

## Application Summary

Portal Reference A42558W1

## Basic Information

Proposed Use	Building and Works for the Construction and Use of a Child Care Centre, Removal of Vegetation & Display of Business Identification Sign.
Current Use	Single Dwelling
Cost of Works	\$4,522,000
Site Address	23 Ryan Road Pakenham 3810

## Covenant Disclaimer

Does the proposal breach, in any way, an encumbrance on title such as restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope? No such encumbrances are breached

Note: During the application process you may be required to provide more information in relation to any encumbrances.

## Contacts

Type	Name	Address	Contact Details
Applicant	Vanessa Knight Ryan Road Pakenham Pty Ltd	2 valley parade, glen iris VIC 3220	W: 5201-1811 E: brendan@stqc.com.au
Owner	George Rodda	1970 Main Drain Road, Vervale VIC 3814	
Preferred Contact	Brendan O'Loan St Quentin	39 McKillop Street, Geelong VIC 3220	W: 0430-039-559 E: brendan@stqc.com.au

## Fees

Regulation Fee Condition	Amount	Modifier	Payable
9 - Class 13 More than \$1,000,000 but not more than \$5,000,000	\$3,874.70	100%	\$3,874.70
9 - Class 1 Change of use only	\$1,496.10	50%	\$748.05
<b>Total</b>			<b>\$4,622.70</b>

## Meetings

Meeting Type	Officer Name	Date of Meeting
Pre Application	Jennifer Lim	15 May 2025



**Civic Centre**  
20 Siding Avenue, Officer, Victoria

**Council's Operations Centre (Depot)**  
Purton Road, Pakenham, Victoria

**Postal Address**  
Cardinia Shire Council  
P.O. Box 7, Pakenham VC, 3810

**Email:** mail@cardinia.vic.gov.au

Monday to Friday 8.30am–5pm  
**Phone:** 1300 787 624  
**After Hours:** 1300 787 624  
**Fax:** 03 5941 3784

## Documents Uploaded

Date	Type	Filename
12-11-2025	Site plans	A2_Architectural Plans.pdf
12-11-2025	Existing floor plan	A3_Acoustic Report.pdf
12-11-2025	A proposed floor plan	A4_Sustainability Management Plan.pdf
12-11-2025	Existing elevation plans	A5_Traffic Impact Assessment.pdf
12-11-2025	Proposed elevation plan	A6_Waste Management Plan.pdf
12-11-2025	Site plans	A7_Biodiversity Assessment.pdf
12-11-2025	Advertising Signs	A8_Arborist Impact Assessment.pdf
12-11-2025	Written Explanation	A_Planning Report_ChildCare Centre_Ryan Road Pakenham.pdf
12-11-2025	Additional Document	A9_CHMP Notice to Evaluate.pdf
12-11-2025	Additional Document	A10_Landscape Plan.pdf
12-11-2025	Additional Document	A11_Feature and Level Survey.pdf
12-11-2025	Additional Document	A12_Sewer Design Plans.pdf
12-11-2025	Additional Document	A13_Bushfire Risk Assessment.pdf
13-11-2025	A Copy of Title	A1_Copy of Title.pdf
13-11-2025	Additional Document	Metropolitan Planning Levy.pdf

Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit

## Lodged By

Site User	Brendan O'Loan St Quentin	39 McKillopp Street, Geelong VIC 3220	W: 5201-1811 E: brendan@stqc.com.au
Submission Date	13 November 2025 - 03:24:PM		

## Declaration

By ticking this checkbox, I, Brendan O'Loan, declare that all the information in this application is true and correct; and the Applicant and/or Owner (if not myself) has been notified of the application.

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**REGISTER SEARCH STATEMENT (Title Search) Transfer of  
Land Act 1958**

Page 1 of 2

VOLUME 09380 FOLIO 435

Security no : 124129848949R  
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**LAND DESCRIPTION**

Lot 3 on Plan of Subdivision 133697.  
PARENT TITLE Volume 09323 Folio 658  
Created by instrument LP133697 13/06/1980

**REGISTERED PROPRIETOR**

Estate Fee Simple  
TENANTS IN COMMON  
As to 1 of a total of 2 equal undivided shares  
Joint Proprietors  
    GEORDIE LOUISE RODDA  
    NATHANIEL RODDA both of 1970 MAIN DRAIN ROAD VERVALE VIC 3814  
As to 1 of a total of 2 equal undivided shares  
Joint Proprietors  
    BRAYDEN MATTHEW KENNEDY  
    HANNAH GRACE BRUMBY both of 17 KOOKABURRA CIRCUIT COWES VIC 3922  
    AU449251Y 11/06/2021

**ENCUMBRANCES, CAVEATS AND NOTICES**

MORTGAGE AU449252W 11/06/2021  
COMMONWEALTH BANK OF AUSTRALIA

CAVEAT AZ132173R 09/05/2025  
Caveator  
SPROUT ACQUISITIONS PTY LTD ACN: 684812495  
Grounds of Claim  
PURCHASERS' CONTRACT WITH THE FOLLOWING PARTIES AND DATE.  
Parties  
THE REGISTERED PROPRIETOR(S)  
Date  
24/04/2025  
Estate or Interest  
FREEHOLD ESTATE  
Prohibition  
ABSOLUTELY  
Lodged by  
DANAHER MOULTON  
Notices to  
DANAHER MOULTON of LEVEL 1 276 HIGH STREET KEW VIC 3101

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan or imaged folio set out under DIAGRAM LOCATION below.

**DIAGRAM LOCATION**

SEE LP133697 FOR FURTHER DETAILS AND BOUNDARIES

**ACTIVITY IN THE LAST 125 DAYS**

NIL



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The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

**REGISTER SEARCH STATEMENT (Title Search) Transfer of  
Land Act 1958**

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-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 23 RYAN ROAD PAKENHAM VIC 3810

**ADMINISTRATIVE NOTICES**

NIL

eCT Control 15940N COMMONWEALTH BANK OF AUSTRALIA  
Effective from 11/06/2021

DOCUMENT END



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**LP133697**  
**EDITION 1**  
 APPROVED 20/5/20

**PLAN OF SUBDIVISION**  
**PART OF CROWN ALLOTMENT 38**  
**PARISH OF NAR-NAR-GOON**  
 COUNTY OF HORNINGTON

0 25 50 75 100  
 LENGTHS ARE IN METRES

SURVEYORS CERTIFICATION

APPROPRIATIONS

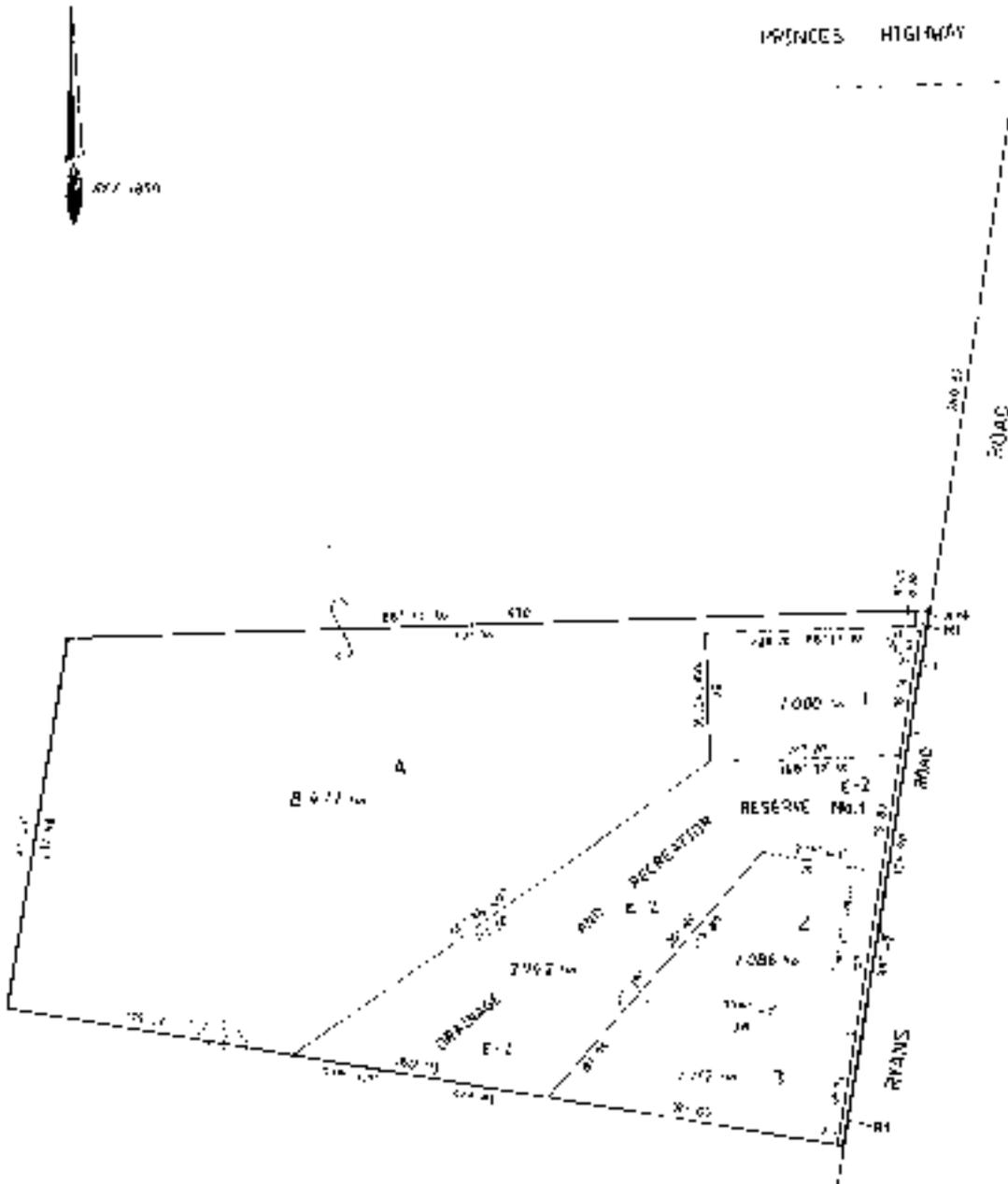
BROWN WAY, DRAINAGE, AND  
 SEWERAGE

GREEN - DRAINAGE

Vs1.9323 Fol. 69B

**COLOUR CONVERSION**  
 H1 = BROWN  
 E2 = GREEN

CHART NO. 6A



## PLANNING REPORT

Buildings and Works for the  
Construction and Use of a Child  
Care Centre, Removal of  
Vegetation & Display of Business  
Identification Sign@  
23 Ryan Road Pakenham





Document Control

**Document Title:** Planning Report

**Document Author:** Brendan O'Loan

**Client:** Ryan Road Pakenham Land Pty Ltd

**Job No:** 18526

Version No	Date created	Comments
1	18/07/2025	DRAFT
2	11/11/2025	DRAFT
3		



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# 1. Introduction

St Quentin has been instructed to prepare this planning report in relation to the Buildings and Works for the Construction and Use of a Child Care Centre, Removal of Vegetation and Display of Business Identification Sign at 23 Ryan Road Pakenham.

The purpose of this report is to detail the proposal and its context, outline its consistency with the relevant strategic framework and statutory controls, and in doing so explain why the proposal is worthy of Council's support and approval.

This report is supported by and should be read in conjunction with the following supporting documentation:

Appendix 1: Copy of Title

Appendix 2: Architectural Plans

Appendix 3: Acoustic Report

Appendix 4: Sustainability Management Plan

Appendix 5: Traffic Impact Assessment

Appendix 6: Waste Management Plan

Appendix 7: Biodiversity Assessment

Appendix 8: Arborist Impact Assessment

Appendix 9: CHMP Notice to Evaluate

Appendix 10: Landscape Plan

Appendix 11: Feature and Level Survey

Appendix 12: Sewer Design Plans

Appendix 13: Bushfire Risk Assessment



## 2. Key Considerations

The key considerations for Council to assess within this planning application are as follows:

### **Plan of Subdivision**

A concurrent planning application has been submitted for the subdivision of the subject site into two lots, with Lot 1 comprising 4,009m<sup>2</sup> and Lot 2 comprising 7,105m<sup>2</sup>. The proposed Child Care Centre will be situated on Lot 1, while Lot 2 will be accessed via a battleaxe driveway from Ryan Road.

The two-lot subdivision is expected to proceed more quickly than the Child Care Centre application and construction. Therefore, the applications have been submitted separately.

### **Appropriateness of location**

The subject site has several key features that make the site appropriate for the Child Care Centre use. Child Care centres are most compatible with residential areas rather than being in commercial or industrial zones where there may be reverse amenity impacts. This Low-Density Residential Zone site is a low impact and convenient site with generous setbacks from the nearest residential houses and from Ryan Road.

The location includes the following attributes:

- The Child Care Centre will be on a lot of 4,009m<sup>2</sup> which comfortably accommodates 114 children and the necessary car parks on site.
- The edge of the Child Care Centre building is located approximately 35m from the nearest house to the north and to the south.
- Located opposite an Urban Growth Zone which has already seen the establishment of residential housing. These growth areas commonly attract families with young children.
- The use of acoustic fencing to prevent noise transfer to neighbouring dwellings.
- Ryan Road provides direct access to East Pakenham Train Station and to the Pakenham Industrial Estate approximately 1.1km to the south. Ryan Road also provides direct access to Princes Highway approximately 900m to the north. This is convenient for parents dropping children off before going to their work places.

### **Sewer Connection**

There is an existing sewer main to the south-west of the site at 2A Pinehill Drive. The sewer main is being extended over 2C Pinehill Drive to the south-west boundary of 23 and 25 Ryan Road. Once the sewer main is extended, the Child Care Centre will be able to connect. This will obviate the need for the Child Care Centre to provide an area of effluent disposal on site. It is expected the sewer main extension will be constructed by the time this planning application is determined.

### **Ryan Road**

It has been previously suggested that as the Child Care Centre proposal may be approved prior to the Maple Grove Estate (on the eastern side of Ryan Road), that Ryan Road upgrades (as identified in the Pakenham East Infrastructure Contribution Plan) may fall on the Child Care applicant. The Traffic Impact Assessment prepared by One Mile Grid states that there is no basis to suggest Ryan Road will operate near capacity as a result of the Child Care Centre. Working on the principle of need and



nexus, it is not considered reasonable to require the Child Care Centre to undertake the Ryan Road upgrade.

### 3. Setting

#### 3.1. Subject Site



Figure 1: Subject site (Source: Landchecker 01/02/2025)

Street Address:	23 Ryan Road Pakenham
Title Details:	Lot 3 LP133697
Restrictions/Covenants:	Nil
Land Size:	11,122m <sup>2</sup>
Zone:	Low Density Residential Zone- Schedule 2 (LDRZ2)
Overlays:	Design and Development Overlay – Schedule 1 (DDO1) Vegetation Protection Overlay – Schedule 1 (VPO1)
Other Regulatory Constraints:	Area of Cultural Heritage Sensitivity



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## Bushfire Prone Area

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### Key Site Features:

A detached house is located on site in the south-eastern corner near Ryans Road. A crossover and driveway is at the north-eastern corner of the block providing vehicle access into the site and to a shed located directly behind the dwelling. Some scattered trees throughout the block but the majority of the vegetation is along the perimeter. The site falls from east to west by approximately 2.5 metres.

Ryan Road provides a sealed carriageway of approximately 7.8m with kerb and channel provided on both sides.

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## 3.2. Surrounding Context

The western side of Ryan Road is a Low Density Residential Zone (LDRZ) with lots ranging from 4,000 to 12,000m<sup>2</sup> in size. The sites are relatively flat with a slight grade down towards Deep Creek to the west. Most properties have some canopy trees but overall the surrounds have well managed lawns and low fuel loads. Deep Creek and the Pakenham and District Golf Club are located to the west providing an urban break between the Pakenham Urban Area and the Urban Growth Zone to the east.

Access to Princes Highway is approximately 900m to the north with the Princess Highway taking vehicles directly into Pakenham and beyond to Berwick. Approximately 1,100m to the south is the East Pakenham Train Station. A three kilometer drive through the Pakenham Industrial Estate will provide access to Princes Freeway taking vehicles direct to Melbourne CBD.

East of Ryan Road is the Urban Growth Zone and these new estates have completed their first stages of development with some housing having already established. New housing will be located throughout the Urban Growth Zone within a few years, at a minimum of 15 dwellings per net developable hectare. The properties fronting Ryans Road are in the 'Interface Housing Area 1' which consist of larger lots, with a proposed density of 12 dwellings per net developable hectare to provide a transitional interface to the LDRZ area.

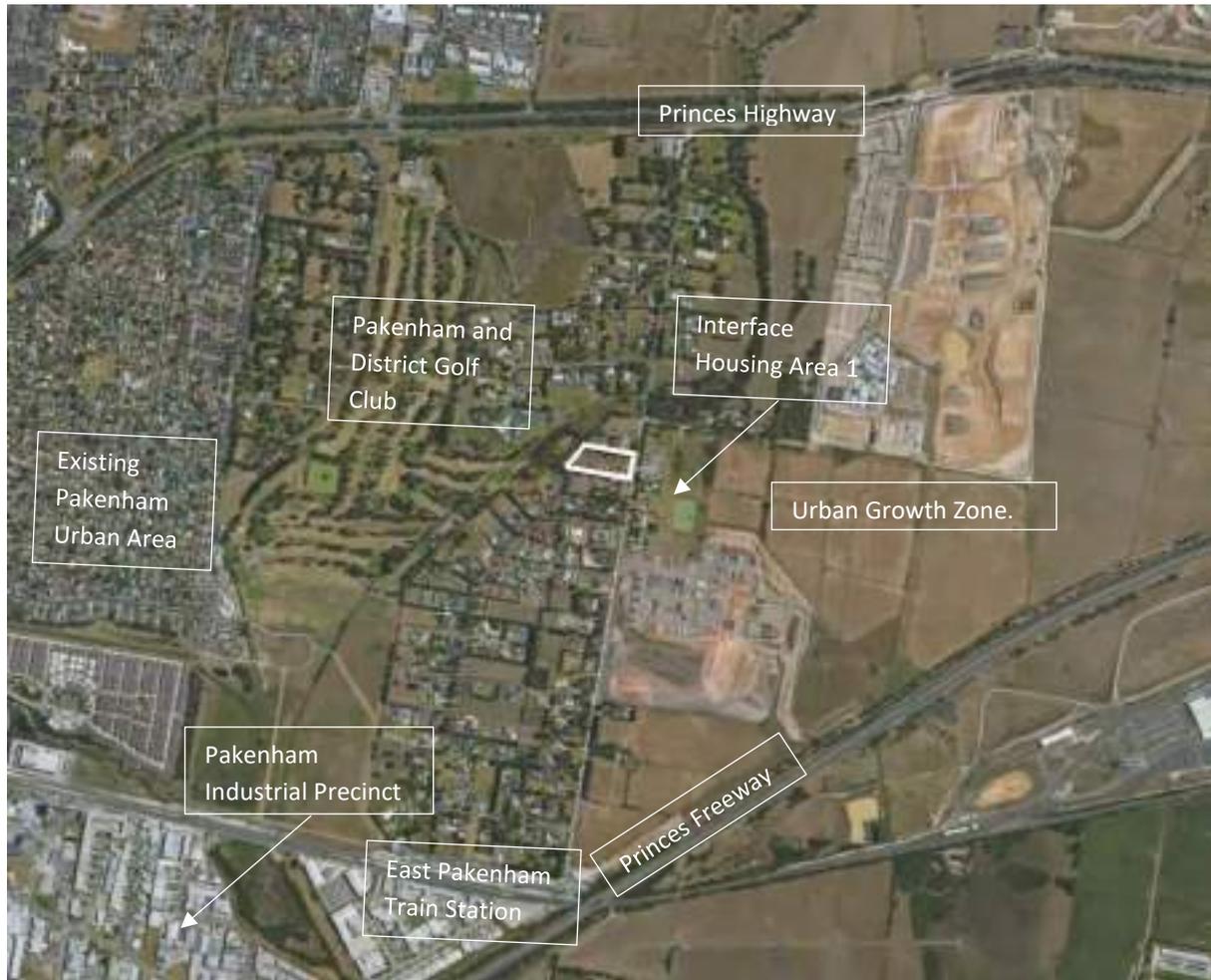


Figure 2: Surrounding context (Source: Landchecker 08/01/2025)

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North:	Low Density Residential Zone on the west side of Ryan Road to the Princes Highway. Urban Growth Zone on the eastern side of Ryan Road.
South:	Low Density Residential Zone on the west side of Ryan Road to the East Pakenham Train Station and Princes Freeway. Urban Growth Zone on the eastern side of Ryan Road.
East:	Urban Growth Zone on east side of Ryan Road between Princes Highway in the north and Princes Freeway in the south.
West:	Deep Creek and Golf Course within the Public Park and Recreation Zone.

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## 4. Proposal

### 4.1. Proposal Description

#### Buildings and Works for Child Care Centre

The proposal is for the construction of a single storey Child Care Centre. The building will include seven separate rooms for the different aged children and shared bathroom facilities for 114 children. At the front of the building will be the reception and office area with staffroom and laundry.

The Child Care Centre will be located at the front part of the subject site. When the land is subdivided, the Child Care Centre will be on Lot 1 of 4,009m<sup>2</sup>. Lot 2 will be 7,105m<sup>2</sup> with access to Ryan Road via a battleaxe driveway.

The Child Care Centre building is proposed to be set back from all boundaries of proposed Lot 1, providing generous outdoor play areas. The building is positioned 3.8m from the western boundary, 30.5m from the northern boundary, 7.6m from the southern boundary and 23m to the front boundary (Ryan Road). Vehicle access is via a single entry/exit crossover from Ryan Road accessing 25 car spaces. A waste storage area is located on the southern side of the building.

A private contractor will manage the collection and disposal of all waste streams associated with the development. Bins will be collected outside of the operating hours of the centre to ensure that collection can take place utilising on site car parking and avoid any mixing of traffic.

Timber acoustic fencing is proposed on the proposed western and northern boundaries of the Child Care Centre site. A timber paling fence will be provided on the southern boundary and metal picket fencing with powder coat finishing will secure the play spaces to the front and sides of the building.

No area is allocated for effluent disposal, as a sewer main extension is imminent.

#### Use of a Child Care Centre

A Child Care Centre is defined in the Cardinia Planning Scheme as:

*Land used to care for five or more children who are not permanently resident on the land.*

The use of the Child Care Centre is proposed to operate five days per week, from 6.30am to 7.00pm Monday to Friday providing care for 114 children. The indoor and outdoor spaces have been designed to provide more than the regulated space per child.

#### Vegetation Removal

The removal of twelve trees is required to facilitate the childcare building, the car park and access into the site and the outdoor play space.

Trees 12, 13, 16, 19 and 23 are all within 10 meters of the existing house. They are both exempt in accordance with Clause 52.12-1 of the Cardinia Planning Scheme as the building is located in an area that is designated as a bushfire prone area, is within 10 metres of an existing building used for accommodation and the building was constructed before 2009.

The Arborist Report identifies trees 7, 9, 10, and 28 as low or no arboriculture value. They still require a planning permit to remove under the Vegetation Protection Overlay at Clause 42.02-2.



Trees 31 and 40 are planted Australian Natives. The Arborist Report identifies them as medium arboriculture value and requires a permit to remove in accordance with the Vegetation Protection Overlay.

Tree 8 (Flowering Gum) is in third party ownership tree (Council Street trees) and is also an Australian Native and require a permit to remove in accordance with the Vegetation Protection Overlay. This is required to be removed for the vehicle access into the site.

There is some overlap with the trees recommended for removal as part of the Two Lot Subdivision application. Trees 19, 23, 31, and 40 are required to be removed for the Child Care Centre and the Two Lot Subdivision.

Display of Signage

Three Business Identification Signs are proposed. The first will be located on the southern side of the new crossover into the site, close to Ryan Road. The sign will be 2.47m high on two poles with a total area of 3.1m<sup>2</sup>. Two wall mounted Business Identification Signs will be on the proposed building’s eastern façade with an area of 1.62m<sup>2</sup> and 5.1m<sup>2</sup> respectively.

**4.2. Permit Triggers**

Use	Development	Subdivision	Other
<p><b>Clause 32.03-1 LDRZ</b></p> <p><i>Section 2 Use – Permit required:</i></p> <p><i>Child Care Centre</i></p>	<p><b>Clause 32.03-4 LDRZ</b></p> <p><i>A permit is required to construct or carry out a building or works associated with a use in Section 2 of Clause 32.03-1.</i></p> <p><b>Clause 43.02-2 DDO</b></p> <p><i>A permit is required to construct a building or construct or carry out works.</i></p>		<p><b>Clause 42.02-2 VPO</b></p> <p><i>A permit is required to remove, destroy or lop any vegetation specified in a schedule to this overlay.</i></p> <p><b>Clause 52.05-13 Signs</b></p> <p><i>Section 2 – Permit required:</i></p> <p><i>Business Identification Sign</i></p>



## 5. Strategic Context & Response

The key planning, land use and development policies relevant to the consideration and assessment of the proposal are as follows.

### 5.1. Planning Policy Framework

#### **Clause 13.02-1S Bushfire**

##### **Objective**

*To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.*

##### **Relevant Strategies**

*Protection of human life*

*Bushfire hazard identification and assessment*

*Settlement planning*

*Areas of biodiversity conservation value*

*Use and development control in a Bushfire Prone Area*

##### **Response**

A Bushfire Risk Assessment prepared by St Quentin has been submitted with the application. The recommendations within the assessment include:

- A minimum BAL12.5 construction standard.
- Plants within three metres of a window or glass feature of the building must be restricted to a garden area of 5m<sup>2</sup> in size.
- Trees must not overhang or touch any elements of the building.
- Prior to the use commencing, an Emergency Management Plan should be prepared which shows how the site will monitor and respond to bushfire conditions.

#### **Clause 13.05-1S Noise Management**

##### **Objective**

*To assist the management of noise effects on sensitive land uses.*

##### **Relevant Strategies**

*Ensure that development is not prejudiced and community amenity and human health is not adversely impacted by noise emissions.*

*Minimise the impact on human health from noise exposure to occupants of sensitive land uses (residential use, child care centre, school, education centre, residential aged care centre or hospital) near the transport system and other noise emission sources through suitable building siting and design (including orientation and internal layout), urban design and land use separation techniques as appropriate to the land use functions and character of the area.*



## **Response**

An Acoustic Report for the Child Care Centre has been prepared by Enfield. It recommends the construction of an acoustic fence along the western and northern boundaries of the proposed Child Care Centre site.

### **Clause 13.07-1S Land Use Compatibility**

#### **Objective**

*To protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts*

#### **Relevant Strategies**

*Ensure that use or development of land is compatible with adjoining and nearby land uses.*

*Avoid locating incompatible uses in areas that may be impacted by adverse off-site impacts from commercial, industrial and other uses.*

*Avoid or otherwise minimise adverse off-site impacts from commercial, industrial and other uses through land use separation, siting, building design and operational measures.*

*Protect commercial, industrial and other employment generating uses from encroachment by use or development that would compromise the ability of those uses to function safely and effectively.*

#### **Response**

The subject site has several key features that make the site appropriate for the Child Care Centre use. Child Care Centre are most compatible with residential areas rather than being in commercial or industrial zones, particularly when they have sufficient on-site parking, and use acoustic fencing to reduce amenity impacts to neighbours. The site has generous setbacks from the closest residential housing. Ryan Road is also an important road within the area, as it gives direct access north to Princess Highway and Pakenham and direct access south to East Pakenham Train Station and the Pakenham Industrial Estate, providing convenience for parents.

### **Clause 15.01-2S Building Design**

#### **Objective**

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

#### **Relevant Strategies**

*Ensure a comprehensive site analysis forms the starting point of the design process and provides the basis for the consideration of height, scale, massing and energy performance of new development.*

*Improve the energy performance of buildings through siting and design measures that encourage:*

- *Passive design responses that minimise the need for heating, cooling and lighting.*
- *On-site renewable energy generation and storage technology.*
- *Use of low embodied energy materials.*



*Ensure the layout and design of development supports resource recovery, including separation, storage and collection of waste, mixed recycling, glass, organics and e-waste.*

*Encourage water efficiency and the use of rainwater, stormwater and recycled water.*

*Ensure buildings and their interface with the public realm support personal safety, perceptions of safety and property security.*

*Minimise stormwater discharge through site layout and landscaping measures that support on-site infiltration and stormwater reuse.*

*Ensure development considers and responds to transport movement networks and provides safe access and egress for pedestrians, cyclists and vehicles.*

*Encourage development to retain existing vegetation.*

*Ensure development provides landscaping that responds to its site context, enhances the built form, creates safe and attractive spaces and supports cooling and greening of urban areas.*

### **Response**

The building has generous setbacks from all sides allowing windows on all orientations and minimising the need for heating, cooling and lighting. The layout has a functional area, specifically for waste storage and convenience for private waste collection. There is a pedestrian footpath into the site leading to the front door of the Child Care Centre building. There has also been a concerted effort to avoid impacts to medium and high value vegetation

### **Clause 21.02-4 Bushfire management**

#### **Objectives**

*To recognise that areas in the municipality are prone to bushfire and to minimise the potential risk to life, property and the environment.*

#### **Strategies**

*Siting and design*

*Ensure that the siting and design of houses and other accommodation in high-risk bushfire areas minimises the potential risk of loss of life or property from wildfire, particularly in terms of the existing slope, aspect and vegetation.*

*Ensure all development has appropriately designed access for emergency vehicles.*

*Ensure development provides adequate access to water.*

*Encourage the use of roads as a buffer between housing and bushland.*

#### **Response**

The Child Care Centre site will be accessible by a fire emergency vehicle and there will be 10,000 litres of water available for firefighting purposes.



## **Clause 21.03-5 Rural Residential and rural living development**

### **Objectives**

*To ensure development reflects a high quality of design and does not result in environmental degradation.*

### **Strategies**

*Ensure subdivisions and developments are designed to take into account the constraints of the area and limit detrimental impacts to the surrounding environment.*

*Ensure that rural residential and rural living development on land affected by environmental hazards and constraints is undertaken in a manner which prevents environmental degradation and minimises any risk from hazards.*

*Ensure that any proposal for rural residential and rural living development is assessed in relation to its ability to contain all wastewater within the site.*

*Ensure that proposed development will not increase and will adequately control pest plants and pest animals on site.*

### **Response**

The proposal has minimised the amount of vegetation to be removed and has targeted low value trees. The Child Care Centre will be connected to sewer mains, obviating the need for on-site effluent disposal.



## 6. Statutory Context & Response

### 6.1. Zone

The subject site is contained within the Low-Density Residential Zone- Schedule 2.

**The purpose of the zone is:**

*To implement the Municipal Planning Strategy and the Planning Policy Framework.*

*To provide for low density residential development on lots which, in the absence of reticulated sewerage, can treat and retain all wastewater.*

Table of Uses

Child Care Centre is not listed in the Table of Uses and is therefore a Section 2 Use- permit required.

Clause 32.03-4 Buildings and Works

A permit is required to construct or carry out works for a building or works associated with a use in Section 2 of Clause 32.03-1.

Decision Guidelines

*Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:*

Decision Guidelines	Response
<i>The Municipal Planning Strategy and the Planning Policy Framework.</i>	See Section 5 of this report.



## 6.2. Overlays

### Design and Development Overlay – Schedule 1

The subject site is contained within the Design and Development Overlay – Schedule 1 (DDO1).

#### **The Design Objectives of DDO1 are:**

- *To ensure that the location and design of buildings create an attractive low density residential environment.*
- *To ensure that any development has regard to the environmental features and constraints of the land.*
- *To ensure that the subdivision of land has regard to the existing pattern of subdivision in the area.*

A permit is required to construct a building or construct or carry out works as all the requirements of Schedule 1 were not met.

*Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate.*

Decision Guidelines	Response
<i>The Municipal Planning Strategy and the Planning Policy Framework.</i>	See Section 5 of this report.
<i>The design objectives of the relevant schedule to this overlay.</i>	The proposal has considered the environmental features of the site, namely the canopy trees protected by the VPO. The majority of medium and high value trees are avoided. Nine trees considered as low or no value are proposed for removal, two medium value trees and one street tree. None of these trees are remnant.
<i>The provisions of any relevant policies and urban design guidelines.</i>	Not Applicable.
<i>Whether the bulk, location and appearance of any proposed buildings and works will be in keeping with the character and appearance of adjacent buildings, the streetscape or the area.</i>	The proposed building is setback within the site, similar to the majority of dwellings on the western side of Ryan Road. The proposed single storey building is low set and sits below the mature canopy vegetation.
<i>Whether the design, form, layout, proportion and scale of any proposed buildings and works is compatible with the period, style, form, proportion, and scale of any identified heritage places surrounding the site.</i>	No heritage places in the immediate vicinity.



*Whether any proposed landscaping or removal of vegetation will be in keeping with the character and appearance of adjacent buildings, the streetscape or the area.*

The majority of vegetation and trees are being retained. A total of 12 trees are required for removal with 9 being classified as low or no value trees by the Arborist. The landscape plan shows a proposed 5 metre wide landscape strip to the front of the car park with trees, understorey and grasses to enhance the landscape character of the area.

*The layout and appearance of areas set aside for car parking, access and egress, loading and unloading and the location of any proposed off street car parking*

The carpark area is functional and non-intrusive. There is only one exit/entry crossover and the 5 metre wide landscape strip across the width of the site, will soften the car park and building appearance.

*Whether subdivision will result in development which is not in keeping with the character and appearance of adjacent buildings, the streetscape or the area.*

Not Applicable.

#### Schedule 1

*The Land Capability Study for the Cardinia Shire (February 1997).*

The site will be connected to sewer mains therefore a Lands Capability Assessment is not required.

*The protection and enhancement of the natural environment and character of the area including the retention of remnant vegetation and habitat, and the need to plant vegetation along waterways, gullies, ridgelines and property boundaries.*

As shown in the Ecologist Report there is no remnant vegetation on the site. Existing trees along the boundaries of the site are being retained. 5 metre wide landscape strip will enhance the landscape character of the area.

*The impact of any buildings and works on areas of remnant vegetation, and habitat of botanical and zoological significance.*

No remnant vegetation on the site. Two medium value trees are proposed to be removed and one street tree.

*The impact of proposed buildings and works on the landscape character of the area, including prominent ridgelines and significant views.*

The landscape character of the area will be enhanced with the removal of 9 low or no value trees and the addition of 5 metre wide landscape strip to the front of the site.

*Measures to address environmental hazards or constraints including slope, erosion, drainage, salinity and fire.*

The Bushfire Risk Assessment has outlined some measures to address the low risk of fire within the environment.



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*The protection of waterways and water quality through the appropriate management of effluent disposal, erosion and sediment pollution.*

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The connection of the site to sewer mains will help protect Deep Creek to the west.

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### **Vegetation Protection Overlay – Schedule 1**

The vegetation protection objectives to be achieved are:

- *To protect and conserve existing vegetation as an important element of the character of low density residential areas.*
- *To maintain and enhance local habitat and biolinks, including hollow bearing trees.*
- *To avoid and minimise the removal of vegetation where it contributes to the management of environmental hazards such as erosion, salinity, siltation of creeks and watercourses, and stormwater runoff.*
- *To ensure that vegetation remains a significant part of the character and visual amenity of these areas, with the built form being located within a landscape, and vegetation being the predominant feature.*

A permit is required to remove, destroy or lop any vegetation.

*Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:*

Decision Guidelines	Response
<i>The Municipal Planning Strategy and the Planning Policy Framework.</i>	See Section 5 of this report.
<i>The statement of the nature and significance of the vegetation to be protected and the vegetation protection objective contained in a schedule to this overlay.</i>	The Ecologist Report prepared by Ecolink, has determined that there is no remnant vegetation on the site. There are indigenous and exotic canopy trees throughout the site which is an important element of the landscape character and visual amenity. The removal of 9 low value trees, 2 medium value trees and 1 street tree is required for the vehicle access, proposed building and safe play space. The addition of a 5 metre wide landscape strip to the front of the proposed car park ensures the vegetation protection objectives are not diminished.
<i>The effect of the proposed use, building, works or subdivision on the nature and type of vegetation to be protected.</i>	The proposed building, car parking and access to the site results in the removal of 12 trees.

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<i>The role of native vegetation in conserving flora and fauna.</i>	No remnant vegetation on site.
<i>The need to retain native or other vegetation if it is rare, supports rare species of flora or fauna or forms part of a wildlife corridor.</i>	The ecologist report notes threatened fauna and flora species in the area, but none were observed within the study area.
<i>The need to retain vegetation which prevents or limits adverse effects on ground water recharge.</i>	The vegetation being removed will not impact on ground water recharge.
<i>The need to retain vegetation:</i> <ul style="list-style-type: none"><li>- <i>Where ground slopes exceed 20 percent.</i></li><li>- <i>Within 30 metres of a waterway or wetland.</i></li><li>- <i>On land where the soil or subsoil may become unstable if cleared.</i></li><li>- <i>On land subject to or which may contribute to soil erosion, slippage or salinisation.</i></li><li>- <i>In areas where the removal, destruction or lopping of vegetation could adversely affect the integrity or long-term preservation of an identified site of scientific, nature conservation or cultural significance.</i></li><li>- <i>Which is of heritage or cultural significance.</i></li></ul>	Vegetation is not being removed from any areas listed.
<i>The need to remove, destroy or lop vegetation to create a defensible space to reduce the risk of bushfire to life and property.</i>	Trees 12, 13, 16, 19 and 23 are all within 10 meters of the existing house. They are both exempt in accordance with Clause 52.12-1 of the Cardinia Planning Scheme as the building is located in an area that is designated as a bushfire prone area, is within 10 metres of an existing building used for accommodation and the building was constructed before 2009.
<i>Any relevant permit to remove, destroy or lop vegetation in accordance with a land management plan or works program.</i>	Not applicable.
<i>Whether the application includes a land management plan or works program.</i>	No land management plan or works program proposed.

