT:
MULTI UNIT DEVELOPMENT

71 WHITEHALL STREET
FOOTSCRAY VIC 3011

PROJECT NO: 8323	DATE: 21/08/25
SHEET: A07	REVISION:
	SCALE: 1:100 @ A1

five7.

L1, 49 NOTT STREET, PORT MELBOURNE VIC 3207
LEFTTURN.COM.AU | 1300 628 529 | HELLO@LEFTTURN.COM.AU

3. WSUD Assessment Results

All treatment measures and associated areas described above have been input into the InSite tool and the following results have been achieved:

Stormwater Calculations

InSite
Integrated Water Management

Report for Maribyrnong

Date report printed: 28/08/2025

Project Details

Project Name	71 Whitehall Street, Footscray		
InSite User Email	denis@msconsultants.com.au		
Web files link			
Site Area (m2)	670	Project ID	5042
Planning number			
Development type	Multi dwelling (dual occupancy, townhouse, villar unit etc)		
Existing site details	Residential >750m2 per dwelling		
Street address	71 Whitehall Street, Footscray VIC, Australia		

Results

QUALITY
Objective: Improve stormwater runoff water quality (Equivalent to STORM score)
Target: Achieve a score of 100 or more This corresponds to a 45% reduction in nitrogen runoff
QUALITY RESULT 133 Pollution reduction score (out of 100)

QUALITY PASSES

Design Criteria

The items on this page must be reflected on other project plans, specifications and engineering drawings.
The development must be designed and constructed in accordance with the following:

Rainwater Tank Specifications

Total rainwater tank volume (L)	16000	*This is the rainwater tank volume retention + detention
Total rainwater retention* tank volume (L)	16000	*This is the rainwater tank volume that is available for reuse
Total rainwater detention* tank volume (L)	1	*This is the rainwater tank volume that is reserved for slow release to stormwater
Roof connected to rainwater tank (m^2)	339.6	
Rainwater tanks connected to	Toilet , Laundry	
Other rainwater tank end uses (L/day)	Irrigated Garden Area (m^2)	
% building rainwater end uses connected (to rainwater tanks)	100	First Flush Device? 0
Additional* Site Storage (L)		*Site storage added adjacent to the legal point of discharge for peak flow detention or volume infiltration
Recycled water source (Yes/No)		
Water tank reliability %	32.2	
Rainwater tank overflow %	3.4	*Note if this number is under 25%, then 30% of the tank's *retention* volume will be counted toward the *detention* volume

Water Efficiency Specifications

Basin WELS star rating	> 5 Star WELS rating
Toilet WELS rating	> 4 Star WELS rating
Bath WELS star rating	Not Applicable
Washing Machine WELS star rating	Default or unrated
Kitchen Taps WELS rating	> 5 Star WELS rating
Urinal WELS rating	Not Applicable
Shower WELS star rating	4 Star WELS (> 6.0 but <= 7.5)
Dishwasher WELS star rating	> 5 Star WELS rating

6200 litres of additional Site Storage Requirement (SSR) (in addition to the combined rainwater / detention tanks) which is provided by litres of additional site storage adjacent to the legal point of discharge.

Stormwater management measures selected are

This includes all impervious areas in the site connected to Council or Stormwater Authority drains. This excludes pervious areas like garden, gravel, and lawn areas)

- For the 461m^2 roof area Combined Roof Area, Raintank Volume = 16000 litres connected to 339.6m^2 of roof
  In addition there is 121.4m^2 of roof Combined Roof Area
- 88.5m^2 of Driveway Driveway Exposed

Building Occupancy Calculations

Building Spaces

•1276.17m^2 of Individual dwellings - BCA Class 1a with an average occupancy of 25.5 people

Estimated Total Building Occupancy	25.5

Stormwater VOLUME Calculations

Site Area (m²)	670
Post development total impervious area (m2)	549.5
Rainwater Tank Overflow (kL/annum)	7.1
Pre-development Volume (kL/annum)	147.2
Post-development Volume (kL/annum)	122.4
Change in volume %	-16.8

Stormwater QUALITY Calculations

Rainwater Tank Runoff reduction (%)	96.6
Rainwater Tank(s) Total Nitrogen (TN) reduction	729.0
Total Nitrogen (TN) % reduction	59.7
Equivalent STORM Score	133

Water EFFICIENCY Calculations

Benchmark water use (kL/year)	1925.3		
Predicted potable water use (kL/year)	1277.2		
Predicted potable water use (L/person/day)	158.7		
Water savings from tank (kL/year)	200.1		
Water saving from efficiency (kL/year)	448.00		
Total water saving % (efficiency + tank + recycled water)	33.7	Water saving (kL/year)	648.1

About In-Site Water

This report is generated by user inputs from the toolkit at InSite Water. In-Site water is an online Integrated Water Management tool designed for use on smaller sites (less than 2 hectares) in Australia that need quick and accurate stormwater engineering answers. InSite water is simple to use but provides robust stormwater design and engineering answers.

This report includes outputs from the InSite tool that has investigated:

– water tank sizing
– detention tank sizing
– water savings through efficiency
– water WSUD treatments such as raingardens

For enquiries, contact us through www.insitewater.com.au

Disclaimer

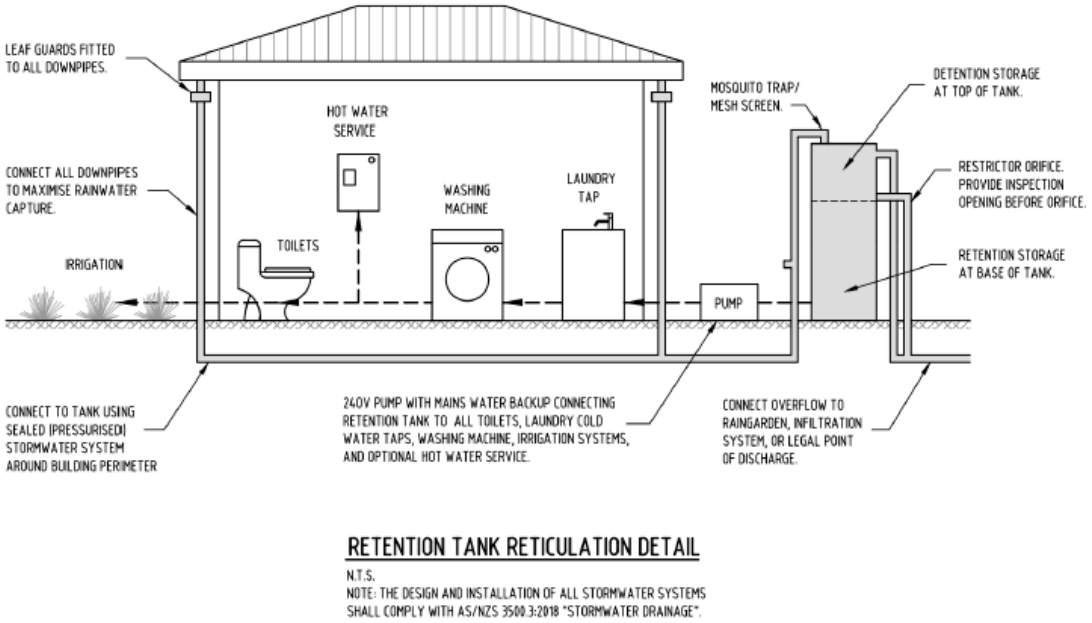
This guide is of a general nature only. Advice from a suitably qualified professional should be sought for your particular circumstances. Depending on each unique situation, there may be occasions where compliance is not achieved.

This report does not provide a detailed design and layout for the piping and general drainage system in your development, which should be prepared by a suitably qualified professional. In addition, InSite Water does not consider compliance for slope stability or foundation / slab / footing protection, which needs to come from a qualified geotechnical or structural engineer.

The following is outside the scope of InSite Water, however it is critical that all designers consider the following in drainage design and in using Water Sensitive Urban Design (WSUD) devices and approaches:

- *Manage expectations and risks around occasional surface water and ponding.*
- *Ensure that uncontrolled stormwater does not flow over property boundaries or otherwise cause a nuisance.*
- *Plan for major flood pathways – locate buildings away from, adapt (raise floors above predicted flood levels) and defend buildings against potential major flooding.*
- *Seek professional advice to reduce damage and safety risks.*
- *Design for local conditions such as vegetation, topography and soils (soil type, reactivity, permeability, water table level, salinity, dispersiveness, acid sulphate soils, contaminated land etc).*
- *Ensure that soil moisture and building clearance is considered in areas of reactive clays or where varying soil moisture levels could damage buildings or other infrastructure.*
- *For steeper sites, ensure the design includes geotechnical considerations such as slope stability with varying soil saturation levels.*
- *Ensure that a Stormwater Risk Assessment and Environmental Management Plan is undertaken for sites that pose a pollution risk.*
- *Ensure that a Construction Environmental Management Plan (CEMP) is implemented to control sediments and reduce stormwater pollution during construction.*
- *Compliance with ARR 2019, Australian Rainfall and Runoff: A Guide to Flood Estimation* http://arr.ga.gov.au/
- *Compliance with NCC plumbing and building standards.*
- *Compliance with AS/NZS 3500.*
- *Compliance with EPA and other environmental regulations.*
- *Compliance with other relevant Australian Standards, regulations and Council requirements.*

Appendix A: attach further details for this project (if applicable):



RETENTION TANK RETICULATION DETAIL

N.T.S.
NOTE: THE DESIGN AND INSTALLATION OF ALL STORMWATER SYSTEMS SHALL COMPLY WITH AS/NZS 3500.3:2018 "STORMWATER DRAINAGE".

Above: Combined Roof Area treatment drawing (draft for planning approvals only: not for construction, not to scale)

4. Proposed Treatment Typical Cross-Section

This section will include a typical cross-section of all WSUD treatments proposed in the development.

a. Rainwater Tanks

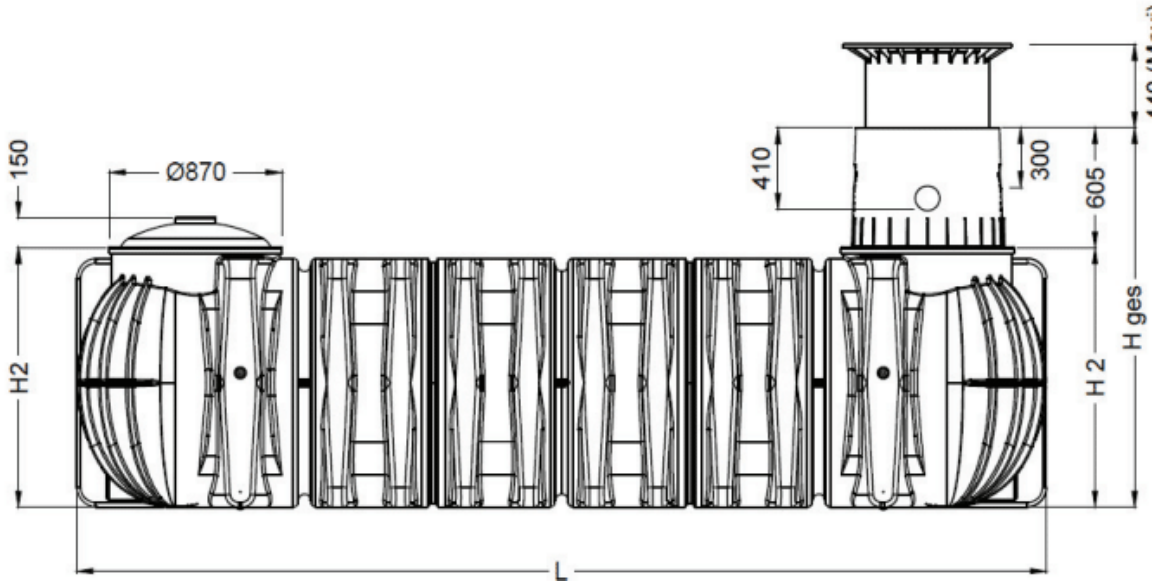
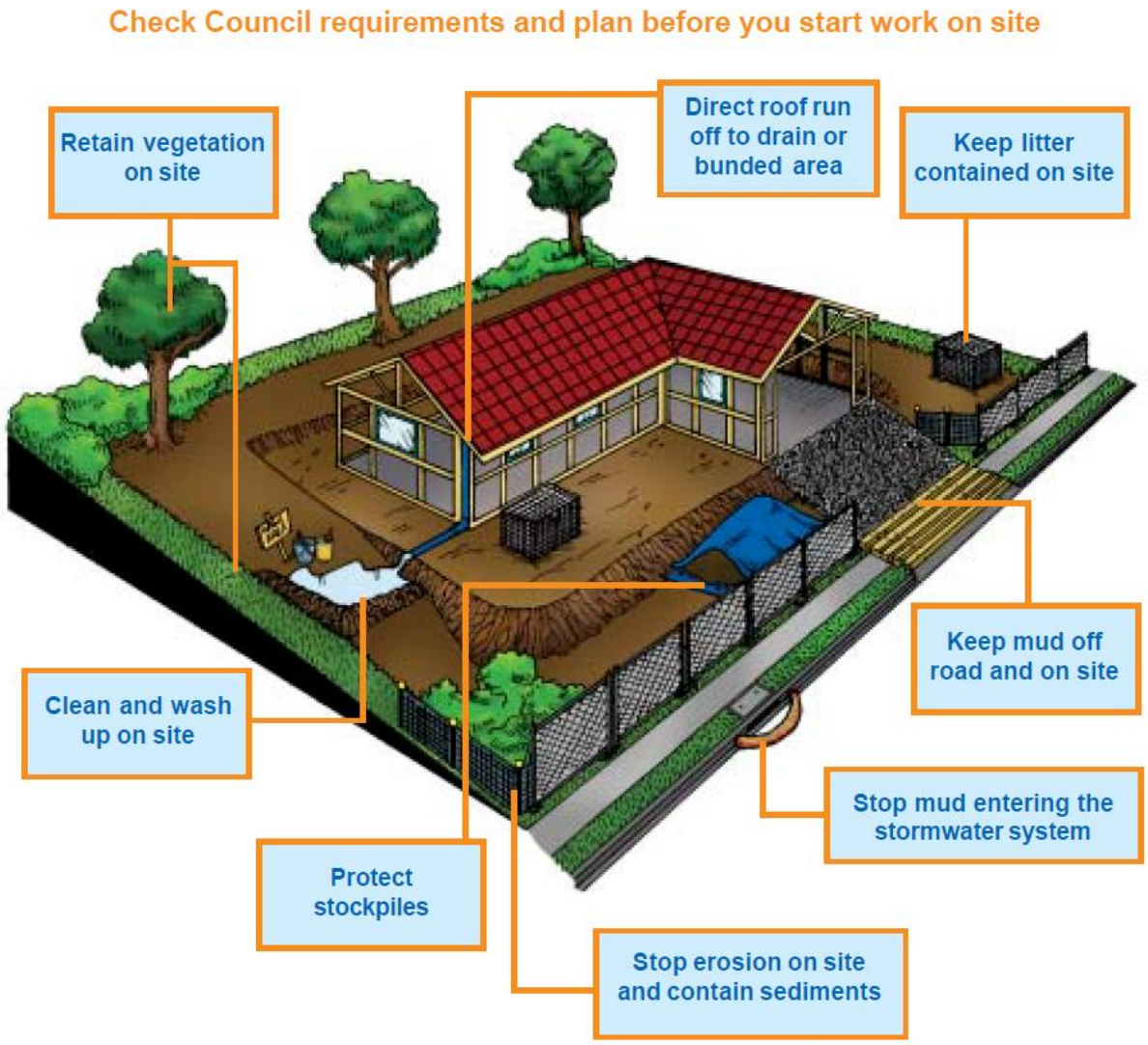