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*Whether provision is made or is to be made to establish and maintain vegetation elsewhere on the land.*

The landscape plan shows a 5 metre wide landscape strip with canopies, understorey and grasses across the width of the property.

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*Any other matters specified in a schedule to this overlay.*

Not applicable.

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### **6.3. Particular Provisions**

#### **Clause 52.06 Car Parking**

A total of 25 car spaces is proposed in an on-site car park with access via a single entry/exit crossover to Ryan Road.

Clause 52.06- Car Parking Requirements (Column B) requires a Child Care Centre for 114 children to provide 25 car spaces. This proposal meets the required car spaces. A Car Parking Demand Assessment by One Mile Grid has been provided and can be found in the Appendices.

#### **Clause 52.17 Native Vegetation**

As discussed in the Biodiversity Assessment prepared by Ecolink, there is no remnant vegetation on site. Therefore, this application does not propose to remove any native vegetation.

#### **Clause 52.05 Signs**

A Business Identification Sign is in Section 2 of Category 3 High Amenity Areas.

*Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:*

Decision Guidelines	Response
<i>The character of the area.</i>	The area on both sides of Ryan Road are relatively free from any business identification signs. Therefore, the proposed sign has ensured it is of a modest size and height near the vehicle crossover. The other two signs are located on the front façade of the building which is setback 23 metres into the property.
<i>Impacts on views and vistas.</i>	The signs will not impact on any views.
<i>The relationship to the streetscape, setting or landscape.</i>	Two signs are attached to the front wall of the building. The free-standing sign is located neatly in a landscaped area to the front of the carpark.

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<i>The relationship to the site and building.</i>	A Child Care Centre must be allowed some signage so existing and future parents are aware of its location and use.
<i>The impact of structures associated with the sign.</i>	No impact on road visibility.
<i>The impact of any illumination.</i>	The three signs are not illuminated internally or externally.
<i>The impact of any logo box associated with the sign.</i>	No logo box.
<i>The need for identification and the opportunities for adequate identification on the site or locality.</i>	A Child Care Centre must be allowed some signage so existing and future parents are aware of its use.
<i>The impact on road safety. A sign is a safety hazard if the sign.</i>	No impact on road visibility. The sign is not located to obstruct any view lines.

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## 7. Decision Guidelines

Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:

### 7.1. Clause 65.01 Approval of An Application of Plan

Decision Guidelines	Response
<i>The matters set out in section 60 of the Act.</i>	All matters in Section 60 have been followed at the point in the planning application.
<i>Any significant effects the environment, including the contamination of land, may have on the use or development.</i>	Nil.
<i>The Municipal Planning Strategy and the Planning Policy Framework.</i>	See Section 5 of this report.
<i>The purpose of the zone, overlay or other provision.</i>	See Section 6 of this report.
<i>Any matter required to be considered in the zone, overlay or other provision.</i>	See Section 6 of this report.
<i>The orderly planning of the area.</i>	Excellent design which works well within the surrounding area which is predominantly low density residential.
<i>The effect on the environment, human health and amenity of the area.</i>	Appropriate responses to reduce noise on surrounding residents have been proposed.
<i>The proximity of the land to any public land.</i>	On the western side of Deep Creek is the Pakenham and District Golf Club.
<i>Factors likely to cause or contribute to land degradation, salinity or reduce water quality</i>	Nil
<i>Whether the proposed development is designed to maintain or improve the quality of stormwater within and exiting the site.</i>	Rainwater tanks will be used on site, otherwise the site will discharge its stormwater to Ryan Road which has underground drainage.
<i>The extent and character of native vegetation and the likelihood of its destruction.</i>	No remnant vegetation to be removed.
<i>Whether native vegetation is to be or can be protected, planted or allowed to regenerate.</i>	The addition of a 5 metre wide landscape strip to the front of the proposed car park ensures



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	the vegetation protection objectives are not diminished.
<i>The degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.</i>	Bushfire is a low risk to the site. Irrespective, some measures have been recommended to keep this risk low.
<i>The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.</i>	On-site options for loading/unloading and waste collection.

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## 8. Conclusion

As this report demonstrates, the proposal constitutes an appropriate response to the physical context of the subject site and surrounds, supports and implements the applicable strategic directions of the Planning Policy Framework and meets the objectives and requirements of the key statutory controls.

For these reasons, we submit that the responsible authority would be justified in reaching a conclusion that the Child Care Centre use and development and reduction of car parking is worthy of support and approval.

**Ref: 18526**

30 January 2026

Jennifer Lim  
Principal Statutory Planner  
Cardinia Shire Council

Dear Jennifer

**RE: T250695 23 Ryan Road Pakenham  
Use and Development of a Child Care Centre, Removal of Vegetation & Display of  
Business Identification Sign**

Please accept this correspondence as response to the Further Information Letter dated 11 December 2025. This correspondence should be read with the following attachments:

- ✓ Architectural Plans version 2
- ✓ Landscape Plan version 2
- ✓ Sustainability Management plan version 2

Council's further information requests included eight items. We have responded to each item below:

1. The Cultural Heritage Management Plan has commenced. We acknowledge that in accordance with Section 52 (1) of the Aboriginal Heritage Act 2006, a permit can not be granted until the CHMP has been approved. We would still like this application to be publicly notified whilst the CHMP is being prepared.
2. The Site Plan TP03 has been amended. It now includes:
  - Proposed footpath in road reserve removed from plans.
  - The proposed fencing along the boundary of the proposed child care site.
3. The Floor Plan TP04 has been amended to show:
  - The setback dimension of Fence FN3 to Ryan Road.
  - The setback dimension of Sign S2 & S4 to Ryan Road.
  - Sight line triangle dimensioned.
  - Proposed footpath within Ryan Road road reserve is removed.
4. Elevations at TP06 and Sections at TP07 have been amended to show cut and fill depth.
5. Fence Details at TP07 show the correct height of FN4. The colours for the Colorbond Fence FN2 and FN6 are shown as dark grey powdercoat finish.



6. Signage Details at TP09 have been amended with no signs being illuminated. The location of the entry/exit signs S4 are shown on the site plan (TP03) and floor plan (TP04).
7. The Landscape Plan has been amended to show:
- Site line triangle to remain clear of the accessway.
  - Staff notation removed from car park.
  - Footpath in road reserve removed.

8. Vegetation Removal

Schedule 1 of the Vegetation Protection Overlay – Schedule 1 requires the following application requirements when removing vegetation.

<p><i>A photograph or site plan (drawn to scale) showing the boundaries of the site, existing vegetation and the vegetation to be removed.</i></p>	<p>The Feature and Level Survey and the site map within the Arboricultural Impact Assessment show the existing vegetation. The Architectural Plans version 2 show the trees proposed for removal.</p>
<p><i>A description of the vegetation, including understorey to be removed, including the species, extent, number and size (diameter at 1.3 metres above natural ground level) of any trees to be removed and the Ecological Vegetation Class of native vegetation.</i></p>	<p>The Arboricultural Impact Assessment and the Biodiversity Assessment prepared by Ecolink describe the vegetation and Ecological Classes.</p>
<p><i>Location of any hollow bearing trees.</i></p>	<p>The Arboricultural Impact Assessment did not identify any hollow bearing trees.</p>
<p><i>Topographic information, highlighting ridges, crests and hilltops, streams and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion.</i></p>	<p>The Feature and Level Survey was submitted with the application. The site does not contain any of the features mentioned.</p>
<p><i>A written explanation of the steps that have been taken to:</i></p> <ul style="list-style-type: none"> <li>- <i>Avoid the removal of vegetation, where possible.</i></li> <li>- <i>Minimise the removal of vegetation.</i></li> <li>- <i>Any actions to contribute to the ongoing management of existing vegetation on the site.</i></li> <li>- <i>Appropriately replace and/or compensate the loss of vegetation, if required.</i></li> </ul>	<p>Four trees being numbered 7, 9, 10 and 28 were identified as having low or no arboricultural value. It was decided to remove these trees to facilitate the Outdoor Play Space 1 and the car park.</p> <p>Only trees numbered 31 and 40 were identified as having medium arboricultural value and need to be removed. Moving the child car centre building and car park further to the north would alternatively impact on Trees 33 and 25. Although of a similar medium value health and structure, Trees 33 and 25 are taller with larger crown spreads and it was decided that they should be retained instead of Trees 31 &amp; 40.</p> <p>Tree 8 is a street tree that needs to be removed. The crossover location was chosen</p>



	<p>because there was a gap between Tree 6 and Tree 8 and it would have the least impact on the street trees. Tree 6 is in a slightly better condition than Tree 8, therefore the crossover was put closer to Tree 8 which consequently needs to be removed. A crossover in any other location along Ryan Road would impact on two or more trees.</p> <p>Overall, two medium value trees and one street tree (Australian Natives) need to be removed. All other trees are either exempt or low or no value trees. To compensate for the loss of these three trees, the landscape plan shows a five-metre-wide landscape garden across the width of the site. The landscape plan shows four canopy trees greater than 10 metres in height.</p>
<i>A copy of any property vegetation plan that applies to the site</i>	Not applicable.
<i>Where the removal, destruction or lopping of vegetation is to create defensible space, a statement explaining why removal, destruction or lopping of vegetation is required having regard to other available bushfire risk mitigation measures. This does not apply to the creation of defensible space in conjunction with an application under the Bushfire Management Overlay</i>	Trees are not being removed to create defensible space for the Child Care Centre. Five trees (12, 13, 16, 19, 23) are all within 10 metres of the existing house and are exempt from planning permission.

#### Preliminary Concerns and Comments

***Please be advised that it is currently Council's position that Ryan Road must be upgraded per the Pakenham East Precinct Structure Plan & Infrastructure Contribution Plan prior to commencement of development.***

We do not agree that a Ryan Road upgrade is required because of the Child Care Centre. As described in Section 10 of the Traffic Impact Assessment, the estimated traffic volumes from the proposed Child Care Centre represents well under 15% of the notional peak-hour capacity of the existing road. There is no reasonable basis to suggest Ryan Road will operate near capacity as a result of the proposal.

The upgrade of Ryan Road is already identified as an ICP-funded strategic project intended to support the full development of the precinct, not this single, small-scale use. Requiring the Child Care Centre to upgrade Ryan Road would be contrary to basic nexus and proportionality tests.

In addition, the site is outside the DCP and UGZ areas. Requiring a development outside the UGZ to construct a DCP item is highly unusual. If Council are intent on including a condition about a Ryan Road upgrade, we politely request a meeting prior to the permit's determination.



***Council's Landscape Team strongly encourages additional canopy tree planting (approx. 3-4 trees) within the landscape setback to Ryan Road as this will provide greater canopy cover in addition to providing natural shade to cars. Furthermore, this may assist in justifying and compensating loss of vegetation to address comments Council's Environment Team.***

Four canopy trees have now been included in the landscape setback to Ryan Road.

***The alignment of boundary fencing is currently unclear. It is strongly recommended for boundary fencing to be setback 5 metres from the Ryan Road boundary (in line with the landscape setback) or alternatively tapered down in height. This will assist in responding to the low density landscape and open/no fence character of the western side of Ryan Road.***

TP03 delineates more clearly the fencing of the childcare centre site. The side fencing stops at the landscape strip so it does not require tapering down to the Ryan Road boundary.

***Councils Sustainability Team have reviewed the SMP with the following comments:***

- ***Please show the raingarden***
- ***Show secure lockable employee bicycle parking and associated bike racks.***
- ***Provide additional shading for east/west windows or update BESS to reflect only north windows have shading.***

The Landscape Plan version 2 shows the 6m<sup>2</sup> raingarden. Four bicycle parks are shown in the form of two bicycle hoops adjacent to the pedestrian access proposed to Ryan Road. There is no requirement for separate employee bicycle parking, and the applicant has decided not to include this in the plans. In regard to the east/west shading, the BESS has been updated in the Sustainability Management Plan version 2.

Yours faithfully,

**Brendan O'Loan  
Senior Planner**



Arboriculture and Urban Forest Consultants  
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# Arboricultural Impact Assessment

Location:

**23 Ryan Road, Pakenham**

Report Commissioned by:

**Ryan Road Pakenham Land Pty Ltd**

Author:

**Lachlan Scott**

Grad. Cert. Arb.

Arbkey ref: 22-11-21IMPACTRyanPakenham.docx

Date submitted: November 7, 2025

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## 1 Introduction

Arbkey has been engaged by Ryan Road Pakenham Land Pty Ltd to provide an Arboricultural Impact Assessment for trees likely to be affected by a proposed development at 23 Ryan Road, Pakenham. Arboricultural Impact Assessments are a procedure for determining the viability of trees at the design and review stage of a project. For the report arbkey has:

- Identified and assessed the trees, providing their location, species, dimensions, useful life expectancy and health and structural condition.
- Allocated each tree an arboricultural value, indicating its merit for retention throughout nearby disturbance.
- Calculated the size of the Notional Root Zone (NRZ) in accordance with Australian Standard 4970, Protection of Trees on Development Sites.
- Calculated and provided comment regarding the impact of the proposed development to the trees NRZs and assessed the suitability for retention of all trees against the current development plans.
- Provided recommendations to protect any trees through the proposed developments.

## 2 Site Details

The subject site is an approx. 11,3000m2 property featuring a dilapidated house and shed within its south-eastern section, an area of pasture within its western section and a border of trees (Figure 1). Mid to large size trees, greater than 5m in height, are a common and important feature of both the subject site and the wider surrounds.



Figure 1: Subject site

### 2.1 Development Proposal

Demolition of the existing buildings and installation of a childcare facility is proposed.

### 2.2 Planning and Policy Context

The subject site is located within Low Density Residential Zone – Schedule 2 of the Cardinia Planning Scheme (DEECA 2025). The vegetation protection related planning or policy controls for the site and how they affect the assessed trees has been provided in Table 1.

Table 1: Vegetation controls at site

Planning/Policy Control	Overview of control
<b>Vegetation Protection Overlay (VPO1)</b>	A permit is required to remove, destroy or lop any vegetation. A list of environmental weed species is exempt
<b>52.17 Native Vegetation</b>	A permit (and provision of offset) is required to remove or destroy non-planted Victorian native vegetation. A list of exemptions apply

Trees within 10m of an existing dwelling, or 1m of an existing fence, constructed prior to September 2009 are exempt from planning scheme controls due to the site’s location within a Bushfire Prone Area (DEECA 2025)

Due to their ownership, any trees within adjacent third-party owned property must remain viable throughout works at the subject site unless under agreement with the tree’s respective owner. Modification of trees in adjacent property may also be subject to permit approval.

### 2.3 Site Map

A site map detailing existing conditions and tree locations has been provided in Appendix 1: Site Map

### 3 Methodology

On the 31 January 2023, Lachlan Scott undertook inspection of trees greater than 3m in height located at, or with tree protection zones (AS4970 2025) likely to intersect the property at, 23 Ryan Road, Pakenham. The following information was collected for the trees:

- Tree Species
- Tree Location
- Height (m)
- Crown Spread (m)
- Diameter at Standard Height (DSH) at 1.4m above ground level (cm)
- Diameter at Base (DAB) at just above the root flare (cm)
- Health
- Structure
- Significance
- Photographs of tree

Only a ground based visual inspection was undertaken of all trees according to the principles of Visual Tree Assessment and tree hazard assessment described in Harris, Clark and Matheny (1999) and Mattheck and Breloer (1994).

Tree location has been derived using a feature survey provided by the client or if not present aligned using an RTK corrected GNSS receiver.

Height was measured on site using an impulse laser accurate to +/- 30cm. Crown spread values or drawings are indicative of crown size only, not shape or form.

A diameter tape was used to measure DSH. To prevent trespass, DSH has been estimated on adjacent sites.

Health, Structure and Significance are qualitative values derived from visual indicators and the authors experience and qualifications.

Encroachment of NRZs by the development has been calculated using GIS software.

Full data collection definitions are available in Appendix 6: Data Definitions.

#### 3.1 Documents Reviewed

Table 2: Documents reviewed to assist in the compilation of this report

Document Name	DWG/Document #	Author	Document Description	Date compiled/drawn
Architect Town Planning_Ryan Rd, Pakenham_03.11.25	25086	Watson Young	Site Plans	3 November 2025

## 4 Observations

### 4.1 Tree Details

148 trees were assessed, 115 on the site itself and 33 within adjacent third-party managed property (Table 3). Full details of the assessed trees have been provided in Appendix 2: Tree Details.

Table 3: Count of assessed species and their respective species origin

Genus Species	Common Name	Species Origin	Count of Trees	Tree IDs
<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	40	5, 6, 26, 27, 30, 55, 88, 92, 97, 102, 103, 104, 105, 107, 108, 109, 110, 111, 112, 116, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 133, 134, 137, 138, 140, 142, 143, 144
<i>Corymbia maculata</i>	Spotted Gum	Australian Native	18	20, 24, 31, 52, 58, 67, 74, 89, 90, 93, 95, 98, 99, 117, 118, 132, 141, 145
<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	10	29, 32, 34, 44, 46, 62, 82, 83, 85, 113
<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	9	38, 47, 57, 64, 72, 76, 79, 80, 87
<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	7	68, 77, 86, 91, 100, 131, 139
<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	7	2, 7, 9, 10, 12, 13, 16
<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	7	4, 37, 41, 43, 45, 50, 78
<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	6	3, 8, 11, 14, 17, 18
<b>Mixed Species</b>			44	-

## 5 Discussion

### 5.1 Arboricultural Value

All the assessed trees have been attributed an arboricultural value (Table 4). Arboricultural value is a calculated rating indicating the arboricultural merit of the tree for retention through any nearby disturbance. It is a qualitative combination of the trees ULE and significance values. Trees of higher arboricultural value should be prioritised for retention through works that may impact trees. Conversely, trees of low or no arboricultural value can often be removed to facilitate a development with little or no effect on wider landscape value.

Trees attributed an arboricultural value of ‘Third Party Ownership’ are located on adjacent land to the assessment. It is assumed that the owner of the tree attributes it a ‘High’ arboricultural value and requires its retention in the landscape.

Table 4: Overview of arboricultural value

Arboricultural Value	Count	Tree IDs
<b>High</b>	4	74, 90, 118, 131
<b>Medium</b>	22	19, 25, 29, 31, 33, 35, 36, 40, 52, 53, 58, 66, 67, 95, 98, 101, 117, 132, 135, 139, 141, 145
<b>Low</b>	85	7, 9, 10, 12, 13, 15, 16, 22, 23, 26, 27, 28, 30, 34, 37, 39, 41, 42, 43, 45, 46, 49, 50, 51, 54, 55, 56, 59, 60, 61, 63, 65, 70, 71, 73, 75, 76, 77, 78, 80, 81, 82, 84, 85, 86, 89, 92, 93, 97, 99, 100, 102, 103, 104, 105, 107, 108, 109, 110, 111, 112, 113, 115, 116, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 133, 134, 136, 137, 138, 140, 142, 143, 144
<b>None</b>	4	32, 48, 69, 88
<b>Third Party Ownership</b>	33	1, 2, 3, 4, 5, 6, 8, 11, 14, 17, 18, 20, 21, 24, 38, 44, 47, 57, 62, 64, 68, 72, 79, 83, 87, 91, 94, 96, 106, 114, 146, 147, 183

## 5.2 Notional Root Zone (NRZ) and Structural Root Zone (SRZ)

AS4970 (2025) specifies areas drawn radially from each tree's stem which indicate the area required for its stability (SRZ) and viability (NRZ) throughout nearby disturbance such as development. Further information on NRZs and SRZs has provided in Appendix 7: Structural Root Zone and Notional Root Zone Overview

### 5.2.1 NRZ and SRZ details

NRZ and SRZ details for all trees has been supplied in Appendix 3: NRZ and SRZ Details.

## 5.3 Arboricultural Impact, NRZ Encroachment and Viability

### 5.3.1 Tree removal

16 trees are proposed for removal under the current development plans (Table 5). Permit approval is required for the removal of Trees 11 of these trees, Trees 2, 7, 8, 9, 10, 22, 28, 29, 31, 32, and 40, under the VPO at the site.

Two (2) of the trees proposed for removal, Trees 2 and 8, are located within the council managed road reserve fronting the site. Permission from these tree's manager, Cardinia Shire, would be required prior to their removal.

Table 5: Trees proposed for removal, arboricultural value, and permit requirements.

Tree ID	Genus Species	Common Name	Arboricultural Value	Height (m)	Total DSH (cm)	Planning Permit Required?
2	<i>Photinia xfraseri</i>	Chinese Hawthorn	Third Party Ownership	6	44.25	Yes
7	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	3	13	Yes
8	<i>Corymbia ficifolia</i>	Flowering Gum	Third Party Ownership	9	22	Yes
9	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	4	15.3	Yes
10	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	5	16.52	Yes
12	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	5	19.24	
13	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	5	18.06	
16	<i>Photinia xfraseri</i>	Chinese Hawthorn	Low	5	17.58	
19	<i>Acer negundo</i>	Box Elder	Medium	9	54.77	
22	<i>Salix chilensis</i>	Chilean Willow	Low	8	44.27	Yes
23	<i>Liquidambar styraciflua</i>	Liquidamber	Low	10	29	
28	<i>Eucalyptus kitsoniana</i>	Gippsland Mallee	Low	10	44	Yes
29	<i>Eucalyptus botryoides</i>	Southern Mahogany	Medium	15	110	Yes
31	<i>Corymbia maculata</i>	Spotted Gum	Medium	15	57	Yes
32	<i>Eucalyptus botryoides</i>	Southern Mahogany	None	6	18.44	Yes
40	<i>Melia azedarach</i>	White Cedar	Medium	9	56.15	Yes

### 5.3.2 Impact of design on trees to be retained

To assess the viability of the trees proposed for retention throughout the design’s implementation, their NRZ and SRZ has been calculated and mapped as per AS4970 (2025). Where a development’s footprint overlaps a NRZ it is termed ‘encroachment’ within AS4970 (2025). AS4970 (2005) categorises NRZ encroachment into:

- Minor ( $\leq 10\%$  NRZ encroachment)
  - Minor NRZ encroachment is unlikely to cause a significant impact to tree health or longevity and is considered generally acceptable. Trees with ‘Minor’ NRZ encroachment would remain viable throughout the implementation of the proposed design without the implementation of encroachment mitigation measures.
- Moderate ( $>10\%$  and  $\leq 20\%$  NRZ encroachment)
  - Moderate NRZ encroachment is considered tolerable providing that an arborist demonstrates, usually through desktop analysis and/or recommendations of construction controls, that the tree would remain viable throughout the NRZ encroachment.
- Major ( $>20\%$  NRZ encroachment)
  - Major NRZ encroachment is considered generally intolerable. To manage these trees throughout the development either:
    - an alternative design must be explored with the design team, or
    - a detailed investigation and/or justifications must be undertaken/supplied by an arborist that demonstrates that the tree would remain viable throughout the major NRZ encroachment.

16 of the trees proposed for retention have NRZ encroached by the proposed development’s footprint The remaining trees proposed for retention do not have NRZ encroached by the design footprint and would remain viable throughout the design’s implementation.

Table 6: Overview of trees with NRZ encroached by the design footprint.

Encroachment Classification (AS4970 2025)	Count	Tree ID
<b>Minor (<math>\leq 10\%</math> Encroachment)</b> Generally Acceptable	8	6, 20, 35, 37, 41, 46, 50, 55
<b>Major (<math>&gt;20\%</math> Encroachment)</b> Generally Intolerable	8	25, 26, 27, 30, 34, 36, 52, 58

Table 7: Trees with NRZ encroached by the design footprint.

Tree ID	Genus Species	NRZ Encroachment (%)	SRZ Encroachment?	Encroachment Classification
6	<i>Melaleuca armillaris</i>	1.54	No	Minor
20	<i>Corymbia maculata</i>	8.78	No	Minor
25	<i>Eucalyptus mannifera</i>	27.42	No	Major
26	<i>Melaleuca armillaris</i>	28.94	Yes	Major
27	<i>Melaleuca armillaris</i>	40.72	Yes	Major
30	<i>Melaleuca armillaris</i>	39.43	Yes	Major
34	<i>Eucalyptus botryoides</i>	30.47	Yes	Major
35	<i>Grevillea robusta</i>	6.79	No	Minor
36	<i>Eucalyptus tereticornis</i>	27.35	Yes	Major
37	<i>Pittosporum undulatum</i>	1.82	No	Minor
41	<i>Pittosporum undulatum</i>	1.93	No	Minor
46	<i>Eucalyptus botryoides</i>	0.09	No	Minor
50	<i>Pittosporum undulatum</i>	5.45	No	Minor
52	<i>Corymbia maculata</i>	31.61	Yes	Major
55	<i>Melaleuca armillaris</i>	0.29	No	Minor
58	<i>Corymbia maculata</i>	59.18	Yes	Major

### 5.3.3 NRZ, SRZ and Encroachment Map

Maps detailing the NRZ, SRZ and Encroachment have been provided in Appendix 4: NRZ, SRZ and Encroachment Map.

### 5.3.4 Mitigation measures

#### 5.3.4.1 Tree 25

Tree 25, a 'Medium' arboricultural value Brittle Gum (*Eucalyptus mannifera*), has a NRZ majorly encroached by proposed fencing and car parking.

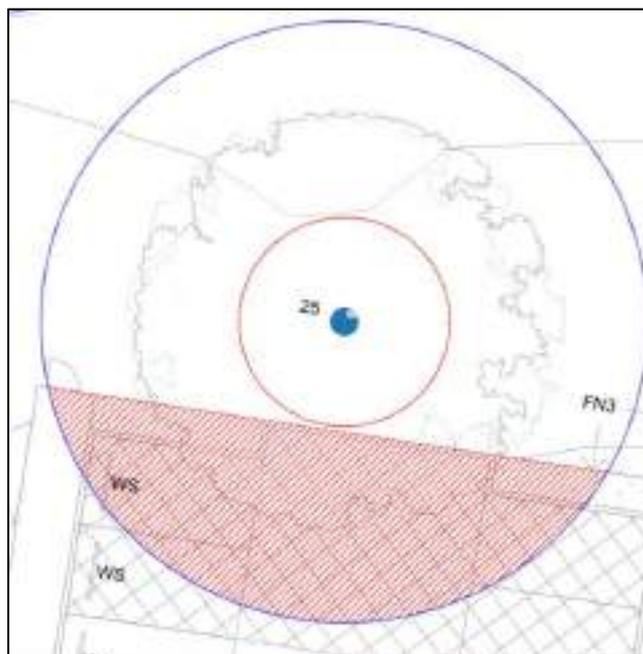


Figure 2: NRZ encroachment (hatching) of Tree 25.

To maintain the viability of this tree throughout the works, within its NRZ:

- the proposed fences must utilise a post and rail method of construction. Strip footings are not permitted.
  - Where posts are to be installed within the SRZ of Tree 25, the post's excavation must be made manually, under the supervision of an arborist qualified to a minimum of AQF level V in arboriculture.
  - Posts must be realigned to avoid severance of roots larger than 30mm in diameter.
- The proposed carparking paving, and its subgrade, must be of permeable materials and be built at the existing soil grade.
  - An arborist supervised, and manual, scrape excavation of up to 40mm in profile is permitted to facilitate the carparking within the NRZ of Tree 25

#### 5.3.4.2 Trees 26, 27, 30, 34, 36, 52 and 58

Trees 26, 27, 30, 34, 36, 52 and 58 have NRZ majorly encroached by proposed fences. To maintain the viability of these trees throughout these works, within their NRZ the proposed fences must utilise a post and rail method of construction. Strip footings are not permitted. Where posts are to be installed within the SRZ of a tree to be retained, the post's excavation must be made manually, under the supervision of an arborist qualified to a minimum of AQF level V in arboriculture. Posts must be realigned to avoid severance of roots larger than 30mm in diameter.

## 6 Conclusions and Recommendations

Demolition of the existing buildings and installation of a childcare facility is currently proposed at 23 Ryan Road, Pakenham. Arbkey has been engaged to assess the impact of the development on the trees at or adjacent to the site. 148 trees were assessed, 115 on the site and 33 within adjacent property.

16 of these trees are proposed for removal under the development plans. Permit approval is required for the removal of 11 of these trees, Trees 2, 7, 8, 9, 10, 22, 28, 29, 31, 32, and 40, under the VPO at the site. Two (2) of the trees proposed for removal, Trees 2 and 8, are located within the council managed road reserve fronting the site. Permission from these tree’s manager, Cardinia Shire, will be required prior to their removal.

To assess the viability of the trees proposed for retention throughout the design’s implementation, their notional root zone (NRZ) and structural root zone (SRZ) has been calculated and mapped as per AS4970 (2025). Where a development’s footprint overlaps a NRZ it is termed ‘encroachment’ within AS4970 (2025). 16 of the trees proposed for retention have NRZ encroached by the proposed design footprint.

Table 8: Overview of trees with NRZ encroached by the design footprint.

Encroachment Classification (AS4970 2025)	Count	Tree ID
<b>Minor (&lt;=10% Encroachment)</b> Generally Acceptable	8	6, 20, 35, 37, 41, 46, 50, 55
<b>Major (&gt;20% Encroachment)</b> Generally Intolerable	8	25, 26, 27, 30, 34, 36, 52, 58

Tree 25, a ‘Medium’ arboricultural value Brittle Gum (*Eucalyptus mannifera*), has a NRZ majorly encroached by proposed fencing and car parking. To maintain the viability of this tree throughout the works, within its NRZ:

- The proposed fences must utilise a post and rail method of construction. Strip footings are not permitted.
- the proposed carparking paving, and its subgrade, must be of permeable materials and be built at the existing soil grade.

Trees 26, 27, 30, 34, 36, 52 and 58 have NRZ majorly encroached by proposed fences. To maintain the viability of these trees throughout these works, within their NRZ the fences must utilise a post and rail method of construction. Strip footings are not permitted.

The remaining trees proposed for retention do not have NRZ encroached by the design footprint and would remain viable throughout the design’s implementation. It is recommended that:

- Trees that are unable to be retained through the development are removed prior to the commencement of construction but after the approval of final plans by the relevant authority and tree-owners.
- Prior to the commencement of any construction or demolition activities, a Tree Protection Specification (TPS) and Tree Protection Plan (TPP) in accordance with AS4970 (2025) is prepared outlining the procedure for protecting any impacted trees throughout the implementation of the endorsed design.

## 7 References

AS 4970, 2025, Australian Standard, Protection of Trees on Development Sites, Standards Australia

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IACA 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia

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8 Appendix 1: Site Map



Figure 3: Site Map – Existing Condition

## 9 Appendix 2: Tree Details

Table 9: Details of assessed trees

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
1	<i>Eucalyptus radiata</i>	Narrow-leaved Peppermint	Indigenous	8	10	73.76 [56, 48]	80	Good	Fair	Mature	15 to 40	Third Party Ownership
2	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	6	6	44.25 [18, 24, 21, 19, 16]	45	Fair	Fair	Mature	5 to 15	Third Party Ownership
3	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	3	1	5	7	Good	Good	Immature	15 to 40	Third Party Ownership
4	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	6	6	30.03 [18, 17, 17]	33	Good	Fair	Mature	5 to 15	Third Party Ownership
5	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	9	8	46.23 [36, 29]	47	Good	Fair	Mature	5 to 15	Third Party Ownership
6	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	9	7	34	40	Good	Fair	Mature	5 to 15	Third Party Ownership
7	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	3	4	13	15	Fair	Fair	Semi-mature	5 to 15	Low
8	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	9	6	22	25	Good	Fair	Semi-mature	15 to 40	Third Party Ownership
9	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	4	3	15.3 [9, 9, 6, 6]	16	Fair	Fair	Mature	5 to 15	Low
10	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	5	4	16.52 [9, 8, 8, 8]	19	Fair	Fair	Mature	5 to 15	Low
11	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	5	5	26.83 [24, 12]	32	Good	Fair	Semi-mature	15 to 40	Third Party Ownership
12	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	5	6	19.24 [9, 9, 8, 12]	23	Fair	Fair	Mature	5 to 15	Low
13	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	5	6	18.06 [9, 10, 9, 8]	23	Fair	Fair	Mature	5 to 15	Low
14	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	5	4	27	31	Good	Fair	Semi-mature	15 to 40	Third Party Ownership
15	<i>Quercus palustris</i>	Pin Oak	Exotic	9	8	19	23	Good	Fair	Semi-mature	>40	Low
16	<i>Photinia xfraseri</i>	Chinese Hawthorn	Exotic	5	6	17.58 [14, 7, 8]	24	Fair	Fair	Mature	5 to 15	Low
17	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	5	6	43	50	Good	Fair	Mature	15 to 40	Third Party Ownership
18	<i>Corymbia ficifolia</i>	Flowering Gum	Australian Native	5	4	28	32	Good	Fair	Semi-mature	15 to 40	Third Party Ownership

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
19	<i>Acer negundo</i>	Box Elder	Exotic	9	11	54.77 [20, 34, 38]	57	Fair	Fair	Mature	5 to 15	Medium
20	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	14	13	74	84	Good	Fair	Mature	>40	Third Party Ownership
21	<i>Syzygium paniculatum</i>	Magenta Cherry	Australian Native	3	1	7	8	Good	Fair	Immature	15 to 40	Third Party Ownership
22	<i>Salix chilensis</i>	Chilean Willow	Exotic	8	5	44.27 [21, 15, 15, 30, 13]	45	Fair	Poor	Mature	5 to 15	Low
23	<i>Liquidambar styraciflua</i>	Liquidamber	Exotic	10	8	29	33	Good	Fair	Semi-mature	>40	Low
24	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	8	5	19.24 [17, 9]	22	Good	Fair	Immature	>40	Third Party Ownership
25	<i>Eucalyptus mannifera</i>	Brittle Gum	Australian Native	13	10	72.2 [58, 43]	80	Good	Fair	Mature	>40	Medium
26	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	8	9	56.12 [27, 30, 39]	72	Fair	Fair	Mature	5 to 15	Low
27	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	8	7	46.86 [36, 30]	53	Fair	Fair	Mature	5 to 15	Low
28	<i>Eucalyptus kitsoniana</i>	Gippsland Mallee	Australian Native	10	9	44	50	Fair	Fair	Mature	5 to 15	Low
29	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	15	21	110	124	Good	Fair	Mature	15 to 40	Medium
30	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	8	11	65.37 [57, 32]	75	Good	Fair	Mature	5 to 15	Low
31	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	15	8	57	68	Good	Fair	Mature	>40	Medium
32	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	6	5	18.44 [14, 12]	25	Fair	Poor	Mature	<5	None
33	<i>Eucalyptus leucoxylon</i>	Yellow Gum	Australian Native	12	12	47	55	Good	Fair	Mature	>40	Medium
34	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	12	12	77	90	Fair	Poor	Mature	5 to 15	Low
35	<i>Grevillea robusta</i>	Silky Oak	Australian Native	15	8	42	50	Good	Good	Mature	15 to 40	Medium
36	<i>Eucalyptus tereticornis</i>	Forest Red Gum	Australian Native	15	12	67	80	Fair	Fair	Mature	15 to 40	Medium
37	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	5	4	17.49 [15, 9]	19	Good	Fair	Semi-mature	5 to 15	Low
38	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	13	12	70.71 [50, 50]	85	Good	Fair	Mature	15 to 40	Third Party Ownership
39	<i>Ligustrum lucidum</i>	Privet	Exotic	5	5	17.52 [9, 7, 8, 7, 8]	22	Good	Fair	Mature	5 to 15	Low

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
40	<i>Melia azedarach</i>	White Cedar	Australian Native	9	8	56.15 [40, 32, 23]	64	Good	Fair	Mature	15 to 40	Medium
41	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	6	3	10	12	Fair	Fair	Semi-mature	5 to 15	Low
42	<i>Ligustrum lucidum</i>	Privet	Exotic	5	4	21.63 [15, 9, 8, 7, 7]	24	Good	Fair	Mature	5 to 15	Low
43	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	3	3	8	12	Good	Fair	Semi-mature	5 to 15	Low
44	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	9	5	22	30	Good	Fair	Semi-mature	15 to 40	Third Party Ownership
45	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	5	5	16	19	Good	Fair	Mature	5 to 15	Low
46	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	8	3	16	20	Good	Good	Semi-mature	15 to 40	Low
47	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	9	5	82.01 [50, 65]	90	Good	Fair	Mature	>40	Third Party Ownership
48	<i>Ligustrum lucidum</i>	Privet	Exotic	4	3	14	16	Poor	Poor	Mature	<5	None
49	<i>Prunus persica</i>	Peach/Nectarine	Exotic	6	6	23.04 [15, 12, 9, 9]	24	Fair	Fair	Mature	15 to 40	Low
50	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	4	3	8	10	Good	Fair	Semi-mature	5 to 15	Low
51	<i>Acacia mearnsii</i>	Black Wattle	Indigenous	7	8	26	31	Fair	Fair	Mature	5 to 15	Low
52	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	17	12	69	75	Good	Fair	Mature	15 to 40	Medium
53	<i>Syzygium paniculatum</i>	Magenta Cherry	Australian Native	7	8	37.27 [22, 22, 15, 14]	44	Good	Fair	Mature	15 to 40	Medium
54	<i>Prunus persica</i>	Peach/Nectarine	Exotic	5	3	12	15	Fair	Fair	Semi-mature	15 to 40	Low
55	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	5	5	30	42	Fair	Fair	Mature	5 to 15	Low
56	<i>Prunus persica</i>	Peach/Nectarine	Exotic	4	4	13	15	Fair	Fair	Semi-mature	15 to 40	Low
57	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	9	15	55.57 [48, 28]	65	Good	Fair	Mature	>40	Third Party Ownership
58	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	16	9	57.38 [43, 38]	58	Good	Fair	Mature	>40	Medium
59	<i>xCuprocyparis leylandii</i>	Leyland Cypress	Exotic	8	7	37.01 [28, 19, 15]	40	Good	Fair	Mature	15 to 40	Low
60	<i>xCuprocyparis leylandii</i>	Leyland Cypress	Exotic	9	5	24.7 [21, 13]	27	Good	Fair	Mature	15 to 40	Low
61	<i>xCuprocyparis leylandii</i>	Leyland Cypress	Exotic	9	5	20	26	Good	Good	Mature	15 to 40	Low
62	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	13	11	49	55	Good	Fair	Mature	15 to 40	Third Party Ownership

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
63	<i>xCuprocyparis leylandii</i>	Leyland Cypress	Exotic	8	4	15	20	Good	Good	Semi-mature	15 to 40	Low
64	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	14	13	68	75	Good	Fair	Mature	>40	Third Party Ownership
65	<i>xCuprocyparis leylandii</i>	Leyland Cypress	Exotic	8	5	15	20	Good	Good	Semi-mature	15 to 40	Low
66	<i>Juglans nigra</i>	Black Walnut	Exotic	10	9	35	40	Good	Fair	Mature	15 to 40	Medium
67	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	16	11	67	75	Good	Fair	Mature	15 to 40	Medium
68	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	19	13	118	125	Good	Fair	Mature	15 to 40	Third Party Ownership
69	<i>Acacia longifolia</i>	Sallow Wattle	Australian Native	4	6	13.45 [10, 9]	20	Fair	Poor	Over-mature	<5	None
70	<i>Olea europaea</i>	European Olive	Exotic	5	4	13.53 [7, 7, 6]	19	Good	Fair	Semi-mature	15 to 40	Low
71	<i>Araucaria heterophylla</i>	Norfolk Island Pine	Australian Native	4	3	13	15	Good	Good	Immature	>40	Low
72	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	11	14	85.09 [46, 54, 47]	85	Good	Fair	Mature	>40	Third Party Ownership
73	<i>Juglans nigra</i>	Black Walnut	Exotic	6	5	28	35	Fair	Fair	Mature	5 to 15	Low
74	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	15	19	74	85	Good	Fair	Mature	15 to 40	High
75	<i>Araucaria heterophylla</i>	Norfolk Island Pine	Australian Native	3	2	7	9	Good	Good	Immature	>40	Low
76	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	4	1	5	7	Good	Good	Immature	>40	Low
77	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	5	1	6	7	Good	Good	Immature	>40	Low
78	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Australian Native	5	7	15	18	Good	Fair	Mature	5 to 15	Low
79	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	13	17	95.86 [46, 57, 39, 48]	105	Good	Fair	Mature	>40	Third Party Ownership
80	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	4	2	6	7	Good	Good	Immature	>40	Low
81	<i>Araucaria heterophylla</i>	Norfolk Island Pine	Australian Native	6	2	16	20	Good	Fair	Semi-mature	>40	Low
82	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	7	5	10	15	Good	Good	Semi-mature	15 to 40	Low
83	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	14	10	50	55	Good	Fair	Mature	15 to 40	Third Party Ownership
84	<i>Castanea sativa</i>	Sweet Chestnut	Exotic	4	4	13.38 [9, 7, 7]	16	Good	Fair	Semi-mature	15 to 40	Low

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
85	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	7	5	17	21	Good	Good	Semi-mature	15 to 40	Low
86	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	13	9	55	65	Fair	Poor	Mature	<5	Low
87	<i>Eucalyptus cinerea</i>	Mealy Stringybark	Australian Native	11	15	73.55 [51, 53]	85	Good	Fair	Mature	>40	Third Party Ownership
88	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	5	8	39.74 [23, 17, 20, 19]	42	Fair	Poor	Mature	<5	None
89	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	5	2	7	9	Good	Good	Immature	>40	Low
90	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	19	14	68	77	Good	Good	Mature	>40	High
91	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	20	9	83	90	Good	Fair	Mature	15 to 40	Third Party Ownership
92	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	4	5	16.58 [9, 9, 7, 8]	17	Good	Fair	Mature	5 to 15	Low
93	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	9	5	28	32	Good	Good	Semi-mature	>40	Low
94	<i>Acacia mearnsii</i>	Black Wattle	Indigenous	5	6	22.8 [18, 14]	25	Fair	Fair	Mature	5 to 15	Third Party Ownership
95	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	10	10	48.92 [37, 32]	65	Good	Fair	Mature	>40	Medium
96	<i>Eucalyptus leucoxylon</i>	Yellow Gum	Australian Native	10	10	48	55	Fair	Fair	Mature	15 to 40	Third Party Ownership
97	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
98	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	16	12	67.32 [48, 28, 38]	78	Good	Fair	Mature	>40	Medium
99	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	9	5	20	24	Good	Good	Semi-mature	>40	Low
100	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	10	4	25	26	Fair	Good	Semi-mature	15 to 40	Low
101	<i>Acacia dealbata</i>	Silver Wattle	Indigenous	9	5	16	18	Good	Fair	Mature	5 to 15	Medium
102	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
103	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
104	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
105	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
106	<i>Corymbia citriodora</i>	Lemon-scented Gum	Australian Native	11	9	35	45	Good	Fair	Mature	>40	Third Party Ownership

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
107	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
108	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
109	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
110	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
111	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
112	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
113	<i>Eucalyptus botryoides</i>	Southern Mahogany	Australian Native	7	3	15	18	Good	Good	Semi-mature	15 to 40	Low
114	<i>Corymbia citriodora</i>	Lemon-scented Gum	Australian Native	15	13	38	49	Good	Fair	Mature	>40	Third Party Ownership
115	<i>Eucalyptus leucoxylon</i>	Yellow Gum	Australian Native	6	3	22	25	Fair	Fair	Mature	5 to 15	Low
116	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
117	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	10	6	40.46 [26, 31]	42	Fair	Fair	Mature	15 to 40	Medium
118	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	18	16	108	120	Good	Fair	Mature	>40	High
119	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
120	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	5	8	27.91 [17, 12, 15, 11]	34	Fair	Poor	Mature	5 to 15	Low
121	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
122	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
123	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
124	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
125	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
126	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
127	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	5	7	35	40	Fair	Poor	Mature	5 to 15	Low

Tree ID	Genus Species	Common Name	Species Origin	Height (m)	Crown Spread (m)	DSH [Stems] (cm)	DAB (cm)	Health	Structure	Maturity	ULE (years)	Arboricultural Value
128	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
129	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	3	3	9	12	Good	Fair	Immature	5 to 15	Low
130	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
131	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	19	15	115	125	Fair	Fair	Mature	5 to 15	High
132	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	17	7	43	55	Good	Fair	Mature	>40	Medium
133	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
134	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
135	<i>Eucalyptus yarraensis</i>	Yarra Gum	Indigenous	9	6	38	45	Fair	Fair	Mature	>40	Medium
136	<i>Corymbia citriodora</i>	Lemon-scented Gum	Australian Native	6	2	11	14	Good	Good	Immature	>40	Low
137	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	5	9	39.43 [20, 21, 17, 13, 16]	45	Good	Poor	Mature	5 to 15	Low
138	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	4	2	7	8	Good	Good	Immature	5 to 15	Low
139	<i>Eucalyptus globulus</i>	Blue Gum	Australian Native	9	10	90.93 [45, 40, 40, 38, 40]	110	Fair	Poor	Mature	5 to 15	Medium
140	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
141	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	15	12	63	70	Good	Fair	Mature	15 to 40	Medium
142	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	3	13	16	Good	Fair	Semi-mature	5 to 15	Low
143	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	4	4	15	18	Good	Fair	Mature	5 to 15	Low
144	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	Australian Native	6	8	34.54 [22, 22, 15]	37	Fair	Poor	Mature	5 to 15	Low
145	<i>Corymbia maculata</i>	Spotted Gum	Australian Native	14	14	66.26 [33, 30, 49]	68	Good	Fair	Mature	>40	Medium
146	<i>Eucalyptus viminalis</i>	Manna Gum	Indigenous	15	5	43.01 [25, 35]	55	Fair	Fair	Mature	15 to 40	Third Party Ownership
147	<i>Eucalyptus viminalis</i>	Manna Gum	Indigenous	17	14	80	95	Good	Good	Mature	>40	Third Party Ownership
183	<i>Corymbia citriodora</i>	Lemon-scented Gum	Australian Native	5	1	6	8	Good	Good	Immature	>40	Third Party Ownership

## 10 Appendix 3: NRZ and SRZ Details

Table 10: NRZ and SRZ details of assessed trees (AS4970 2025)

Tree ID	Genus Species	Common Name	SRZ radius (m) AS4970	NRZ radius (m) AS4970	NRZ Area AS 4970 (m2)
1	<i>Eucalyptus radiata</i>	Narrow-leaved Peppermint	3.01	8.85	246.057
2	<i>Photinia xfraseri</i>	Chinese Hawthorn	2.37	5.31	88.581
3	<i>Corymbia ficifolia</i>	Flowering Gum	1.5	2	12.566
4	<i>Pittosporum undulatum</i>	Sweet Pittosporum	2.08	3.6	40.715
5	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.41	5.55	96.769
6	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.25	4.08	52.296
7	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.5	2	12.566
8	<i>Corymbia ficifolia</i>	Flowering Gum	1.85	2.64	21.896
9	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.53	2	12.566
10	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.65	2	12.566
11	<i>Corymbia ficifolia</i>	Flowering Gum	2.05	3.22	32.573
12	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.79	2.31	16.764
13	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.79	2.17	14.793
14	<i>Corymbia ficifolia</i>	Flowering Gum	2.02	3.24	32.979
15	<i>Quercus palustris</i>	Pin Oak	1.79	2.28	16.331
16	<i>Photinia xfraseri</i>	Chinese Hawthorn	1.82	2.11	13.987
17	<i>Corymbia ficifolia</i>	Flowering Gum	2.47	5.16	83.647
18	<i>Corymbia ficifolia</i>	Flowering Gum	2.05	3.36	35.467
19	<i>Acer negundo</i>	Box Elder	2.61	6.57	135.607
20	<i>Corymbia maculata</i>	Spotted Gum	3.08	8.88	247.728
21	<i>Syzygium paniculatum</i>	Magenta Cherry	1.5	2	12.566
22	<i>Salix chilensis</i>	Chilean Willow	2.37	5.31	88.581
23	<i>Liquidambar styraciflua</i>	Liquidamber	2.08	3.48	38.046
24	<i>Corymbia maculata</i>	Spotted Gum	1.75	2.31	16.764
25	<i>Eucalyptus mannifera</i>	Brittle Gum	3.01	8.66	235.606
26	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.88	6.73	142.292
27	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.53	5.62	99.225
28	<i>Eucalyptus kitsoniana</i>	Gippsland Mallee	2.47	5.28	87.583
29	<i>Eucalyptus botryoides</i>	Southern Mahogany	3.62	13.2	547.391
30	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.93	7.84	193.1
31	<i>Corymbia maculata</i>	Spotted Gum	2.81	6.84	146.981
32	<i>Eucalyptus botryoides</i>	Southern Mahogany	1.85	2.21	15.344
33	<i>Eucalyptus leucoxydon</i>	Yellow Gum	2.57	5.64	99.933
34	<i>Eucalyptus botryoides</i>	Southern Mahogany	3.17	9.24	268.222
35	<i>Grevillea robusta</i>	Silky Oak	2.47	5.04	79.801
36	<i>Eucalyptus tereticornis</i>	Forest Red Gum	3.01	8.04	203.078
37	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.65	2.1	13.854
38	<i>Eucalyptus cinerea</i>	Mealy Stringybark	3.09	8.49	226.446
39	<i>Ligustrum lucidum</i>	Privet	1.75	2.1	13.854
40	<i>Melia azedarach</i>	White Cedar	2.74	6.74	142.715
41	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.5	2	12.566
42	<i>Ligustrum lucidum</i>	Privet	1.82	2.6	21.237
43	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.5	2	12.566
44	<i>Eucalyptus botryoides</i>	Southern Mahogany	2	2.64	21.896
45	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.65	2	12.566
46	<i>Eucalyptus botryoides</i>	Southern Mahogany	1.68	2	12.566
47	<i>Eucalyptus cinerea</i>	Mealy Stringybark	3.17	9.84	304.187
48	<i>Ligustrum lucidum</i>	Privet	1.53	2	12.566
49	<i>Prunus persica</i>	Peach/Nectarine	1.82	2.76	23.931
50	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.5	2	12.566
51	<i>Acacia mearnsii</i>	Black Wattle	2.02	3.12	30.582

Tree ID	Genus Species	Common Name	SRZ radius (m) AS4970	NRZ radius (m) AS4970	NRZ Area AS 4970 (m <sup>2</sup> )
52	<i>Corymbia maculata</i>	Spotted Gum	2.93	8.28	215.383
53	<i>Syzygium paniculatum</i>	Magenta Cherry	2.34	4.47	62.772
54	<i>Prunus persica</i>	Peach/Nectarine	1.5	2	12.566
55	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.3	3.6	40.715
56	<i>Prunus persica</i>	Peach/Nectarine	1.5	2	12.566
57	<i>Eucalyptus cinerea</i>	Mealy Stringybark	2.76	6.67	139.766
58	<i>Corymbia maculata</i>	Spotted Gum	2.63	6.89	149.138
59	<i>xCuprocyparis leylandii</i>	Leyland Cypress	2.25	4.44	61.932
60	<i>xCuprocyparis leylandii</i>	Leyland Cypress	1.91	2.96	27.525
61	<i>xCuprocyparis leylandii</i>	Leyland Cypress	1.88	2.4	18.096
62	<i>Eucalyptus botryoides</i>	Southern Mahogany	2.57	5.88	108.619
63	<i>xCuprocyparis leylandii</i>	Leyland Cypress	1.68	2	12.566
64	<i>Eucalyptus cinerea</i>	Mealy Stringybark	2.93	8.16	209.185
65	<i>xCuprocyparis leylandii</i>	Leyland Cypress	1.68	2	12.566
66	<i>Juglans nigra</i>	Black Walnut	2.25	4.2	55.418
67	<i>Corymbia maculata</i>	Spotted Gum	2.93	8.04	203.078
68	<i>Eucalyptus globulus</i>	Blue Gum	3.63	14.16	629.907
69	<i>Acacia longifolia</i>	Sallow Wattle	1.68	2	12.566
70	<i>Olea europaea</i>	European Olive	1.65	2	12.566
71	<i>Araucaria heterophylla</i>	Norfolk Island Pine	1.5	2	12.566
72	<i>Eucalyptus cinerea</i>	Mealy Stringybark	3.09	10.21	327.492
73	<i>Juglans nigra</i>	Black Walnut	2.13	3.36	35.467
74	<i>Corymbia maculata</i>	Spotted Gum	3.09	8.88	247.728
75	<i>Araucaria heterophylla</i>	Norfolk Island Pine	1.5	2	12.566
76	<i>Eucalyptus cinerea</i>	Mealy Stringybark	1.5	2	12.566
77	<i>Eucalyptus globulus</i>	Blue Gum	1.5	2	12.566
78	<i>Pittosporum undulatum</i>	Sweet Pittosporum	1.61	2	12.566
79	<i>Eucalyptus cinerea</i>	Mealy Stringybark	3.38	11.5	415.476
80	<i>Eucalyptus cinerea</i>	Mealy Stringybark	1.5	2	12.566
81	<i>Araucaria heterophylla</i>	Norfolk Island Pine	1.68	2	12.566
82	<i>Eucalyptus botryoides</i>	Southern Mahogany	1.5	2	12.566
83	<i>Eucalyptus botryoides</i>	Southern Mahogany	2.57	6	113.097
84	<i>Castanea sativa</i>	Sweet Chestnut	1.53	2	12.566
85	<i>Eucalyptus botryoides</i>	Southern Mahogany	1.72	2.04	13.074
86	<i>Eucalyptus globulus</i>	Blue Gum	2.76	6.6	136.848
87	<i>Eucalyptus cinerea</i>	Mealy Stringybark	3.09	8.83	244.947
88	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.3	4.77	71.48
89	<i>Corymbia maculata</i>	Spotted Gum	1.5	2	12.566
90	<i>Corymbia maculata</i>	Spotted Gum	2.97	8.16	209.185
91	<i>Eucalyptus globulus</i>	Blue Gum	3.17	9.96	311.651
92	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.57	2	12.566
93	<i>Corymbia maculata</i>	Spotted Gum	2.05	3.36	35.467
94	<i>Acacia mearnsii</i>	Black Wattle	1.85	2.74	23.586
95	<i>Corymbia maculata</i>	Spotted Gum	2.76	5.87	108.25
96	<i>Eucalyptus leucoxylon</i>	Yellow Gum	2.57	5.76	104.231
97	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
98	<i>Corymbia maculata</i>	Spotted Gum	2.98	8.08	205.103
99	<i>Corymbia maculata</i>	Spotted Gum	1.82	2.4	18.096
100	<i>Eucalyptus globulus</i>	Blue Gum	1.88	3	28.274
101	<i>Acacia dealbata</i>	Silver Wattle	1.61	2	12.566
102	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
103	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
104	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
105	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
106	<i>Corymbia citriodora</i>	Lemon-scented Gum	2.37	4.2	55.418
107	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566

Tree ID	Genus Species	Common Name	SRZ radius (m) AS4970	NRZ radius (m) AS4970	NRZ Area AS 4970 (m <sup>2</sup> )
108	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
109	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
110	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
111	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
112	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
113	<i>Eucalyptus botryoides</i>	Southern Mahogany	1.61	2	12.566
114	<i>Corymbia citriodora</i>	Lemon-scented Gum	2.45	4.56	65.325
115	<i>Eucalyptus leucoxylon</i>	Yellow Gum	1.85	2.64	21.896
116	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
117	<i>Corymbia maculata</i>	Spotted Gum	2.3	4.86	74.203
118	<i>Corymbia maculata</i>	Spotted Gum	3.57	12.96	527.667
119	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
120	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.1	3.35	35.257
121	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
122	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
123	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
124	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
125	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
126	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
127	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.25	4.2	55.418
128	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
129	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.5	2	12.566
130	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
131	<i>Eucalyptus globulus</i>	Blue Gum	3.63	13.8	598.285
132	<i>Corymbia maculata</i>	Spotted Gum	2.57	5.16	83.647
133	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
134	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
135	<i>Eucalyptus yarraensis</i>	Yarra Gum	2.37	4.56	65.325
136	<i>Corymbia citriodora</i>	Lemon-scented Gum	1.5	2	12.566
137	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.37	4.73	70.287
138	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.5	2	12.566
139	<i>Eucalyptus globulus</i>	Blue Gum	3.44	10.91	373.938
140	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
141	<i>Corymbia maculata</i>	Spotted Gum	2.85	7.56	179.553
142	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.53	2	12.566
143	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	1.61	2	12.566
144	<i>Melaleuca armillaris</i>	Giant Honey Myrtle	2.18	4.14	53.846
145	<i>Corymbia maculata</i>	Spotted Gum	2.81	7.95	198.557
146	<i>Eucalyptus viminalis</i>	Manna Gum	2.57	5.16	83.647
147	<i>Eucalyptus viminalis</i>	Manna Gum	3.24	9.6	289.529
183	<i>Corymbia citriodora</i>	Lemon-scented Gum	1.5	2	12.566

11 Appendix 4: NRZ, SRZ and Encroachment Map

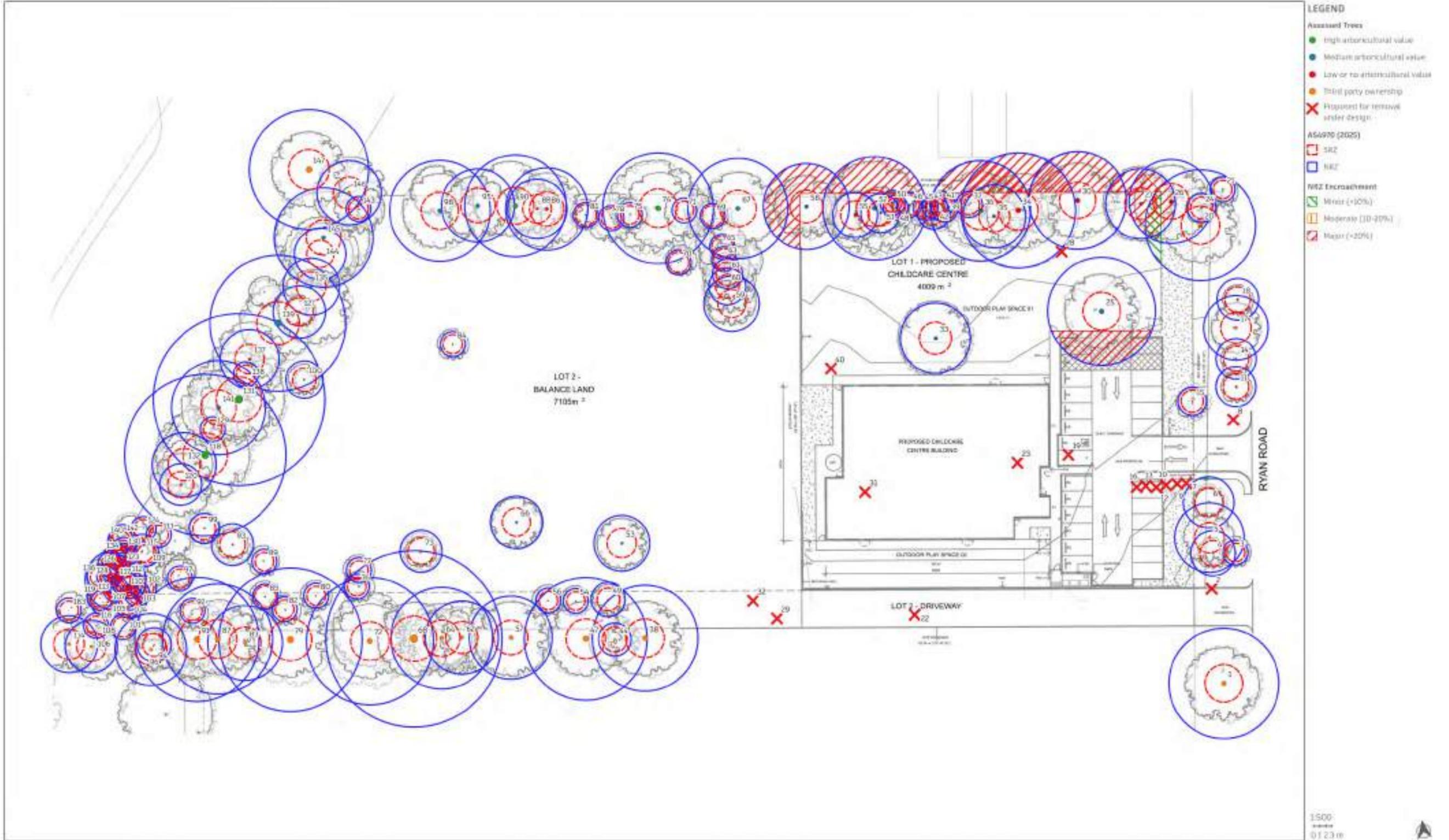


Figure 4: NRZ, SRZ and Encroachment Map

12 Appendix 5: Tree Photos

Tree ID: 1



Tree ID: 2



Tree ID: 3



Tree ID: 4



Tree ID: 5



Tree ID: 6



Tree ID: 7



Tree ID: 8



Tree ID: 9



Tree ID: 10



Tree ID: 11



Tree ID: 12



Tree ID: 13



Tree ID: 14



Tree ID: 15



Tree ID: 16



Tree ID: 17



Tree ID: 18



Tree ID: 19



Tree ID: 20



Tree ID: 21



Tree ID: 22



Tree ID: 23



Tree ID: 24



Tree ID: 25



Tree ID: 26



Tree ID: 27



Tree ID: 28



Tree ID: 29



Tree ID: 30



Tree ID: 31



Tree ID: 32



Tree ID: 33



Tree ID: 34



Tree ID: 35



Tree ID: 36



Tree ID: 37



Tree ID: 38



Tree ID: 39



Tree ID: 40



Tree ID: 41



Tree ID: 42



Tree ID: 43



Tree ID: 44



Tree ID: 45



Tree ID: 46



Tree ID: 47



Tree ID: 48



Tree ID: 49



Tree ID: 50



Tree ID: 51



Tree ID: 52



Tree ID: 53



Tree ID: 54



Tree ID: 55



Tree ID: 56



Tree ID: 57



Tree ID: 58



Tree ID: 59



Tree ID: 60



Tree ID: 61



Tree ID: 62



Tree ID: 63



Tree ID: 64



Tree ID: 65



Tree ID: 66



Tree ID: 67



Tree ID: 68



Tree ID: 69



Tree ID: 70



Tree ID: 71



Tree ID: 72



Tree ID: 73



Tree ID: 74



Tree ID: 75



Tree ID: 76



Tree ID: 77



Tree ID: 78



Tree ID: 79



Tree ID: 80



Tree ID: 81



Tree ID: 82



Tree ID: 83



Tree ID: 84



Tree ID: 85



Tree ID: 86



Tree ID: 87



Tree ID: 88



Tree ID: 89



Tree ID: 90



Tree ID: 91



Tree ID: 92



Tree ID: 93



Tree ID: 94



Tree ID: 95



Tree ID: 96



Tree ID: 97, 102, 103, 104, 105, 107, 108, 109, 110, 111, 132, 116, 119,  
121, 122, 123, 124, 125, 126, 128, 130, 133, 134, 140, 142



Tree ID: 98



Tree ID: 99



Tree ID: 100



Tree ID: 101



Tree ID: 106



Tree ID: 113



Tree ID: 114



Tree ID: 115



Tree ID: 117



Tree ID: 118



Tree ID: 121



Tree ID: 127



Tree ID: 128



Tree ID: 131



Tree ID: 132



Tree ID: 125



Tree ID: 126



Tree ID: 127



Tree ID: 128



Tree ID: 129



Tree ID: 161



Tree ID: 163



Tree ID: 164



Tree ID: 165



Tree ID: 166



Tree ID: 167



Tree ID: 181



### 13 Appendix 6: Data Definitions

**DSH** (Diameter at Standard Height) is measured at 1.4 m above ground level or calculated from the total stem area if the tree was multi-stemmed at 1.4m above ground level in accordance with AS 4970 (2025).

**DAB** (Diameter at Base) is measured just above the root collar of a tree in accordance with AS 4970 (2025)

**Health** summarises qualitative observations of canopy density, overall vigour and vitality made in the field:

- Good - Canopy is visually dense with less than 10% dieback and shows no, or only very minor nutrient deficiencies, pest and disease presence or stress-induced epicormic growth.
- Fair - Canopy is of average density, consists of between 10-30% dieback and shows a minor, or occasionally moderate, level of nutrient deficiency, pest and disease presence or stress-induced epicormic growth.
- Poor - Canopy is visually sparse, consists of more than 30% dieback and typically has significant nutrient deficiency, pest and disease presence or stress induced epicormic growth.
- Dead – No indication the tree is alive

**Structure** summarises qualitative observations of tree structure and stability made in the field:

- Good - The tree's form is optimal for the species. Typically trees of 'Good' structure have no or only very minor trunk leans or canopy asymmetry. These trees have parts that are not structurally compromised by decay, cracks, or other structural faults. Structural failure of these trees is only likely only under strong and unusual weather events
- Fair - The tree's structure includes minor structural defects that do not typically fail in light or moderate weather events. Typically trees of 'Fair' structure have minor trunk leans or slightly asymmetric canopies. These trees are likely to have parts that are partly compromised by decay or structural defects such as included bark.
- Poor - The tree's structure includes major structural defects. Failure of these trees is considered possible under light or moderate weather events. Typically trees of 'Poor' structure have major trunk leans or heavily asymmetric canopies. These trees are likely to have parts that are heavily compromised by decay or structural defects such as included bark.

**Maturity** summarises the life stage of the tree.

- Juvenile – The tree is in approximately the first 10% of its expected lifespan in its current environment
- Semi-mature – Tree is 10%-20% through its expected lifespan in its current environment and has not yet reached its mature dimensions.
- Mature – The tree is through 20%-90% of its expected lifespan in its current environment.
- Over-mature – The tree is through approximately 90% of its expected lifespan in its current environment

**ULE** (Useful Life Expectancy) indicates the anticipated remaining years of lifespan of the tree in its existing surroundings. The tree's lifespan is the time that it will continue to provide amenity value without undue risk or hazard and with a reasonable amount of maintenance.

**Significance** indicates the importance a tree may have on a respective site. The following descriptors are used to derive this value (adapted from IACA 2010):

High -

- Tree is good condition and good vigour
- The tree has a form typical for the species
- The tree is a remnant specimen or is rare or uncommon in the local area or of botanical interest or substantial age
- The tree is listed as a heritage item or threatened species or listed on a municipal significant tree register
- The tree is visually prominent and visible from a considerable distance when viewed from most directions due to its size and scale. The tree makes a positive contribution to the local amenity.
- The tree supports social or cultural sentiments or spiritual associations or has commemorative values
- The tree is appropriate to the site conditions

Medium -

- The tree is in fair condition and good or low vigour
- The tree has form typical or atypical of the species
- The tree is a planted locally indigenous taxa or a common species within the area.
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from a public space. The tree provides a moderate contribution to the amenity and character of the local area
- The tree is often partially restricted by above or below ground influences and/or resources.

Low -

- The tree is in fair condition and good or low vigour
- The tree has form atypical of the species.
- The tree is not visible or is partly visible from surrounding properties due to obstructions.
- The tree provides a minor contribution or has a negative impact on landscape amenity or character of the local area.
- The tree is a juvenile specimen that can easily be replaced.
- The tree's growth is severely restricted by above or below ground influences and/or resources.
- The tree has a feature that has potential to become structurally unsound.
- The tree is listed as a noxious or environmental weed under state, federal or municipal policy

Dead/Irreversible Decline -

- The tree is structurally unsound or unstable
- The tree is dead or in irreversible decline

Third Party Ownership

- The tree is located on adjoining land to the assessment.

A tree is to meet several or all the criteria in a category to be classified in that group

**Arboricultural Value** is a calculated value indicating the merit of the tree for retention through any nearby developments. It is a qualitative combination of the trees ULE and Significance Values (Table 11).

Table 11: Matrix for the calculation of Arboricultural Value

ULE	Significance Value				
	High	Medium	Low	Dead/Irreversible Decline	Third Party Ownership
>40 years	High	Medium	Low	Low	Third Party Ownership
15-40 years	High	Medium	Low	Low	Third Party Ownership
5-15 years	High	Medium	Low	None	Third Party Ownership
<5 years	Medium	Low	None	None	Third Party Ownership
0 years	Low	None	None	None	Third Party Ownership

- High – Trees attributed a 'High' arboricultural value are generally of strong visual amenity and significant in the landscape. The utmost level of consideration should be given for the retention of these trees throughout development activities and/or nearby disturbance
- Medium – Trees attributed a 'Medium' arboricultural value are of moderate amenity value and have been attributed some value in the landscape. Trees attributed a 'Medium' arboricultural value should be retained and designed around during developments or nearby disturbance. If retention is not possible for these trees, removal and replacement can be often considered as an acceptable compromise.
- Low – Trees attributed a Low arboricultural value are of poor arboricultural merit. Removal and replacement is an acceptable compromise if designing around these trees is not possible.
- None – Trees attributed an arboricultural value of none have no arboricultural merit. Removal is usually acceptable or required for these trees.
- Third Party Ownership – The tree is located on adjacent land to the assessment. It is assumed that the owner of the tree attributes it a High arboricultural value and requires its retention in the landscape.

## 14 Appendix 7: Structural Root Zone and Notional Root Zone Overview

### 14.1 Structural Root Zone (SRZ)

The SRZ is an indication of the area surrounding the base of a tree that is required for its stability. AS 4970 (2025) provides a method to calculate the SRZ of trees: The SRZ is calculated as

$$(DAB \times 50)^{0.42} \times 0.64$$

For grass like trees such as palms or tree ferns; SRZs are not calculated.

### 14.2 Notional Root Zone (NRZ)

The NRZ is an indication of the area surrounding the base of a tree that is required for its viability. AS 4970 (2025) provides a method for calculating the standard area of NRZ's. For all broadleaf trees, the radius of the NRZ is calculated as:

$$12 * DSH$$

For grass like trees such as palms or tree ferns; NRZs are calculated as 2m in radius.

Dead trees are attributed a NRZ of the same size as their SRZ as only their stability can be protected and not their vigour

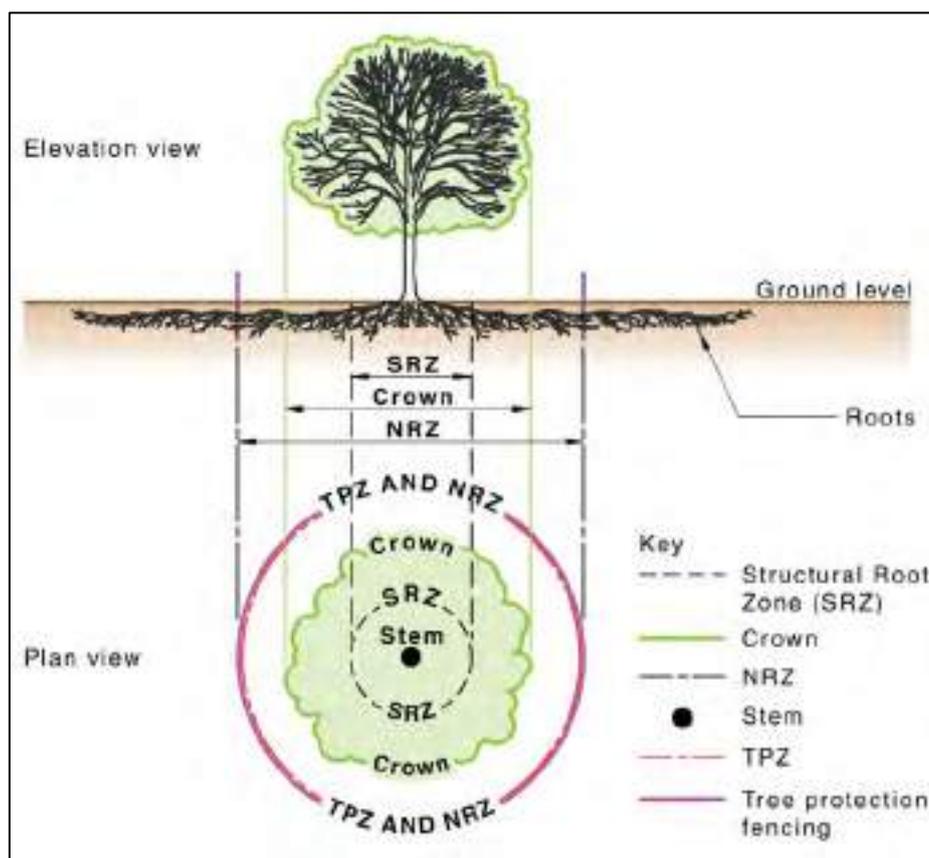


Figure 5: Diagram of NRZ and SRZ (AS 4970 2025)



July 2025

## Biodiversity Assessment, 23 Ryan Road, Pakenham, Victoria



Prepared for:

Ryan Road  
Pakenham Land Pty  
Ltd

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Report author	Simon Scott
Site assessor	Simon Scott
Report reviewer	Stuart Cooney
Other staff	N/A
Mapping	Stuart Cooney
File name	2668_Ryan_Rd_Pakenham_BA_07072025

### **Cover Photograph**

A photograph of the study area.

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## Executive Summary

Ecolink Consulting Pty Ltd was engaged by Ryan Road Pakenham Land Pty Ltd to undertake a Biodiversity Assessment at 23 Ryan Road, Pakenham, Victoria (the study area). The Biodiversity Assessment was undertaken to determine the ecological constraints of the study area and to support planning permit applications for the proposed 2-lot subdivision and proposed development of a childcare centre in the east of the property.

The study area is located within the Cardinia Shire municipality. It is zoned Low Density Residential Zone – Schedule 2 (LDRZ2) and is covered by a Vegetation Protection Overlay – Schedule 1 (VPO1). The VPO1 states that the area contains ‘*substantial areas of remnant indigenous vegetation and mature exotic species. The maintenance and enhancement of the flora habitat is vital for the long term protection of these areas and the native fauna they support*’.

Department of Energy, Environment and Climate Action modelling suggests that the study area occurs within the Gippsland Plain Bioregion and was historically covered by Ecological Vegetation Class (EVC) 83: Swampy Riparian Woodland in the west, and EVC 53: Swamp Scrub in the east. However, the site assessment found that no patches of native vegetation remain within the study area.

Thirty-two flora species were recorded during the assessment (excluding the planted vegetation). Only three indigenous species were recorded: Finger Rush *Juncus subsecundus*, Swamp Paperbark *Melaleuca ericifolia* and Weeping Grass *Microlaena stipoides* var. *stipoides*. The other species were exotic, reflecting the long history of the site as a residential property, surrounded by ornamental gardens and trees to provide a screen to the adjoining roads.

Eleven threatened flora species have been recorded within three kilometres of the study area, however none were observed during the current assessment, and none are likely to be impacted by the proposed works. No threatened ecological communities were recorded during the current assessment.

Six fauna species were recorded within the study area (and its airspace) during the current assessment. All were native birds, which were widespread and common within the local area.