Figure 2: Typical Rainwater tank Cross-Section

5. Stormwater Management During Construction

To prevent contamination of stormwater discharge and to decrease the speed of flows produced during construction, steps will be taken to manage stormwater. These measures will involve establishing buffer strips and maintaining a clean site by removing loose rubbish. "Keeping Our Stormwater Clean - A Builder's Guide" by Melbourne Water provides additional information. The objectives depicted in the diagram below illustrate ways to minimise the effects of stormwater runoff during the construction phase.



Appendix 2 – WSUD Maintenance Manual

WSUD manuals are sourced from the City of Port Philip which has developed a detailed manual for the majority of treatment

Tips for undertaking maintenance

Things to look for and how to fix them.

Leaf litter / debris in gutters	**Pump not working**
Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
Blocked downpipe	**Mains backup or pump not working**
If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
First flush diverter clogging	**Overflow**
To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
Debris on the mesh cover over inlets / outlets	**Sediment / debris build-up in tank (more than 20mm thick)**
The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
Dirt and debris around the tank base or side.	**Base area**
Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
Smelly water or mosquitos	**Monitoring the water level**
Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	A range of devices are available to monitor water level. Some simple float systems can be used effectively.

Acknowledgement: Information from PJT Green Plumbing's 'Maintenance Guide for Your Rainwater Tank' was used to develop this fact sheet.

For more information please visit **www.portphillip.vic.gov.au**
or contact the Sustainability team via:

Phone: 03 9209 6777
email: sustainabledesign@portphillip.vic.gov.au

Maintenance manual

Rainwater tanks

Site address: _____

Planning permit number: _____

Rainwater tank maintenance

This manual lists the key tasks required to maintain a domestic rainwater tank and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic rainwater tank. Once endorsed, the property owner is responsible for continuous implementation of rainwater tank maintenance, in accordance with the guidance in this manual.

Rainwater tanks are an exceptional tool for environmental protection. They collect and store roofwater for use inside and outside the home. This simultaneously reduces the demand on our precious potable mains water and limits the amount of stormwater pollutants that enter our sensitive Bay.

Maintenance of rainwater tanks is relatively easy however it is important to do the following key tasks to ensure the quality of water is high:

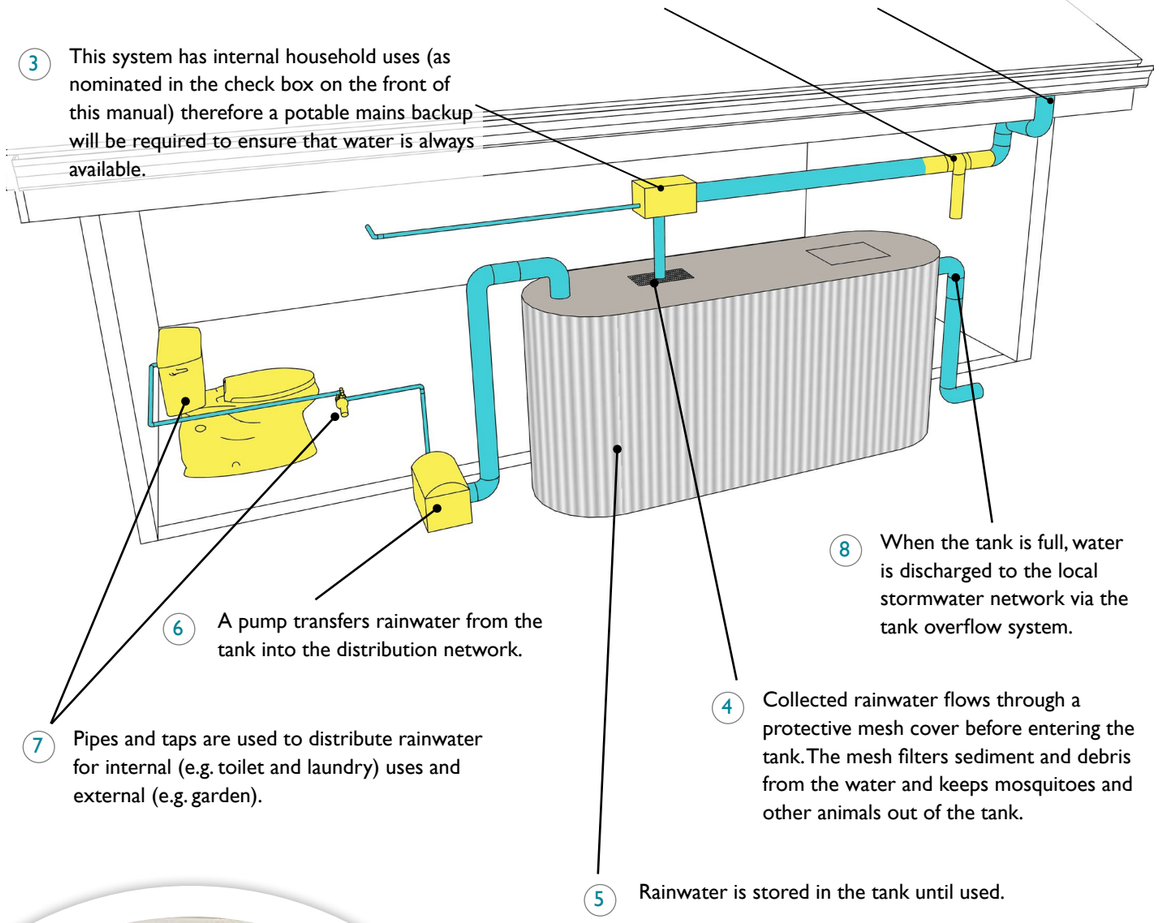
- stop leaf litter and debris entering the tank.
- prevent bird droppings and dust building up in the gutters.
- prevent mosquitos and other animals entering the tank.

Tank connected to	toilet only ☐ toilet & irrigation ☐ toilet & laundry & irrigation ☐ toilet & laundry & hot water & irrigation ☐
Rainwater tank location	
Planning drawing number showing rainwater tank location	
Rainwater tank construction date	
Date of final building inspection	
Tank volume (litres)	
Area or percentage of the roof that is connected to the tank via gutters and downpipes	

Maintenance Overview

Rainwater Tank Maintenance

The following diagram identifies the key items which are important for rainwater tanks and their maintenance.



Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the rainwater tank.

Item	Rainwater tank element	Inspection item	Y/N	Likely maintenance task
1	Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly.
2	First flush diverter	Is there anything blocking the first flush diverter (leaves etc)?		Remove by hand and dispose responsibly.
3	Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
4	Mesh cover	Has the mesh cover deteroriated or have any holes in it?		Replace mesh cover.
5	Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
6	Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
7	Pipes and taps	Are pipes and taps leaking?		Repair as needed.
8	Overflow	Is the overflow clear and connected to the stormwater network?		Remove blockages and/or restore connections to stormwater network.
9	Supporting base	Are there any cracks or movement of pavers?		Empty the tank to reduce weight then repair any damage to the base.

Maintenance frequency												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All tasks	x			x			x			x		

Regular maintenance will improve the water quality and extend the life of your system. A well maintained tank isn't likely to need to be cleaned out for up to ten years (when there is more than 20mm of accumulated sediment).

Maintenance Log

Maintenance date	Maintenance undertaken

Appendix 3 – Green Star VOC Limits

VOC Limits for Paints, Adhesives and Sealants

Product Category	Maximum VOC content (g/L)
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 sealants, waterproofing membranes and sealants, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

VOC Limit for Carpets

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

Appendix 4 – BESS Report

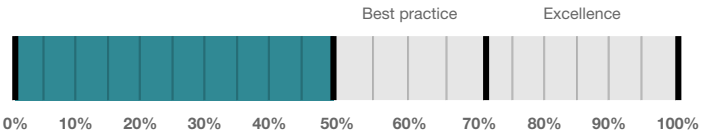
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 71 Whitehall St Footscray Victoria 3011. 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

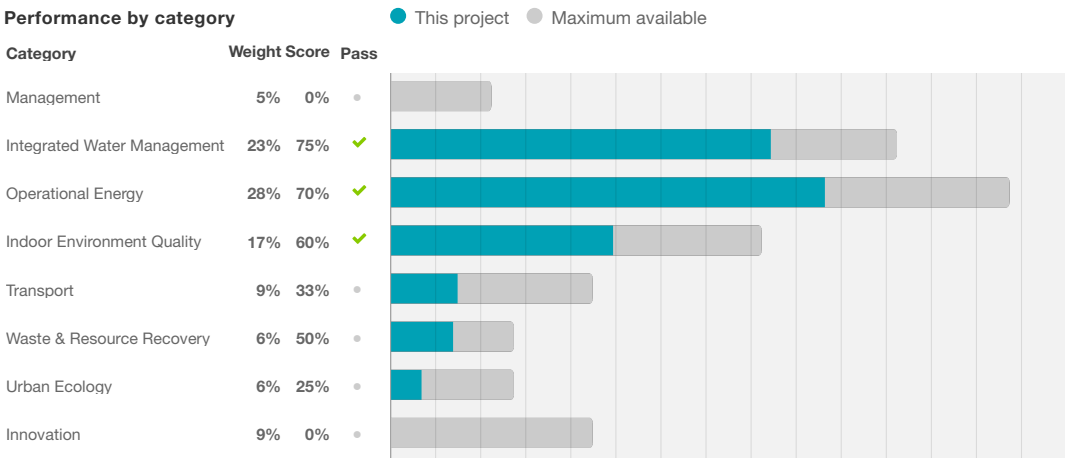


53%

Project details

Name	71 Whitehall Street, Footscray
Address	71 Whitehall St Footscray Victoria 3011
Project ID	E9C71B0C-R1
BESS Version	BESS-9
Site type	Multi dwelling (dual occupancy, townhouse, villa unit etc)
Account	admin@msconsultants.com.au
Application no.	
Site area	670 m²
Building floor area	1,278 m²
Date	28 August 2025
Software version	2.1.0-B.600

Performance by category



Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	% of total area
Townhouse			
Dwelling1	1	188 m^2	14%
Dwelling 8	1	166 m^2	12%
Dwelling 5	1	154 m^2	12%
Dwelling 4	1	154 m^2	12%
Dwelling 3	1	154 m^2	12%
Dwelling 2	1	157 m^2	12%
Dwelling 7	1	152 m^2	11%
Dwelling 6	1	152 m^2	11%
Total	**8**	**1,278 m^2**	**100%**

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Operational Energy 3.3	Annotation: External lighting controlled by motion sensors		-
Operational Energy 3.4	Location of clothes line (if proposed)		-
Indoor Environment Quality 2.2	Annotation: Dwellings designed for 'natural cross flow ventilation' (If not all dwellings, include a list of compliant dwellings)		-
Indoor Environment Quality 3.1	Annotation: Glazing specification (U-value, SHGC)		-
Transport 1.1	Location of residential bicycle parking spaces		-
Waste & Resource Recovery 2.1	Location of food and garden waste facilities		-
Urban Ecology 2.1	Location and size of vegetated areas		-

Supporting Documentation

Credit	Requirement	Response	Status
Integrated Water Management 2.1	STORM report or MUSIC model		-
Operational Energy 3.5	Average lighting power density and lighting type(s) to be used		-
Indoor Environment Quality 2.2	A list of dwellings with natural cross flow ventilation		-
Indoor Environment Quality 3.1	Reference to floor plans or energy modelling showing the glazing specification (U-value and Solar Heat Gain Coefficient, SHGC)		-

Credit summary

Management Overall contribution 4.5%

	0%	
1.1 Pre-Application Meeting	0%	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	0%	
4.1 Building Users Guide	0%	

IWM Overall contribution 22.5%

	75%	✔ **Pass**
1.1 Potable Water Use	46%	✔ Achieved
2.1 Stormwater Treatment	100%	✔ Achieved
3.1 Water Efficient Landscaping	0%	

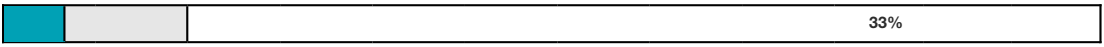
Operational Energy Overall contribution 27.5%

	Minimum required 50% **70%**	✔ **Pass**
1.2 Thermal Performance Rating - Residential	0%	✔ Achieved
2.1 Greenhouse Gas Emissions	100%	
2.6 Electrification	100%	
2.7 Energy consumption	100%	
3.3 External Lighting	100%	
3.4 Clothes Drying	100%	
3.5 Internal Lighting - Houses and Townhouses	100%	
4.4 Renewable Energy Systems - Other	N/A	⟡ Scoped Out
	No other (non-solar PV) renewable energy is in use.	
4.5 Solar PV - Houses and Townhouses	0%	⊘ Disabled
	No solar PV renewable energy is in use.	