Eleven historical records of threatened fauna species occur within three kilometres of the study area, however none were observed within the study area, during the current assessment. Development of the study area is unlikely to significantly impact local populations of any threatened fauna species (if present).

In this context, and based on the relevant legislation and policies, the following recommendations are made:

- To obtain regulatory approval:
  - Submit this report to Council to support the planning permit application, including to seek a permit for the removal of native vegetation, but noting the absence of any patches of native vegetation or any indigenous scattered trees;
- Post approval, subject to regulatory approvals:

- Engage a zoologist or wildlife handler salvage any wildlife from trees prior to their removal.
- Prepare a Construction Environment Management Plan (or equivalent) which includes:
  - Manages sediment and erosion; and
  - Measures to minimise impacts associated with weed introduction and spread targeting noxious weeds including:
    - Blackberry *Rubus fruticosus* spp agg.;
    - Paterson's Curse *Echium plantagineum*;
    - Soursob *Oxalis pes-caprae*;
    - Spear Thistle *Cirsium vulgare*; and
    - Variegated Thistle *Silybum marianum*.

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## Introduction

Ecolink Consulting Pty Ltd was engaged by Ryan Road Pakenham Land Pty Ltd, to undertake a Biodiversity Assessment at 23 Ryan Road, Pakenham (the study area). The Biodiversity Assessment was undertaken to determine the ecological constraints of the study area and to support planning permit applications for the proposed 2-lot subdivision and proposed development of a childcare centre within the study area.

The assessment addresses the requirements of Clause 52.17 of the Cardinia Planning Scheme. Clause 52.17 requires mapping and assessing the location, extent and quality of native vegetation in accordance with the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017). The Biodiversity Assessment also identifies the likely ecological constraints of the study area and recommends mitigation measures and offset requirements based on other relevant legislation and policies, where appropriate.

Therefore, the purpose of the Biodiversity Assessment and is to:

- Determine the ecological values of the study area;
- Evaluate the extent and quality of native vegetation within the study area, required under the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017);
- Evaluate any impacts that are likely to occur to any ecological values as a result of the potential loss of vegetation at the study area; and,
- Make recommendations to avoid or mitigate impacts to identified ecological values, as appropriate.

## Methods

### Desktop Assessment

In order to determine the ecological values that have previously been recorded within the study area, and its vicinity, the following databases and literature were consulted:

- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool to determine Matters of National Environmental Significance (MNES), under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act), that are modelled to occur in the vicinity of the study area (Department of Climate Change Energy the Environment and Water 2025a);
- Planning Maps to identify the planning zones and overlays relating to environmental matters e.g. Vegetation Protection Overlays or Environmental Significance Overlays (Department of Transport and Planning 2025);
- The NatureKit webpage (Department of Environment Land Water and Planning 2023) from the Department of Energy, Environment, and Climate Action (DEECA) to identify the historic and current Ecological Vegetation Classes (EVCs);
- The Victorian Biodiversity Atlas (Department of Energy Environment and Climate Action 2025e) for records of threatened<sup>1</sup> flora and fauna within three kilometres of the study area;
- Nearmap aerial photography to understand previous land use (Nearmap 2025);
- The Native Vegetation Information Management System (NVIM) to determine biodiversity offset requirements (Department of Energy Environment and Climate Action 2025b);
- The ‘Weeds of National Significance’ database (Department of Climate Change Energy the Environment and Water 2025b); and,
- Other relevant legislation and policies (as required).

### Site Assessment

A site assessment was undertaken on 2 July 2025 by Principal Ecologist, Simon Scott. Simon is suitably qualified and experienced to undertake such assessments and holds a current Vegetation Quality Assessments (Habitat Hectares) Accreditation with DEECA (Department of Energy Environment and Climate Action 2025d).

All flora species observed within the study area were recorded, with the exception of planted vegetation that was not considered a ‘weed’ (i.e. planted vegetation that was not spreading or reproducing). Where a species was not able to be confidently identified in the field, a sample was collected and later identified. Plants were identified to species level wherever possible, however, some plants that were planted, cultivars, hybrids, or plants that did not contain suitable fertile material used for identification were recorded to genus level.

---

<sup>1</sup> Threatened flora and fauna includes species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*, and the *Flora and Fauna Guarantee Act 1988 (Vic)*.

Vegetation communities such as EVCs and nationally significant vegetation communities were recorded (if observed) and compared with their corresponding benchmarks or thresholds to ensure that they were accurately assigned.

A list of all fauna species observed within, and immediately surrounding, the study area was produced. This list consists of species seen, heard, or identified by other evidence of their presence (e.g. feathers, scats). Leica 12 X 50 binoculars and call mimicry/playback were used to assist in the identification species.

The species, size (Diameter and Breast Height and Tree Protection Zone) and location of all 'scattered' indigenous trees was recorded using an iPad mini tablet that has an internal Global Positioning System (GPS) and the GIS Pro application (accuracy +/- 5 metres). The presence of hollows and birds' nests was also noted.

The presence of fauna habitat was noted, particularly in relation to potential habitats for threatened species. The greatest amount of time was spent surveying the highest quality fauna habitats (e.g. trees, water bodies, crevices or underground debris) during the assessment.

### **Guidelines for the Removal, Destruction or Lopping of Native Vegetation**

The *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (the Guidelines) (Department of Environment Land Water and Planning 2017) are required to be addressed under Clause 52.17 of the Planning Scheme. The Guidelines require that information regarding the biodiversity values of the site were obtained through:

- Site-based information that was measured or observed at a site, including:
  - Extent of native vegetation patches;
  - Large trees;
  - Native vegetation condition assessed in accordance with the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004);
  - Ecological Vegetation Classes (EVC); and
  - Sensitive wetlands and coastal areas.
- Landscape scale information that cannot be measured or observed at the site and includes maps and models procured from DEECA.

The Guidelines require a Habitat Hectare assessment in instances where the impact is to be assessed under the Detailed Assessment Pathway. It was not possible to determine the risk-based pathway for the loss of native vegetation prior to the site assessment, and we therefore opted to complete the Habitat Hectare assessment in accordance with the methodology prescribed within the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004) where patches<sup>2</sup> of vegetation were observed.

---

<sup>2</sup> A 'patch' is defined as an area with at least 25% cover abundance of perennial native vegetation, or a group (i.e. three or more) trees forming a continuous canopy.

All indigenous vegetation was assessed, and then assigned a quality rating based on the Habitat Hectare score (Department of Sustainability and Environment 2004). In addition, the location and species of indigenous 'scattered trees'<sup>3</sup>, and any 'large trees'<sup>4</sup> within patches were mapped.

## Limitations and Qualifications

The following limitations and qualifications apply to this report:

- The results of the desktop assessment are reliant on data obtained from various databases and other reports. These databases all have internal vetting procedures, however the accuracy of these historical data and some of the results provided within these reports cannot be verified. The desktop assessment does, however, rely on the most accurate data available.
- As with all ecological assessments, a greater survey effort is likely to yield additional flora and fauna records. Where these additional flora and fauna records may alter the recommendations made within this report (e.g. where additional threatened species may utilise habitats within the study area, or where threatened species may be impacted by the proposed development), further assessment has been recommended within this report, depending on the implications of relevant policies and legislation.
- Some flora and fauna species may only be recorded during certain times or seasons (e.g. plants that only contain above-ground biomass and are only visible annually, nocturnal mammals and birds, migratory birds, or fauna identified through seasonal breeding calls such as some frog species).

On the basis of the above, the author has made an informed decision about the likely presence of threatened species that may be present, or that may utilise habitats within the study area, based on a desktop assessment, a review of the species' biology, and an understanding of the ecological values of the local area.

Despite the limitations to the assessment listed above, the results gained by both a desktop and a field-assessment are adequate to address the purposes of this report.

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<sup>3</sup> Scattered trees are defined as a native canopy tree that does not form a patch

<sup>4</sup> Large trees are defined as meeting the size threshold specified in the bioregional EVC Benchmark

## Results

### The Study Area

#### Study Area Description and Land Use History

The study area is located approximately 2.5 kilometres east of the Pakenham train station. It is also located approximately 220 metres east of the Pakenham Golf Course, and just east of Deep Creek, which flows through the Deep Creek Reserve. Immediate neighbours to the study area include low-density residential lots, although higher density residential subdivisions are occurring further east of the study area.

Ryan Road extends along the eastern boundary of the property, which provides access via an existing driveway. A disused dwelling was present in the south-east of the study area, with a large shed further west. Sheep were grazing the study area at the time of the assessment (Plate 1). Trees have been planted in the nature strip along the road frontage, around the property boundaries and alongside the driveway (Plate 2).

The study area does not contain any waterways or waterbodies.

#### Local Planning Controls

The study area is located within the Cardinia Shire municipality. It is zoned Low Density Residential Zone – Schedule 2 (LDRZ2) and is covered by a Vegetation Protection Overlay – Schedule 1 (VPO1). The VPO1 states that the area contains *'substantial areas of remnant indigenous vegetation and mature exotic species. The maintenance and enhancement of the flora habitat is vital for the long term protection of these areas and the native fauna they support'* (Department of Environment Land Water and Planning 2025).

The objectives of the VPO1 are to:

- Protect and conserve existing vegetation as an important element of the character of low density residential areas;
- Maintain and enhance local habitat and biolinks, including hollow bearing trees;
- Avoid and minimise the removal of vegetation where it contributes to the management of environmental hazards such as erosion, salinity, siltation of creeks and watercourses, and stormwater runoff; and
- Ensure that vegetation remains a significant part of the character and visual amenity of these areas, with the built form being located within a landscape, and vegetation being the predominant feature (Department of Environment Land Water and Planning 2025).

## Flora

### Flora Communities

The study area is located within the Gippsland Plain bioregion of Victoria. DEECA modelling of the vegetation within the study area suggest it was historically covered by Ecological Vegetation Class

(EVC) 83: Swampy Riparian Woodland in the west, and EVC 53: Swamp Scrub in the east (Department of Energy Environment and Climate Action 2025c).

These EVCs are described as:

- EVC 83: Swampy Riparian Woodland: A 'woodland to 15 metres tall generally occupying low energy streams of the foothills and plains. The lower strata are variously locally dominated by a range of large and medium shrub species on the stream levees in combination with large tussock grasses and sedges in the ground layer' (Department of Energy Environment and Climate Action 2025a); and
- EVC 53: Swamp Scrub: A 'closed scrub to 8 m tall at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. The EVC is dominated by Swamp Paperbark *Melaleuca ericifolia* (or sometimes Woolly Tea-tree *Leptospermum lanigerum*) which often forms a dense thicket, out-competing other species. Occasional emergent eucalypts may be present. Where light penetrates to ground level, a moss/lichen/liverwort or herbaceous ground cover is often present. Dry variants have a grassy/herbaceous ground layer' (Department of Energy Environment and Climate Action 2025a).

Both EVCs have a Conservation Status of Endangered within the bioregion.

Current vegetation modelling, by DEECA, suggests small areas of these EVCs may persist along the eastern boundary or the western boundary of the study area, however, no patches of native vegetation were recorded during the current assessment (as discussed below).

### Flora Species

Thirty-two flora species were recorded during the assessment (excluding the planted vegetation) (Table A1). Only three indigenous species were recorded, Finger Rush *Juncus subsecundus*, Swamp Paperbark *Melaleuca ericifolia* and Weeping Grass *Microlaena stipoides* var. *stipoides* (Plate 3).

The study area was dominated by exotic grasses including Kikuyu *Cenchrus clandestinus*, Panic Veldt-grass *Ehrharta erecta*, Cocksfoot *Dactylis glomeratus* and Sweet Vernal-grass *Anthoxanthum odoratum*. Other widespread species included Couch *Cynodon dactylon* var. *dactylon*, Rat-tail Grass *Sporobolus africanus*, White Clover *Trifolium repens* and Ribwort *Plantago lanceolata* (Plate 4).

The midstorey and overstorey contained planted trees and shrubs. These included exotic, Australian native and Victorian native species.

Ornamental planted vegetation is excluded from the assessment (and Table A1), although we noted the widespread occurrences of some Victorian native species including Spotted Gum *Corymbia maculata*, Southern Mahogany *Eucalyptus botryoides* and Giant Honey-myrtle *Melaleuca armillaris* all of which have distribution including East Gippsland (Plate 5) (Royal Botanic Gardens Melbourne 2025).

We are satisfied that all of the trees observed within the study area are planted, and not remnant, on the basis that:

- The trees were exotic, Australian native and Victorian native, but generally not indigenous to the local area and not consistent with the EVCs which would historically have occurred within the study area;
- Many of the trees were of a similar size, and age; and,
- The trees were generally planted around the property boundary in rows, with roughly equidistant spacing.

### Vegetation Quality Assessment

No patches of native vegetation were recorded within the study area.

### Scattered Tree Assessment

No scattered indigenous trees were recorded within the study area. The indigenous River Red-gum trees observed were deemed to have been planted, and are exempt from requiring a permit for their removal pursuant to Clause 52.17 of the planning scheme (Department of Transport and Planning 2024).

### Threatened Flora Species and Ecological Communities

Thirteen threatened flora species have previously been recorded within three kilometres of the study area (Department of Energy Environment and Climate Action 2025e). An additional 13 threatened flora species are predicted to occur within the study area based on the Protected Matters Search Tool (Department of Climate Change Energy the Environment and Water 2025a). A consolidated list of these threatened flora species, as well as their conservation status under the EPBC Act, the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) Threatened List (Department of Energy Environment and Climate Action 2024), their preferred habitats and the likelihood of occurrence for each species is provided in Table A3.

No threatened flora species have previously been recorded within the study area, and none were recorded during the current assessment. Given the land use history and modification of the vegetation observed within the study area, no threatened flora species are likely to occur within the study area.

The modelling used by the Protected Matters Search Tool suggests that up to two nationally significant vegetation communities may also occur within the study area:

- Natural Damp Grassland of the Victorian Coastal Plains (Critically Endangered); and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered).

The vegetation within the study area is not representative of these threatened ecological communities, based on its topography, EVC classification and the observed species mix and weediness.

## Fauna

### Fauna Species and Habitats

Six fauna species were recorded within the study area (and its airspace) during the current assessment. All were native birds. It is expected that a greater diversity of fauna species would be recorded with a greater amount of time on-site.

All of these species are common to the area. No mammals, reptiles or frogs were recorded during the assessment. It is likely that skinks and snakes would occur within the study area, amongst areas containing understorey vegetation and organic litter or debris. No dams or waterbodies were present within the study area and there was no suitable habitat for frogs, fish or waterbirds.

The open and gardens and paddock area provide habitat to generalist species, such as Australian Magpie *Gymnorhina tibicen*, Magpie-lark *Grallina cyanoleuca* and Australian Raven *Corvus coronoides*, which are widespread and common species throughout farmland and open paddocks within this part of Victoria. Willie Wagtails *Rhipidura leucophrys* and Red Wattlebirds *Anthochaera carunculata* were foraging on blooming plants and trees.

The trees provide nesting opportunities for birds and roost habitats for bats. It is probable that arboreal mammals such as Common Ringtail Possum *Pseudocheirus peregrinus*, and bats also utilise the trees. The trees lacked hollows which may provide roosting habitats for Common Brushtail Possum *Trichosurus vulpecula* or hollow-dependent nesting birds such as cockatoos and owls.

### Threatened Fauna Species and Communities

Eleven threatened fauna species have previously been recorded within three kilometres of the study area (Department of Energy Environment and Climate Action 2025e) (Figure 2). An additional 31 threatened fauna species are predicted to occur within the study area, based on the Protected Matters Search Tool (Department of Climate Change Energy the Environment and Water 2025a). A consolidated list of these threatened fauna species, as well as their conservation status under the EPBC Act and the FFG Act Threatened List (Department of Energy Environment and Climate Action 2024), their preferred habitats and the likelihood of occurrence for each species is provided in Table A4.

There are no historical records of threatened fauna species within the study area, and no threatened fauna species were recorded within the study area during the current assessment (Table A4, Figure 2).

Of the species modelled to occur, the study area may provide occasional or opportunistic habitats for Gang-gang Cockatoo *Callocephalon fimbriatum* and Grey-headed Flying-fox *Pteropus poliocephalus*. White-throated Needletails *Hirundapus caudacutus* may fly over the study area on occasion. Given the large home ranges, the mobile nature of these species, and the abundance of similar habitats within the landscape, the development of the study area is unlikely to significantly impact local populations (if present).

No fauna communities listed under the Victorian FFG Act were recorded within the study area.



## Discussion

A detailed summary of the legislation that was considered when preparing this report is provided in Appendix 2. The discussion presented in this section of the report does not reiterate information provided in Appendix 2, but summarises the results and recommendations arising from the interpretation of this legislation.

### *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*

The desktop assessment identified 14 threatened flora and 35 threatened fauna species, as well as up to two threatened ecological communities, listed under the EPBC Act, which may occur within the study area.

Almost all of the EPBC Act-listed flora and fauna species that were identified during the desktop assessment, are, in fact, unlikely to occur due to the absence of suitable habitats or the degraded nature of habitats within the study area. There is the potential for some EPBC Act-listed birds or bats may opportunistically visit the study area including Gang-gang Cockatoo, Grey-headed Flying-foxes and White-throated Needletails. However, the proposed development is unlikely to significantly impact any of these species.

The limited and degraded native vegetation within the study area does not meet thresholds to classify as any of the threatened ecological communities listed under the EPBC Act.

A referral to the Commonwealth DCCEEW is not recommended for the project.

### *Flora and Fauna Guarantee Act 1988 (Vic)*

The desktop assessment identified 26 flora species and 42 fauna species listed under the FFG Act that may occur within the study area (Tables A3 and A4). As stated above, there is a low to moderate likelihood that some FFG Act-listed fauna, with large home ranges, may utilise or fly over the study area on occasion (White-throated Needletail, Gang-Gang Cockatoo and Grey-headed Flying-fox). However, the development of the study area is unlikely to significantly impact any of these threatened species.

The FFG Act, which was amended in 2021, contains an obligation or duty on public authorities and ministers to consider potential biodiversity impacts when exercising their functions. The FFG Act requires ministers and public authorities (including Councils) reasonably consider the objectives of the Act where projects may impact upon biodiversity, so far as is consistent with the proper exercising of their functions. It is therefore anticipated that regulators (DEECA and Cardinia Council) will give due consideration to the FFG Act when considering the approval for the project.

The FFG Act also lists species as 'protected flora' on public land. Protected flora includes whole families or genera, (as well as species), such as daisies, heaths, orchids, and most Acacias. These species and genera are not necessarily regarded as threatened but require an approved *Permit to Take Protected Flora* from DEECA prior to their removal when located on public land (including road reserves). The study area is located on private land, and the proposed entrance will include a nature

strip which is highly modified, unlikely to contain any threatened or protected flora species. Therefore, a *Permit to Take Protected Flora* is not required.

### ***Planning and Environment Act 1987 (Vic)***

The proposed development would require a planning permit from the Cardinia Shire Council under Clause 52.17 prior to the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2025). The applicant is required to demonstrate how it applied the three-step approach to avoid, minimise and offset impacts to native vegetation (discussed below).

The objectives of the VPO1 generally requires that a planning permit application for development within the study area avoid impacts to remnant native vegetation, to protect the flora and fauna habitats as well as the visual amenity of the area. Whilst the study area does not support any patches of native vegetation or scattered trees, the retention of some vegetation to address the VPO1 objectives is also discussed below.

### ***Catchment and Land Protection Act 1994 (Vic)***

Primary considerations of the *Catchment and Land Protection Act 1994* (Vic) relate to soil and water conservation, as well as the management of pest plants and animals.

The study area contains a very low cover abundance of environmental weed species. However, five species listed as 'noxious' within the Melbourne Water Catchment Management Area were present within the study area (Table A1, Appendix 1). These weeds included:

- Blackberry *Rubus fruticosus* spp. agg., Paterson's Curse *Echium plantagineum*, Spear Thistle *Cirsium vulgare* and Variegated Thistle *Silybum marianum* which are all listed as 'Regionally Controlled' within the catchment. The proponent is required to 'control the spread' of all 'regionally controlled' species from their property; and
- Soursob *Oxalis pes-caprae* which is listed as 'Restricted'. There are restrictions on the 'trade' of the species.

Blackberry is also listed as 'Weeds of National Significance', although there are no additional legislative obligations to manage weeds under this listing.

Given the low cover abundance of weeds, ongoing weed management would be straightforward. There is the potential for construction works, and associated machinery, to introduce additional weeds into the study area. It is recommended the proposed development includes a weed management program as part of any Construction Environment Management Plan (or equivalent).

In addition, it is recommended that the development avoid impacts to the land to the west, which includes Deep Creek, by mitigating off-site impacts. This should be prescribed through erosion and sediment control measures within the above-mentioned Construction Environment Management Plan.

## ***Wildlife Act 1975 (Vic)***

It is likely that some locally common species of fauna will be displaced by the proposed development. Furthermore, there remains a low likelihood that animals may be accidentally injured when disturbing soil and removing vegetation. All native vertebrate wildlife is protected under the *Wildlife Act 1975* (Vic), and therefore contractors must use due care when removing vegetation and fill from the study area. It is recommended that a zoologist or wildlife handler salvage any wildlife from trees prior to their removal (if required).

## ***Guidelines for the Removal, Destruction or Lopping of Native Vegetation***

### **The Three-step Approach**

Applicants who wish to remove native vegetation must generally demonstrate how the application meets the three-step approach to:

1. Avoid the removal, destruction or lopping of native vegetation;
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided; and
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017).

### **Avoidance and Minimisation Statement**

Avoidance of native vegetation is generally demonstrated through appropriate development design. However, no patches of native vegetation, or scattered trees, were recorded within the study area.

That stated, the trees provide habitat to local fauna, and retention of vegetation is consistent with the objectives of the VPO1. Where practicable, it is recommended that impacts to biodiversity values be minimised, by:

- Retaining mature trees where practicable;
- Incorporating sediment, erosion and pollution control measures, in accordance with the EPA Guidelines (EPA Victoria 1991; EPA Victoria 1996), in a Construction Environment Management Plan, to ensure future residents avoid indirect impacts to downstream/downhill areas of greater ecological significance (such as Deep Creek); and,
- Avoiding the use of environmental weeds during the landscaping of the property.

### **Offsets**

No offsets are required for the loss of native vegetation within the study area due to an absence of patches of native vegetation and scattered trees.

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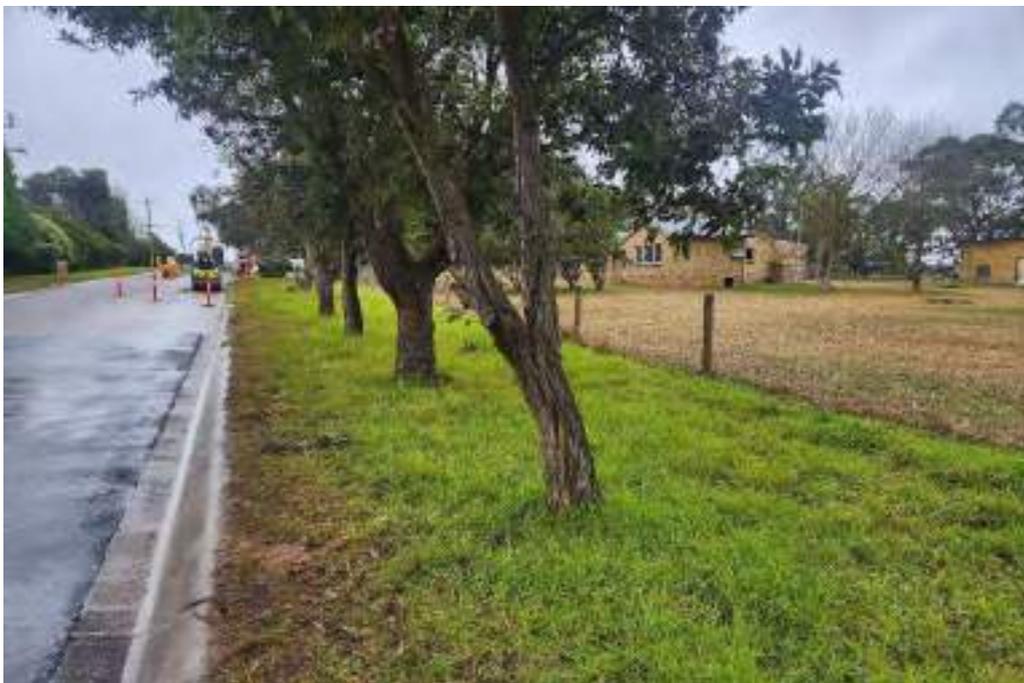
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## Plates



**Plate 1.** Sheep grazing the study area, recently fed some hay (2 July 2025).



**Plate 2.** Trees planted within the nature strip along Ryan Road (2 July 2025).



**Plate 3.** Some Finger Rush tussocks and isolated occurrences of Weeping Grass amongst other exotic grasses near the southern boundary of the study area (2 July 2025).



**Plate 4.** Exotic grasses dominate the study area. Nettle was less grazed by the sheep (2 July 2025).



**Plate 5.** Victorian native Ginat Honey-myrtles planted along the northern boundary of the study area (2 July 2025).

## Figures

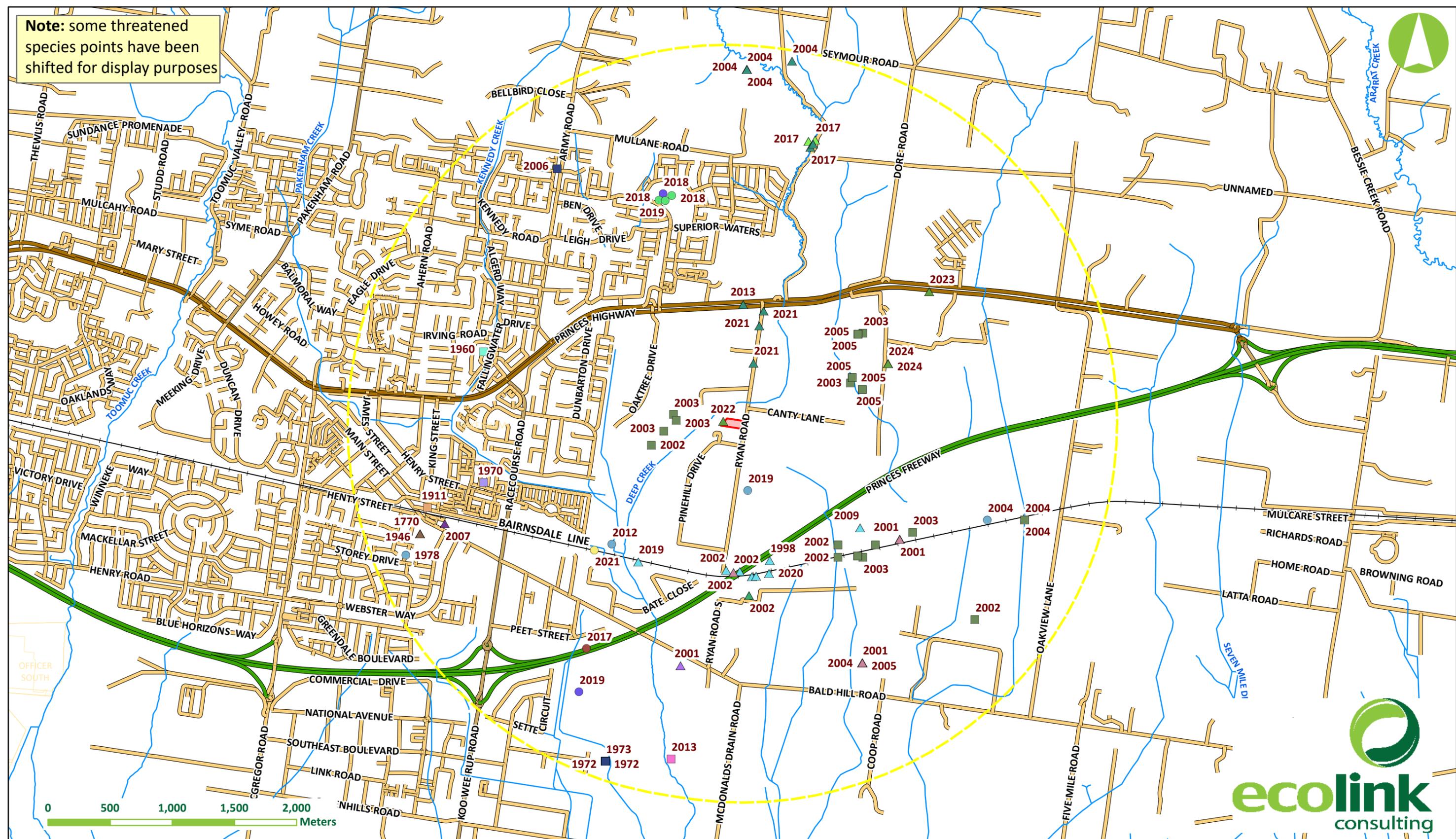


**Figure 1:** Results of the current assessment.  
 23 Ryans Road, Pakenham, Victoria

**Legend**  
 Study Area



**Note:** some threatened species points have been shifted for display purposes

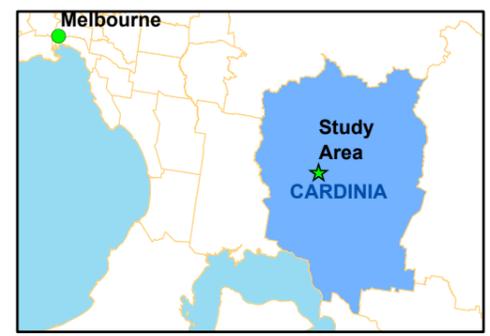


**Figure 2:** Threatened flora and fauna within 3kms of the study area.

23 Ryans Road, Pakenham, Victoria

**Legend**

- |  |   |  |   |  |   |
|--|---|--|---|--|---|
| <span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Study Area                | <span style="color: blue;">●</span> Eastern Great Egret       | <span style="color: blue;">■</span> Southern Toadlet             | <span style="color: brown;">▲</span> Bog Gum            | <span style="color: green;">▲</span> Grey Billy-buttons  | <span style="color: green;">▲</span> Spotted Gum        |
| <span style="border: 1px dashed yellow; display: inline-block; width: 15px; height: 10px;"></span> 3km Study Area Buffer | <span style="color: blue;">●</span> Latham's Snipe            | <span style="color: purple;">■</span> Macquarie Perch            | <span style="color: purple;">▲</span> Buxton Gum        | <span style="color: purple;">▲</span> Maroon Leek-orchid | <span style="color: brown;">▲</span> Veined Spear-grass |
| <b>Common Name</b>   | <span style="color: yellow;">●</span> White-bellied Sea-Eagle | <span style="color: cyan;">■</span> Murray Cod                   | <span style="color: brown;">▲</span> Cobra Greenhood    | <span style="color: cyan;">▲</span> Matted Flax-lily     |   |
| <span style="color: brown;">●</span> Australasian Bittern  | <span style="color: pink;">■</span> Southern Brown Bandicoot  | <span style="color: brown;">■</span> Foothill Burrowing Crayfish | <span style="color: green;">▲</span> Giant Honey-myrtle | <span style="color: green;">▲</span> Purple Blown-grass  |   |
| <span style="color: green;">●</span> Blue-billed Duck  | <span style="color: green;">■</span> Growling Grass Frog      | <span style="color: brown;">▲</span> Austral Crane's-bill        | <span style="color: green;">▲</span> Green Scentbark    | <span style="color: pink;">▲</span> Southern Blue-gum    |   |



## Appendices

### Appendix 1. Flora and Fauna Tables

Table A1. Flora species recorded within the study area

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Annual Meadow-grass	<i>Poa annua</i>	-	-
*	Bird's-foot Trefoil	<i>Lotus corniculatus</i>	-	-
*	Black Nightshade	<i>Solanum nigrum</i>	-	-
*	Blackberry	<i>Rubus fruticosus</i> spp. agg.	Yes	Controlled
*	Brown-top Bent	<i>Agrostis capillaris</i>	-	-
*	Buck's-horn Plantain	<i>Plantago coronopus</i>	-	-
*	Cape Weed	<i>Arctotheca calendula</i>	-	-
*	Cocksfoot	<i>Dactylis glomerata</i>	-	-
*	Common Centaury	<i>Centaurium erythraea</i>	-	-
*	Couch	<i>Cynodon dactylon</i> var. <i>dactylon</i>	-	-
*	Drain Flat-sedge	<i>Cyperus eragrostis</i>	-	-
*	Flatweed	<i>Hypochaeris radicata</i>	-	-
*	Hairy Bird's-foot Trefoil	<i>Lotus subbiflorus</i>	-	-
*	Kikuyu	<i>Cenchrus clandestinus</i>	-	-
*	Nettle	<i>Urtica urens</i>	-	-
*	Onion Grass	<i>Romulea rosea</i>	-	-
*	Panic Veldt-grass	<i>Ehrharta erecta</i>	-	-
*	Paspalum	<i>Paspalum dilatatum</i>	-	-
*	Paterson's Curse	<i>Echium plantagineum</i>	-	Controlled
*	Pimpernel	<i>Lysimachia arvensis</i>	-	-
*	Rat-tail Grass	<i>Sporobolus africanus</i>	-	-
*	Ribwort	<i>Plantago lanceolata</i>	-	-
*	Small-flower Mallow	<i>Malva parviflora</i>	-	-
*	Soursob	<i>Oxalis pes-caprae</i>	-	Restricted
*	Spear Thistle	<i>Cirsium vulgare</i>	-	Controlled
	Swamp Paperbark	<i>Melaleuca ericifolia</i>	-	-
*	Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	-	-
*	Variegated Thistle	<i>Silybum marianum</i>	-	Controlled
	Weeping Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-
*	White Arum-lily	<i>Zantedeschia aethiopica</i>	-	-
*	White Clover	<i>Trifolium repens</i> var. <i>repens</i>	-	-

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Yorkshire Fog	<i>Holcus lanatus</i>	-	-

**Table Notes:**

\* – Exotic # – naturalised

This table does not include ornamental plants, trees or shrubs that were not spreading or reproducing beyond where they were planted.

**Table A2. Fauna species recorded within the study area**

Origin	Common Name	Species Name
<b>Birds</b>		
	Australian Magpie	<i>Cracticus tibicen</i>
	Australian Raven	<i>Corvus coronoides</i>
	Magpie-lark	<i>Grallina cyanoleuca</i>
	Red Wattlebird	<i>Anthochaera carunculata</i>
	Red-rumped Parrot	<i>Psephotus haematonotus</i>
	Willie Wagtail	<i>Rhipidura leucophrys</i>

**Definitions**

\* - Introduced species

**Table A3. Threatened flora species that have previously been recorded within, or within three kilometres of the study area (Department of Energy Environment and Climate Action 2025e), or that has habitat that may occur within the vicinity of the study area (Department of Climate Change Energy the Environment and Water 2025a).**

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Austral Crane's-bill	<i>Geranium solanderi</i> var. <i>solanderi</i>	-	Endangered	Damp to dryish, usually sheltered sites, in grassy woodlands, often along drainage lines or in seepage areas.	2002 (3)	No	Unlikely
Austral Toad-flax	<i>Thesium australe</i>	Vulnerable	Endangered	A semi-parasitic on roots of a range of grass species, notably Kangaroo Grass.	NPR	No	Unlikely
Bog Gum	<i>Eucalyptus kitsoniana</i>	-	Critically Endangered	Coastal lowlands from Yarram west to Cape Otway, and Mt Richmond near Portland	2024 (1)	No	Unlikely
Buxton Gum	<i>Eucalyptus crenulata</i>	Endangered	Endangered	Periodically swampy flats near Buxton	2007 (1)	No	Unlikely
Clover Glycine	<i>Glycine latrobeana</i>	Vulnerable	Vulnerable	Grassy woodland; plains grassland; box woodland; dry sclerophyll forest.	NPR	No	Unlikely
Cobra Greenhood	<i>Pterostylis grandiflora</i>	-	Endangered	Valley sclerophyll forest, grassy low open forest	1946 (2)	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Dense Leek-orchid	<i>Prasophyllum spicatum</i>	Vulnerable	Critically Endangered	Coastal and hinterland heath and heathy woodland	NPR	No	Unlikely
Giant Honey-myrtle	<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	-	Endangered	Mainly confined to near-coastal sandy heaths, scrubs slightly raised above saltmarsh, riparian scrubs, rocky coastlines and foothill outcrops eastwards from about Marlo. Occurrences to the west are naturalised.	2024 (4)	No	Unlikely
Green Scentbark	<i>Eucalyptus fulgens</i>	-	Endangered	Damp sclerophyll forests	2021 (8)	No	Unlikely
Green-striped Greenhood	<i>Pterostylis chlorogramma</i>	Vulnerable	Endangered	Open forest and woodland	NPR	No	Unlikely
Grey Billy-buttons	<i>Craspedia canens</i>	-	Critically Endangered	Known only from grassland, often bordering swamps, at low altitude between, approximately, Cranbourne and Traralgon.	2001 (1)	No	Unlikely
Leafy Greenhood	<i>Pterostylis cucullata</i>	Vulnerable	-	Tea-tree heath	NPR	No	Unlikely
Matted Flax-lily	<i>Dianella amoena</i>	Endangered	Critically Endangered	Grassy Wetland; Red Gum woodland; plains grassland; grassy woodlands.	2020 (10)	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Purple Blown-grass	<i>Lachnagrostis semibarbata</i> var. <i>semibarbata</i>	-	Endangered	Scattered from near Melbourne to the South Australian border, mainly in grassland, occasionally woodland communities in somewhat saline depressions of the volcanic plain, but also known from seasonal, slightly brackish swampy sites east of Melbourne.	2002 (1)	No	Unlikely
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	Vulnerable	-	Beside swamps in grassy low open forest, riparian scrub. Required moist soils, tolerates inundation.	NPR	No	Unlikely
Round-leaf Pomaderris	<i>Pomaderris vacciniifolia</i>	Critically Endangered	Critically Endangered	Valley sclerophyll forest	NPR	No	Unlikely
Shelford Leek-orchid	<i>Prasophyllum fosteri</i>	-	Critically Endangered	Basalt plains grassland near Mt Mercer.	2005 (19)	No	Unlikely
Southern Blue-gum	<i>Eucalyptus globulus</i> subsp. <i>globulus</i>	-	Endangered	Two populations; one south of the Strzelecki Range and the other south of the Otway Ranges.	2004 (1)	No	Unlikely
Spiny Peppercress	<i>Lepidium aschersonii</i>	Vulnerable	Endangered	Heavy clay soil near salt lakes on volcanic plain, but with outlying	NPR	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
				records from near Lake Omeo and the Grampians			
Spotted Gum	<i>Corymbia maculata</i>	-	Vulnerable	Indigenous to the Tara Range, south of Buchan, but also widely used as a street tree	2017 (2)	No	Unlikely
Strzelecki Gum	<i>Eucalyptus strzeleckii</i>	Vulnerable	Critically Endangered	Fragmented populations in the Strzelecki Ranges, on a range of sites including ridges, slopes and along the banks of streams, but particularly foothills and flats	NPR	No	Unlikely
Swamp Everlasting	<i>Xerochrysum palustre</i>	Vulnerable	Critically Endangered	Seasonal or permanent wetlands	NPR	No	Unlikely
Swamp Fireweed	<i>Senecio psilocarpus</i>	Vulnerable	-	High-quality herb-rich wetlands on plains	NPR	No	Unlikely
Thick-lip Spider-orchid	<i>Caladenia tessellata</i>	Vulnerable	-	Grassy sclerophyll woodland on clay loam or sandy soils	NPR	No	Unlikely
Veined Spear-grass	<i>Austrostipa rudis</i> subsp. <i>australis</i>	-	Endangered	Grassy low open forest, dry sclerophyll forests	2001 (1)	No	Unlikely
White Star-bush	<i>Asterolasia asteriscophora</i> subsp. <i>albiflora</i>	-	Critically Endangered	Moist well drained clay soils in open forests in the foothills	NPR	No	Unlikely

**Table Notes:**

NPR – Not previously recorded

**\* Likelihood of Presence Definitions:**

*Unlikely* – Site does not contain habitat and/or it is outside the species' known, current distribution.

*Low* – Site contains some marginal habitat, but the species was not observed and has not been recently recorded in previous surveys in the area.

*Moderate* – Site contains preferred habitat that may support a population of the species. However, other factors, such as fragmentation, disturbance or predators may be impacting any local population.

*High* - Site contains the preferred habitat which is likely to support the species.

*Present* – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded at the site.

**Table A4. Threatened fauna species that have previously been recorded within, or within three kilometres of the study site (Department of Energy Environment and Climate Action 2025e), or that has habitat that may occur within the vicinity of the site (Department of Climate Change Energy the Environment and Water 2025a).**

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
<b>Birds</b>							
Blue-billed Duck	<i>Oxyura australis</i>	-	Vulnerable	Well-vegetated freshwater swamps, large dams, lakes. More open waters in winter.	2019 (4)	No	Unlikely
White-throated Needletail	<i>Hirundapus caudacutus</i>	Vulnerable	Vulnerable	Aerial insectivore that rarely lands to perch, often sleeping on the wing	NPR	Yes	Low
Greater Sand Plover	<i>Charadrius leschenaultii</i>	Vulnerable	Vulnerable	Tidal mudflats and sandflats, beaches, saltmarsh, estuaries	NPR	No	Unlikely
Australian Painted-snipe	<i>Rostratula australis</i>	Endangered	Critically Endangered	Uncommon summer migrant to Victoria. Lowlands on shallow freshwater swamps with emergent vegetation, and flooded salt marshes.	NPR	No	Unlikely
Plains-wanderer	<i>Pedionomus torquatus</i>	Critically Endangered	Critically Endangered	Sparse, treeless, lightly grazed native grasslands/herbfields with bare ground, old cereal crops, low shrubland.	NPR	No	Unlikely
Eastern Curlew	<i>Numenius madagascariensis</i>	Critically Endangered	Critically Endangered	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Curlew Sandpiper	<i>Calidris ferruginea</i>	Critically Endangered	Critically Endangered	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Vulnerable	-	Not threatened	NPR	No	Unlikely
Latham's Snipe	<i>Gallinago hardwickii</i>	Vulnerable	-	Wet grasslands, open and wooded swamps.	2019 (4)	No	Unlikely
Australasian Bittern	<i>Botaurus poiciloptilus</i>	Endangered	Critically Endangered	Reed beds, dense vegetation of freshwater swamps and creeks.	2017 (1)	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Eastern Great Egret	<i>Ardea alba modesta</i>	-	Vulnerable	Floodwaters, rivers and shallows of wetlands, intertidal mud flats.	2019 (2)	No	Unlikely
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	-	Endangered	Oceanic / coastal and larger inland waterways.	2021 (1)	No	Unlikely
Grey Falcon	<i>Falco hypoleucos</i>	-	Vulnerable	Shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast	NPR	No	Unlikely
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	Endangered	Endangered	They inhabit cool, wet forests, particularly alpine bushland, but may visit urban parks and gardens to feed	NPR	Yes	Low
Swift Parrot	<i>Lathamus discolor</i>	Critically Endangered	Critically Endangered	Winter migrant from Tasmania. Generally prefers Box-Ironbark forests and woodlands inland of the Great Dividing Range during winter.	NPR	No	Unlikely
Blue-winged Parrot	<i>Neophema chrysostoma</i>	Vulnerable	-	A range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones	NPR	No	Unlikely
Brown Treecreeper	<i>Climacteris picumnus</i>	Vulnerable	-	Dry woodland; forest clearings, eucalypts along streams.	NPR	No	Unlikely
Painted Honeyeater	<i>Grantiella picta</i>	Vulnerable	Vulnerable	Open box-ironbark forests and woodlands, particularly where trees are infested with mistletoe.	NPR	No	Unlikely
Regent Honeyeater	<i>Anthochaera phrygia</i>	Critically Endangered	Critically Endangered	Depends on nectar and insects from Box-Ironbark Eucalypt forests. Only breeding habitat lies in Northeast Victoria and central coast of NSW	NPR	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Pilotbird	<i>Pycnoptilus floccosus</i>	Vulnerable	Vulnerable	Temperate wet sclerophyll forests and occasionally temperate rainforest, where there is dense undergrowth with abundant debris	NPR	No	Unlikely
Hooded Robin	<i>Melanodryas cucullata</i>	Endangered	Vulnerable	Lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	NPR	No	Unlikely
Diamond Firetail	<i>Stagonopleura guttata</i>	Vulnerable	Vulnerable	Open grassy woodland, heath and farmland or grassland with scattered trees.	NPR	No	Unlikely
<b>Mammals</b>							
Spot-tailed Quoll	<i>Dasyurus maculatus maculatus</i>	Endangered	Endangered	Forests including large intact areas of vegetation for foraging.	NPR	No	Unlikely
Swamp Antechinus	<i>Antechinus minimus maritimus</i>	Vulnerable	Vulnerable	Heathy forest, wetlands, heathland and coastal scrub.	NPR	No	Unlikely
Southern Brown Bandicoot	<i>Isodon obesulus obesulus</i>	Endangered	Endangered	Heathy forest, heathland and coastal scrub.	2013 (2)	No	Unlikely
Southern Greater Glider	<i>Petauroides volans</i>	Vulnerable	Endangered	Wet sclerophyll forests, requires large tree hollows for nesting	NPR	No	Unlikely
Yellow-bellied Glider	<i>Petaurus australis</i>	Vulnerable	Vulnerable	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils	NPR	No	Unlikely
Long-nosed Potoroo	<i>Potorous tridactylus trisulcatus</i>	Vulnerable	Critically Endangered	Heathy woodland	NPR	No	Unlikely
Broad-toothed Rat	<i>Mastacomys fuscus mordicus</i>	Endangered	Vulnerable	A range of habitats from sub-alpine to coastal heathland, with high vegetative coverage in high rainfall areas	NPR	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
New Holland Mouse	<i>Pseudomys novaehollandiae</i>	Vulnerable	Endangered	Heathlands, woodlands with a heathy understorey, open forest and vegetated sand dunes - in areas with soft, deep sandy soil in which to make burrows.	NPR	No	Unlikely
Smoky Mouse	<i>Pseudomys fumeus</i>	Endangered	Endangered	Dry sclerophyll forests with tussocky understorey	NPR	No	Unlikely
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable	Roost sites commonly occur in gullies, in vegetation with dense canopy cover and close to water.	NPR	Yes	Low
<b>Frogs</b>							
Southern Toadlet	<i>Pseudophryne semimarmorata</i>	-	Endangered	Dry forest, woodland, grassland and heath in moist soaks and depressions; uses leaf litter for shelter.	2006 (26)	No	Unlikely
Growling Grass Frog	<i>Litoria raniformis</i>	Vulnerable	Vulnerable	Permanent lakes, swamps, dams and lagoons.	2005 (116)	No	Unlikely
<b>Reptiles</b>							
Swamp Skink	<i>Lissolepis coventryi</i>	-	Endangered	Low lying wetlands including swamp margins, tea tree thickets.	NPR	No	Unlikely
<b>Fish</b>							
Australian Grayling	<i>Prototroctes maraena</i>	Vulnerable	Endangered	Clear gravelly streams; deep slow flowing pools.	NPR	No	Unlikely
Dwarf Galaxias	<i>Galaxiella pusilla</i>	Vulnerable	Endangered	Slow moving waters, including ephemeral drains.	NPR	No	Unlikely
Macquarie Perch	<i>Macquaria australasica</i>	Endangered	Endangered	Deep, rocky holes with considerable cover and flowing water over unsilted cobble and gravel substrate.	1970 (1)	No	Unlikely

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Murray Cod	<i>Maccullochella peelii</i>	Vulnerable	Endangered	Small clear, rocky, upland streams with riffle and pool structure on the upper western slopes of the Great Dividing Range to large, meandering, slow-flowing, often silty rivers in the alluvial lowland reaches of the Murray-Darling Basin.	1960 (1)	No	Unlikely
Yarra Pygmy Perch	<i>Nannoperca obscura</i>	Endangered	Vulnerable	Slow flowing creeks or still lakes with abundant aquatic vegetation and log snags	NPR	No	Unlikely
<b>Invertebrates</b>							
Foothill Burrowing Crayfish	<i>Engaeus victoriensis</i>	-	Endangered	Burrows in grey, clay-dominated soils in wet sclerophyll forest at the foot of the Dandenong Ranges	1911 (1)	No	Unlikely
Golden Sun Moth	<i>Synemon plana</i>	Vulnerable	Vulnerable	Tussock grasslands preferably dominated by Wallaby Grasses and Spear Grasses.	NPR	No	Unlikely

**Table Notes:**

This table excludes species listed exclusively as 'migratory' or 'marine' under the EPBC Protected Matters Search results.

**\* Likelihood of Presence Definitions:**

Unlikely – Site does not contain habitat and/or it is outside the species' known, current distribution. Birds and bats may fly over.

Low – Site contains some marginal habitat, but the species was not observed and has not been recorded in previous recent surveys in the area. Birds and bats may fly over.

Moderate – Site contains preferred habitat that may support a population of the species. Birds and bats may opportunistically or seasonally forage at the site.

High – Site contains preferred habitat which is likely to support the species. Birds and bats are likely to regularly (at least seasonally) forage or roost at the site.

Present – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded on the site.

NPR– No previous record, modelled presence only under the EPBC Protected Matters Search results.

## Appendix 2. Legislation

### Commonwealth Legislation

#### ***Environment Protection and Biodiversity Conservation Act 1999 (Cth)***

The *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act) is to provide for the conservation of 'Matters of National Environmental Significance'. The Act defines eight Matters of National Environmental Significance:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park; and,
- Nuclear actions.

Under the Act, actions that are likely to have a significant impact upon Matters of National Environmental Significance require approval from the Federal Environment Minister. This approval is sought through a referral process for a particular action. An action includes any project, development, undertaking, activity or series of activities. Consideration of the requirement for an 'EPBC Referral' to the Minister has been made within this report.

### State Legislation

#### ***Environmental Effects Act***

The *Environment Effects Act 1978 (Vic)* provides for assessment of proposed projects (works) that are capable of having a significant effect on the environment. The Act does this by enabling the Minister administering the Environment Effects Act to decide that an Environment Effects Statement (EES) should be prepared.

The Minister might typically require a proponent to prepare an EES when:

- There is a likelihood of regionally or State significant adverse effects on the environment;
- There is a need for integrated assessment of potential environmental effects (including economic and social effects) of a project and relevant alternatives; and,
- Normal statutory processes would not provide a sufficiently comprehensive, integrated and transparent assessment (Department of Sustainability and Environment 2007).

Referral criteria: individual potential environmental effects

- Individual types of potential effects on the environment that might be of regional or State significance, and therefore warrant referral of a project, are:
- Potential clearing of 10 ha or more of native vegetation from an area that:
  - is of an Ecological Vegetation Class identified endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or

- is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria’s Native Vegetation Management Framework); and
- is not authorised under an approved Forest Management Plan or Fire Protection Plan
- Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria;
- Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in ‘A Directory of Important Wetlands in Australia’;
- Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term;
- Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences; and,
- Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility (Department of Sustainability and Environment 2007).

#### ***Flora and Fauna Guarantee Act 1988 (Vic)***

The *Flora and Fauna Guarantee Act 1998 (Vic)* (FFG Act) provides a legal framework for enabling and promoting the conservation of all Victoria’s native flora and fauna, and to enable management of potentially threatening processes on public land. The Act lists native species, communities, and processes that threaten native flora and fauna, under Schedules of the Act. This enables the assessor and regulators to establish management measures to mitigate impacts on listed values within Victoria.

The FFG Act was amended in 2021 and now contains an obligation or duty on public authorities and ministers to consider potential biodiversity impacts when exercising their functions. The FFG Act requires ministers and public authorities (including Councils) reasonably consider the objectives of the Act where projects may impact upon biodiversity, so far as is consistent with the proper exercising of their functions.

The types of potential impacts on biodiversity that should be considered include:

- Long and short term impacts;
- Detrimental and beneficial impacts;
- Direct and indirect impacts;
- Cumulative impacts; and,
- Potentially threatening processes (Department of Environment Land Water and Planning 2021).

It is therefore anticipated that regulators will give due consideration to the FFG Act when considering the approval for the project.

In addition, a ‘Permit to Take Protected Flora’ is required to ‘take’ listed flora species that are members of listed communities or protected flora from public land. ‘Taking’ flora is defined as any action which results in the removal or death of a native plant. A permit is not required under the FFG

Act for private land, unless listed species are present and the land is declared 'critical habitat' for the species. On public land the permit is issued by DEECA.

An evaluation of the likelihood of the presence of significant flora and fauna species on the subject site, including those listed under the FFG Act that have previously been recorded in the vicinity of the site, has been undertaken.

### ***Planning and Environment Act 1987 (Vic)***

The *Planning and Environment Act 1987* (Vic) (P&E Act), later amended by the *Planning and Environment (Planning Schemes) Act 1996* (Vic) provides the foundation of planning schemes in Victoria. Planning schemes set out policies and provisions for the development and protection of land within each municipality in Victoria.

The *Planning and Environment (Planning Schemes) Act 1996* provides for the Minister for Planning to prepare a set of standard provisions for planning schemes called the Victoria Planning Provisions (VPP). The VPP is a state-wide reference document or template from which planning schemes are sourced and constructed. Incorporation of references such as the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* into Section 12 of the VPP ensures that all municipalities must consider this policy. Local zones and overlays, such as Environmental Significance Overlays, may be incorporated into Section 30 and 40 of the planning provisions by each Council, but only remain relevant within that municipality.

The objectives of the P&E Act are to integrate local land use, development planning and development policy with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels through a set of planning schemes. The Act also establishes a clear procedure for public participation in decision making in amending planning schemes.

Some important sections of the planning scheme, in relation to the ecological values of a site, include:

- Section 12 of the State Planning Policy Framework, which identifies, and aims to protect, key biodiversity assets from inappropriate development;
- Clause 52.17 which identifies where native vegetation removal is exempt from requiring a planning permit; and
- Clause 66 which identifies all of the mandatory referral authorities. In particular, the Victorian Department of Energy, Environment and Climate Action is identified as the recommending referral authority if a proponent proposes:
  - *'To remove, destroy or lop native vegetation in the Detailed Assessment Pathway as defined in the Guidelines for the removal, destruction or lopping of native vegetation;*
  - *To remove, destroy or lop native vegetation if a property vegetation plan applies to the site; and*
  - *To remove, destroy or lop native vegetation on Crown land which is occupied or managed by the responsible authority'* (Department of Transport and Planning 2025).

### ***Catchment and Land Protection Act 1994 (Vic)***

The *Catchment and Land Protection Act 1994* (Vic) (CALP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under this Act, landowners have a responsibility to avoid causing or contributing to land degradation. Where possible, landowners are required to conserve soil, protect water resources, eradicate 'regionally prohibited' weeds, prevent the growth and spread of 'regionally controlled' weeds and control pest animals. The CALP Act lists the species that are considered weeds and pest animals.

### ***Wildlife Act 1975 (Vic)***

Victoria's *Wildlife Act 1975* (Vic) and the *Wildlife Regulations 2002* (Vic) protect all indigenous vertebrate fauna, some non-indigenous vertebrate fauna, and some invertebrate fauna listed as 'threatened' under the FFG Act. The *Wildlife Act 1975* (Vic) prevents intentional injury to wildlife and stipulates that a licence should be granted where there is a possibility that wildlife are injured, or where wildlife is to be kept, relocated or traded.

In most cases, where the proponent is planning to develop a site, a planning permit approval provides this licencing approval, however, this report advises if an additional permit is required. Circumstances where this legislation may not be relevant is where fish are involved, on public land where additional regulatory approval is required, or where other permits are required (such as where fauna are required to undergo invasive procedures or installation of telemetry systems).

### ***Fisheries Act 1995 (Vic)***

The *Fisheries Act 1995* (Vic) provides the legislative framework for the regulation, management conservation of Victorian fish species and their habitats. As with the Victorian *Wildlife Act 1975* described above, the key method to ensure compliance is through licencing. Where fish, or their habitats, are likely to be impacted, this report will identify additional requirements.

### **Other relevant policy**

#### ***Guidelines for the Removal, Destruction or Lopping of Native Vegetation (Department of Environment Land Water and Planning 2017c)***

The *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017) were released by DELWP in December 2017. A permit to remove native vegetation under clause 52.16 and 52.17 of the Victoria Planning Provisions is required unless:

- The table of exemptions to this clause specifically states that a permit is not required;
- It is native vegetation or an area specified in the schedule to the clause;
- A Native Vegetation Precinct Plan corresponding to the land is incorporated into the relevant planning scheme; or
- Bushfire exemptions apply in bushfire prone areas (Department of Environment Land Water and Planning 2017).

The Guidelines describe the permitting process for applications to remove native vegetation on private and public property within Victoria. A key strategy of the State Planning Policy Framework,

relating to biodiversity, is to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved through iteratively applying the three-step approach:

1. Avoiding the removal, destruction or lopping of native vegetation.
2. Minimising impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Providing an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017; p. 4).

Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses' (Department of Environment Land Water and Planning 2017).

Native vegetation is further classified into two categories (Department of Environment Land Water and Planning 2017):

- A patch of native vegetation (measured in hectares) is either:
  - An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or
  - Any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or
  - Any mapped wetland included in the *Current Wetlands Map*, available in DELWP systems and tools.

OR

- A scattered tree (measured in number of trees), is a native canopy tree that does not form a patch (Department of Environment Land Water and Planning 2017).

In addition, a canopy tree with a Diameter at Breast Height (DBH) greater than or equal to the large tree benchmark for the relevant bioregional EVC is defined as a large tree. Large trees can be either a large scattered tree or a large tree within a patch.

The contribution that is made by native vegetation to the biodiversity values of Victoria is determined through an assessment of both site-based information and landscape scale information.

At a site-based level, the contribution is determined through an assessment of:

- The extent of native vegetation;
- The number of large trees (either within a patch or scattered trees), relative to the appropriate EVC benchmark;
- The native vegetation condition, which is determined through a Habitat Hectare assessment
- The conservation status of the Ecological Vegetation Class (EVC) to which the vegetation can be classified; and,
- The presence of sensitive wetlands and coastal areas.

At a landscape scale, the value of the vegetation is determined with reference to its strategic context in the Victorian landscape. This is determined by the vegetation's 'Strategic Biodiversity Score' (SBS) and its 'Habitat Importance Score' (HIS) for its value to rare and threatened species (Department of Environment Land Water and Planning 2017).

All native vegetation within Victoria has a SBS that has been determined through spatial modelling, based on its rarity, level of depletion, species habitats, and condition and connectivity (Department of Environment Land Water and Planning 2017). SBS scores are between 0 and 1 and are used to determine the offset required for the loss of that vegetation. Native vegetation only has a HIS score if it is habitat for a particular rare or threatened species (Department of Environment Land Water and Planning 2017). There are two types of rare or threatened species habitats that may be provided by native vegetation:

- **Highly localised habitats for rare or threatened species** – where impact to this particular patch of native vegetation could result in a significant biodiversity impact, such as a breeding colony or species with a limited geographic extent.
- **Dispersed rare or threatened species habitats** – where habitat for the threatened species has become depleted or fragmented over time (Department of Environment Land Water and Planning 2017).

The HIS is used to apply the decision guidelines in relation to the removal of a patch of native vegetation and to determine offset requirements (Department of Environment Land Water and Planning 2017).

Applications to remove native vegetation are categorised against one of three assessment pathways. These pathways are categorised as:

- Basic – limited impacts on biodiversity.
- Intermediate – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas.
- Detailed – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas, and could significantly impact on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

This is initially determined in two ways, based on the 'location map' and the extent risk of the vegetation proposed to be removed. The location risk is determined with reference to the *Native Vegetation Location Risk* map available on DEECA's website. This map shows whether native vegetation is classified as Location 1, 2 or 3.

The extent risk is determined based on the amount of native vegetation that is proposed for removal and includes the area (in hectares) of impact to native vegetation, the number of scattered trees, and the number of large trees (Table A5).

**Table A5.** Assessment pathways for removal of remnant patches of native vegetation (Department of Environment Land Water and Planning 2017).

Extent	Location		
	Location 1	Location 2	Location 3
<b>Less than 0.5 hectares and not including any large trees</b>	Basic	Intermediate	Detailed
<b>Less than 0.5 hectares and including one or more large trees</b>	Intermediate	Intermediate	Detailed
<b>0.5 hectares or more</b>	Detailed	Detailed	Detailed

All applications to remove native vegetation must include the following information:

1. Information about the native vegetation to be removed, including:
  - a. The assessment pathway and reason for the assessment pathway;
  - b. A description of the native vegetation to be removed;
  - c. Maps showing the native vegetation and property in context;
  - d. The offset requirement, determined in accordance with section 5 of the Guidelines that will apply if the native vegetation is approved to be removed.
2. Topographic and land information relating to the native vegetation to be removed;
3. Recent, dated photographs of the native vegetation to be removed;
4. Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged;
5. An 'Avoid and Minimise' statement;
6. A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* (Vic) that applies to the native vegetation to be removed;
7. Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary;
8. If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations at decision guideline 8, and
9. An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified, and can be secured in accordance with the Guidelines (Department of Environment Land Water and Planning 2017; p. 20-21).

If the application will be assessed under the Detailed Assessment Methodology, the following additional requirements apply:

10. A site assessment report of the native vegetation to be removed, including:
  - a. A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status.
  - b. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches.

- c. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.
11. Information about impacts on rare or threatened species habitat, including:
    - a. The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset.
    - b. For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: - the species' conservation status - the proportional impact of the removal of native vegetation on the total habitat for that species - whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat (Department of Environment Land Water and Planning 2017; p. 22).

Ten decisions guidelines are identified within the Guidelines that the responsible or referral authority must consider when deciding on an application to remove native vegetation. These are summarised as follows:

1. The degree to which the application avoids and minimises impacts to native vegetation, and where vegetation is proposed to be removed, the highest quality vegetation is avoided;
2. The role that the vegetation to be removed has in relation to landscape services such as erosion control, ground-water quality, waterway quality;
3. The role of the vegetation in the preservation of landscape features;
4. Whether any part of the native vegetation to be removed, destroyed or lopped is protected under the *Aboriginal Heritage Act 2006 (Vic)*;
5. The need to remove, destroy or lop native vegetation to create defensible space to reduce the risk of bushfire to life and property, having regard to other available bushfire risk mitigation measures;
6. Whether the native vegetation to be removed is in accordance with any Property Vegetation Plan that applies to the site;
7. Whether an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines;
8. Whether the application is consistent with a Native Vegetation Precinct Plan (where relevant);
9. For applications in both the Intermediate and Detailed Assessment Pathway only, the impacts on biodiversity values that would occur as a result of vegetation removal; and,
10. For applications in the Detailed Assessment Pathway only, the impacts on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

#### *Offset requirements*

In all cases where native vegetation is approved for removal, the proponent is liable for the security of an offset site that meets the requirements under the Guidelines. An offset can be either a:

- First party offset – on the same property as the proposed removal of native vegetation, or on another property owned or managed (in the case of Crown land) by the party requiring the offset, or
- Third party offset – on another party's property. Third party offsets are traded as native vegetation credits.

In most cases a third party offset is the simplest and most cost effective means of securing the required offset.

There are three components to offset requirements:

1. Offset type (general or species).
2. Offset amount (measured in general or species habitat units).
3. Offset attributes.

Two types of offset are identified: General Offsets and Specific Offsets. Specific Offsets may only be required if the native vegetation to be removed is habitat for rare or threatened species that are identified in an Intermediate or Detailed Assessment Pathway application (Department of Environment Land Water and Planning 2017). To determine this, a 'Specific Biodiversity Equivalence Score' is calculated by multiplying the habitat hectares with the HIS for each species that may be impacted. For each of the species, this figure is divided by the sum of all the Specific Biodiversity Value Scores calculated for the remaining vegetation under investigation to give a specific offset threshold for each species. If the amount of vegetation removed exceeds this threshold, then a Specific Offset is required. If it does not exceed the threshold, then only a General Habitat Offset is required (Table A6)(Department of Environment Land Water and Planning 2017).

Table A6 summarises the offset requirements for each of the Assessment Pathways and offset types.

**Table A6.** Offset requirements for the removal of native vegetation

Assessment Pathway	Offset Type	Offset amount		Offset attributes	
		Risk Adjusted Biodiversity Equivalence	Species Habitat Requirement	Vicinity	Strategic Biodiversity Score
Basic Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score <sup>1</sup> of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
Intermediate or Detailed Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
	Specific offset	For each species impacted, 2 times the specific biodiversity equivalence score of the native vegetation to be removed.	Likely habitat for each rare or threatened species that a specific offset is required for, according to the specific-general offset test.	No restrictions.	No restrictions.

<sup>1</sup> The general biodiversity equivalence score is determined by multiplying the vegetation’s habitat hectare score by its SBS.



# 23 RYAN ROAD, PAKENHAM

## Acoustic Report for Town Planning Application

For

RYAN ROAD PAKENHAM LAND PTY LTD C/- SPROUT  
PROPERTY PTY LTD

DOC. REF: V2341-01-P ACOUSTIC REPORT (R0)  
7 NOVEMBER 2025

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Project 23 Ryan Road, Pakenham  
Subject Acoustic Report for Town Planning Application  
Client Ryan Road Pakenham Land Pty Ltd c/- Sprout Property Pty Ltd  
Document Reference V2341-01-P Acoustic Report (r0)  
Date of Issue 7 November 2025

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# 1 Introduction

Enfield Acoustics has been engaged by Ryan Road Pakenham Land Pty Ltd c/- Sprout Property Pty Ltd to assess the proposed childcare centre at 23 Ryan Road, Pakenham (Subject Land). This assessment will form part of the planning permit application for the proposed development.

This report assesses potential noise impacts from the proposed childcare centre at proximate sensitive receivers surrounding the Subject Land.

Our assessment is based on Plans prepared by Watson Young dated 3 November 2025 in accordance with the Association of Australasian Acoustical Consultants (AAAC) *Guideline for Childcare Centre Acoustic Assessment*.

# 2 Subject Land Use

It is understood that the Application seeks approval to develop the Subject Land for use as a childcare centre. The Application proposal is for:

- Up to 114 children;
- Dedicated ground floor play areas; and
- Carpark

Sensitive uses surrounding the Subject Land were identified as follows:

Tag	Location of Sensitive Use	Direction
R1	21 Ryan Road	North
R2	23 Ryan Road <i>Lot 2 – proposed residential vacant land</i>	West
R3	25 Ryan Road	South
R4	100 Ryan Road	East

Refer below for a site map showing locations of sensitive uses relative to the Subject Land:



Given that the sensitive uses identified above are the closest to the Subject Land, it is intrinsic that compliance at these locations would also result in compliance at all other possible sensitive uses proximate to the Subject Land.

It is understood that the Subject Land is proposed to be divided into two lots, with Lot 1 as the proposed childcare centre and Lot 2 as vacant residential land. It is therefore reasonable for our assessment to also consider noise impacts and mitigation opportunities on potential future residential use at Lot 2.

### 3 Site Inspection

A site inspection was carried out by our office on 26 June 2025.

Background noise measurements were carried out with the following noise levels recorded:

Location	Background Noise Level
M1	40 dB(A), L <sub>90</sub>
M2	41 dB(A), L <sub>90</sub>

Due to extraneous noise from construction works on Ryan Road near the Subject Land, background noise monitoring was conducted at a derived location on Pinehill Drive. Based on our observations, we consider the monitored locations to be representative of the ambient background noise environment at the proposed childcare centre.

It was observed that the ambient noise environment was dominated by distant traffic noise. Overall, the background noise environment surrounding the Subject Land is considered moderate and consistent with outer suburban and developing residential areas.

Noise measurements were carried out between 12pm to 1pm as it is typical to find the lowest background noise throughout the middle of the day (between peak traffic periods). This results in a conservative noise assessment in comparison to the average daily measurements being considered, which would include peak traffic periods. This time is also representative of when the maximum number of children are most likely to be outdoors in play areas, subsequently representing the highest risk for noise impacts at adjacent residential premises with respect to background noise vs intrusive noise.

## 4 Assessment

### 4.1 Legislation

Two sources of noise associated with childcare centres (services plant and music noise) are subject to legislated noise limits of *Environment Protection Regulations 2021* (Regulations) and *EPA Publication 1826 – Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* (Noise Protocol).

The Noise Protocol is enforceable under the *Environmental Protection Act 2017*. In practice, given the normal operating hours of childcare centres, these sources do not present any material risk where the permit conditions require compliance with the Noise Protocol. Regardless, childcare centres are required to comply with the Noise Protocol, and it is usually sufficient to approve a permit with the following conditions:

1. Plant equipment and music playback on the land shall comply with *EPA Publication 1826 – Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* at all times.

### 4.2 Outdoor Play Areas

There are currently no guidelines or policies in Victoria, at a statutory level or within the planning scheme, for the assessment of noise emissions associated with outdoor play areas of childcare centres. In lieu of such guidelines or policies, it is appropriate to consider the *Guideline for Childcare Centre Acoustic Assessment, September 2020* published by the Association of Australasian Acoustic Consultants (the AAAC Guideline) and Victorian Civil and Administrative Tribunal (VCAT) precedents.

It is important to note that case history indicates that VCAT has not accepted the AAAC Guideline as being wholly appropriate for the assessment of reasonable amenity. These views are shared by acoustic experts and members of the AAAC and Australian Acoustical Society in Victoria. Generally, the AAAC Guideline is viewed as being aspirational but not reflective of reasonable expectations to minimise noise. Regardless, where an application can meet the upper noise

targets of the AAAC Guideline (i.e. background noise +10dB), it is typically viewed as being an appropriate design response in minimising noise impacts.

To be conservative, the AAAC noise target has been derived based on the lowest background noise levels measured on site, as follows:

Location	Noise Target
All sensitive uses	50 dB(A), L <sub>Aeq</sub>

Our office has prepared 3D acoustic modelling based on the site conditions, proposed plans and number of placements, in accordance with the AAAC Guideline. The modelling assumes that all children would be located outside at the same time. In practice, this results in a conservative assessment given that pickup and drop-off times typically vary over a day and varying ages and group segregation often results in scattered play times and areas of use.

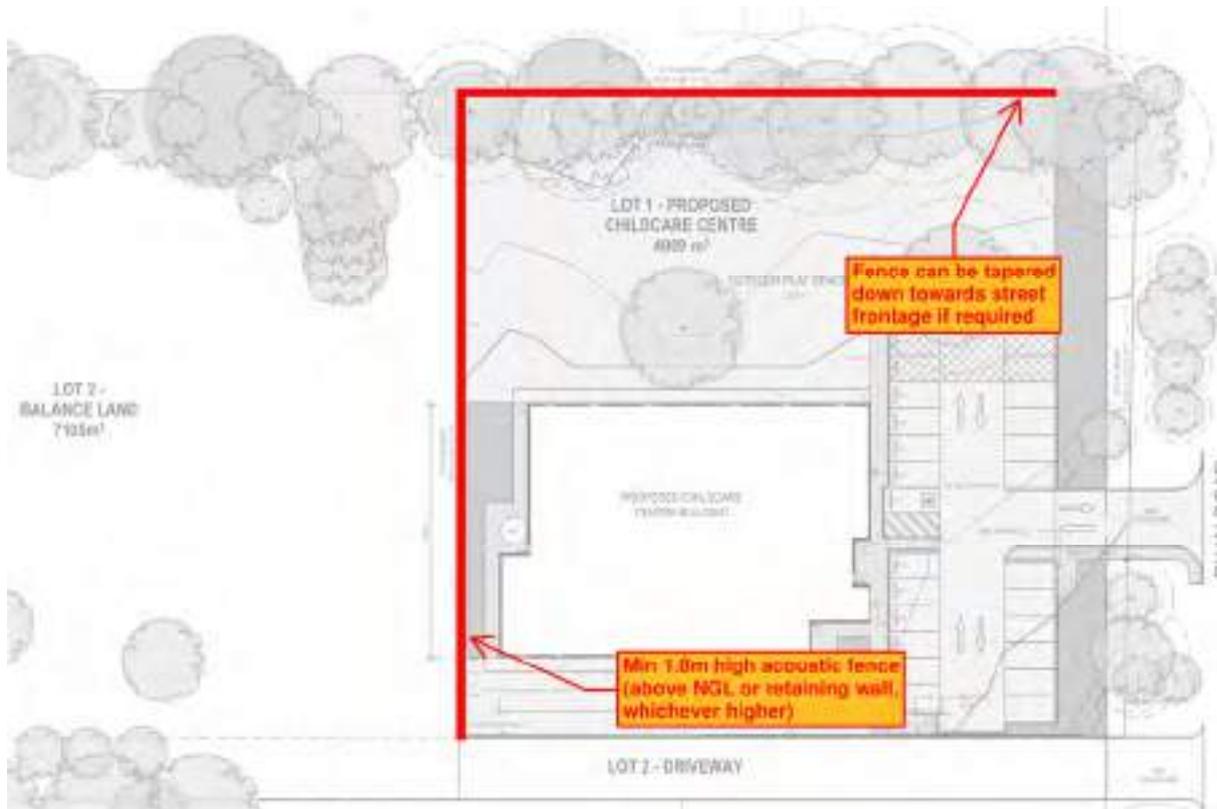
Our modelling assumes sound power levels of children playing outside in accordance with the AAAC Guideline, as follows:

Location	Number of Children	SWL
Outdoor play area 1 & 3	82 (mix of ages 3-6)	95 dB(A)
Outdoor play area 2	32 (ages 0 to 2)	87 dB(A)

The research paper *Carrying Out Noise Assessments for Proposed Childcare Facilities – Proceedings of Acoustics 2006* identified that typically only up to 35% of the number of children within outdoor play areas are expected to be vocal at a given time, noting that this has been considered in our acoustic model.

In lieu of specific requirements and definitions in the AAAC Guideline, our assessment considers all land within 10m of a dwelling as a noise sensitive area, noting that this is consistent with the requirements when assessing a noise source according to the Regulations and Noise Protocol.

To assist in mitigating noise emissions from the Subject Land, the following acoustic fencing is recommended:



Inclusive of the acoustic screening shown above, the results of our modelling indicate that outdoor play noise is expected to be **≤48dB(A)  $L_{eq}$**  at all identified receptors and would comply with the AAAC Guideline, indicating a satisfactory outcome.

A map of the noise model showing noise levels at all surrounding sensitive receptors can be referred to in Appendix A.

To this end, Enfield Acoustics is satisfied that the proposal will not result in adverse noise impacts at all identified sensitive uses, providing that the acoustic screening as shown above is installed.

### 4.3 Traffic Noise

The Plans indicate car parking in the east section of the Subject Land.

The AAAC guideline recommends that noise from pickup and drop-offs does not exceed Background + 5dB(A), resulting in the following noise target:

Location	Noise Target
All identified sensitive uses	45 dB(A), $L_{Aeq}$

We have assumed that up to 60 vehicle movements could occur in a 60-minute period, with pick-up and drop-offs occurring at the proposed car park on the Subject Land. In our experience, this represents a worst-case scenario during pick-up and drop-off times but would need to consider the appropriate traffic engineering study.