IEQ Overall contribution 16.5%

	Minimum required 50% **60%**	✔ **Pass**
2.2 Cross Flow Ventilation	100%	
3.1 Thermal comfort - Double Glazing	100%	
3.2 Thermal Comfort - External Shading	0%	
3.3 Thermal Comfort - Orientation	0%	

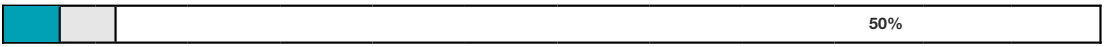
Transport Overall contribution 9.0%



33%

1.1 Bicycle Parking - Residential	100%
1.2 Bicycle Parking - Residential Visitor	0%
2.1 Electric Vehicle Infrastructure	0%

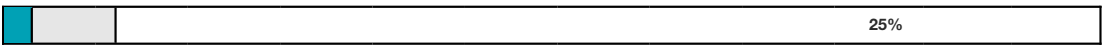
Waste & Resource Recovery Overall contribution 5.5%



50%

1.1 Construction Waste - Building Re-Use	0%
2.1 Operational Waste - Food & Garden Waste	100%

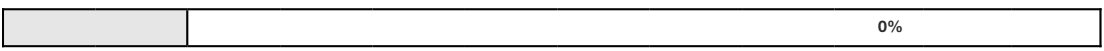
Urban Ecology Overall contribution 5.5%



25%

2.1 Vegetation	50%
2.2 Green Roofs	0%
2.3 Green Walls and Facades	0%
2.4 Balconies, Courtyards & Roof terraces	0%
3.1 Food Production - Residential	0%

Innovation Overall contribution 9.0%



0%

1.1 Innovation	0%

Credit breakdown

Management Overall contribution 4.5%

		0%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 50% 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	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		0%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?	
Question	Criteria Achieved ?	
Townhouse	No	
4.1 Building Users Guide		0%
Score Contribution	This credit contributes 16.7% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	No	

IWM Overall contribution 22.5%

75% ✔ Pass

Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No

Stormwater profile	
Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	105
Flow:	-
Total Suspended Solids:	-
Total Phosphorus:	-
Total Nitrogen:	-

Rainwater tank profile	
What is the total roof area connected to the rainwater tank?:	
Rainwater Tank 1	54.6 m²
Rainwater Tank 2	40.4 m²
Rainwater Tank 3	40.4 m²
Rainwater Tank 4	40.4 m²
Rainwater Tank 5	40.4 m²
Rainwater Tank 6	39.7 m²
Rainwater Tank 7	39.7 m²
Rainwater Tank 8	44.0 m²
Tank Size:	
Rainwater Tank 1	2,000 Litres
Rainwater Tank 2	2,000 Litres
Rainwater Tank 3	2,000 Litres
Rainwater Tank 4	2,000 Litres
Rainwater Tank 5	2,000 Litres
Rainwater Tank 6	2,000 Litres
Rainwater Tank 7	2,000 Litres
Rainwater Tank 8	2,000 Litres
Irrigation area connected to tank:	
Rainwater Tank 1	-
Rainwater Tank 2	-
Rainwater Tank 3	-
Rainwater Tank 4	-
Rainwater Tank 5	-
Rainwater Tank 6	-
Rainwater Tank 7	-
Rainwater Tank 8	-

Is connected irrigation area a water efficient garden?:	
Rainwater Tank 1	No
Rainwater Tank 2	No
Rainwater Tank 3	No
Rainwater Tank 4	No
Rainwater Tank 5	No
Rainwater Tank 6	No
Rainwater Tank 7	No
Rainwater Tank 8	No
Other external water demand connected to tank?:	
Rainwater Tank 1	-
Rainwater Tank 2	-
Rainwater Tank 3	-
Rainwater Tank 4	-
Rainwater Tank 5	-
Rainwater Tank 6	-
Rainwater Tank 7	-
Rainwater Tank 8	-

Fixtures, fittings & connections profile	
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	>= 5 Star WELS rating
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?:	
Dwelling1	233550
Dwelling 2	233551
Dwelling 3	233552
Dwelling 4	233553
Dwelling 5	233554
Dwelling 6	233555
Dwelling 7	233556
Dwelling 8	233557
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

1.1 Potable Water Use	46%	✔ Achieved

Score Contribution	This credit contributes 33.3% 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	1485 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	1189 kL
Output	Proposed (including rainwater and recycled water use)
Project	1040 kL
Output	% Reduction in Potable Water Consumption
Project	29 %
Output	% of connected demand met by rainwater
Project	100 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	563 kL

2.1 Stormwater Treatment 100% ✔ Achieved

Score Contribution	This credit contributes 60% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Output	Min STORM Score
Project	100
Output	STORM Score
Project	105

3.1 Water Efficient Landscaping 0%

Score Contribution	This credit contributes 6.7% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	No

Operational Energy Overall contribution 27.5%

		Minimum required 50%	70%	✔ Pass

Are you installing any renewable energy system(s) (other than solar photovoltaic)?:	No
Energy Supply:	All-electric

Dwellings profile

Below the floor is: All	Ground or Carpark
Above the ceiling is: All	Outside
Exposed sides:	
Dwelling1 Dwelling 8	3
Dwelling 2 Dwelling 3 Dwelling 4 Dwelling 5 Dwelling 6 Dwelling 7	2
NatHERS Annual Energy Loads - Heat: All	70.0 MJ/sqm
NatHERS Annual Energy Loads - Cool: All	20.0 MJ/sqm
NatHERS star rating: All	7.0
Type of Heating System: All	Reverse cycle space
Heating System Efficiency: All	3 Stars (2011 MEPS)
Type of Cooling System: All	Refrigerative space
Cooling System Efficiency: All	3 Stars (2011 MEPS)
Type of Hot Water System: All	Electric Heat Pump Band 1
% Contribution from solar hot water system: All	0 %
Clothes Line: All	Private outdoor clothesline
Clothes Dryer: All	Occupant to install

1.2 Thermal Performance Rating - Residential 0% ✔ Achieved

Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Townhouse	7.0 Stars

2.1 Greenhouse Gas Emissions 100%

Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Townhouse	24,231 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Townhouse	17,700 kg CO2
Output	% Reduction in GHG Emissions
Townhouse	26 %

2.6 Electrification	100%
Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes

2.7 Energy consumption	100%
Score Contribution	This credit contributes 23.5% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Townhouse	209,361 MJ
Output	Proposed Building with Proposed Services (Actual Building)
Townhouse	80,660 MJ
Output	% Reduction in total energy
Townhouse	61 %

3.3 External Lighting	100%
Score Contribution	This credit contributes 2.9% towards the category score.
Criteria	Is the external lighting controlled by a motion detector?
Question	Criteria Achieved ?
Townhouse	Yes

3.4 Clothes Drying	100%
Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?
Output	Reference
Townhouse	4,686 kWh
Output	Proposed
Townhouse	937 kWh
Output	Improvement
Townhouse	80 %

3.5 Internal Lighting - Houses and Townhouses	100%
Score Contribution	This credit contributes 2.9% towards the category score.
Criteria	Does the development achieve a maximum illumination power density of 4W/sqm or less?
Question	Criteria Achieved?
Townhouse	Yes

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

4.5 Solar PV - Houses and Townhouses		0%	⊘ Disabled
			No solar PV renewable energy is in use.
This credit is disabled	No solar PV renewable energy is in use.		

IEQ **Overall contribution 16.5%**

		Minimum required 50%	60%	✔ Pass

2.2 Cross Flow Ventilation		100%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?	
Question	Criteria Achieved ?	
Townhouse	Yes	

3.1 Thermal comfort - Double Glazing		100%
Score Contribution	This credit contributes 40% towards the category score.	
Criteria	Is double glazing (or better) used to all habitable areas?	
Question	Criteria Achieved ?	
Townhouse	Yes	

3.2 Thermal Comfort - External Shading		0%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Is appropriate external shading provided to east, west and north facing glazing?	
Question	Criteria Achieved ?	
Townhouse	No	

3.3 Thermal Comfort - Orientation		0%
Score Contribution	This credit contributes 20% towards the category score.	
Criteria	Are at least 50% of main living areas orientated to the north?	
Question	Criteria Achieved ?	
Townhouse	No	

Transport Overall contribution 9.0%

33%

1.1 Bicycle Parking - Residential	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	How many secure and undercover bicycle spaces are there for residents?
Question	Bicycle Spaces Provided ?
Townhouse	8
Output	Min Bicycle Spaces Required
Townhouse	8

1.2 Bicycle Parking - Residential Visitor	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	How many secure bicycle spaces are there for visitors?
Question	Visitor Bicycle Spaces Provided ?
Townhouse	-

2.1 Electric Vehicle Infrastructure	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	No

Waste & Resource Recovery Overall contribution 5.5%

50%

1.1 Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 50% 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	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 5.5%

25%

2.1 Vegetation	50%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?
Annotation	At least 10% (67sqm) of the site is covered by vegetation.
Question	Percentage Achieved ?
Project	10 %

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

2.4 Balconies, Courtyards & Roof terraces	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?
Question	Criteria Achieved ?
Townhouse	No

3.1 Food Production - Residential	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	What area of space per resident is dedicated to food production?
Question	Food Production Area
Townhouse	-
Output	Min Food Production Area
Townhouse	7 m^2

Innovation **Overall contribution 9.0%**

	0%

1.1 Innovation		0%
Score Contribution	This credit contributes 100% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

Disclaimer

ATC LAND MANAGEMENT

71 WHITEHALL STREET FOOTSCRAY

ARBORICULTURAL IMPACT ASSESSMENT

PREPARED BY: STEPHEN WILLIAMS (DIPLOMA OF ARBORICULTURE)

AUGUST 12, 2025

1 TERMS & LIMITATIONS

Report Integrity:

- This report is a complete and final document prepared by ATC Land Management and must not be altered in any way. Any unauthorized modifications will render the report invalid.

Disclaimer of Liability:

- Trees are living organisms subject to natural processes, environmental changes, and extreme weather events. Our inspection, conducted by qualified personnel, relies on visual assessment of tree health and structure from the ground. While thorough, this method may not detect hidden defects. We cannot guarantee the absolute condition or safety of the trees beyond what's reasonably assessed during the inspection. Regular inspections are recommended, and our staff can advise on the appropriate frequency.

Report Objectivity and Accuracy:

- This report is free from bias and reflects the honest professional opinion of the consulting Arborist, based on the client's provided information and relevant research. All details, information, and recommendations are based on research and referenced where applicable. Without references, determinations are made using the experience and observations of the Certified Arborist who prepared the report.

Limitations of Representation:

- Pictures, diagrams, graphs, and other reference materials within this report are not guaranteed to be perfectly scaled. Measurements and values are made to the best of the Arborist's ability at the time of inspection and report creation.

Interpretation and Discussion:

- Discussions regarding specific points within this report are discouraged as they may be taken out of context. Discussions should focus on the entire report. Similarly, discussions concerning the actions of third parties regarding the trees are not included within the scope of this report.

Governing Law and Dispute Resolution:

- This agreement and the report shall be governed by and construed in accordance with the laws of Victoria, Australia. In the event of a dispute arising from this report, the parties agree to attempt to resolve the dispute amicably through mediation.

Entire Agreement:

- These terms and conditions, together with the Arborist Report, constitute the entire agreement between the parties and supersede all prior or contemporaneous communications, representations, or agreements, whether oral or written.

By accepting this report, the client acknowledges that they have read, understood, and agree to be bound by these terms and conditions.

2 EXECUTIVE SUMMARY

2.1 Arboricultural Assessment - 71 Whitehall Street, Footscray

This Executive Summary presents the key findings and recommendations from the arboricultural assessment for the proposed development at 71 Whitehall Street, Footscray. The objective of this report is to evaluate the condition and management requirements of trees adjacent to the vacant site and to ensure the successful integration of the new development with the existing urban landscape.

2.2 Site context and findings

The development site is a vacant allotment, currently free of any structures or vegetation. Consequently, the proposed works will not impact any trees located within the subject property boundary. The arboricultural assessment focused on trees on the Council nature strip and neighbouring private properties, which are to be retained and protected.

An analysis of the proposed architectural plans shows that the development will have a minor and acceptable impact on the designated Tree Protection Zone (TPZ) of one Council-owned tree, as defined by Australian Standard 4970-2025 (Protection of trees on development sites). All other retained trees on neighbouring properties will not be impacted by the proposed construction, as they are located with a sufficient setback from the development envelope. This report confirms that the health and structural integrity of the surrounding trees will not be compromised by the planned development, provided that appropriate protection measures are put in place.