Based on previous measurements of carparks conducted by our office, the following sound power level was assumed in our assessment:

Location	Sound Power Level
Carpark area 60 cars per hour	78 dB(A)

Inclusive of the acoustic screening shown in Section 4.2, the results of our modelling indicate that the use of the car park (including occasional delivery vans) is expected to be **≤35dB(A) L<sub>eq</sub>** and would comply with AAAC noise targets by a significant margin.

Results are shown in Appendix A.

## 4.4 Sleep Disturbance

It is typical for childcare centres to commence operation (drop-offs and staff arrival) before 7am, however outdoor play use is not expected to occur before 7am. As such, our assessment will consider sleep disturbance impacts from carpark use on the Subject Land.

No specific policy exists in assessing the risk of sleep disturbance of carparks, however ‘Sleep Disturbance’ criteria derived from the NSW Road Traffic Policy can be used as a method of assessing the likelihood of noise impacts for short duration or transient events.

The Sleep Disturbance assessment trigger of **L<sub>max</sub> 65dB(A)** outside habitable room windows is often used to determine if noise emissions are likely to cause adverse impacts during the most sensitive ‘Night’ period (10pm to 7am). However, for very infrequent events of 1-2 during the ‘Night’ period, it is generally accepted that outdoor noise levels of up to 80dB(A), L<sub>max</sub> do not impact on health and wellbeing.

Based on previous measurements of carparks conducted by our office, the following sound power level was assumed in our assessment:

Item	Sound Power Level
Car door slams	93dB(A), L <sub>Amax</sub>

Inclusive of the acoustic screening shown in Section 4.2, the results of our modelling indicate that the use of the carpark is expected to be **≤48dB(A) L<sub>max</sub>** and would comply with the sleep disturbance threshold by a significant margin.

Results are shown in Appendix A.

## 5 Recommendations and Conclusion

The Application reviewed by our office is considered to be equivalent to many other approved childcare centres with respect to acoustic outcomes. The proposed use of the Subject Land as a childcare centre is expected to comply with the AAAC guideline with standardised controls (acoustic screening) approved at the majority of childcare centres in Victoria.

Enfield Acoustics is satisfied that a permit can be approved on this basis. It is recommended that the approved permit include the following conditions:

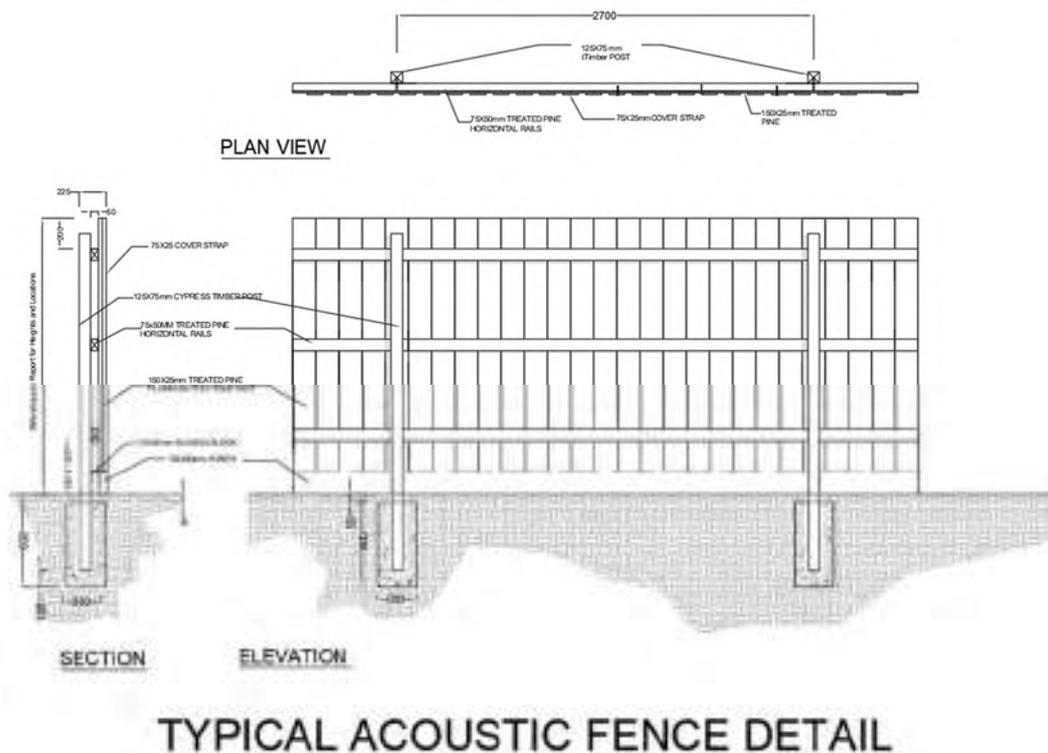
1. Noise emissions from the land shall comply with *EPA Publication 1826 – Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* at all times.

All acoustic fencing shall be constructed as follows:

Ground Floor Boundary Acoustic Fence

- To the specified heights and locations as shown in Section 4.2;
- Using fibre cement sheeting, treated timber, lightweight aerated concrete, transparent acrylic panels, glass and profiled sheet cladding as long the selected material (or combined skins) has a mass of at least 10kg/m<sup>2</sup>;
- The fence shall have no gaps or holes in it, or the likelihood of such occurring through natural causes or deformations, thus allowing noise to pass through;
- The fence must be designed and built in an acceptable manner so that noise will not pass underneath it;
- Any butt joints shall be sealed with a fire-rated weather proof mastic or an overlapping piece of material meeting the mass requirements of 10kg/m<sup>2</sup> (minimum 35mm each side of the butt joint); and
- Where multiple cladding layers are used (e.g. FC sheeting over timber paling fence), joints in the cladding materials shall not coincide.

An example detail for an acoustic-grade timber paling fence is shown below:



## Appendix A: Noise Modelling Results



Scale: 1: 555 @ A3

**Legend:**

- Point Source
- Area Source
- Crossing
- Building
- Barrier
- Contour Line
- Receiver

**ENFIELD ACOUSTICS NOISE VIBRATION**

PO Box 920  
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**Noise emission levels from OUTDOOR PLAY**

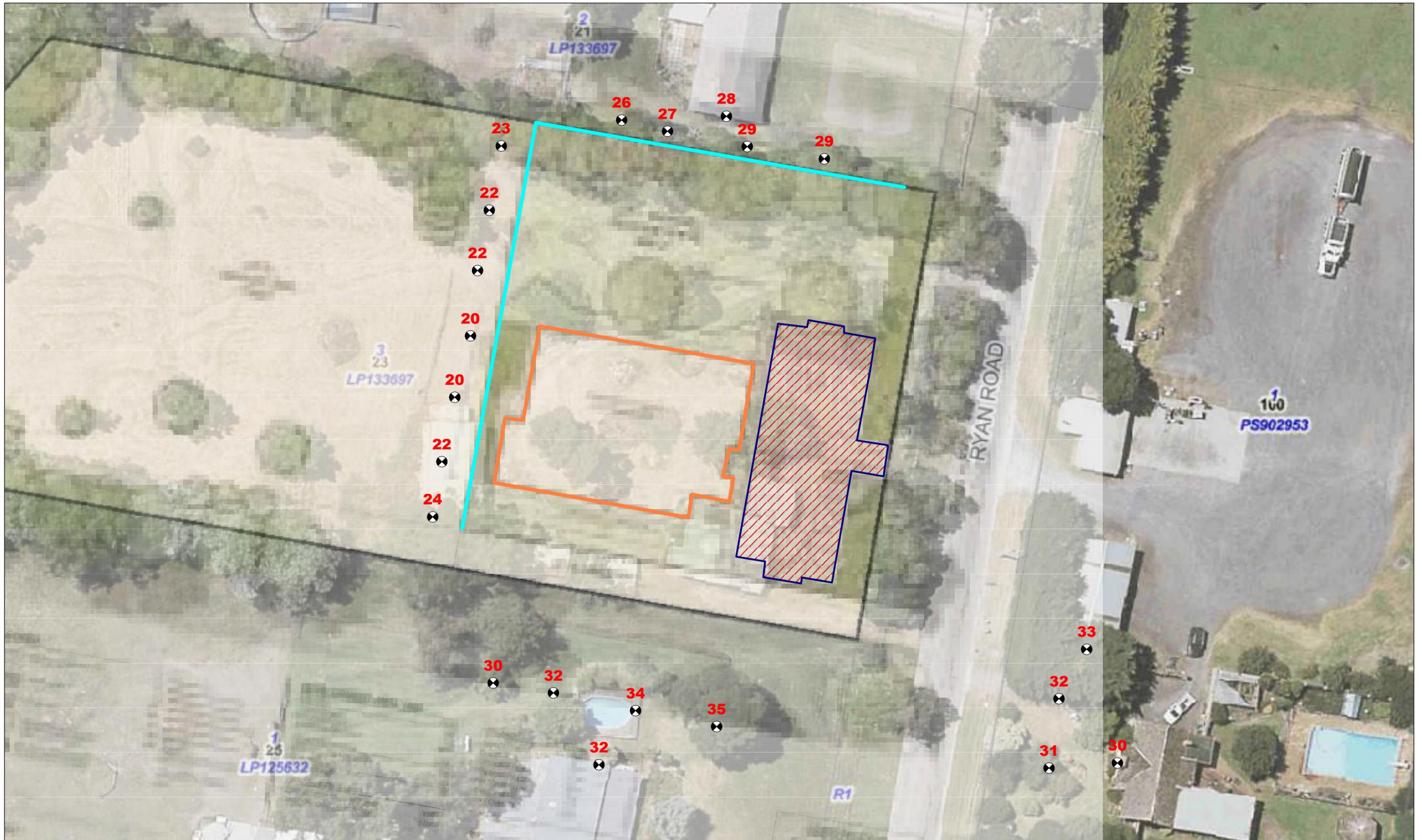
L<sub>Aeq</sub> Noise Levels  
AAAC Guideline Assessment

Project No: V2341

Drawing No: MAP-01      Date: 07.11.2025

**NOTES:**

\*Propagation in accordance with ISO9613



Scale: 1: 555 @ A3

**Legend:**

- Point Source
- Area Source
- Crossing
- Building
- Barrier
- Contour Line
- Receiver

PO Box 920  
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P: 03 9111 0090

**Noise emission levels from CARPARK TRAFFIC**

L<sub>Aeq</sub> Noise Levels

AAAC Guideline Assessment

Project No: V2341

Drawing No: MAP-02      Date: 07.11.2025

**NOTES:**

\*Propagation in accordance with ISO9613



Scale: 1: 555 @ A3

**Legend:**

- Point Source
- Area Source
- Crossing
- Building
- Barrier
- Contour Line
- Receiver

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North Melbourne, VIC 3051  
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**Noise emission levels from CARPARK**

L<sub>A</sub>max Noise Levels

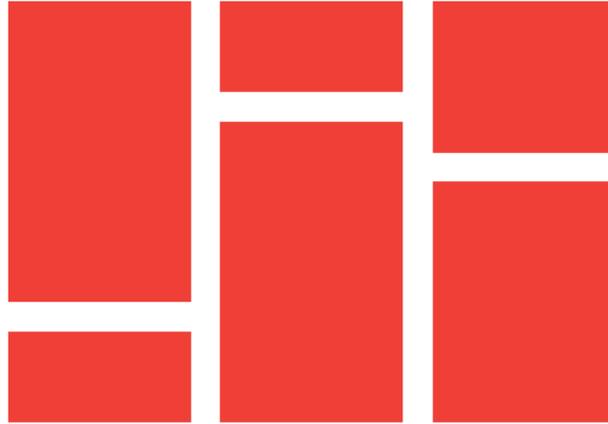
Sleep Disturbance Assessment

Project No: V2341

Drawing No: MAP-03      Date: 07.11.2025

NOTES:

\*Propagation in accordance with ISO9613



**BUSHFIRE RISK ASSESSMENT**  
**FOR THE CONSTRUCTION AND USE OF A CHILD CARE**  
**CENTRE**

23 RYAN ROAD

PAKENHAM

AUGUST 2025



51 Little Fyans Street South Geelong.

PO Box 919 South Geelong 320

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**Prepared by:**

Brendan O'Loan - Level 2 Bushfire Consultant BPAD

**Disclaimer:**

This report has been made with careful consideration and with the best information available to St Quentin at the time of writing. St Quentin do not guarantee that it is without flaw or omission of any kind and therefore disclaim all liability for any error, loss or other consequence that may arise from you relying on any information in this report.

Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan.

**Document Control**

**Document Title:** Bushfire Risk Assessment

**Document Author:** Brendan O'Loan

**Client:** Ryan Road Pakenham Land Pty Ltd

**Job No:** 18526

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1_Draft	01/08/2025	CG	BO'L
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## 1. Summary

This Bushfire Risk Assessment has been prepared for the construction and use of a childcare centre at 23 Ryan Road Pakenham. The site is flat with trees at the perimeter and scattered throughout the site. There is a derelict dwelling and shed existing on the site of 11,122m<sup>2</sup>. Surrounding the site are acreage properties with housing, managed lawns and scattered trees. To the rear of the site is a public reserve and Deep Creek.

The site is not within the Bushfire Management Overlay (BMO) but is within the Bushfire Prone Area.

The proposal is for the construction and use of a Childcare Centre.

The decision of *Booth v Strathbogie SC* [2023] VCAT 782 is significant as Clause 13.02-1S of the Cardinia Planning Scheme does not integrate bushfire policy into assessable controls as the site has not been included within a BMO. There is little discretion for Council to consider Clause 13.02-1S.

Irrespective of *Booth v Strathbogie*, this Bushfire Risk Assessment has considered the Objectives and Strategies of Clause 13.02-1S of the Cardinia Planning Scheme and includes a Bushfire Hazard Landscape & Site Assessment. The assessments show that there is a negligible risk of fire to the site, particularly as the residential growth area to the east develops.

Although no formal bushfire measures can be applied, it is recommended that the site is developed in accordance with:

- BAL12.5 minimum construction standard for buildings in a Bushfire Prone Area.
- No plants within three metres of a window or glass feature of the building.
- Trees must not overhang or touch any elements of the building.
- Provide a 10,000 litre rainwater tank with fire authority fittings with easy access to the car park or driveway.
- Prior to the use commencing, an Emergency Management Plan should be prepared which shows how the site will monitor and respond to bushfire conditions.

## 2. Introduction

St Quentin have been commissioned by the client Ryan Road Pakenham Land Pty Ltd to conduct a Bushfire Risk Assessment for the site at 23 Ryan Road Pakenham.

This Bushfire Risk Assessment responds to the requirements of Clause 13.02-1S Bushfire Planning of the Cardinia Planning Scheme.

The decision of *Booth v Strathbogie SC* [2023] VCAT 782 has changed the way Clause 13.02-1S is applied in decision making under the *Planning and Environment Act 1987* albeit it follows the decision of the Full Court of Supreme Court of *Victoria National Trust of Australia (Victoria) v Australian Temperance and General Mutual Life Society Limited* ('National Trust Decision').

The Booth decision is particularly significant and relevant to this proposal because it explicitly applies the principle established in the National Trust decision to the application of Clause 13.02 and finds that:

*"... the complete absence ... of any express requirement to undertake bushfire planning, the lack of applicable performance standards or requirements leads to the conclusion that to the extent that the policy desires bushfire planning to occur on land other than land affected in by [sic] BMO, those aspirations of Clause 13.02-1S are unfulfilled because of a lack of integration of that policy into the*

*controls triggered.... Whilst the policy may exist, the necessary machinery or control provisions ... do not exist."*

If the authority provided by the National Trust decision and as confirmed by Booth is to be followed, then in the context of this project Council has little if any discretion to consider Clause 13.02-1S and bushfire issues more broadly, when making a decision on this application. Notwithstanding the Bushfire Risk Assessment has been prepared to assess the risks to life and property from bushfire and ensure the risk is reduced to an acceptable level as desired by Clause 13.02-1S.

This Bushfire Risk Assessment contains four components:

- A bushfire hazard landscape assessment including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site.
- A bushfire hazard site assessment including a plan that describes the bushfire hazard within 150 metres of the proposed development.
- A bushfire risk assessment using the strategies of Clause 13.02-1S.
- Recommendations.

### 3. Subject Site and Surrounds

Street Address:	23 Ryan Road Pakenham
Title Details:	Lot 3 LP133697
Restrictions/Covenants:	Nil
Land Size:	11,122m <sup>2</sup>
Zone:	Low Density Residential Zone- Schedule 2 (LDRZ2)
Overlays:	Design and Development Overlay – Schedule 1 (DDO1) Vegetation Protection Overlay – Schedule 1 (VPO1)
Other Regulatory Constraints:	Area of Cultural Heritage Sensitivity Bushfire Prone Area
Key Site Features:	Flat land, abandoned dwelling and shed with scattered trees predominantly along the perimeter of the site.

The site abuts Ryan Road to the east which is a sealed road. On the western side of Ryan Road is a Low Density Residential Zone with lots ranging from 4,000 to 12,000m<sup>2</sup> in size. The sites are relatively flat with a slight grade down towards Deep Creek to the west. Most properties have some canopy trees but overall, the surrounds have well managed lawns and low fuel loads. Deep Creek and the Deep Creek Golf Course are located to the west providing an urban break between existing Pakenham Urban Area and the new estates to the east.

Access to Princes Highway is approximately 900m to the north with the Princess Highway taking vehicles directly into Pakenham and beyond to Berwick. Approximately 1,100m to the south is the East Pakenham Train

Station. A three-kilometre drive through the Pakenham Industrial Estate will provide access to Princes Freeway taking vehicles direct to Melbourne CBD.

East of Ryan Road is the Urban Growth Zone and new estates have completed their first stages of development with some housing having already established. New housing will be located throughout the Urban Growth Zone within a few years at a minimum of 15 dwellings per net developable hectare. The properties fronting Ryans Road are in the 'Interface Housing Area 1' which consist of larger lots with a proposed density of 12 dwellings per net developable hectare to provide a transitional interface to the LDRZ area.



Figure 1: Subject site and surrounds



Figure 2: Site and surrounds



*Figure 3: Site is within the Bushfire Prone Area.*

## **4. Proposed Development**

### Child Care Centre

The proposal is for the construction of a single storey childcare centre. The single floor of the building will include the seven separate rooms for the different aged children and shared bathroom facilities for 114 children. At the front of the building will be the reception and office area with kitchen and laundry.

The building is proposed to be set back from all sides providing generous outdoor play areas. The building is positioned 29m from the northern boundary, 17m from the southern boundary and 21m to the front boundary (Ryan Road). Vehicle access is via a single crossover from Ryan Road accessing 25 car spaces.

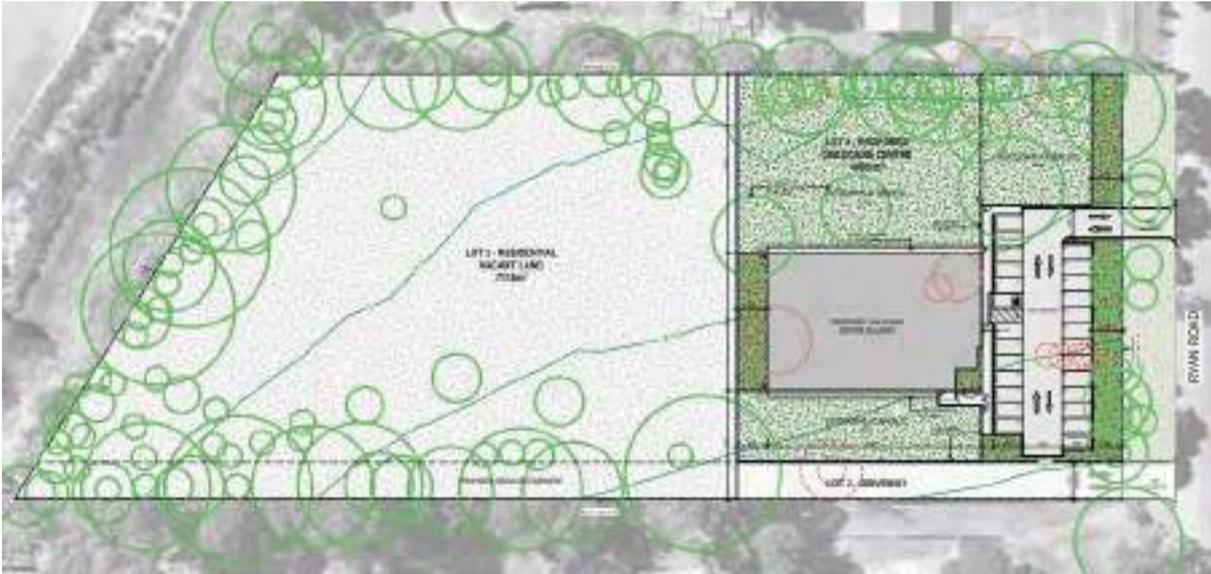


Figure 4: Proposed development layout

## 5. Bushfire Hazard Landscape Assessment

The assessment can comprise of an area of up to 75km from the site.



Figure 5 Landscape 10km from subject site

 Predominant Fire Run/Front

The urban area of Pakenham dominates the landform to the west, north-west and south-west of the site. There is no bushfire landscape hazard from these directions.

To the south and east there is expanses of grasslands but this is interspersed with highways, local roads, small urban villages and waterways. Southerly and easterly winds are usually associated with cold and damp conditions and not conducive to bushfire weather.

The only landscape risk is a fire from the north where the land becomes elevated and more forested. Fires from the north during hot and windy conditions could push embers into the surrounding grasslands and towards the Princes Highway. The Princes Highway and the growth areas to the east of Ryan Road will prevent a landscape grassfire from getting any closer to the site.

## 6. Bushfire Hazard Site Assessment



Figure 6: Classified vegetation within 150m of the assessment area.

 150m radius

**PLOT 1**

**Vegetation classification**

Excluded- Urban Residential land under development/managed residential allotments.

**Slope**

Flat/upslope

**Description:**

Managed low density residential allotments and truck storage immediately east of Ryan Road. Further east is land under construction for residential subdivision.

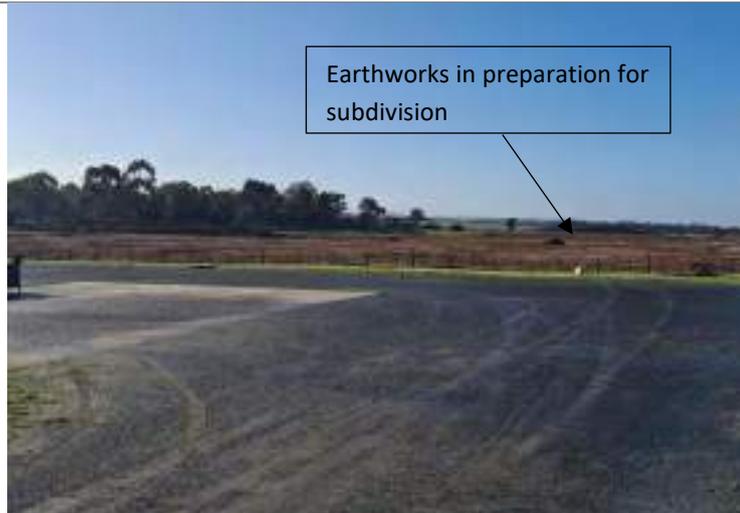


Photo 1

**PLOT 2**

**Vegetation classification**

Excluded- Managed residential allotments

**Slope**

Flat/upslope

**Description:**

Low density residential land with managed lawns and gardens. Canopy trees are prevalent along perimeters and some scattered trees, however there is no surface fuels or uncontrolled regrowth.



Photo 2



Photo 3

**PLOT 3**

**Vegetation classification**

Excluded- Waterway reserve/Vegetation less than 1ha

**Slope**

Flat/upslope

**Description:**

Deep Creek waterway reserve. There are some areas of longer grass but the majority of the reserve is relatively well maintained with the creek running through it to a larger basin. There is a patch of trees around the basin but the total area of the patch is below 1ha in size and not within 100m of any areas being classified and is therefore also excluded.



*Photo 4*



*Photo 5*

Plot	Vegetation	Slope	Separation from proposed site	BAL	Defendable Space
<b>1</b>	Excluded- Urban Residential land under development/managed residential allotments.	Flat/upslope	20m	BAL12.5*	Nil
<b>2</b>	Excluded- Managed residential allotments.	Flat/upslope	Property Boundary	BAL12.5*	Nil
<b>3</b>	Excluded- Waterway reserve/Vegetation less than 1ha.	Flat/upslope	Property Boundary	BAL12.5*	Nil

*\*The minimum BAL is BAL12.5 in a Bushfire Prone Area.*

## 7. Bushfire Risk Assessment

The policy from Clause 13.02 of the Cardinia Planning Scheme has been applied to the development of this land that is subject to a Bushfire Prone Area.

Strategy	Discussion
<b>Prioritise the protection of human life over all other policy considerations.</b>	Noted. The recommendations of this report are to prioritise human life.
<b>Direct population growth and development to low-risk locations and ensure the safe access to areas where human life can be better protected from the effects of fire.</b>	The site has Low Density Zone to the north and south and Urban Growth Zone to the east. A small urban break with Deep Creek Golf Course is to the west separating the site from the main urban area of Pakenham. This is a low-risk location.
<b>Reduce the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stage of the planning process.</b>	This Bushfire Risk Assessment is proof that the developer is considering bushfire risk at an early stage of design.
<b>Apply the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.</b>	See Section 5 & 6 of this assessment using best available science.
<b>Consider the best available information about bushfire hazard including the map of designated bushfire prone areas.</b>	See Section 5 & 6 of this assessment using best available science.
<b>Applying the Bushfire Management Overlay to areas where the extent of vegetation can create an extreme bushfire hazard.</b>	No BMO applied to this site.
<b>Consider and assess the bushfire hazard on the basis of, landscape, local, neighbourhood and site conditions.</b>	See Section 5 & 6 for a Bushfire Hazard Landscape Assessment and Bushfire Hazard Site Assessment.
<b>Consult with emergency management agencies and the relevant fire authority.</b>	There is no statutory requirement to refer this application to emergency management agencies. This Bushfire Risk Assessment is proof that the developer is considering bushfire risk at an early stage of design and prioritising human life.
<b>Ensure strategic documents and planning permit applications properly assess bushfire risk and include appropriate bushfire protection measures.</b>	The Bushfire Risk Assessment has considered and assessed bushfire risk and provides some recommendations in Section 8.

<p><b>Not approving development where a landowner or proponent has not satisfactory demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented.</b></p>	<p>Clause 13.02-1S does not refer to any performance measures. Irrespective, this Bushfire Risk Assessment has applied the best available science and provides some appropriate recommendations in Section 8.</p>
<p><b>Direct population growth and development to low risk locations assessed as having a radiant heat flux of less than 12.5.</b></p>	<p>There are no areas of classified vegetation within 150m of the site. The site will have a radiant heat flux of less than 12.5.</p>
<p><b>Ensure the availability of and safe access to areas assessed as a BAL-LOW.</b></p>	<p>BAL-LOW rating under AS3959-2018 is simply any area which is not within the Bushfire Prone Area. For the proposed development site, there is a BAL-LOW area 250 metres to the west at the Deep Creek Golf Course.</p>
<p><b>Ensure the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.</b></p>	<p>The proposed development and carpark will result in the removal of a few trees from the site, therefore reducing the risk of fire on the local area.</p>
<p><b>Achieving no net increase in risk to existing and future residents, property and community infrastructure through the implementation of bushfire protection measures.</b></p>	<p>The proposed development and carpark will result in the removal of a few trees from the site, therefore reducing the risk of fire on the local area.</p>
<p><b>Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local neighbourhood and site scale, including the potential for neighbourhood-scale destruction.</b></p>	<p>See Section 5 &amp; 6 for an assessment of the bushfire behaviour at landscape and site level.</p>
<p><b>Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement , local and neighbourhood basis.</b></p>	<p>This is not applicable, as the site is already zoned for Low Density Residential and based on the information in Section 5 &amp; 6 the site has a low bushfire risk.</p>
<p><b>Not approving any strategic planning documents, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area</b></p>	<p>Not applicable to this site. As the growth area to the east develops, it is reducing the fire risk for the entire area.</p>

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that has or will on completion have more than a BAL12.5 rating.

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**Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.**

The development of the site does not require any biodiversity loss to mitigate fire threat.

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## 8. Recommendations

Although no formal bushfire measures can be applied, it is recommended that the site is developed in accordance with:

- BAL12.5 minimum construction standard for buildings in a Bushfire Prone Area.
- No plants within three metres of a window or glass feature of the building.
- Trees must not overhang or touch any elements of the building.
- Provide a 10,000 litre rainwater tank with fire authority fittings with easy access to the car park or driveway.
- Prior to the use commencing, an Emergency Management Plan should be prepared which shows how the site will monitor and respond to bushfire conditions.

## 9. Conclusion

This Bushfire Risk Assessment has been prepared for the construction and use of a childcare centre at 23 Ryan Road Pakenham. The site is flat with trees at the perimeter and scattered throughout the site. There is a derelict dwelling and shed existing on the site of 11,122m<sup>2</sup>. Surrounding the site are acreage properties with housing, managed lawns and scattered trees. To the rear of the site is a public reserve and Deep Creek.

The site is not within the Bushfire Management Overlay (BMO) but is within the Bushfire Prone Area.

The proposal is for the construction and use of a Childcare Centre.

The decision of *Booth v Strathbogie SC* [2023] VCAT 782 is significant as Clause 13.02-1S of the Cardinia Planning Scheme does not integrate bushfire policy into assessable controls as the site has not been included within a BMO. There is little discretion for Council to consider Clause 13.02-1S.

Irrespective of *Booth v Strathbogie*, this Bushfire Risk Assessment has considered the Objectives and Strategies of Clause 13.02-1S of the Cardinia Planning Scheme and includes a Bushfire Hazard Landscape & Site Assessment. The assessments show that there is a negligible risk of fire to the site, particularly as the residential growth area to the east develops.

*23 Ryan Road, Pakenham*  
Waste Management Plan



250391WMP001B-F.docx

6 November 2025

# onemilegrid

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## DOCUMENT INFORMATION

Prepared for	Ryan Road Pakenham Land Pty Ltd		
File Name	250391WMP001B-F.docx	Report Date	6 November 2025
Prepared by	LMH	Reviewed by	VPG

onemilegrid operates from Wurundjeri Woiworung Country of the Kulin nation. We acknowledge and extend our appreciation to the Wurundjeri People, the Traditional Owners of the land. We pay our respects to leaders and Elders past, present and emerging for they hold the memories, the traditions, the culture, and the hopes of all Wurundjeri Peoples.

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## APPENDICES

APPENDIX A	SWEPT PATH DIAGRAM
APPENDIX B	BIN STORAGE AREA SCALED PLANS

## 1 INTRODUCTION

---

onemilegrid has been requested by Ryan Road Pakenham Land Pty Ltd to prepare a Waste Management Plan of the proposed childcare centre at the eastern part (Lot1) of the broader site addressed 23 Ryan Road, Pakenham.

The preparation of this management plan has been undertaken with due consideration of the Sustainability Victoria Better Practice Guide for Waste Management and Recycling in Multi-unit Developments and relevant Council documentation.

## 2 PURPOSE

---

The purpose of the waste management plan is to:

- Demonstrate the development of an effective waste management system that is compatible with the design of the proposed childcare centre and the adjacent built environment. An effective waste management system is hygienic, clean and tidy, minimises waste going to landfill, and maximises recycling;
- Provide a waste management system that is supported by scale drawings to ensure the final design and construction of the development is compliant with the WMP and is verifiable;
- Form a document that achieves effective communication of the waste management system so that all stakeholders can be properly informed of its design, and the roles and responsibilities involved in its implementation. Stakeholders are defined (but not limited to): owners, occupiers, property managers/real estate agents, Council, neighbours and collection contractors;
- Ensure staff and visitors are not disadvantaged in their access to recycling and other responsible waste management options;
- Avoid existing legacy issues that plague many developments due to poor design and insufficient consideration for waste management; and
- Improve outcomes for compliance with regulatory tools and state Planning Strategies (where applicable), such as:
  - ✦ Recycling Victoria;
  - ✦ Town planning Permits;
  - ✦ Cardinia Planning scheme;
  - ✦ Clause 19.03-5 of the state planning policy framework.

## 3 POLICIES, STRATEGIES AND GUIDELINES

### 3.1 Recycling Victoria – Best Practice Waste Management

Best Practice Waste Management is an initiative designed to reduce the amount of waste generated, through encouraging a change of behaviour and action on waste management and moreover recycling.

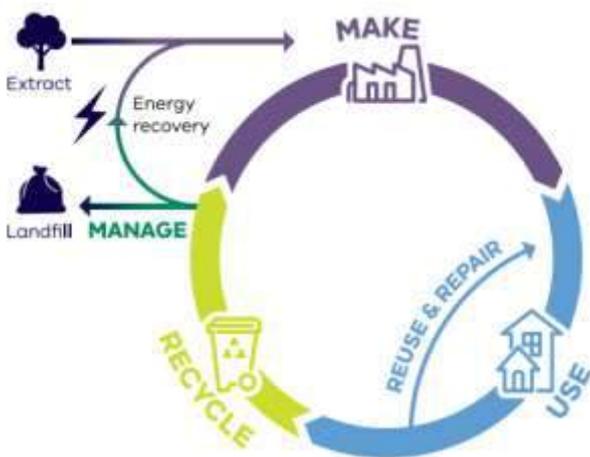
The benefits of reducing waste generation are far reaching and have been identified as significantly important by Council and the Victorian Government.

Recycling Victoria: A New Economy is a policy and 10-year action plan, prepared by the Victoria Government, to “deliver a cleaner, greener Victoria, with less waste and pollution, better recycling, more jobs and a stronger economy”.

Four overarching goals have been identified in order to achieve a circular economy in relation to waste, as below:

1. MAKE – Design to last, repair and recycle;
2. USE – Use products to create more value;
3. RECYCLE – Recycle more resources;
4. MANAGE – Reduce harm from waste and pollution.

Figure 1 Resource Flows in a Circular Economy



### 3.2 Sustainability Victoria

Sustainability Victoria has developed the Guide to Better Practice for Waste Management and Recycling in Multi-Unit Developments (MUDs) to improve waste management practices and increase recycling in MUDs and commercial developments.

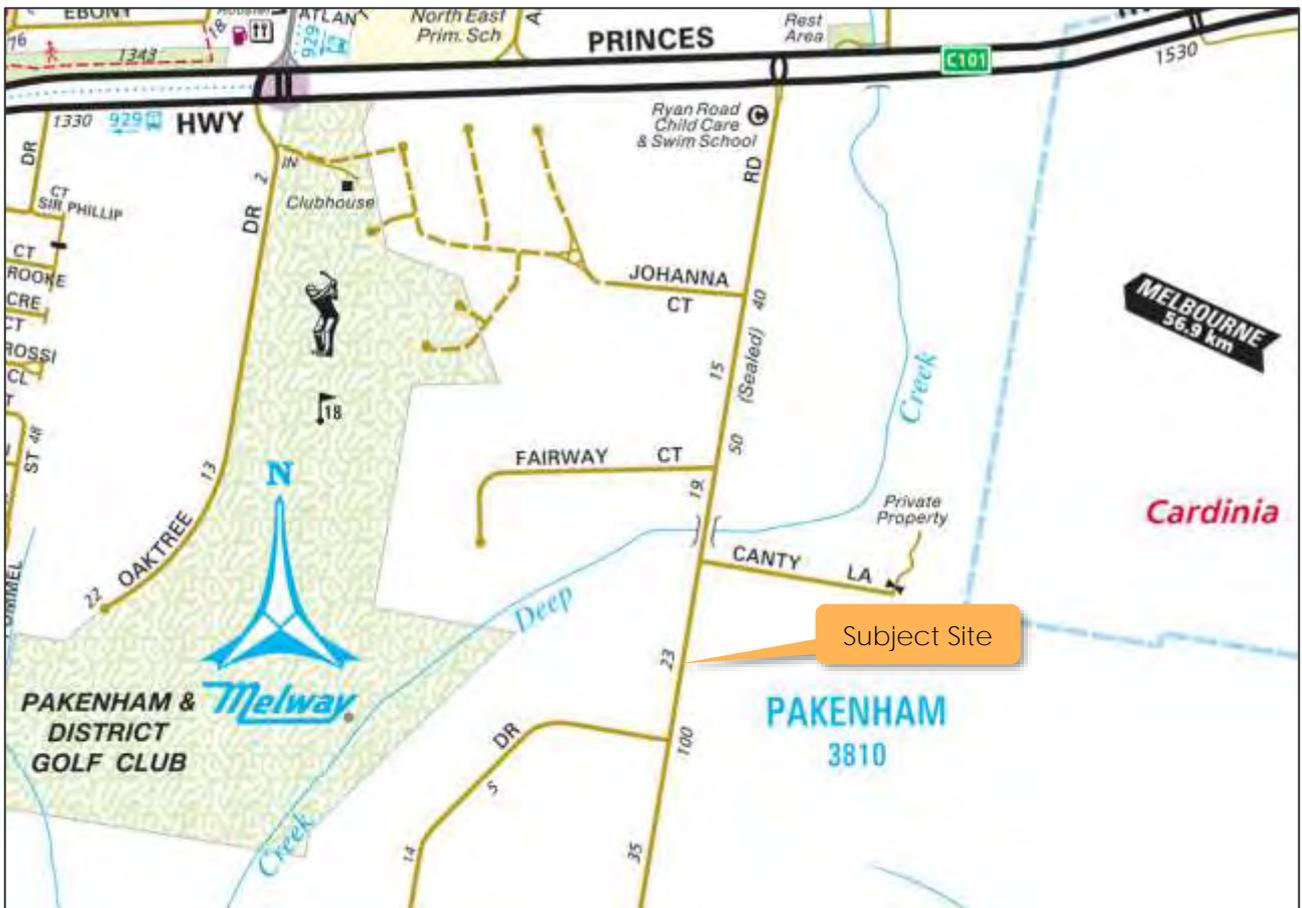
This guide is a stand-alone resource providing guidance for architects, building designers, developers, building managers, residents, planners, and waste management officers to incorporate effective waste and recycling systems into all stages of a development's life.