2.3 Recommendation

To ensure the long-term health and preservation of all retained trees, it is recommended that a comprehensive Tree Protection Management Plan be developed. This plan, to be prepared by a qualified arborist after the planning permit is issued, will serve as a mandatory guide for all site personnel and contractors.

The plan should explicitly outline the following:

- The precise location and construction specifications for tree protection fencing.
- Protocols and guidelines for any works occurring within or adjacent to Tree Protection Zones.

- A schedule for ongoing arborist supervision during all critical stages of the project, including excavation and construction.

Adherence to this Tree Protection Management Plan is essential to mitigate potential damage and ensure the successful, long-term survival of the protected trees.

TABLE OF CONTENTS

3 CONTACT DETAILS

3.1 Client details

Client company	Gray Kinnane
Client name	Andrew Gray
E-mail	Andrew@Graykinnane.com.au

3.2 Assessing arborist

The assessment was conducted by an arborist demonstrating competence in accordance with Australian Standard 4970-2025 (Protection of trees on development sites) and AS4373-2007 (Pruning of amenity trees). This competence is evidenced by the arborist's 29 years of industry experience and attainment of a minimum Australian Qualification Framework (AQF) Level 5 Diploma of Arboriculture. This combination of extensive practical experience and formal qualifications ensures the arborist possesses the requisite knowledge and skills to accurately perform the assessments and adhere to the standards outlined within AS4970-2025 and AS4373-2007.

Assessing company	ATC Land Management
Assessing Arborist	Stephen Williams
Phone	0403 867 449
E-mail	steve@austreecare.com.au
Qualifications	Diploma of Horticulture (Arboriculture)

4 INTRODUCTION

4.1 Brief

Prepared by: ATC Land Management

In response to a Request for Further Information (RFI) concerning the development at 71 Whitehall Street, Footscray (TP228/2025(1)), ATC Land Management has been engaged to address the following item:

Street Trees

5. An arboricultural impact assessment. Council's aerial photo records and other site information indicate that mature tree cover exists on the nature strip adjacent the site which may be impacted by the proposed development. The following information must be provided for the assessment of the proposal:

    a. A detailed tree survey of the trees on and within 10 metres of the property boundary which may be impacted by the proposed development. This must include:

        i. Existing trees accurately plotted on a plan and consistently referenced.

        ii. Details of tree species, height, canopy, spread, trunk diameter, age, health, safe useful life expectancy (SULE) and structure.

        iii. Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for each tree identified.

        iv. The retention value of each tree.

        v. An evaluation of trees suitable for retention with them clearly marked on the survey plan.

        vi. Where a tree is proposed to be removed, the location of any replacement tree planting with associated TPZ which ensures its growth to maturity.

vii. Identification of vegetation that is native to Victoria.

viii. Detail level of TPZ/SRZ encroachment (if any).

b. A comprehensive arboricultural impact assessment of the proposed construction including details of all trees proposed to be retained and removed and specifications and details of recommended tree protection measures.

All information must be consistent with the Australian Standard-AS-4970-2009 (Protection of trees on development sites). All arboricultural reporting and documentation must prepared by a suitably qualified arboricultural consultant (i.e. minimum qualification of AQF level 5). The name and qualifications of the Arborist must be identified in the report. If the Arborist is providing comment on methods to protect the tree, then they should reference the development plans (i.e. Architect, project number, date, revision) to ensure the correct plans have been assessed.

4.2 Scope

The primary objectives of this Arboricultural Impact Assessment are to:

- **Tree inventory and condition analysis:** Conduct a detailed site inspection to identify all relevant trees on the property and in the immediate vicinity. For each tree, the report will provide a thorough analysis of its species, age, health, structural condition, and overall viability.
- **Tree Protection Zone determination:** Calculate the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for all trees to be retained, in accordance with the Australian Standard AS 4970-2025. These zones define the minimum area around a tree that must be protected from development-related impacts.
- **Impact assessment:** Evaluate the potential for direct and indirect impacts from the proposed development, including excavation, soil compaction, changes to site levels, and service installations, on the health and stability of the retained trees.
- **Mitigation strategies:** Formulate and recommend best-practice tree protection management strategies to minimize any identified conflicts between the development and the trees.
- **Planning compliance:** The report will be prepared to meet the requirements of the Maribyrnong City Council Planning Scheme, which may include specific overlays such as a Vegetation Protection Overlay, and will inform the planning permit application process.

The purpose of this document is to ensure a balanced approach that facilitates the proposed development while protecting valuable tree assets and contributing to the long-term ecological and amenity values of the site and its surrounding landscape.

4.3 Methodology

Site assessed: August 12, 2025

Assessed by: Stephen Williams for ATC Land Management

4.3.1 Assessment methods:

- **Visual Tree Assessment (VTA):** The trees were assessed from the ground using industry accepted VTA methods, focusing on observable signs of health, structure, and stability.
- **Diameter measurements: Stem** diameters were measured at breast height (DBH), at stem base (DAB), and at other required stem heights using a DBH tape.
- **Limitations:** No aerial assessments (rope and harness, drone) or below-ground investigations (non-destructive root assessment) were conducted.

4.3.2 Tree evaluation:

- **Health and condition:** Tree health, structure, and condition were evaluated using standardized descriptors (refer to **Appendix A** for details).

4.3.3 Industry Standards:

- **AS 4373-2007:** This Australian Standard provided guidance for recommendations regarding acceptable pruning practices for amenity trees.
- **AS 4970-2025:** This standard informs recommendations related to tree protection on development sites.

4.3.4 Site history:

- Information on historical site conditions was gathered from online resources such as Street View (Google Maps) and Nearmap to supplement the on-site assessment.

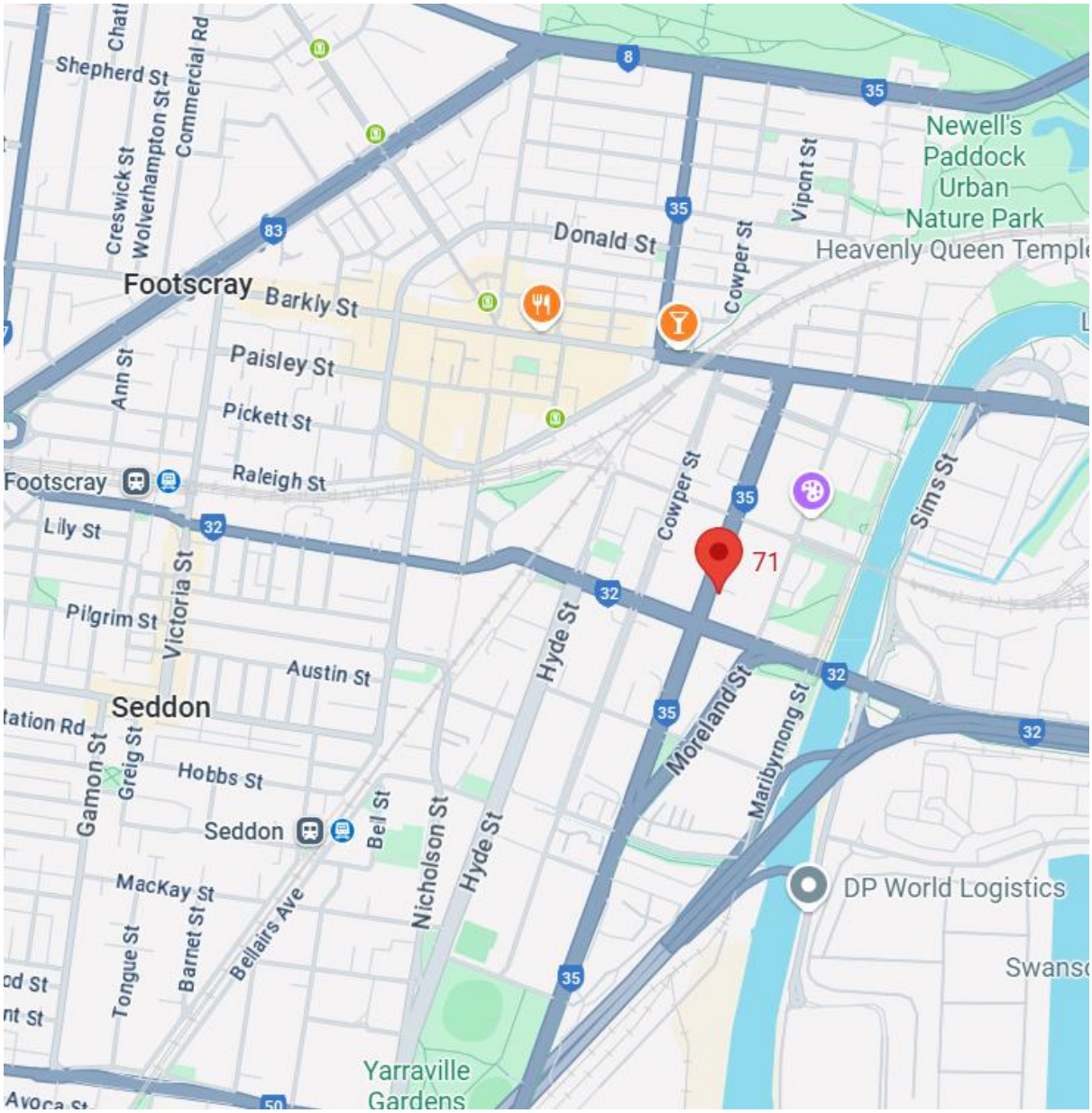
4.3.5 Additional documents:

Plans for the proposed development, produce by five7 (Project Number: 8323) and dated June 30, 2025, have been provided by Gray Kinnane for review. These plans are included in **Appendix B** of this document for reference.

5 SITE DETAILS

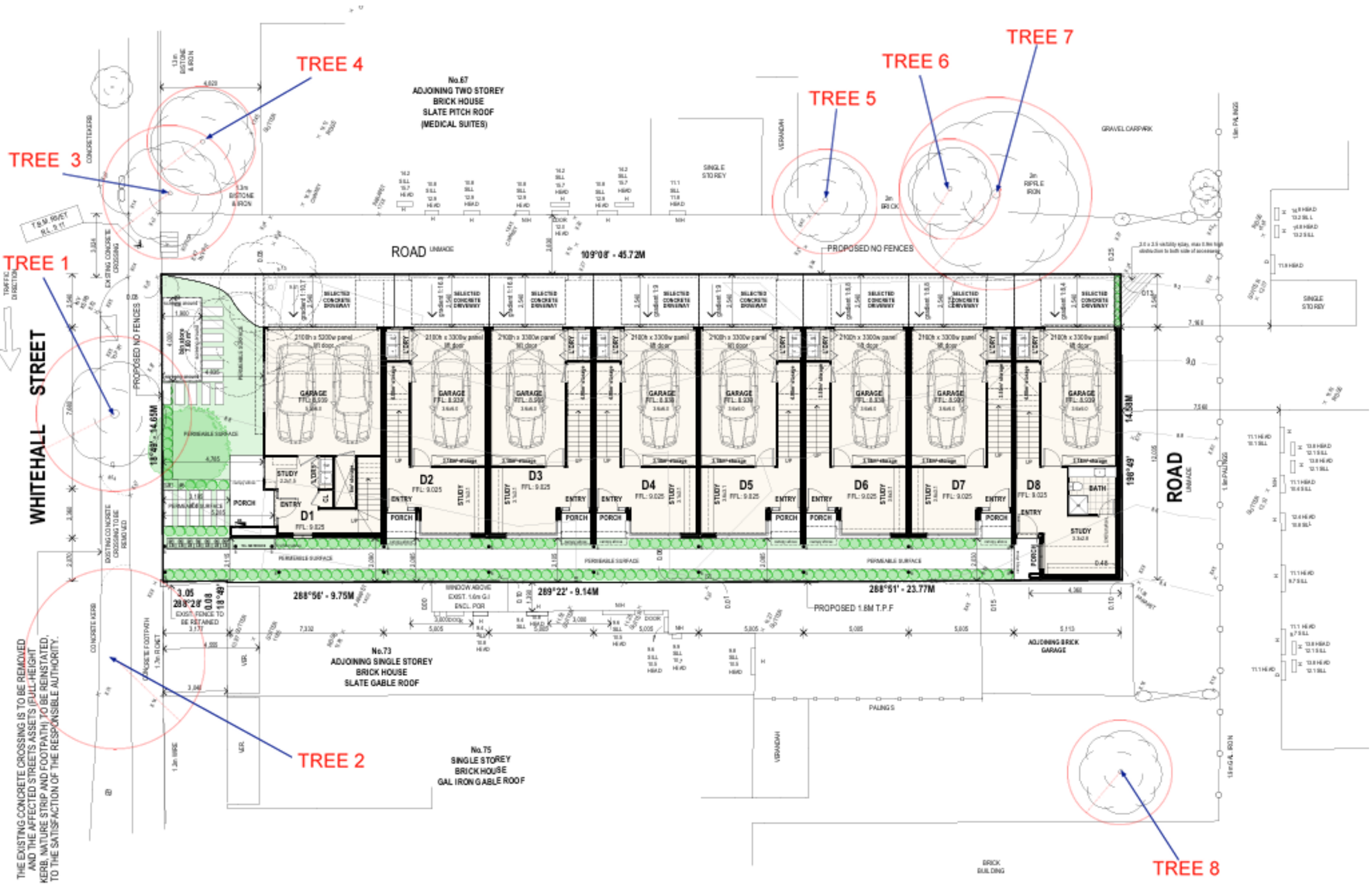
5.1 Site address

The subject site is located at 71 Whitehall Street, Footscray, Victoria, 3011.



6 TREE DETAILS

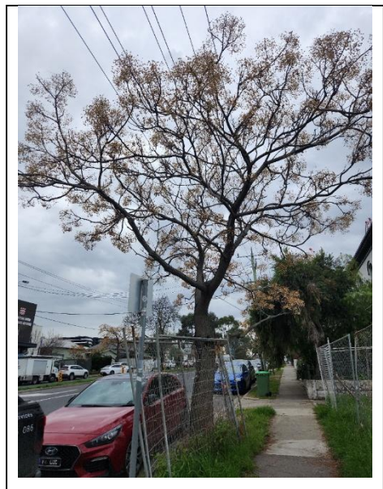
6.1 Indicative tree locations



6.2 Table of data

6.2.1 Trees within Council owned nature strip:

Num	ID	Vegetation controls	Height	Span	Stem diameter @ 1.4 m	Stem diameter @ base	Structural Root Zone (radius)	Tree Protection Zone (radius)	Observations	Health	Structure	Age	Useful Life Expectancy
1	Melia azedarach	Council	6 m	10 m	31 cm	47 cm	2.4 m	3.7 m		Good	Fair	Mature	Medium
2	Melia azedarach	Council	7 m	9 m	36 cm	53 cm	2.5 m	4.3 m		Good	Fair	Mature	Medium

	
1	2

6.2.2 Trees within adjacent properties:

Num	ID	Vegetation controls	Height	Span	Stem diameter @ 1.4 m	Stem diameter @ base	Structural Root Zone (radius)	Tree Protection Zone (radius)	Observations	Health	Structure	Age	Useful Life Expectancy
3	Callistemon viminalis	Third Party	6 m	6 m	27 cm	32 cm	2.1 m	3.2 m		Good	Fair	Mature	Medium
4	Acacia sp.	Third Party	6 m	7 m	22 cm	25 cm	1.8 m	2.6 m		Good	Fair	Mature	Medium
5	Olea europaea	Third Party	6 m	7 m	21 cm	-	1.8 m	2.5 m		Good	Fair	Mature	Medium
6	Olea europaea	Third Party	6 m	4 m	20 cm	-	1.8 m	2.4 m		Good	Fair	Mature	Medium
7	Schinus areira	Third Party	11 m	9 m	38 cm	-	2.3 m	4.6 m		Good	Fair	Mature	Medium
8	Prunus armeniaca	Third Party	5 m	5 m	-	-	1.8 m	2.5 m		Good	Fair	Mature	Medium

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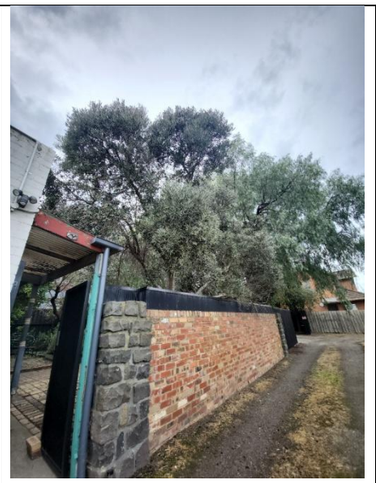

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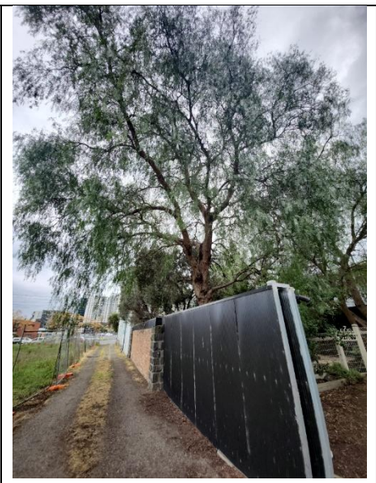

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8

7 SITE CONTEXT

The subject site at 71 Whitehall Street, Footscray, is an undeveloped and vacant allotment that has been fully cleared of all structures, trees, and shrubs. The property is currently a blank canvas for development, with all existing vegetation having been previously removed.

Surrounding the property, a number of trees are located on adjoining properties. These trees are situated with a sufficient setback from the subject site, with some being further separated by a paved laneway. Additionally, the streetscape is defined by a row of mature, Council-owned trees, which contribute to the public amenity of the area.

8 VEGETATION CONTROLS

8.1 Trees within Council nature strip

The trees situated within the nature strip are under the exclusive ownership and management of the Maribyrnong City Council. Consequently, these trees are to be considered for preservation and protection throughout all phases of the proposed development. Any intervention involving the removal of, or significant impact to, these trees must receive explicit approval from the Maribyrnong City Council.

8.1.1 List of Council owned trees:

The following trees are located within the Council nature strip:

Num	ID	Vegetation controls	Structural Root Zone (radius)	Tree Protection Zone (radius)
1	Melia azedarach	Council	2.4 m	3.7 m
2	Melia azedarach	Council	2.5 m	4.3 m

8.2 Trees in third party ownership

Trees on neighbouring properties are the assets and responsibility of their respective owners. Our utmost priority during all construction activities on this site is the preservation and protection of these trees.

Any actions that could potentially impact neighbouring trees, including their removal, require explicit written permission from the relevant property owner(s).

8.2.1 Trees within neighbouring properties:

The following trees are located with adjacent properties and are to be retained and protected during the subject property's development:

Num	ID	Vegetation controls	Structural Root Zone (radius)
3	Callistemon viminalis	Third Party	2.1 m
4	Acacia sp.	Third Party	1.8 m
5	Olea europaea	Third Party	1.8 m
6	Olea europaea	Third Party	1.8 m
7	Schinus areira	Third Party	2.3 m
8	Prunus armeniaca	Third Party	1.8 m

9 TREE PROTECTION

9.1 Impact of development on trees

The integration of living trees within development projects requires careful planning and execution due to their intrinsic biological complexity and vulnerability. Trees are intricate organisms that depend on specific environmental conditions for healthy growth and are highly susceptible to stress, damage, and irreversible injury from construction activities. The subterranean root system, often extending far beyond the canopy dripline, is particularly sensitive to disturbance, and damage sustained during development can lead to long-term decline or even tree mortality. Therefore, the implementation of robust preventative measures is paramount for successful tree retention.

Effective tree protection must be considered and applied throughout every stage of the development process, from initial conceptualization to post-construction. Early identification and comprehensive assessment of valuable trees during the preliminary planning phases are crucial. This proactive approach allows for informed decisions regarding tree retention and enables the development design to seamlessly integrate existing vegetation, optimizing site utilization in a tree-sensitive manner. By understanding the extensive nature of tree root systems and canopy spreads, potential conflicts can be identified and mitigated before they become problematic, ensuring minimal negative impact on trees designated for preservation.

9.2 Structural Root Zone (SRZ)

The Structural Root Zone (SRZ) is a fundamental component of the overall Tree Protection Zone, representing the essential area required for a tree's structural stability and anchorage. It is typically modelled as a hypothetical radius around the base of the tree where the majority of critical structural roots are expected to be found. Any proposed impact or encroachment within the SRZ is considered a major disturbance and necessitates rigorous additional investigation by a qualified arborist, often involving non-destructive excavation techniques. The removal or significant severance of tree roots within the SRZ is rarely permissible due to the direct threat it poses to the tree's stability and long-term survival. It is important to note that environmental factors, such as soil type, topography, and previous site disturbance, can significantly influence the actual establishment and distribution of structural roots. The SRZ radius is also measured from the centre of the tree stem at ground level.

9.3 Notional Root Zone

The Notional Root Zone (NRZ) serves as the initial calculation for establishing a tree's critical Tree Protection Zone (TPZ). It provides a preliminary estimate of the minimum area required to support the tree's root system, based on its trunk size.

The radius of the NRZ is determined using a straightforward calculation:

Radius of the NRZ = Stem Diameter @ 1.4m × 12

Here, the stem diameter is measured at a standard height of 1.4 meters above ground level. This measurement point is commonly used in arboriculture for consistency.

The calculated NRZ radius is measured outwards from the true centre of the tree's stem at ground level.

9.3.1 Important constraints for NRZ calculation:

To ensure realistic and practical protection zones, the calculated NRZ radius is subject to specific minimum and maximum limits:

- The NRZ radius shall not be less than 2 meters. This minimum ensures that even small trees receive a basic level of root protection.

- The NRZ radius shall not be greater than 15 meters. This maximum acknowledges that root systems, while extensive, have practical limits, and an overly large protection zone may not always be warranted or feasible in developed areas.

The NRZ is a foundational element, acting as the starting point for determining the more comprehensive Tree Protection Zone (TPZ), which often requires further refinement based on specific site conditions and proposed impacts.

9.4 Tree Protection Zone

Establishing and maintaining a Tree Protection Zone (TPZ) is the most important part of protecting trees during the onsite stages of work (e.g. site establishment, demolition, construction). The TPZ is the zone determined by the project arborist as set out below.

9.4.1 Determining a Tree Protection Zone:

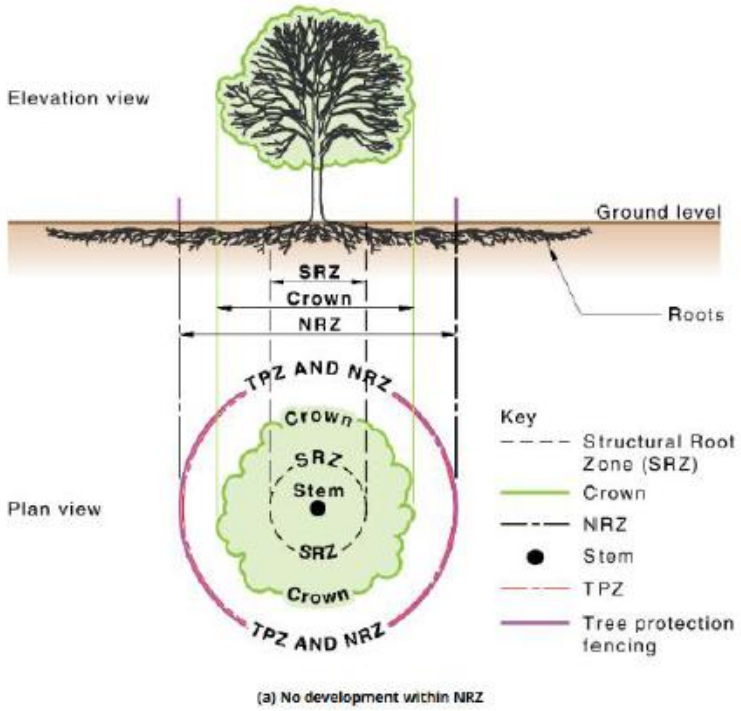
The Notional Root Zone is the starting point for determining the Tree Protection Zone. The TPZ should be determined using the considerations and encroachments as follows:

(a) Location and distribution of the roots.
(b) Potential loss of root mass resulting from encroachment (number of roots and diameter of roots).
(c) Tree species and tolerance to root disturbance.
(d) If the work will result in temporary (e.g. service trench) or permanent (e.g. basement car park loss of available soil volume.
(e) Age, health, current size and projected size of the tree.
(f) Presence of other trees with overlapping NRZ or grafted roots.
(g) Proposed staging and timing of excavation or root cutting.
(h) Proposed maintenance and tree care activities.
(i) Lean and stability of the tree.
(j) Soil characteristics and volume, topography and drainage.
(k) Presence of existing or past structures, obstacles affecting root growth or recent encroachments.
(l) Proposed construction measures that reduce the impact on trees.
(m) Whether a root investigation is required. The location and distribution of the roots should be determined through minimal destructive investigation methods (pneumatic, hydraulic, hand

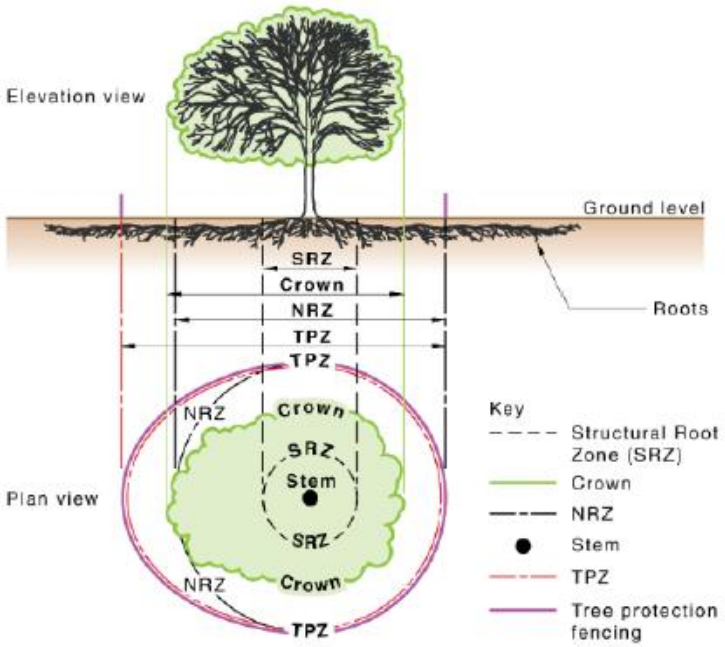
digging or ground penetrating radar). Photographs should be taken and were needed to address geospatial issues; a root map should be prepared.

NOTE 1 Construction measures such as pier and beam, suspended slabs, cantilevered building sections and screw piles can reduce the impact of the encroachment.

NOTE 2 Root damage should be minimised during this process. The roots should only be exposed for as long as required to meet the purposes of the investigation.