It outlines essential points of consideration when designing a waste management system for medium or high-density residential, mixed-use, and precinct-scale developments, with some guidance and better practice options applicable to a broader range of developments.

## 4 EXISTING SITE CONDITIONS

The [subject site](#) is addressed as 23 Ryan Road, Pakenham, and is located on the west side of Ryan Road, as shown in Figure 2.

Figure 2 Site Location



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## 5 PROPOSED DEVELOPMENT

It is proposed to develop the subject site (Lot 1) for the purposes of a childcare centre, accommodating 114 children.

Vehicle access is proposed to Ryan Road via a two-way crossover, which will provide ingress and egress to a 25-space on-site car park, including one accessible space and shared zone.

A bin store is located adjacent to the car park. Waste collection will be undertaken by a private contractor.

## 6 WASTE MANAGEMENT

### 6.1 General

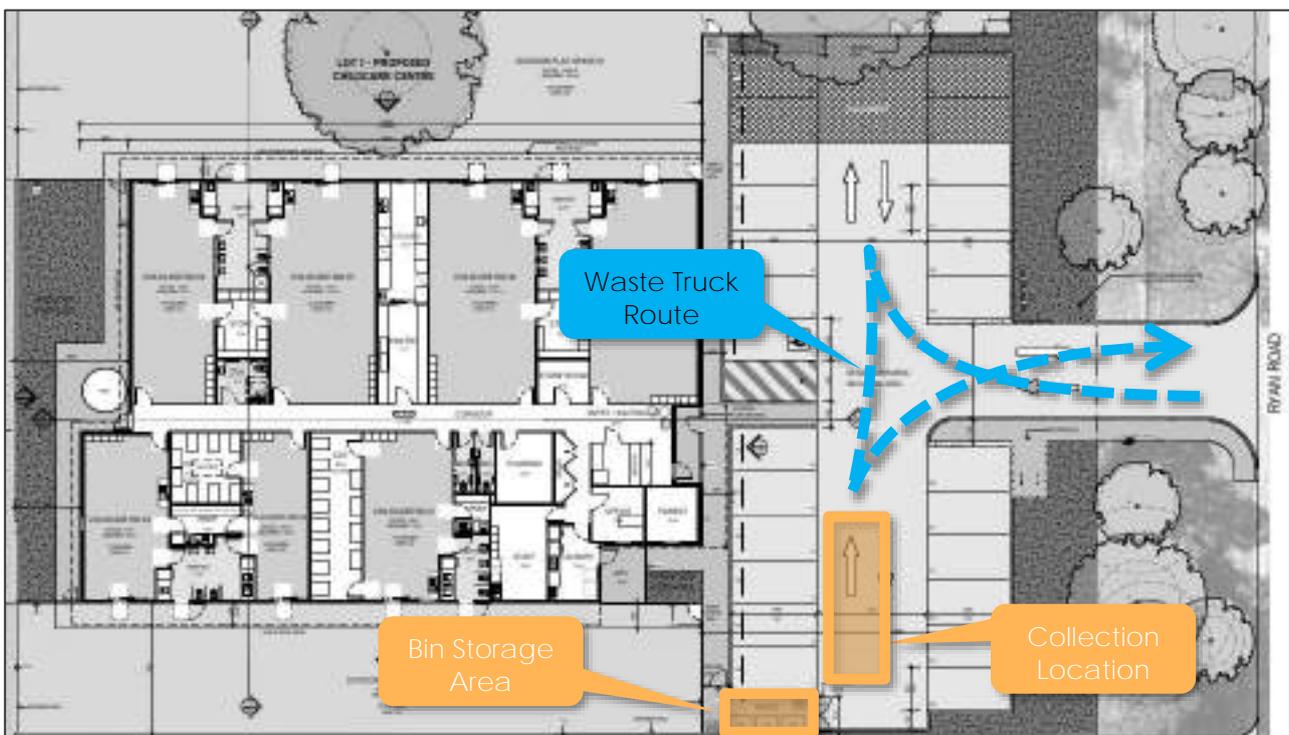
It is proposed to utilise a private contractor to manage the collection and disposal of garbage and recycling associated with the development.

Bins will be stored within a dedicate bin store located adjacent to the car park. On collection days, the waste collection vehicle will enter the site in a forward direction and utilise the access aisle to turn around and prop within the car park aisle. Authorised waste collectors will transfer the bins directly from the storage area to the vehicle, and return them immediately following collection. Upon completion the vehicle will exit the site in a forward direction.

Waste collection will be limited to outside of peak operating times of the centre to ensure there is no conflict with the site's operation.

The collection location and expected transfer route is shown in Figure 3.

Figure 3 Bin Storage Room and Collection Details



## 6.2 Waste Streams

### 6.2.1 Garbage

The garbage stream comprises of non-recyclable material which is to be disposed of in landfill, and is one of the four primary waste streams identified by Recycling Victoria and forms part of the standard commercial collection system.

Mobile garbage bins will be provided for the collection and disposal of garbage.

### 6.2.2 Organic (Food) Waste

A proportion of waste generated by the proposed use is anticipated to comprise of organic (food) waste, which is one of the four primary waste streams identified by Recycling Victoria and forms part of the standard commercial collection system.

Mobile garbage bins will be provided for the collection and disposal of organic (food) waste.

### 6.2.3 Recycling

The commingled recycling stream is a mixed material stream consisting of paper, cardboard, cans, plastics, and glass (where not collected as part of a separate glass collection service) and is one of the four primary waste streams identified by Recycling Victoria and forms part of the standard commercial collection system.

A mobile garbage bin will be provided for the collection and disposal of recycling.

### 6.2.4 Hard Waste

Hard waste services will also be provided by the private contractor, under the management of the operator. Hard waste will be stored within the bin storage room between collections, with collection to occur within the site as per the other waste streams.

### 6.2.5 Green Waste

It is expected that any maintenance and gardening undertaken on common property will be managed by a contractor appointed by the operator. The appointed contractor will be responsible for the disposal of any green waste accumulated during the course of their duties.

### 6.2.6 Sanitary Waste

Sanitary waste bins for nappy disposal are to be provided with the children's toilets for the younger age groups. Sanitary waste bins will be exchanged for a clean bin as required by a private sanitary waste contractor.

## 7 WASTE GENERATION

Waste collection information has been previously provided to onemilegrid in relation to the existing bin provision and collection frequencies of four separate child care centres across Melbourne, as summarised in Table 1.

Table 1 Bin Provision and Collection Frequencies – Child Care Centre

<i>Location</i>	<i>Number of Children</i>	<i>Garbage</i>	<i>Recycling</i>
Little Dreamers (1548 Heatherton Road, Dandenong)	50	Bin Provision: 1x 660 L Collection: 1x Weekly	Bin Provision: 1x 660 L Collection: 1x Monthly
Rosewood Downs (1 Murray Road, Dandenong North)	70	Bin Provision: 4x 120 L Collection: 1x Weekly	Bin Provision: 2x 240 L Collection: 1x Fortnightly
Little Owls (6 Stella Street, Beaconsfield)	30	Bin Provision: 3x 80 L Collection: 1x Weekly	Bin Provision: 3x 120 L Collection: 1x Fortnightly
Clever Kids (432 Warrigal Road, Ashburton)	45	Bin Provision: 1x 660 L Collection: 1x Weekly	Bin Provision: 2x 240 L Collection: 1x Fortnightly

Based on the bin provision and collection frequencies of the various childcare centres above, a typical waste generation rate of no more than 15 litres of garbage, and 6 litres of recycling is expected per child per week. An organic waste generation rate of 15% of the total garbage generated will be adopted, with the maximum total waste generation for the proposed childcare centre as shown in Table 2 below.

Table 2 Expected Waste Generation – Child Care Centre

<i>Component – Stream</i>	<i>Number of Children</i>	<i>Rate/Child/Week</i>	<i>Factor</i>	<i>Total Waste/Week</i>
Garbage	114	15 litres	85%	1,454 litres
Organics		15 litres	15%	257 litres
Recycling		6 litres	100%	684 litres

## 8 WASTE DISPOSAL AND COLLECTION REQUIREMENTS

### 8.1 Bin Provision and Specifications

It is proposed to utilise a private waste contractor for all waste services, for the proposed development.

Consequently, the following bins will be required for the proposed development.

Table 3 Bin Provision

<i>Stream</i>	<i>Total Waste/Week</i>	<i>Bin Size</i>	<i>Collection Frequency</i>	<i>Bins Required</i>
Garbage	1,454 litres	1,100 litres	Weekly	2 bins
Organics	257 litres	240 litres	Weekly	2 bins
Recycling	684 litres	1,100 litres	Weekly	1 bin
<b>Total</b>				<b>5 bins</b>

Typical bin specifications for each bin size are provided in Table 4 below.

Table 4 Bin Specifications

<i>Capacity</i>	<i>Width</i>	<i>Depth</i>	<i>Height</i>	<i>Area</i>
240 litres	0.60 m	0.75 m	1.10 m	0.45 m <sup>2</sup>
1,100 litres	1.25 m	1.10 m	1.35 m	1.38 m <sup>2</sup>

Bins are to be colour coded to the Australian Standard (AS4123), as shown in Table 5 below.

Table 5 Bin Colours

<i>Stream</i>	<i>Colour</i>
Garbage	Red lid and dark green or black body
Commingled Recycling	Yellow lid and dark green or black body
Organics	Light Green lid and dark green or black body

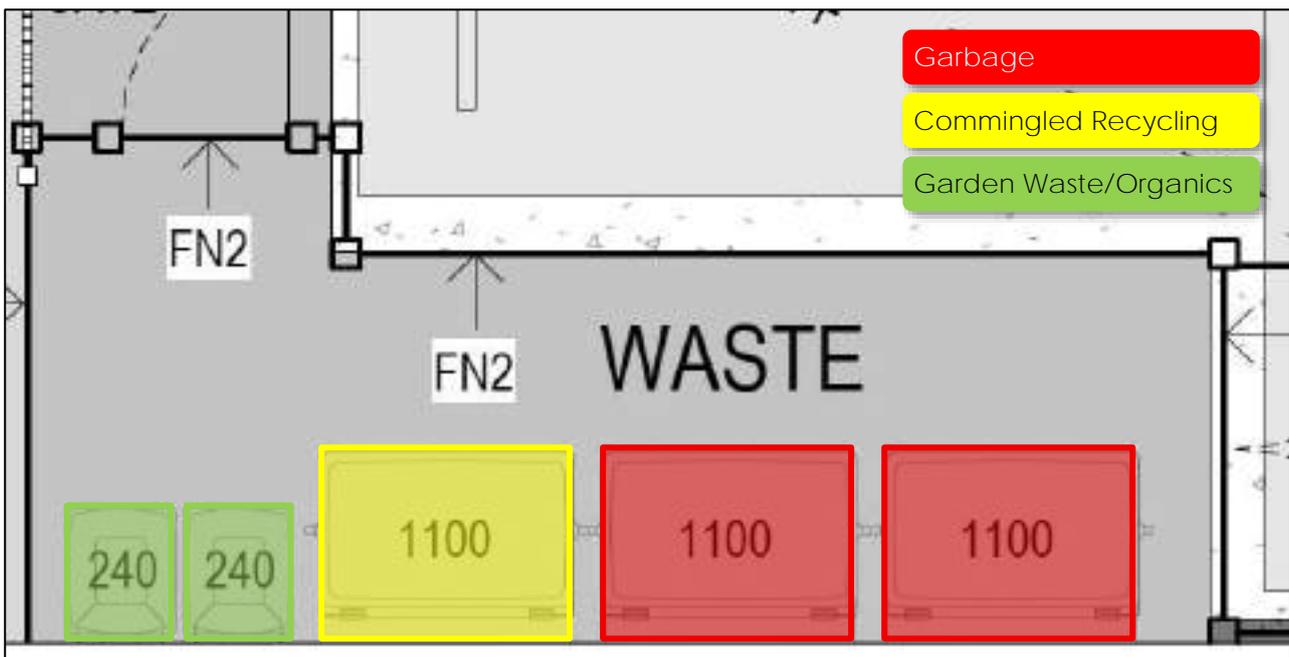
## 8.2 Bin Storage

As indicated in Figure 3, it is proposed to provide a bin storage area at the south of the car park, with a total floor area of approximately 14 m<sup>2</sup>. The layout of the bin storage area is shown in Figure 4, which demonstrates that the area is capable of accommodating the required bins, as calculated in Table 3, with additional area available for the temporary storage of hard waste.

Furthermore, the bin storage area is located appropriately for access by staff, and is secured from the common areas.

The bin storage area should be vermin proof, have appropriate ventilation, lighting and drainage, and shall be cleaned regularly by the operator or waste collection contractor, to minimise odour.

Figure 4 Bin Storage Room Layout



Scaled plans of the bin storage area are also provided in Appendix B.

## 8.3 Bin Usage

Staff or cleaning contractors will bag and dispose of garbage in the provided bins, located in the bin storage room.

Staff or cleaning contractors will transport and dispose of recyclables (non-bagged) in the provided bins, located in the bin storage room. Cardboard boxes should be flattened, and containers rinsed and cleaned prior to disposal in the provided bins.

The use of compostable bags when disposing of organic (food) waste should be confirmed with the engaged contractor, as some processing facilities do not accept bagged organic waste.

## 8.4 Bin Collection

Bins will be stored within a dedicate bin store located adjacent to the car park. On collection days, the waste collection vehicle will enter the site in a forward direction and utilise the access aisle to turn around and prop within the car park aisle. Authorised waste collectors will transfer the bins directly from the storage area to the vehicle, and return them immediately following collection. Upon completion the vehicle will exit the site in a forward direction. Waste collection will be limited to **outside of the operating hours to ensure there is no conflict with the site's operation.**

Swept path diagrams showing the above movements with an 8.8 m Service Vehicle are provided within Appendix A, demonstrating the waste collection vehicle is able to undertake these manoeuvres with appropriate clearances.

Each waste stream is to be collected by dedicated trucks and waste streams are not to be collected in one truck. Each waste stream is to be taken to dedicated waste facilities for disposal and processing.

The proposed bin transfer route for each dwelling is shown in Figure 3.

## 8.5 Bin Cleaning

The operator shall ensure that the bins are kept in a clean state, to minimise odours and to discourage vermin. This may include regular cleaning by a third party, cleaning by the waste contractor or bin swapping by the waste contractor.

A bin cleaning area should be provided within the bin storage area, with a drain connected to sewer.

Where cleaning is to be undertaken on-site, it should only occur in a designated bin cleaning area, provided with a drain connected to sewer.

## 8.6 Signage

To avoid contamination between garbage streams, bin lids will be colour coded in accordance with the Australian Standard (AS4123), to ensure the bin type is easily distinguishable. Furthermore, bins should include typical signage (preferably on the bin lid) to reinforce the appropriate materials to be deposited in each bin. Example signage is shown in Figure 5 below.

Figure 5 Example Waste Signage



## 9 MANAGEMENT

---

### 9.1 General

In relation to the proposed development, recycling is of key importance, and in this regard, the operator shall encourage staff to participate in minimising and reducing solid waste production by:

- Promoting the waste hierarchy, which in order of preference seeks to:
  - ✦ Avoid waste generation in the first place;
  - ✦ Increase the reuse and recycling of waste when it is generated;
  - ✦ Recover, treat or contain waste preferentially to; and
  - ✦ Its disposal in Land Fill (which is least desirable).
- Providing information detailing recyclable materials to ensure that non-recyclable materials do not contaminate recycling collections;
- Providing information regarding safe chemical waste disposal methods and solutions, including correct battery and electronics disposal methods;
- Encouraging composting for staff; and
- Providing tips for recycling and reusing waste, including encouraging the disposal of reusable items in good condition via donations to Opportunity Shops and Charities.

### 9.2 Staff Information

To ensure all staff are aware of their responsibilities with regard to waste and bin management, an information package will be provided by the operator to all staff, including the following information:

- A copy of this Waste Management Plan;
- Methods and techniques for waste reduction and minimisation;
- Information regarding bin collection days and requirements;
- Staff responsibilities with regard to bin usage, storage, and collection; and
- Staff responsibilities with regard to litter and waste removal from the common property.

### 9.3 Noise Control

To minimise the disturbance to the surrounding residential areas during waste collection, the collection should follow the criteria specified by the EPA, as below:

- Collections occurring once a week should be restricted to the hours:
  - ✦ 6:30am to 8:00pm, Monday to Saturday;
  - ✦ 9:00am to 8:00pm, Sunday and Public Holidays;
- Collections occurring more than once a week should be restricted to the hours:
  - ✦ 7:00am to 8:00pm, Monday to Saturday;
  - ✦ 9:00am to 8:00pm, Sunday and Public Holidays;
- Refuse bins should be located at sites that provide minimal annoyance to residential premises;
- Compaction should be carried out while the vehicle is moving;
- Bottles should not be broken up at the collection site;
- Routes which service predominantly residential areas should be altered regularly to reduce early morning disturbances; and
- Noisy verbal communication between operators should be avoided where possible.

## 10 OCCUPATIONAL HEALTH & SAFETY RESPONSIBILITIES

---

The operator shall ensure compliance to all relevant OH&S regulations and legislation, including the following:

- Worksafe Victoria Guidelines for Non-Hazardous Waste and Recyclable Materials.

## 11 CONTACT INFORMATION

---

### 11.1 Council

Cardinia Shire Council

Phone: 1300 787 624 (Customer Service)

Web: [www.cardinia.vic.gov.au](http://www.cardinia.vic.gov.au)

Email: [mail@cardinia.vic.gov.au](mailto:mail@cardinia.vic.gov.au)

### 11.2 Contractors

Circular Systems

Services: Waste collection and management

Web: <https://www.circular-systems.com.au/>

Email: [hello@circular-systems.com.au](mailto:hello@circular-systems.com.au)

ASI JD MacDonald

Services: Waste collection and management equipment

Phone: 1800 023 441

Web: [www.jdmacdonald.com.au](http://www.jdmacdonald.com.au)

Email: [enquiry@asjdmacdonald.com.au](mailto:enquiry@asjdmacdonald.com.au)

CSC Waste & recycling

Services: Private contractor

Phone: 1300 499 927

Web: [www.cscwaste.com.au](http://www.cscwaste.com.au)

Email: [info@cscwaste.com.au](mailto:info@cscwaste.com.au)

Cleanaway

Services: Private contractor

Phone: 131 339

Web: [www.cleanaway.com.au/](http://www.cleanaway.com.au/)

## JJ Richards & Sons

Services: Private contractor including bin tugs  
Phone: (03) 9703 5222  
Web: [www.jjrichards.com.au](http://www.jjrichards.com.au)  
Email: [operations.melbourne@jjrichards.com.au](mailto:operations.melbourne@jjrichards.com.au)

## WasteWise

Services: Private contractor  
Phone: 1300 550 408  
Web: [www.wastewise.com.au](http://www.wastewise.com.au)

## BioPak (Organic Waste Compost Service)

Services: Private contractor  
Phone: 1300 246 725  
Web: [www.biopak.com.au/compost-service](http://www.biopak.com.au/compost-service)

## 11.3 Cleaning Contractors

### The Bin Butlers

Services: Bin Cleaning  
Phone: 1300 788 123  
Email: [admin@thebinbutlers.com.au](mailto:admin@thebinbutlers.com.au)

### Melbourne Bin Cleaning

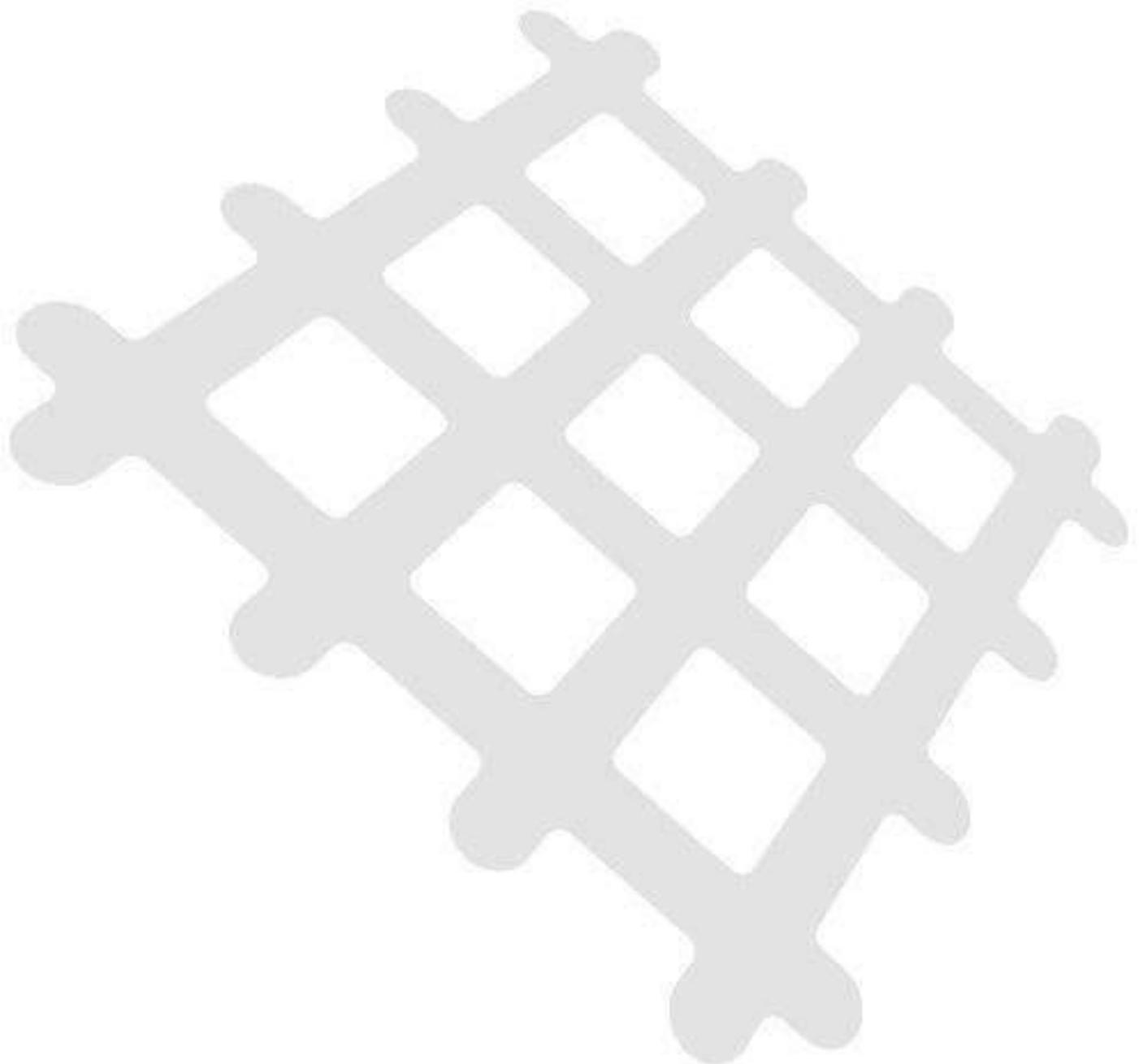
Services: Bin Cleaning  
Phone: 1300 635 246  
Web: <https://www.melbournebincleaning.com.au/>  
Email: [info@melbournebincleaning.com.au](mailto:info@melbournebincleaning.com.au)

## 11.4 Others

### Sustainability Victoria

Services: Sustainable Waste Management initiatives and information  
Phone: 1300 363 744 (Energy, Waste and Recycling)  
Web: [www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au)  
Email: [info@sustainability.vic.gov.au](mailto:info@sustainability.vic.gov.au)

# Appendix A Swept Path Diagram



1,622 m<sup>2</sup>

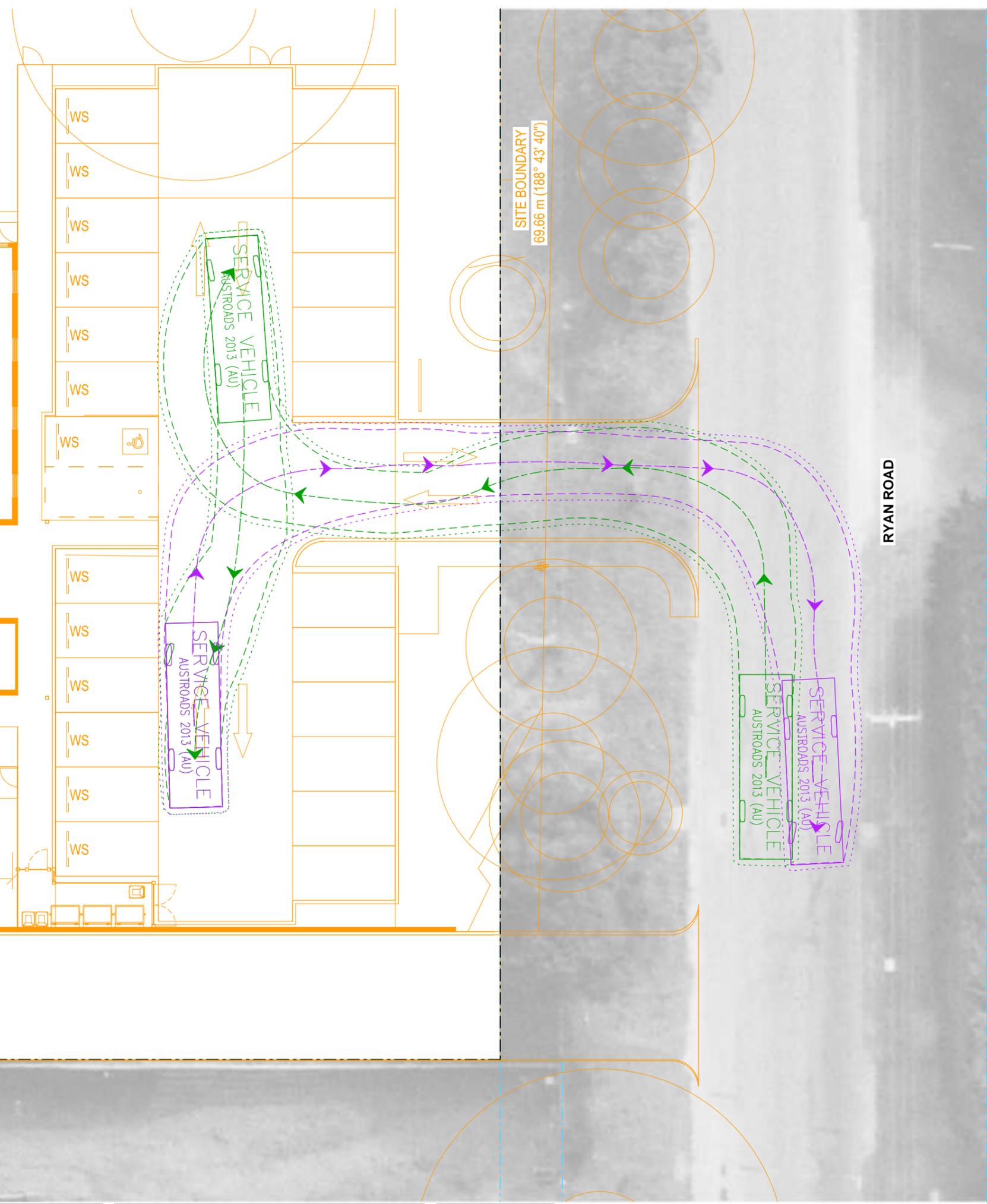
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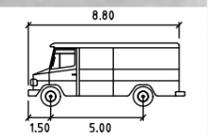
onemilegrid operates from Wurundjeri Woiwurrung Country of the Kulin nation.  
We acknowledge and extend our appreciation to the Wurundjeri People, the Traditional Owners of the land.  
We pay our respects to leaders and Elders past, present and emerging for they hold the memories,  
the traditions, the culture, and the hopes of all Wurundjeri Peoples.

Aerial Photography  
Aerial photography provided by Nearmap



SITE BOUNDARY  
69.66 m (188° 43' 40")

RYAN ROAD



SERVICE VEHICLE meters  
 Width : 2.50  
 Track : 2.50  
 Lock to Lock Time : 6.0  
 Steering Angle : 38.7

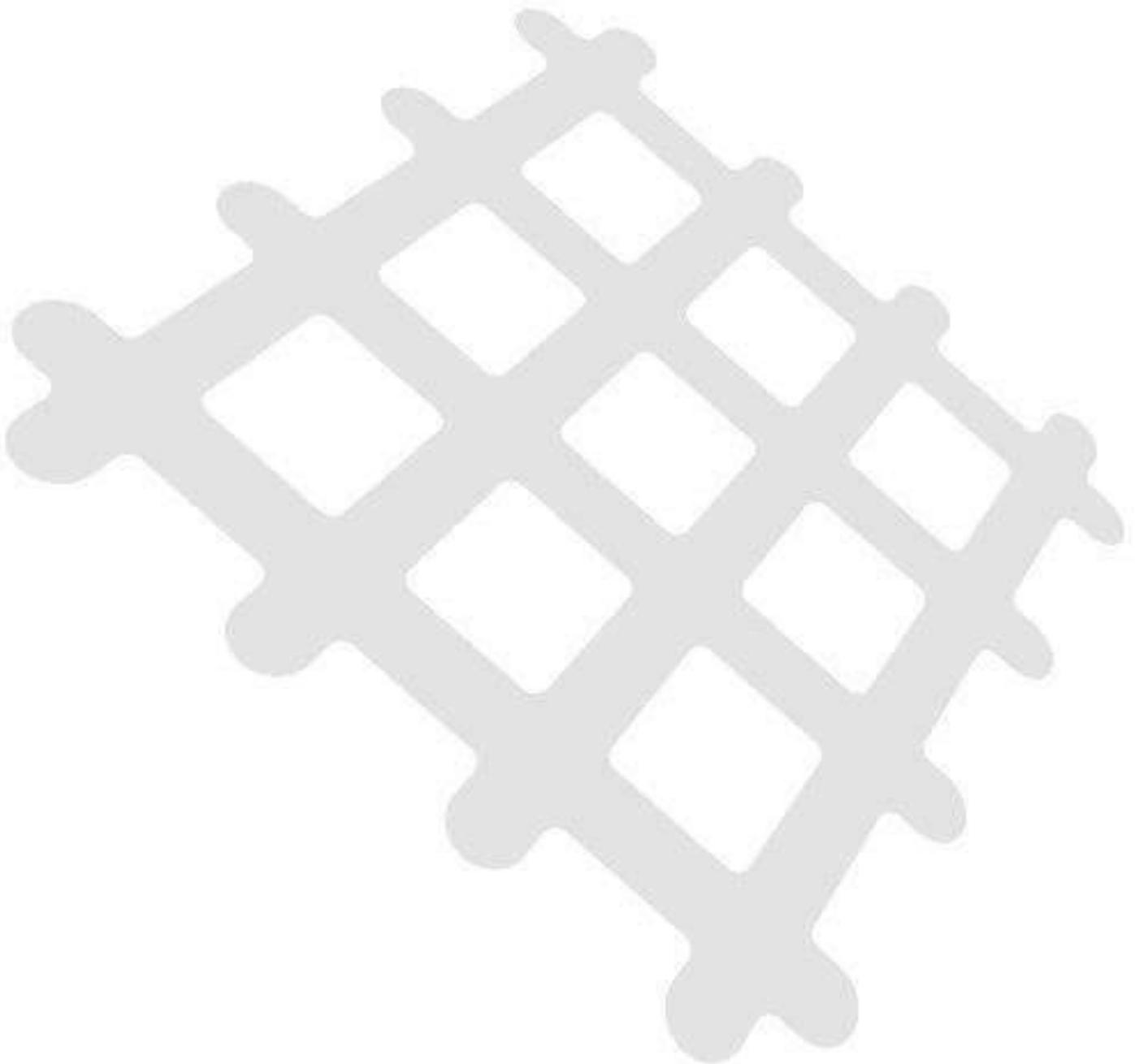
**SWEPT PATH LEGEND**  
 - - - - - DESIGN VEHICLE SWEEP PATHS SHOWN DASHED  
 ······ 300mm CLEARANCE ENVELOPE SHOWN DOTTED

**onemilegrid**  
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 Phone (03) 9939 8250

Scale  
 1:200 @ A3

Drawing Title 23 RYAN ROAD, PAKENHAM VEHICLE SITE ACCESS SWEPT PATH ANALYSIS		
Designed JPB	Approved VG	Melway Ref 318 A10
Project Number 250391	Drawing Number SPA101	Revision B

*Appendix B    Bin Storage Area Scaled  
Plans*





**TREE LEGEND**

- INDICATES TREES TO BE RETAINED.
- TPZ
- SRZ

**NOTES**

ALL NEW CROSSOVERS IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS  
 ALL PARKING SPACES IN ACCORDANCE WITH VICTORIAN PLANNING SCHEME  
 ALL DISABLED PARKING SPACES IN ACCORDANCE WITH AUSTRALIAN STANDARD AS2890 (5.4m x 2.4m)  
 SITE STORMWATER DRAINAGE IN ACCORDANCE WITH LOCAL AUTHORITY & COUNCIL REQUIREMENTS  
 ALL RELATIVE LEVELS ARE SHOWN TO A.H.D. (Australian Height Datum)  
 IN LOCATIONS WHERE SOIL RETENTION IS REQUIRED ALONG THE SOUTH AND WEST BOUNDARIES AND THE RETAINED HEIGHT IS LESS THAN 500 MM, THE USE OF GRADED SOIL IN LIEU OF RETAINING WALLS MAY BE PERMITTED. SUBJECT TO CONFIRMATION AND APPROVAL BY THE LANDSCAPE ARCHITECT AND CIVIL ENGINEER.  
 FFL & RL'S ARE SUBJECT TO CHANGE PENDING CIVIL ENGINEERING ADVICE. REFER TO LANDSCAPE PLAN FOR OUTDOOR PLAY SPACE EXTENT

**LEGEND**

- INDICATES EXTENT OF ASPHALT TO CIVIL ENGINEERS DETAILS
- PERMEABLE PAVING
- CONCRETE PAVING
- AREA OF OUTDOOR PLAYSPACE. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPE LAYOUT AND DETAILS
- AREA OF GRASS / LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPE LAYOUT AND DETAILS
- SIGNAGE
- RAINWATER TANK  
NOTE: TANKS WILL BE USED FOR TOILETS, LANDSCAPE IRRIGATION AND WASH DOWN WHERE SUITABLE. REFER TO SDA REPORT FOR FURTHER INFORMATION ON WATER TREATMENT
- FENCE
- GATE
- WASTE
- BIKE PARKING
- CAR BAY
- DDA
- ENTRY / WAITING
- PARENT
- OFFICE
- PLANNING
- WC
- LAUNDRY
- STAFF
- AMENITIES
- PREP
- COT
- CHILD CARE ROOM
- KITCHEN
- PANTRY
- STORE
- CORRIDOR
- DRY
- LANDSCAPE & SERVICES
- EXTERNAL CAPTURE AREA
- SIGNAGE

**DEVELOPMENT ANALYSIS**

SITE AREA	4009m <sup>2</sup>
SITE COVERAGE	24%
SITE PERMEABILITY	57%
GROSS BUILDING AREA	835m <sup>2</sup>
TOTAL PARKING AREA	647m <sup>2</sup>
RATE REQUIRED PER CHILD	0.22
BAYS REQUIRED	25
BAYS PROVIDED	25
TOTAL CHILDREN SPACES	114
OUTDOOR PLAY AREA - REQUIRED	798.0 m <sup>2</sup>
OUTDOOR PLAY AREA - PROVIDED	1922.0 m <sup>2</sup>

ROOM NAME	AREA (ACTUAL)	No. OF CHILDREN
CHILDCARE RM 01	42 m <sup>2</sup>	12
CHILDCARE RM 02	30 m <sup>2</sup>	8
CHILDCARE RM 03	41 m <sup>2</sup>	12
CHILDCARE RM 04	55 m <sup>2</sup>	16
CHILDCARE RM 05	73 m <sup>2</sup>	22
CHILDCARE RM 06	73 m <sup>2</sup>	22
CHILDCARE RM 07	73 m <sup>2</sup>	22
<b>TOTAL LANDSCAPE AREA</b>	<b>382 m<sup>2</sup></b>	

**ISSUED FOR TOWN PLANNING**

No. DATE:	REVISION:	BY:	CHK:
P1 06.10.2025	PRELIMINARY ISSUE	TC	JB
A 03.11.2025	TOWN PLANNING ISSUE	TC	JB

All areas indicated are indicative for design and planning purposes only and should not be used for any contractual reasons without verification by a licensed surveyor or further design development being completed.  
 Watson Young Architects P/L Melbourne | Perth | Sydney 03 9516 8555 ACN: 111398700  
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PROJECT:  
**CHILDCARE RYAN RD**  
 23 Ryan Road, Pakenham, VIC 3810

TITLE:  
**FLOOR PLAN**



CLIENT:  
**RYAN RD PAKENHAM LAND PTY LTD**

DATE: APRIL, 2025  
 DRAWN BY: TC  
 SCALE: 1:100 @ A1  
 SCALE: 1:200 @ A3

JOB NO:  
**25086**  
 DRAWING NO:  
**TP04**  
 REVISION:  
**A**



*23 Ryan Road, Pakenham*  
Transport Impact Assessment



250391TIA001B-F.docx

6 November 2025

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## DOCUMENT INFORMATION

Prepared for	Ryan Road Pakenham Land Pty Ltd		
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Prepared by	LMH	Reviewed by	VPG

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## APPENDICES

### APPENDIX A SWEPT PATH DIAGRAMS

# 1 INTRODUCTION

onemilegrid has been requested by Ryan Road Pakenham Land Pty Ltd to undertake a Transport Impact Assessment of the proposed childcare centre at the eastern part (Lot1) of the broader site addressed 23 Ryan Road, Pakenham.