(a) No development within NRZ



(b) No development within NRZ but with crown protection required

10 MANAGING PROPOSED ENCROACHMENTS

10.1 Tree Protection Zone encroachments

The management of development within Tree Protection Zones (TPZs) requires a balanced approach that respects both development needs and the imperative of tree preservation. Australian Standard 4970-2025 (Protection of trees on development sites) provides a robust framework for this balance.

10.2 Balancing development needs with tree preservation

Australian Standard 4970-2025 acknowledges that some level of encroachment into a TPZ may be unavoidable in urban development. It generally considers minor encroachments (defined as impacting less than 10% of the total TPZ area and occurring outside the critical Structural Root Zone) as potentially acceptable, provided appropriate mitigation strategies are employed. However, the overarching principle remains to always minimize any direct or indirect impact on trees. The aim is to integrate the built environment with the natural landscape in a way that allows both to thrive.

10.3 Benefits of tree retention

Retaining and protecting trees within development sites offers a multitude of immediate and long-term benefits that significantly enhance the project's value and sustainability:

- **Enhanced aesthetics and amenity:** Trees contribute significantly to the visual appeal of a development, softening hardscapes, improving streetscapes, and creating a more pleasant environment for occupants and the broader community.
- **Environmental sustainability:** They provide crucial ecological services such as natural shade (reducing urban heat island effect and energy consumption for cooling), effective stormwater management (reducing runoff and erosion), air quality improvement (filtering pollutants), and carbon sequestration.
- **Increased property value:** Mature trees are consistently linked to higher property values and faster sales.
- **Biodiversity support:** Trees provide vital habitat, food, and shelter for various flora and fauna, contributing to local biodiversity.

- **Long-term value and resilience:** While trees may take decades to reach maturity, their long-term value can be rapidly diminished or lost due to a lack of understanding of their specific needs, particularly concerning the unseen and vulnerable root systems. Proactive, early intervention and consistent protection measures throughout the development lifecycle are therefore absolutely vital for ensuring their successful long-term survival and continued contribution to the site.

10.4 Key points for successful tree protection

Achieving successful tree protection in development hinges on several critical practices:

- **Early identification and planning:** Identifying valuable trees during the initial stages of site assessment and development planning is paramount. This allows project teams to make informed decisions about their retention, potential impacts, and necessary design adjustments, thereby minimizing the likelihood of encountering conflicts with unsuitable trees later in the project lifecycle.
- **Minimal impact design:** The development plan should be meticulously designed to actively minimize any negative impacts on trees designated for preservation. This includes thoughtful consideration of building footprints, underground services, access routes, and construction methodologies to avoid or reduce encroachment into TPZs and SRZs.
- **Consistent monitoring and management:** Effective tree protection requires continuous monitoring by qualified arborists and strict adherence to established tree protection plans throughout all demolition and construction phases.

10.5 Minor encroachments

Encroachments of less than 10% are minor and acceptable in accordance with Australian Standard 4970-2025 (Protection of trees on development sites).

The following trees will experience a minor encroachment:

Num	ID	Structural Root Zone (radius)	Tree Protection Zone (radius)	Encroachment into Tree Protection Zone
1	Melia azedarach	2.4 m	3.7 m	5.4%
2	Melia azedarach	2.5 m	4.3 m	0%
3	Callistemon viminalis	2.1 m	3.2 m	0%
4	Acacia sp.	1.8 m	2.6 m	0%
5	Olea europaea	1.8 m	2.5 m	0%
6	Olea europaea	1.8 m	2.4 m	0%
7	Schinus areira	2.3 m	4.6 m	0%
8	Prunus armeniaca	1.8 m	2.5 m	0%

These trees experience encroachments of less than 10% within their Tree Protection Zones, which is considered a minor impact according to Australian Standard 4970-2025 (Protection of trees on development sites). Therefore, further justification is deemed unnecessary.

11 FINDINGS

11.1 Conclusion

Based on the arboricultural assessment, it has been determined that the proposed development at 71 Whitehall Street, Footscray, will not have a detrimental impact on the health and structural integrity of the retained trees on the Council nature strip and neighbouring properties. The site is a vacant allotment, and as such, no trees on the subject property are impacted by the proposed works. While one Council-owned tree will experience a minor encroachment into its Tree Protection Zone, this is considered acceptable under Australian Standard 4970-2025 (Protection of trees on development sites).

11.2 Recommendation

To ensure the long-term health and preservation of all retained trees, it is recommended that a comprehensive Tree Protection Management Plan be produced after the planning permit has been issued. This plan, developed by a qualified arborist, will detail specific measures to protect these trees during all stages of demolition, excavation, and construction. The plan should include the precise location of tree protection fencing, guidelines for works within or near Tree Protection Zones, and a schedule for arborist supervision to ensure strict compliance and prevent any unforeseen damage.

12 APPENDICES

12.1 Appendix A – Tree descriptors

AGE	
Young	Juvenile or recently planted approximately 1-7 years.
Semi Mature	Tree actively growing.
Mature Tree	Has reached expected size in situation.
Over Mature	The tree is over mature and has started to decline. (Senescent)

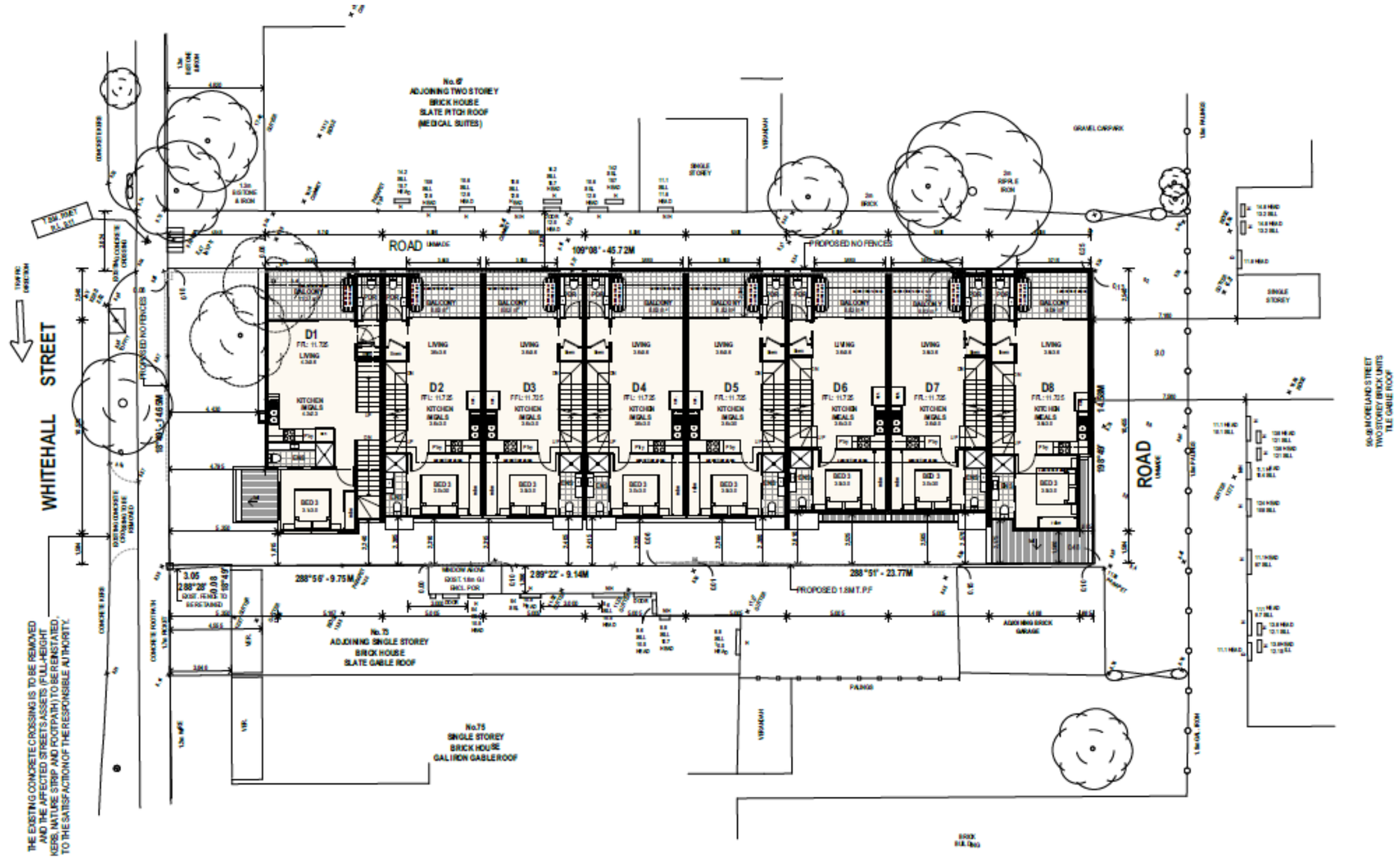
HEALTH	
Good	The foliage of the tree is entire, with good colour, very little sign of pathogens and of good density. Growth indicators are good i.e. Extension growth of twigs and wound wood development. Minimal or no canopy die back (deadwood).
Fair	Tree is showing one or more of the following symptoms; < 25% dead wood, minor canopy die back, foliage generally with good colour though some imperfections may be present. Minor pathogen damage present, with growth indicators such as leaf size, canopy density and twig extension growth typical for the species in this location.
Poor	Tree is showing one or more of the following symptoms of tree decline; > 25% deadwood, canopy die back is observable, discolored or distorted leaves. Pathogens present, stress symptoms are observable as reduced leaf size, extension growth and canopy density.
Dead or dying	Tree is in severe decline; > 55% deadwood, very little foliage, epicormic shoots, minimal extension growth.

STRUCTURE	
Good	Trunk and scaffold branches show good taper and attachment with minor or no structural defects. Tree is a good example of the species with a well-developed form showing no obvious root problems or pests and diseases.
Fair	Tree shows some minor structural defects or minor damage to trunk e.g. bark missing, there could be cavities present. Minimal damage to structural roots. Trees could be seen as typical for this species.
Poor	There are major structural defects, damage to trunk or bark missing. Co-dominant stems could be present or poor structure with likely points of failure. Girdling or damaged roots obvious. Tree is structurally problematic.
Hazardous Tree	Is an immediate hazard with potential to fail; this should be rectified as soon as possible.

CONDITION	
Good	Growth is 75-100% of optimum.
Moderate	Growth is 50-75% of optimum.
Moderate Poor	Growth is 25-50% of optimum.
Poor	(a) No recent increase in canopy; size less than 25% of optimum. (b) New growth, but plant less than 10% of optimum. (c) Growth less than 25% of optimum, new leaves but only slight recent increase in canopy size. (d) Growth less than 25% of optimum, major stem resprouting.
Dead	Plant is dead.

USEFUL LIFE EXPECTANCY	
Short	Tree may be dead or mostly dead. Trees may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high-risk potential cannot be remedied. Trees are exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Over-mature and senescing. Infrastructure conflicts with heightened risk potential. The tree has outgrown site constraints. The trees is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to be present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management.
Medium	Trees do not show symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). The tree may be over-mature and senescing. Trees display normal growth characteristics. Trees may be growing in restricted environment (e.g. Streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.
Long	Generally juvenile and semi-mature trees exhibit normal growth characteristics in parks or open space. Could also be maturing, long-lived trees. Tree well suited to the site with negligible potential for infrastructure conflicts.

12.2 Appendix B – Development plans



FIRST FLOOR PLAN

MULTI UNIT DEVELOPMENT
71 WHITEHALL STREET
FOOTSCRAY VIC 3011

A05

five7.

13 REFERENCES

Australian Standard 4970-2025 (Protection of trees on development sites)

Australian Standard 4373-2007 (Pruning of amenity trees)

Vicplan (mapshare.vic.gov.au)

Google Maps

MapBrowser | Nearmap


ATC
LAND MANAGEMENT
0411 246 086
Arboricultural and
Environmental
Services

37°48'16.4"S
144°54'16.9"E

Residential Development: 71 Whitehall Street, Footscray

Waste Management Plan

25 August 2025
Prepared for B and J Housing Development

IMP2505027WMP01F01

Impact

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Version	Date	Author
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Contents

Tables

Figures

Appendices

1 Introduction

1.1 Engagement

IMPACT® have been engaged by B and J Housing Development to prepare a Waste Management Plan (WMP) for the proposed development at 71 Whitehall Street, Footscray

1.2 Scope of Engagement

This Waste Management Plan has been prepared to accompany a town planning submission.

In preparing this assessment we have referenced the following:

- Development plans prepared by five7 Architects
- City of Maribyrnong Waste Services Policy
- Sustainability Victoria's 'Waste Management and Recycling in Multi-Unit Developments Better Practice Guide'

2 Existing Conditions

2.1 Location

The subject site is located on the south side of Whitehall Street as illustrated in Figure 1 and Figure 2.

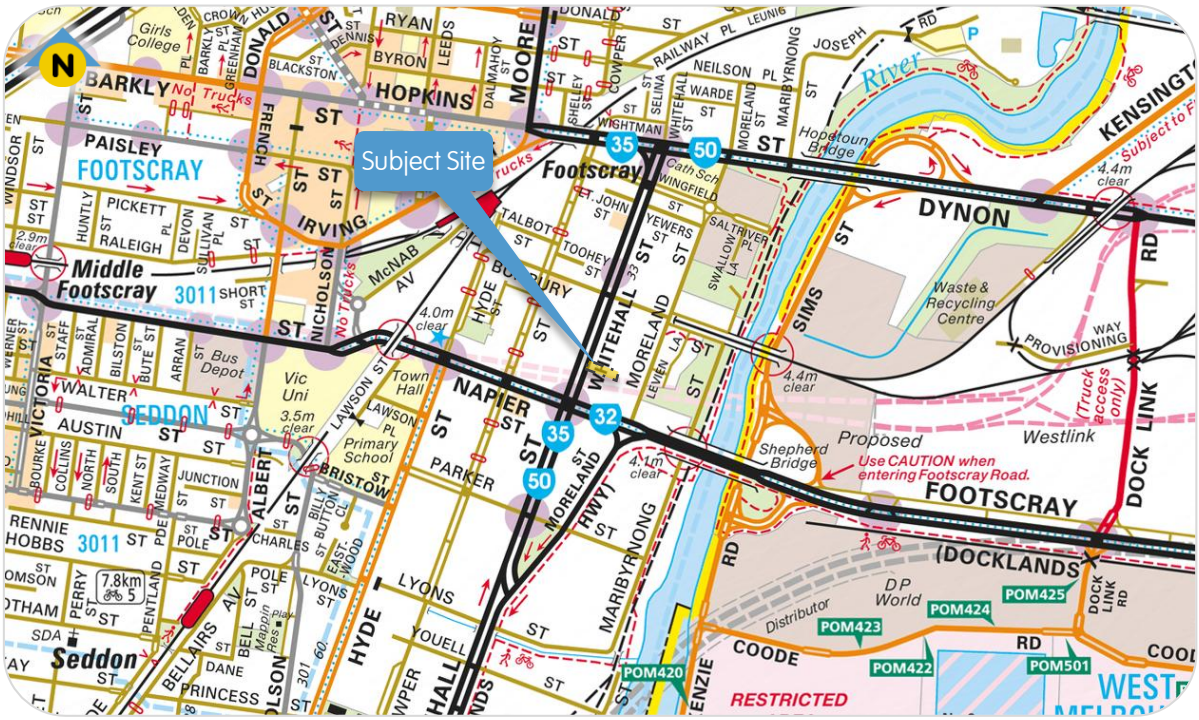


Figure 1 Location of Subject Site

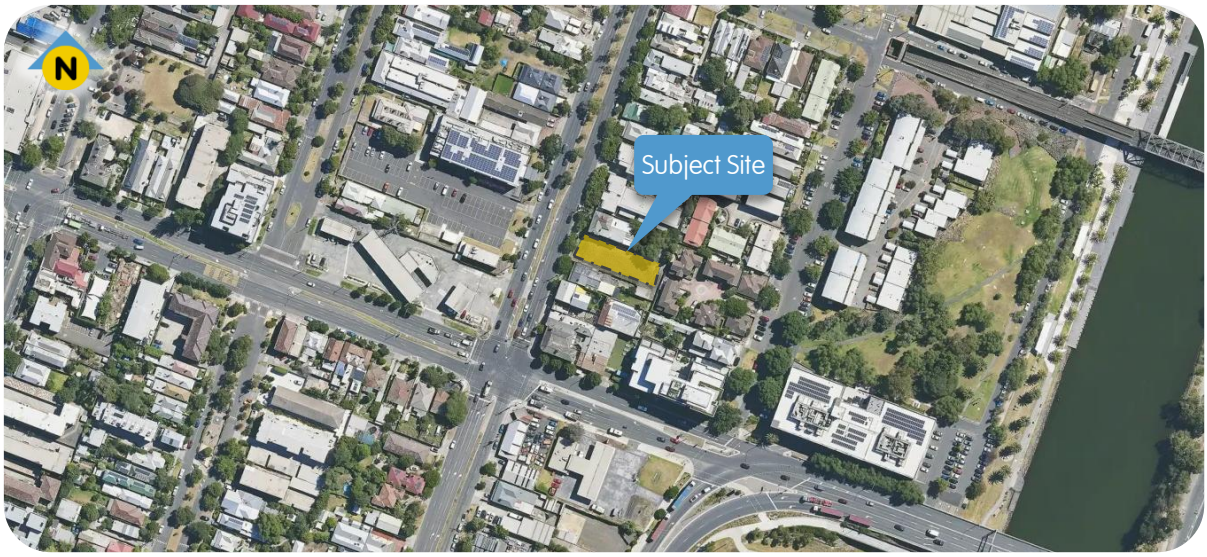


Figure 2 Aerial View of Subject Site

The site is symmetrical in shape with a frontage of approximately 14 metres to Whitehall Street.

2.2 Planning Zone

The subject site is located within the Activity Centre Zone (ACZ1) as illustrated in Figure 3.

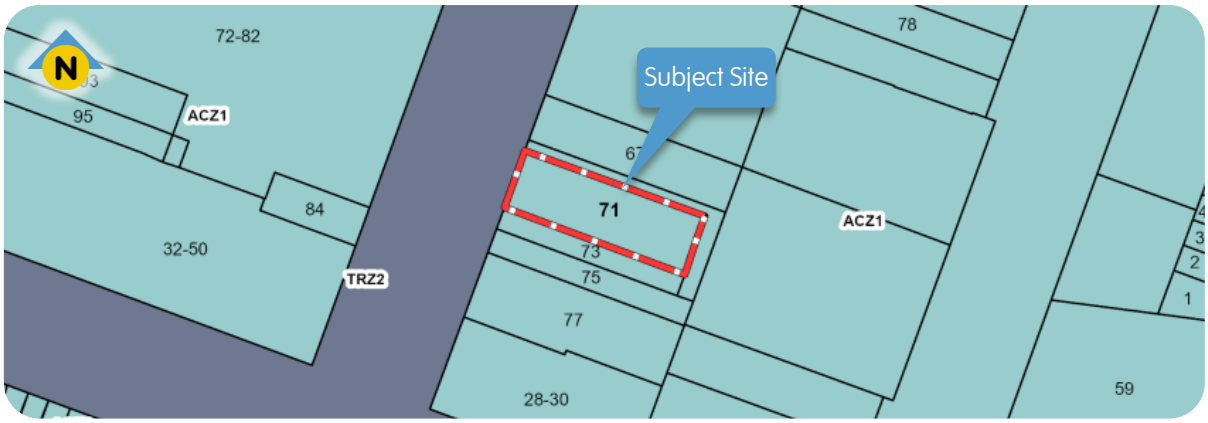


Figure 3 Land Use Planning Zone

The purpose of this zone is to:

- To encourage a mixture of uses and the intensive development of the activity centre:
  - As a focus for business, shopping, working, housing, leisure, transport and community facilities.
  - To support sustainable urban outcomes that maximise the use of infrastructure and public transport.
- To deliver a diversity of housing at higher densities to make optimum use of the facilities and services.
- To create through good urban design an attractive, pleasant, walkable, safe and stimulating environment.
- To facilitate use and development of land in accordance with the Development Framework for the activity centre.

3 Development Proposition

3.1 Use and Yield

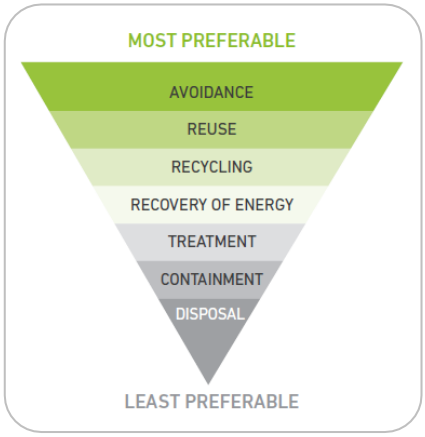
It is proposed the develop the site as a residential development to provide eight (8) three-bedroom dwellings.

4 Objectives

The primary objective of this WMP is to:

- Identify all potential waste streams likely to be generated on site; and
- Provide a description of how waste is likely to be stored, handled, processed and disposed of, or reused and recycled.

This WMP seeks to establish principles by which the design, provision and maintenance of services and infrastructure that enable garbage, recycling, organics and bulky waste services to be operated at the development site in the best possible way in order to improve resource recovery and align with the principles of waste hierarchy.



5 Waste Generation

5.1 Expected Waste Generation

It is proposed to utilise council collections and waste bin arrangements. Reference is made to Maribyrnong City Council's Waste Management Policy 2019 to inform the expected waste generation and service entitlements.

The guide goes on to recommend the following waste provision for residential developments of 5-9 dwellings:

- **Garbage** 1x 240L bin shared between 2 dwellings
- **Recycling** 1x 240L bin shared between 2 dwellings
- **FOGO** Optional 120L or 240L bins as requested by building management

The guide notes that they are collect with the following frequency:

- **Garbage** Weekly collection
- **Recycling** Fortnightly collection
- **FOGO** Fortnightly collection

6 Equipment and Systems

6.1 General

A communal waste storage area is proposed to service the development. As such, the Owner's Corporation shall be responsible for maintaining and facilitating the operation of the on-site communal bin room.

6.2 Bins

Bins are to be provided in line with the recommendations of Maribyrnong City Council as outlined in Section 5.1. the sites eight (8) townhouses will be provided:

- **Garbage** 4 x 240 L MGB
- **Recycling** 4 x 240 L MGB
- **FOGO** 2 x 240 L MGB
- **Glass** 1 x 240L MGB

Current Victorian State Policy is to encourage separation and diversion away from landfill as much as possible. This includes the ongoing introduction of a four-waste stream collection service around the state (landfill, recycling, food & organics, glass recycling).

Excess space within the communal waste storage area has been provided for 1x 240L glass recycling bins when Council does decide to implement glass collections.

Typical bin sizes / dimensions for each of the bins proposed are provided below in Table 1, derived from the Sustainability Victoria Guideline.

Table 1 Bin Dimensions

Bin Size (L)	Height (mm)	Depth (mm)	Width (mm)
240 MGB	1,080	735	585

6.3 Bin Storage Area

A communal bin storage area has been designed to accommodate the required bins and has been located as shown below in Figure 4 to provide convenient access to all residents.

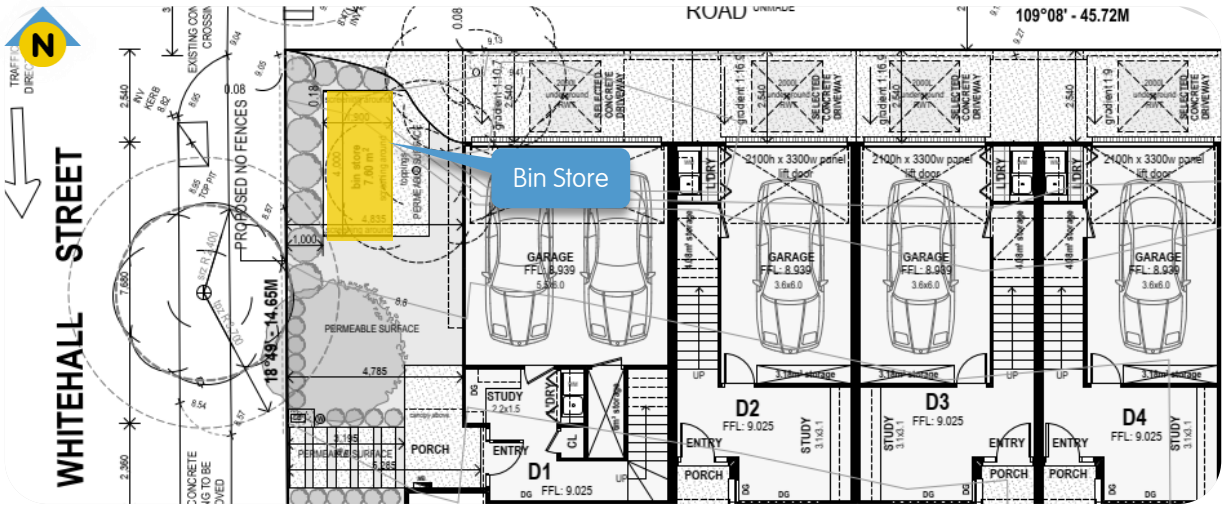


Figure 4 Proposed Bin Store

6.4 Collection Arrangements

6.4.1 Responsibility

Waste is to be collected by Council via the Municipal waste collection service.

6.4.2 Collection Frequency

The collection frequency for each waste type and stream are summarised in Table 2.

It is noted that the FOGO and recycling waste streams are collected on alternating weeks to one another.

Table 2 Waste Collection Frequency

Component	Collection Frequency
Garbage	Once a Week
Recycling	Once a Fortnight
FOGO	
Glass	As required

6.4.3 Waste Disposal

Residents will be responsible for manually transporting individual waste between dwellings and the proposed communal store.

Garbage shall be placed within tied plastic bags prior to being transferred to the designated waste bin.

Cardboard shall be flattened and recycling containers un-capped, drained, and rinsed prior to disposal into the appropriate bin. Bagged recycling is not permitted.

Each dwelling shall be provided with a kitchen caddy and compostable caddy liners to assist with the segregation of food waste generated by residents before being placed in the assigned waste bin.

6.4.4 Waste Collection

The Owner's Corporation representative / Residents will be responsible for presenting the waste bins to Whitehall Street for collection by Council's Municipal waste services.

As per Council's bin placement guide, bins shall be presented kerbside as illustrated below in Figure 5. There is sufficient room along the street frontage to adhere to below requirements.

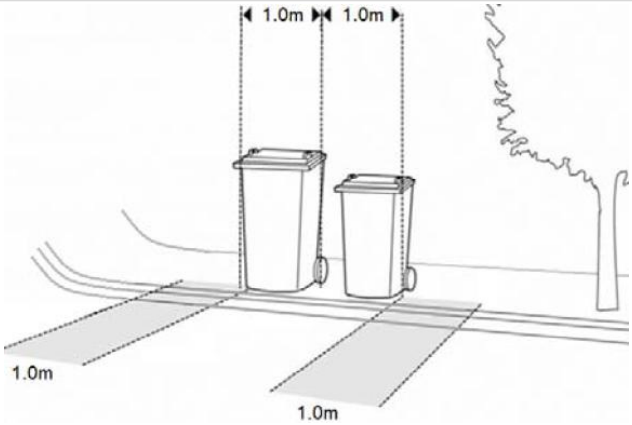


Figure 5 Maribyrnong Council Bin Placement Guide

6.5 Amenity Management

6.5.1 Washing, Ventilation and Vermin-Prevention Measures

The Owner's Corporation shall maintain, wash, sanitise/deodorise and arrange vermin prevention measures for their bin area as required.

6.5.2 Noise Reduction Measures

The Owner's Corporation representative / Residents will be required to wheel their bins out for collection the night before collection day to avoid amenity impacts. The collection bins will also have rubber wheels for quiet rolling during transfers.

The hours of waste collections shall be as specified in Council's local laws and / or in accordance with the Victorian EPA Noise Control Guideline, which sets out the following requirements:

- Collection occurring once a week should be restricted to the hours: 6am to 6pm Monday to Saturday.
- Collections occurring more than once a week should be restricted to the hours: 7am to 6pm Monday to Saturday.
- Compaction should only be carried out while on the move.
- Bottles should not be broken up at the point of collection.
- Routes which service entirely residential areas should be altered regularly to reduce early morning disturbance.
- Noisy verbal communication between operators should be avoided where possible

6.5.3 Stormwater Pollution Prevention

To prevent stormwater pollution, each resident will be required to:

- Ensure all waste is disposed into bins;
- Ensure rubbish and recycling items are secured so they can't blow away;
- Keep bins closed to prevent animals from searching through waste; and
- Make sure any bin spillage is cleaned up using dry absorbent materials (such as sand, sawdust or paper towel, as required).

6.5.4 Other Waste Streams

6.5.4.1 Hard Waste

City of Maribyrnong offers residents one (1) free hard waste collection per year, a fee is charged for additional collections. Hard waste can also be taken to a nearby landfill / transfer station to be disposed of. The closest landfill facility is currently the Citywide Transfer Station, located approximately 1.7km east of the subject site.

6.5.4.2 E-waste

Any e-waste (mobile phones, computers, household appliances, etc) is expected to be recycled at allocated drop-off points in the locality.

E-waste drop-off points include:

- Bristow Street Car Park, Seddon
- Donald Street Car Park, Footscray
- Raleigh Road Activity Centre, 56 Raleigh Road, Maribyrnong
- Recwest Car Park, 61 Essex St, West Footscray

— Hansen Reserve, 35A Roberts Street, West Footscray

6.6 Communication Strategy

To ensure minimal contamination and maximised recycling, waste bins should be clearly marked and signed with the appropriate information as indicatively shown below, or equivalent to indicate the appropriate disposal of different waste streams.

Figure 6 Example Waste Signage

6.7 Responsibility

The Owner's Corporation will be responsible for implementing the Waste Management Plan and providing residents with correct and current information and operating practices as required.

The Owner's Corporation will be responsible for engaging and managing the waste collection contractor, including frequency of collections, and monitoring the transfer of bins between the bin room and collection vehicle.

The Owner's Corporation will be responsible for ensuring occupants and owners receive a copy of the endorsed Waste Management Plan, including when occupancy and ownership changes.

Additionally, the Owner's Corporation must ensure that a copy of the endorsed Waste Management Plan is provided to occupants annually.

6.8 Contact Information

6.8.1 Council

City of Maribyrnong	Local Council	ph 9688 0200

6.8.2 Suppliers / Contractors

iDump:	Private Waste Collector	ph 1300 443 867
Kartaway	Private Waste Collector	ph 1300 362 362
Waste Wise Environmental	Private Waste Collector	ph 03 9359 1555
Sulo MGB Australia	Bin supplier	ph 1300 364 388

6.8.3 Other Useful Contacts

Sustainability Victoria	ph 1300 363 744
	Online: www.sustainability.vic.gov.au
Eco Waste Recycle Centre & Transfer Station	Online: www.ecowasterecycling.com.au
Cleanaway	Online: www.cleanaway.com.au

7 Limitations

This Waste Management Plan is intended to inform and accompany a town planning application.

The waste generation data presented in this report are estimates only based on the existing operations. Actual waste generation characteristics could vary month to month depending on demand and productivity. Accordingly, it is our expectation that the Building Manager / Site Operator will adjust the recommended strategy to respond to actual operational conditions post development. These adjustments could include, but are not limited to increasing the number of bins and or increasing the collection frequency - Subject to Council Approval.

To this end, Subject to Council request, changes in legal requirements, changes in the development's needs and / or waste patterns (waste composition, volume or distribution), or to address unforeseen operation issues, the operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required):

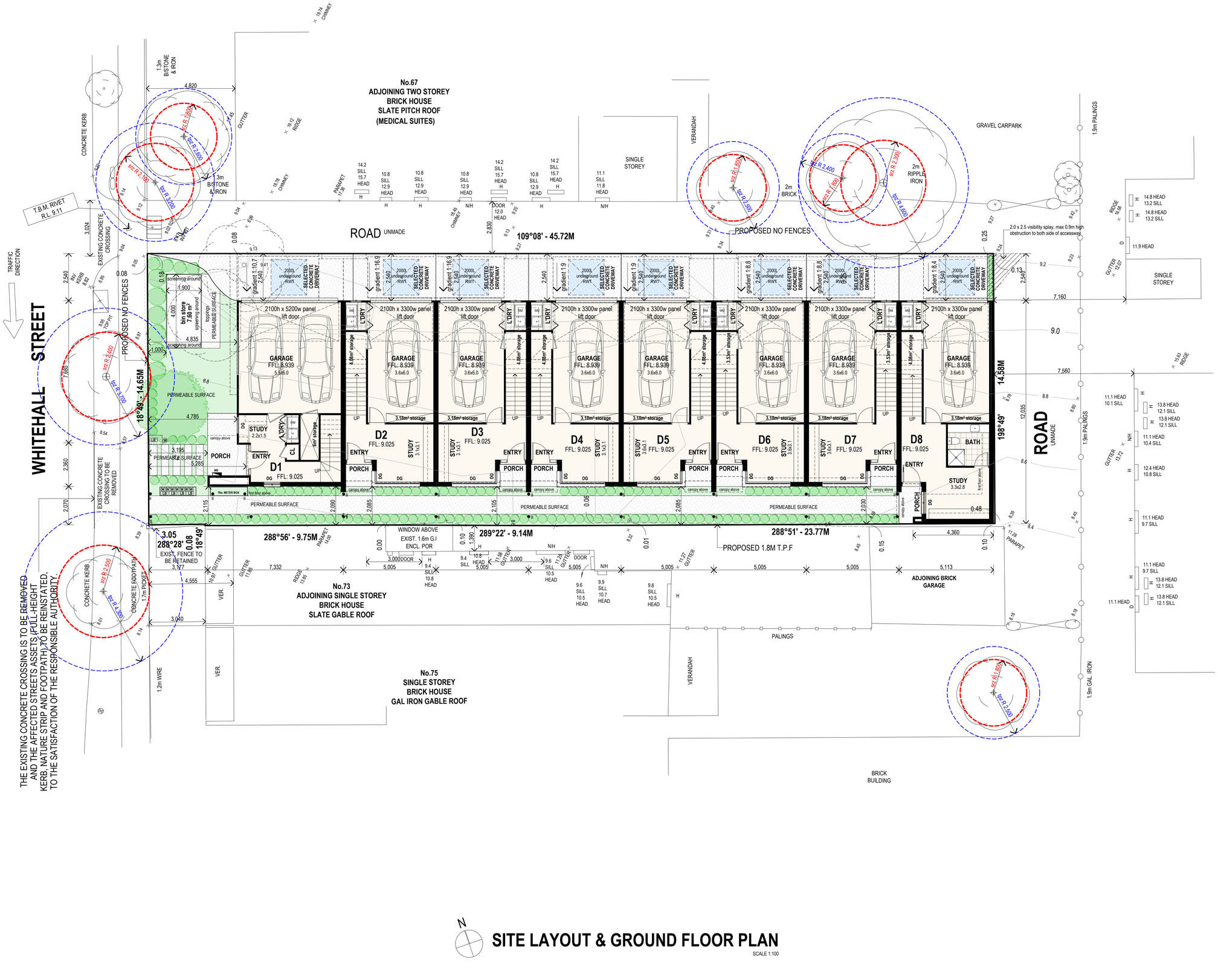
- A waste audit and new waste strategy;
- Revision of the waste systems (bin sizes / quantity / streams / collection frequency);
- Re-education of tenants;
- Revision of the services provided by the waste collector(s); and
- Any necessary statutory approval(s).

APPENDIX A
Scaled Site Plan

LEGEND	
LB	LETTER BOX
HWS	HOT WATER SERVICE
EM	ELECTRIC METER BOX
	BINS
HW	HABITABLE WINDOW
NHW	NON HABITABLE WINDOW
W	WATER METER
CL	CLOTHES LINE
RWT	RAIN WATER TANK
	AIRCONDITION / HEATING UNIT
	SOLAR PANELS
S	BOLLAR SENSOR LIGHTS
DG	DOUBLE GLAZING
	PROPOSED 1.8M TIMBER PALING INTERNAL FENCE
	LANDSCAPING (PERMEABLE)
	CONCRETE AREA (NON - PERMEABLE)
	PAVING (PERMEABLE)
	EXISTING TREE TO BE RETAINED
	EXISTING TREE TO BE REMOVED

AREA ANALYSIS	m2	sq
Dwelling 1		
porch	7.49	0.81
ground floor	21.63	2.33
first floor	60.82	6.55
second floor	52.31	5.63
garage	34.97	3.76
balcony	11.27	1.21
	188.49 m²	**20.29**
Dwelling 2		
porch	2.44	0.26
ground floor	21.99	2.37
first floor	52.59	5.66
second floor	42.55	4.58
garage	26.38	2.84
balcony	8.83	0.95
	154.78 m²	**16.66**
Dwelling 3		
porch	1.72	0.18
ground floor	21.99	2.37
first floor	52.57	5.66
second floor	42.55	4.58
garage	26.38	2.84
balcony	8.83	0.95
	154.04 m²	**16.58**
Dwelling 4		
porch	1.72	0.18
ground floor	21.99	2.37
first floor	52.57	5.66
second floor	42.67	4.59
garage	26.38	2.84
balcony	8.83	0.95
	154.16 m²	**16.59**
Dwelling 5		
porch	1.72	0.18
ground floor	21.99	2.37
first floor	52.61	5.66
second floor	42.67	4.59
garage	26.38	2.84
balcony	8.83	0.95
	154.20 m²	**16.59**
Dwelling 6		
porch	1.72	0.18
ground floor	21.99	2.37
first floor	51.44	5.54
second floor	41.92	4.51
garage	26.38	2.84
balcony	8.83	0.95
	152.28 m²	**16.39**
Dwelling 7		
porch	1.88	0.20
ground floor	21.99	2.37
first floor	51.40	5.53
second floor	41.92	4.51
garage	26.38	2.84
balcony	8.83	0.95
	152.40 m²	**16.40**
Dwelling 8		
porch	2.44	0.26
ground floor	32.00	3.44
first floor	53.38	5.75
second floor	41.82	4.50
garage	27.09	2.92
balcony	9.09	0.98
	165.82 m²	**17.85**

SITE ANALYSIS	
SITE AREA:	670.00m²
BUILT UP AREA:	537.00m²
SITE COVERAGE:	80.15%
PERMEABLE AREA:	132.50m²
PERMEABILITY:	20.22%



SITE LAYOUT & GROUND FLOOR PLAN

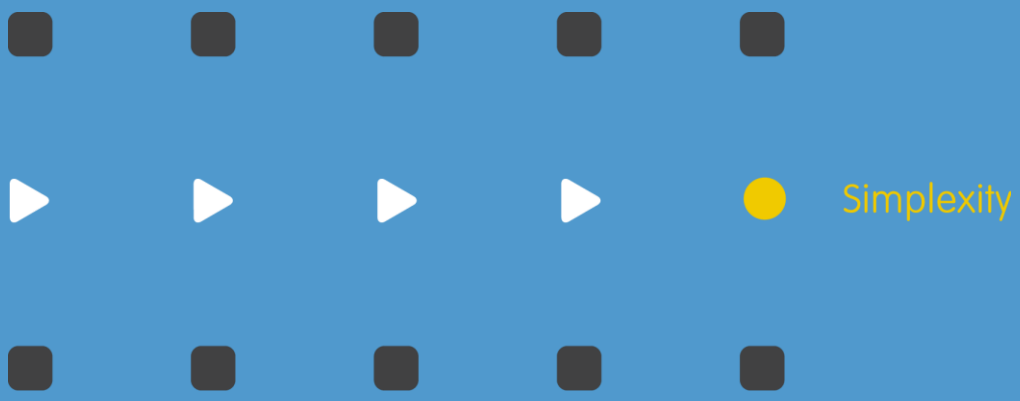
SCALE 1:100

PROJECT:
MULTI UNIT DEVELOPMENT

71 WHITEHALL STREET
FOOTSCRAY VIC 3011

PROJECT NO: **8323**
DATE: **21/08/25**
SHEET: **A04**
REVISION:
SCALE: **1:100, 1:1 @ A1**

five7.
L1, 49 NOTT STREET, PORT MELBOURNE VIC 3207
LEFTTURN.COM.AU | 1300 626 529 | HELLO@LEFTTURN.COM.AU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