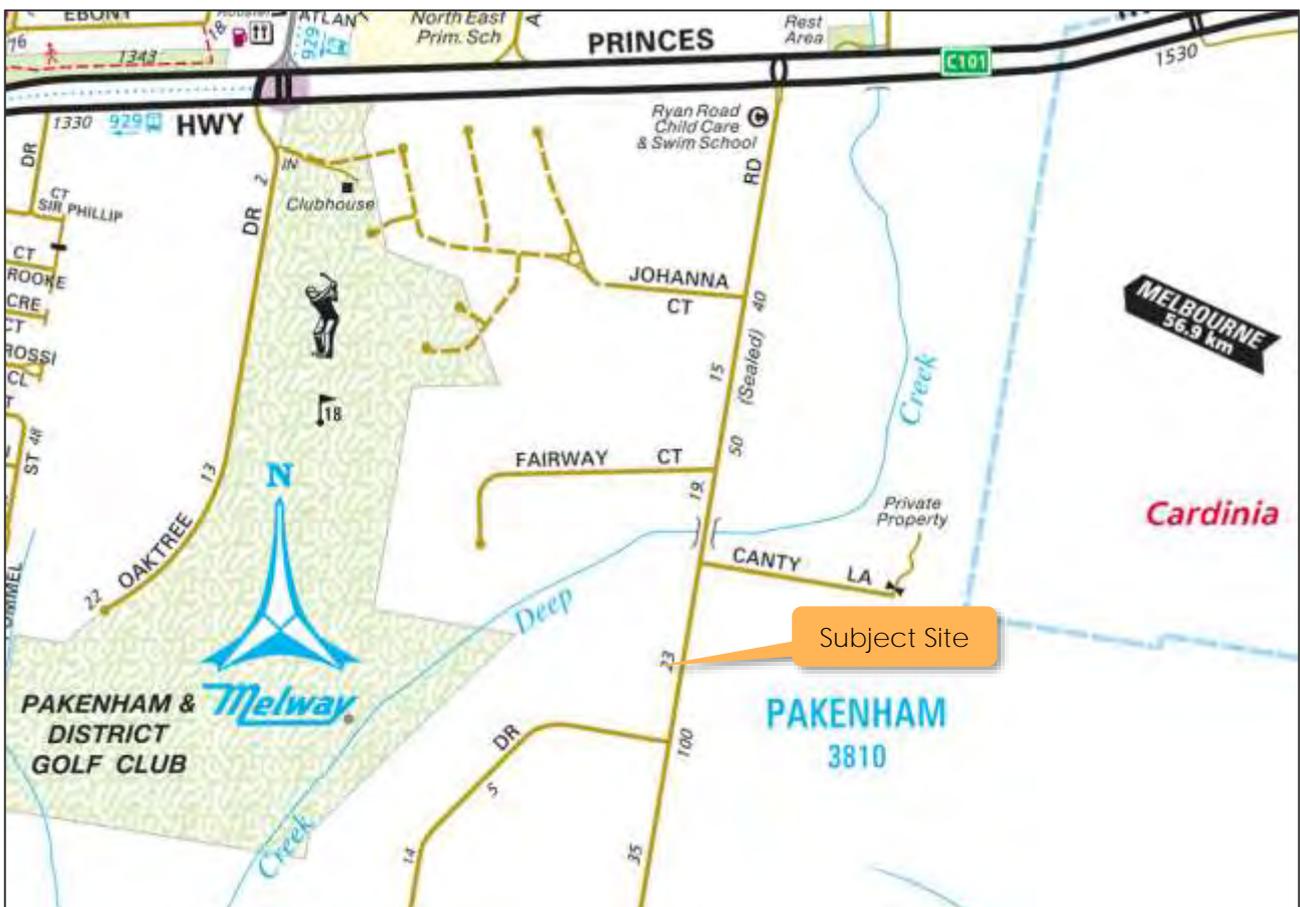
As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic and parking data has been sourced, and relevant background information has been reviewed.

## 2 EXISTING CONDITIONS

### 2.1 Site Location

The [subject site](#) is addressed as 23 Ryan Road, Pakenham, and is located on the west side of Ryan Road, as shown in Figure 1.

Figure 1 Site Location



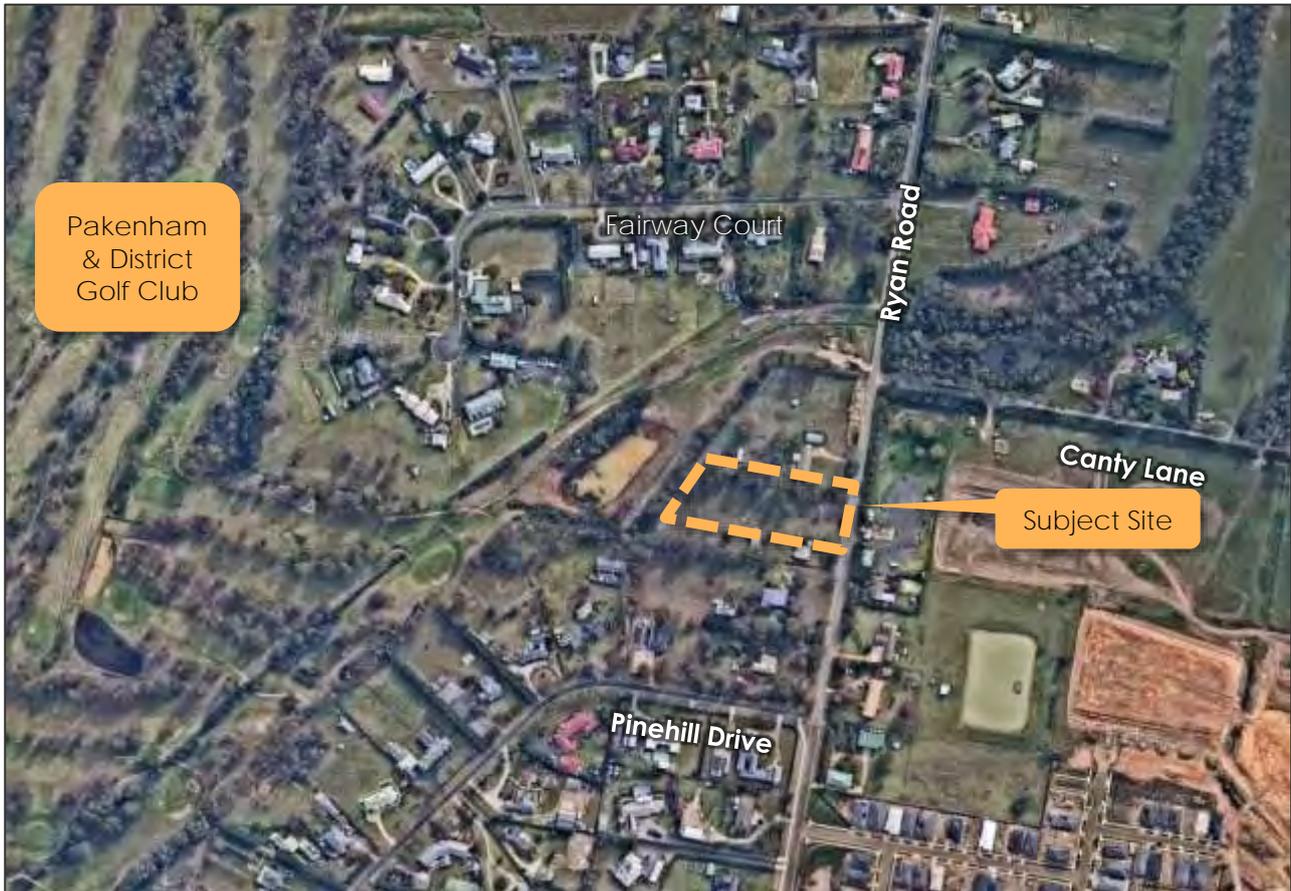
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The site is currently occupied by a single dwelling and an associated shed, with the remainder of the land predominantly comprising open grassed areas.

Land use in the immediate vicinity of the site largely comprises low density residential lots, with the Pakenham & District Golf Club and Deep Creek Reserve to the west, and residential subdivisions under construction further afield to the south-east and north-east.

An aerial view of the subject site is provided in Figure 2.

Figure 2 Site Context (2 May 2025)

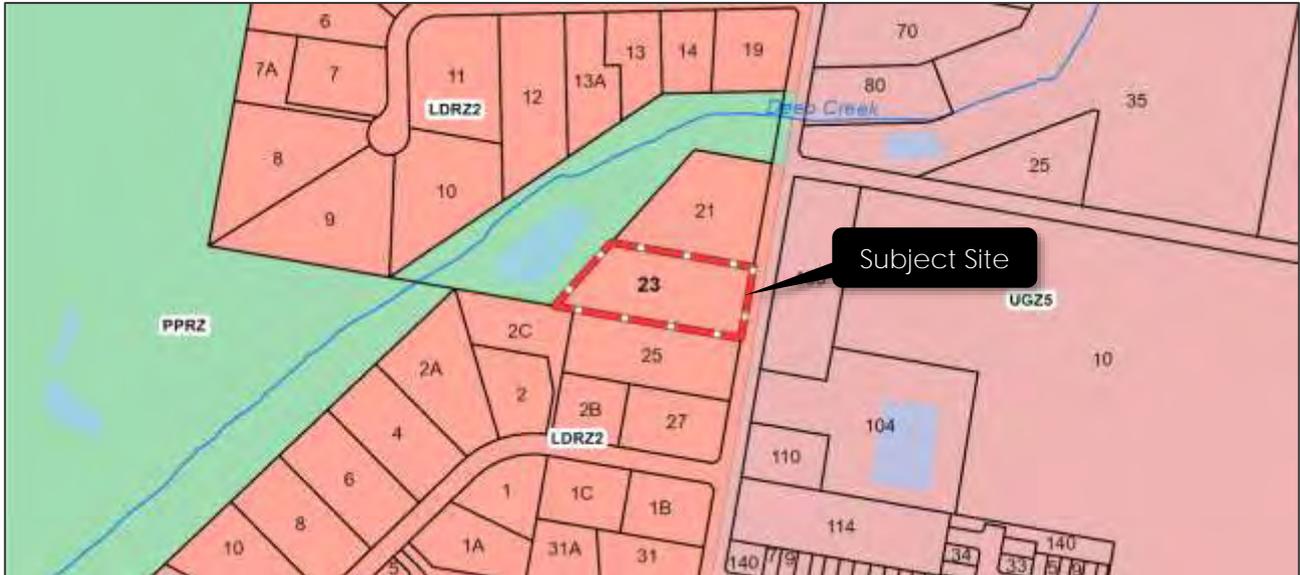


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## 2.2 Planning Zones and Overlays

It is shown in Figure 3 that the site is located within a Low Density Residential Zone (LDRZ), abutting a Public Park and Recreation Zone (PPRZ) and an Urban Growth Zone (UGZ).

Figure 3 Planning Scheme Zones



## 2.3 Road Network

Ryan Road is a local road generally aligned north-south, running between the Princes Highway in the north, and Pakenham East Station in the south. Ryan Road continues further south past the Princes Freeway to Bald Hill Road, however this segment of the road is currently separated by the railway line. Ryan Road provides a sealed carriageway of approximately 7.8 m with kerb and channel provided on both sides.

A posted 60 km/h speed limit applies to Ryan Road in the vicinity of the site.

The cross-section of Ryan Road at the frontage of the site is shown in Figure 4.

Figure 4 Ryan Road, looking north (left) and south (right)

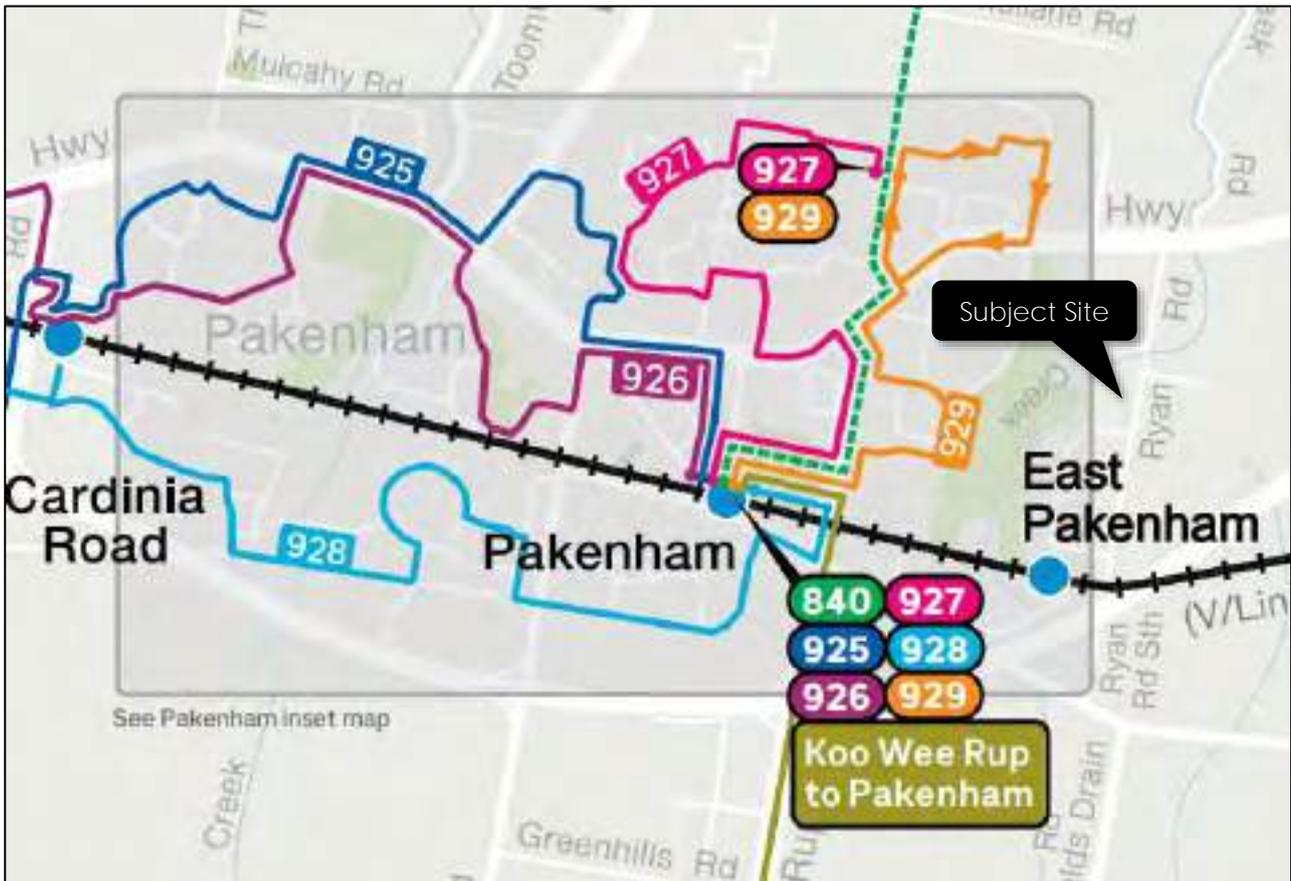


Image date: October 2025

## 2.4 Sustainable Transport

The full public transport provision in the vicinity of the site is shown in Figure 5. It is shown public Transport in the vicinity of the site includes the recently opened East Pakenham Railway Station to the south, which is approximately 1.7 km walking distance from the site. This station is currently the last stop on the Pakenham train line, and also carries several V/Line train routes.

Figure 5 Public Transport Provision



## 2.5 Pakenham East Precinct Structure Plan (PSP)

### 2.5.1 General

The site is located adjacent to the Pakenham East Precinct Structure Plan area. An extract of the PSP Future Urban Structure is shown in Figure 6.

Figure 6 Pakenham East PSP Future Urban Structure



## 2.5.2 Road Network, Public Transport, Walking and Cycling

Extracts of the PSP are shown below, indicating the road network, public transport and trail network proposed in the vicinity of the site.

Figure 7 PSP Road Network



Figure 8 PSP Public Transport and Path Network



South of the Cauty Lane intersection, Ryan Road is designated as a local access street level 2 and will ultimately provide a dedicated on-road bicycle lane. North of this intersection, Ryan Road is identified as an access street level 1 and will be bus capable.

A roundabout is identified for the nearby intersection to the north of the site at the intersection with Cauty Lane. Additionally, the intersection between Ryan Road and Princes Highway to the north is identified to become a signalised intersection.

The cross sections for Ryan Road is shown below.

Figure 9 Local Access Street Level 2 – Ryan Road South of Canty Lane

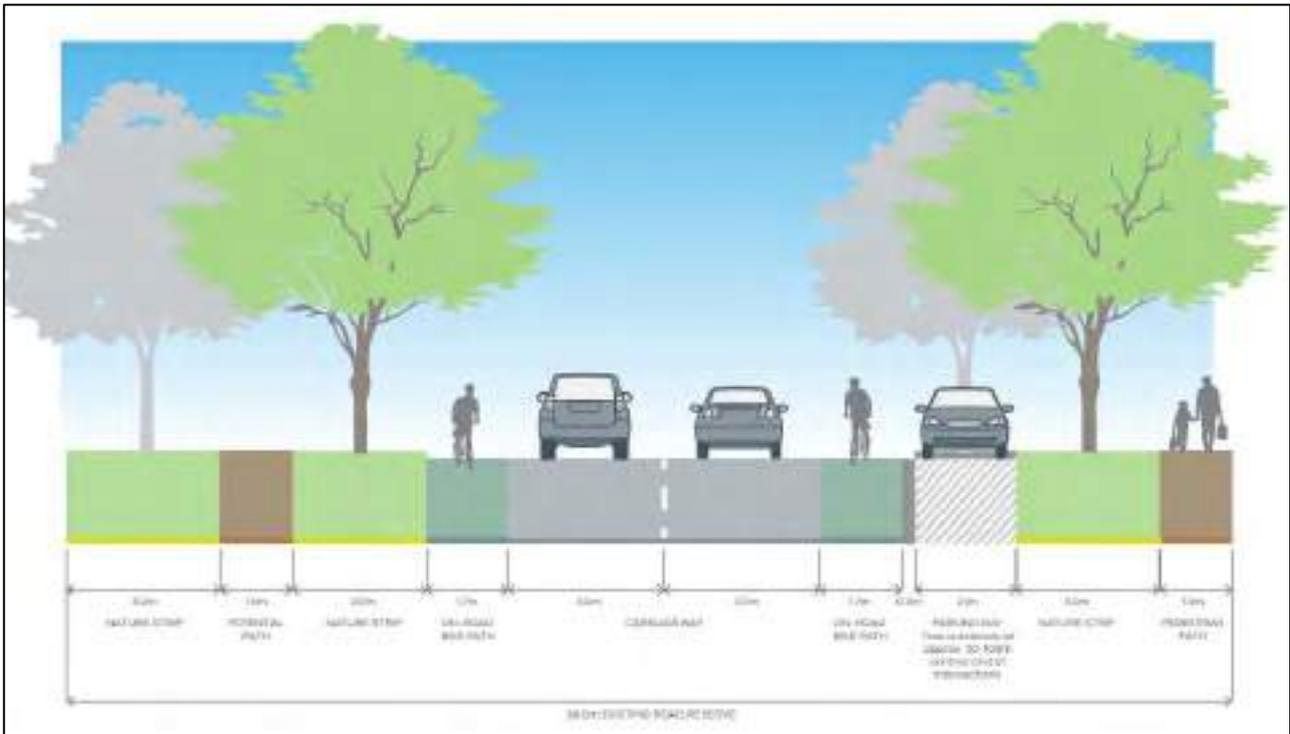
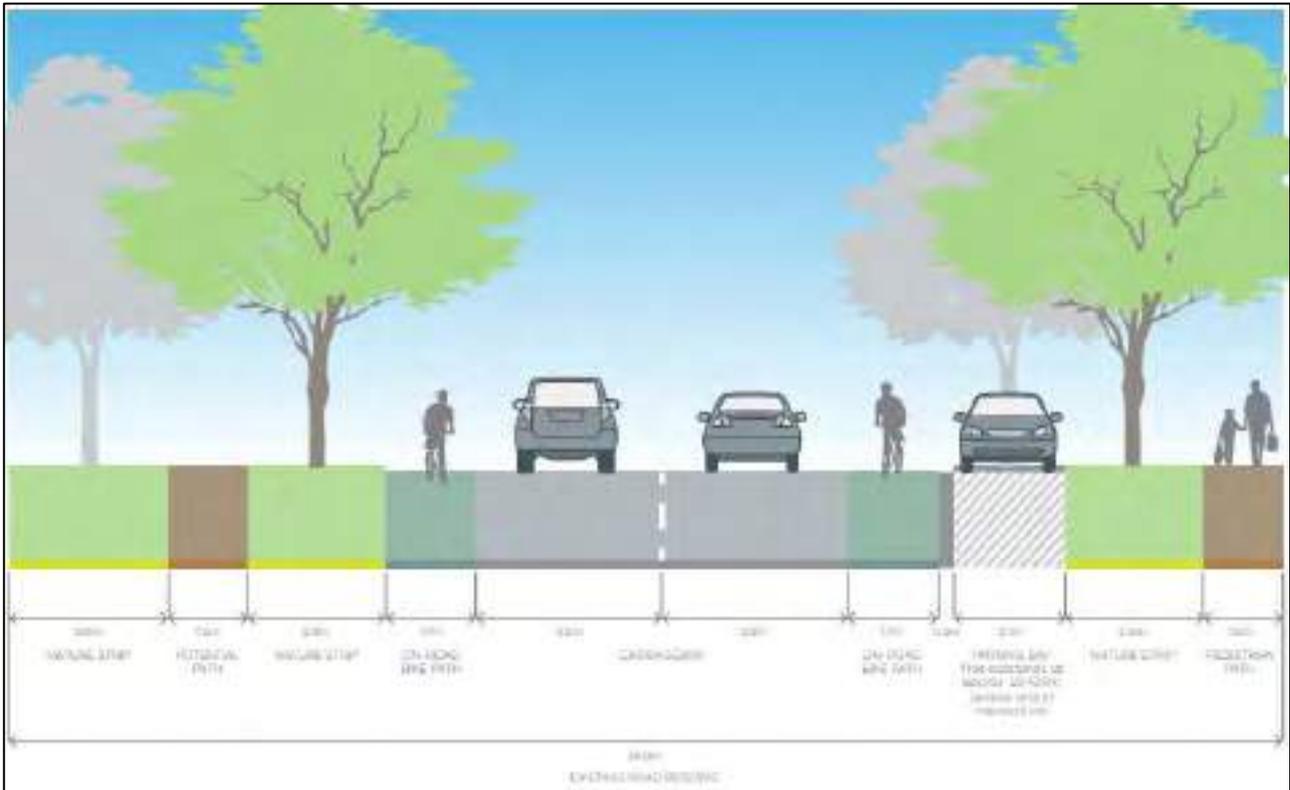


Figure 10 Connector Street – Ryan Road North of Canty Lane



### 3 PAKENHAM EAST INFRASTRUCTURE CONTRIBUTIONS PLAN (ICP)

The subject site is located within the area covered by the Pakenham East Infrastructure Contributions Plan which has been prepared by the Victorian Planning Authority (VPA) in partnership with the City of Cardinia. The ICP has been prepared to outline the projects, framework and financial contribution required to deliver the infrastructure projects necessary for future residents. It includes the land and cost to fund road network upgrades, intersection construction and community facilities.

An extract of the Pakenham East ICP is provided in Figure 11.

Figure 11 Pakenham East ICP



It is shown above that the following road and intersection projects are funded as part of the ICP:

- RD-01 – the construction of Ryan Road north of the site frontage; and
- IN-05 – the construction of the Ryan Road / Canty Lane intersection.

## 4 DEVELOPMENT PROPOSAL

This application deals with the eastern part of the subject site which will be subdivided from the greater lot, thus creating 2 parcels. Lot 1 pertains to this application and Lot 2 will be subject to a separate and future application.

It is proposed to develop the subject site (Lot 1) for the purposes of a childcare centre, accommodating 114 children.

Vehicle access is proposed to Ryan Road via a two-way crossover, which will provide ingress and egress to a 25-space on-site car park, including one accessible space and shared zone.

It is proposed to provide four bicycle parking spaces on-site, in the form of two bicycle hoops adjacent to the pedestrian access proposed to Ryan Road.

A bin store is located adjacent to the car park. Waste collection will be undertaken by a private contractor. The waste collection vehicle will enter the site to prop for collection, and turnaround within the car park to exit the site in a forward direction.

The car parking and vehicle access arrangement is shown in Figure 12 below.

Figure 12 Car Parking and Vehicle Access



## 5 DESIGN ASSESSMENT

### 5.1 Cardinia Planning Scheme – Clause 52.06

onemilegrid has undertaken an assessment of the car parking layout and access for the proposed development with due consideration of the Design Standards detailed within Clause 52.06-9 of the Planning Scheme. A review of those relevant Design Standards is provided in the following sections.

#### 5.1.1 Design Standard 1: Accessways

A summary of the assessment for Design Standard 1 is provided in Table 1.

Table 1 Clause 52.06-9 Design Assessment – Design Standard 1

Requirement	Comments
Be at least 3 metres wide.	Satisfied – Minimum width of accessway is 5.5 m
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	Satisfied – Changes of direction are between accessways of more than 4.2 m wide
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.	Satisfied
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	N/A – No overhead obstructions
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.	Satisfied
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.	N/A – Accessway is less than 50 m long, and does not connect to a Transport Zone. Nonetheless, passing can be achieved as discussed below
Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900 mm in height.	Satisfied – Splays are provided on both sides of the accessway clear of landscaping or obstructions greater than 900 mm height.
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.	N/A – Does not connect to a Transport Zone

Swept paths have been prepared and are provided within Appendix A demonstrating simultaneous access and egress with a 99.8<sup>th</sup> percentile passenger vehicle (B99) and an 85<sup>th</sup> percentile passenger vehicle (B85) respectively. It is shown that these movements can be undertaken with appropriate clearances.

### 5.1.2 Design Standard 2: Car Parking Spaces

Standard spaces on-site are proposed with a minimum width of 2.6 metres, length of 4.9 metres and are accessed from aisles of no less than 6.4 metres. Spaces adjacent to walls have been suitably widened in accordance with Design Standard 2 of the Planning Scheme.

The accessible bay is provided with a length of 5.4 metres and a width of 2.4 metres, and an adjacent shared area of the same dimensions, in accordance with the Australian Standard for Parking facilities, Part 6: Off-street parking for people with disabilities (AS 2890.6:2022). Furthermore, a height clearance of no less than 2.5 metres is provided above the centre of the accessible bay and adjacent shared area, in accordance with the Australian Standard.

The dead-end access aisles are no greater than 6 car spaces in length have been provided with an aisle extension of at least 1 metre in accordance with the Australian Standard for Off-street Parking.

### 5.2 Bicycle Parking

The bicycle hoops have been designed in accordance with the Australian Standard; specifically, they are provided at one metre centres, with an envelope of 1.8 metres provided for bicycles and a 1.5 metre access aisle.

### 5.3 Waste Collection

Bins will be stored within a dedicate bin store located adjacent to the car park. The waste collection vehicle will enter the site in a forward direction and utilise the access aisle to turn around and prop within the car park aisle to undertake collection. Authorised waste collectors will transfer the bins directly from the storage area to the vehicle, and return them immediately following collection. Upon completion the vehicle will exit the site in a forward direction.

Swept path diagrams demonstrating waste collection vehicle movements are provided in Appendix A.

Refer to the Waste Management Plan for further information.

## 6 LOADING

---

Clause 65 (Decision Guidelines) of the Cardinia Planning Scheme identifies that:

*"Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate: The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."*

Given the proposed use of the site as a childcare centre, it is not considered necessary to provide a dedicated on-site loading bay. It is expected that the majority of deliveries will occur via small vans and utility vehicles, which can utilise the on-site parking outside of peak operational periods.

## 7 BICYCLE PARKING

---

The bicycle parking requirements for the subject site are identified in Clause 52.34 of the Cardinia Planning Scheme. The Planning Scheme does not specifically refer to parking requirements for childcare centre uses, therefore, no bicycle parking is required.

Nonetheless, it is proposed to provide 4 bicycle parking spaces to service the proposed development.

## 8 CAR PARKING

---

### 8.1 Statutory Car Parking Requirements

The car parking requirements for the subject site are identified in Clause 52.06 of the Cardinia Planning Scheme, which specifies the following minimum car parking requirements for the proposed development.

Table 2 Clause 52.06 – Car Parking Requirements

<i>Use</i>	<i>No/Area</i>	<i>Rate</i>	<i>Car Parking Measure</i>	<i>Total</i>
Child care centre	114	0.22	to each child	25

The proposed parking provision of 25 spaces is therefore in accordance with the Planning Scheme minimum requirements outlined above.

### 8.2 Accessible Car Parking

The National Construction Code specifies the minimum requirements for provision of accessible car parking.

The proposed child care development, classified as a Class 9B building, requires provision of one accessible car space for every 50 car parking spaces or part thereof for the first 1,000 spaces, and then 1 space per 100 car parking spaces or part thereof in excess of 1,000 spaces.

Noting the proposed provision of 25 car spaces on-site, the National Construction Code (NCC) requires at least one accessible car space on-site.

The proposed provision of one accessible car parking spaces thus satisfies the NCC requirements.

## 9 TRAFFIC

### 9.1 Traffic Generation

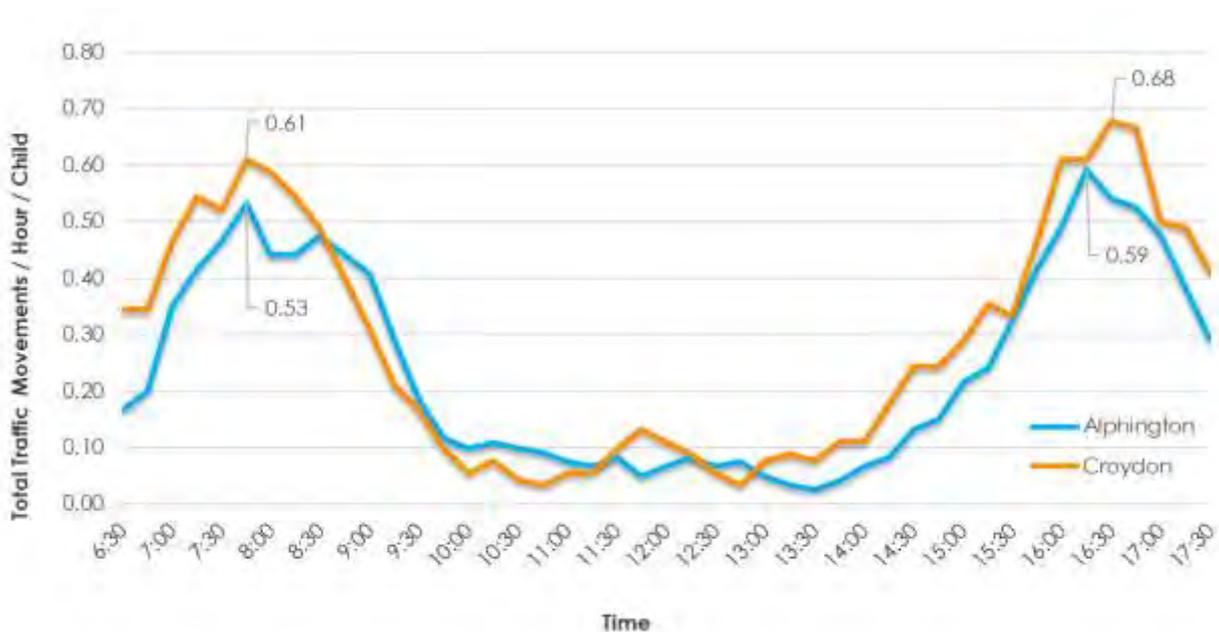
In order to establish traffic generation rates for similar uses, onemilegrid undertook turning movement surveys of existing child care centres at 418 Mt Dandenong Rd, Croydon (Goodstart Early Learning Croydon) and 18 Grange Road, Alphington (Smart Start Early Learning and Development Centre).

A summary of the case-study results is provided in Table 3 below, representing the peak traffic generation in relation to the maximum number of child care places.

Table 3 Child Care Case Study – Traffic Generation (Movements/Child)

Site	No. Places	AM Peak				PM Peak			
		Time	In	Out	Total	Time	In	Out	Total
Alphington	120	7:45am-8:45am	0.28	0.25	0.53	4:15pm-5:15pm	0.28	0.32	0.59
Croydon	90	7:45am-8:45am	0.33	0.28	0.61	4:30pm-5:30pm	0.32	0.36	0.68
Average			0.31	0.27	0.57		0.30	0.34	0.64

Figure 13 Child Care Case Study – Traffic Generation



Based on the above case study data, the anticipated traffic generated by the proposed development (childcare offering 114 spaces) is calculated in Table 4

Table 4 Anticipated Traffic Generation – Total Trips

Period	Inbound	Outbound	Total
AM Peak	35	31	66
PM Peak	35	39	74

It is commonly acknowledged that a high proportion of vehicle trips to a child care centre are as a result of diverted trips; from a vehicle which is already on the road network as part of another trip (i.e., a vehicle diverting to a child care centre on the way from work to home).

In order to ascertain the proportion of unique trips versus diverted trips generated by the proposed development, data collected as part of the Victorian Integrated Survey of Travel and Activity (VISTA) was analysed specifically for child care centres, with the results shown in Table 5.

Table 5 Diverted Trips Proportion – VISTA 2012-2016

<i>Use</i>	<i>AM Peak</i>	<i>PM Peak</i>
Child Care	42%	74%

It is shown above that a high proportion of daily trips generated to a child care centre are diverted trips during the peak hours (e.g. on the way to work). Consequently, the number of unique vehicles trips generated by the proposed development will be much lower than the total traffic generation of the site. This would be particularly relevant for the subject site noting East Pakenham Station is located to the south of the site.

A summary of the unique trips expected to be generated by the use is shown in Table 6.

Table 6 Anticipated Unique Traffic Generation

<i>Period</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
AM Peak	20	18	38
PM Peak	9	10	19

## 9.2 Traffic Impact

Based on the foregoing it is estimated that a maximum of 74 vehicle movements per hour will be generated by the subject site during peak periods at the site access point. These movements are split between in and outbound movements.

In relation to new movements to the road network, as detailed in the above assessment, a notable proportion of movements are associated with another trip and accordingly at most 38 new movements are expected during the morning peak. This level of traffic is low and in the context of the surrounding area and existing traffic volumes would not constitute a notable change to existing conditions.

Overall, it is expected that movements would be diverted from existing trips along Ryan Road from local residents, and others travelling to the station. As further land develops and subdivisions to the east become populated, it is expected that more trips to/from the site would be generated by local residents thus not constituting new vehicle movements.

Under either scenario, the level of traffic generated by the site is quite low in traffic terms, and expected to be easily accommodated by Ryan Road, and the Princes Highway intersection to the north.

## 10 RYAN ROAD REVIEW

---

Following a pre-application meeting, Council advised the following:

*The upgrade of Ryan Road in front of the subject site per Road Section 9 of the Pakenham East PSP will be required prior to occupancy of the child care centre. This section of Ryan Road is a project within the Pakenham East Infrastructure Contribution Plan (RD-01) and therefore contributions for the construction of Ryan Road are available. Please be advised Maple Grove Estate (within the Pakenham East Precinct) is required to construct Ryan Road in front of the subject site with a later stage of subdivision and may be constructed prior to the child care centre being ready for occupancy.*

Further to the above, it is understood Council commented that the 'first-in' may be required to undertake the works. Our review of the above follows:

### Traffic

Ryan Road provides a carriageway of approximately 7.8 m along the site frontage, and is estimated to have an environmental capacity of up to 3,000 vehicles per day, which is equivalent to in the order of 300 movements during each of the peak hour periods.

As detailed in Section 9, the proposed development is expected to generate only 74 total peak-hour movements, reducing to 38 unique movements once diverted trips are accounted for. This represents well under 15% of the notional peak-hour capacity of the existing road.

Further, with limited surrounding development, low current utilisation of Pakenham East Station (estimated < 60 parked vehicles based on aerial imagery), and the large proportion of diverted rather than new trips, there is no reasonable basis to suggest Ryan Road will operate near capacity as a result of the proposal.

### Parking

The development provides on-site parking in accordance with the Planning Scheme, and therefore does not rely on on-street parking. While some incidental use of Ryan Road for short-term parking may occur, this is not expected to affect traffic operations.

### Need and Nexus

The Planning and Environment Act and established development contribution principles require that any works or contributions sought from a permit applicant must demonstrate:

1. Need – the works are necessary because of the development, and
2. Nexus – a clear, direct relationship exists between the development and the infrastructure requirement.

When reviewing the particulars of this application, it is noted that:

- The child care centre generates low traffic volumes, well within the capacity of the existing road.
- No safety, operational, or parking deficiencies are created or exacerbated by the proposal.
- The upgrade of Ryan Road is already identified as an ICP-funded strategic project intended to support the full development of the precinct, not this single, small-scale use.
- Requiring the centre to deliver a major section of road infrastructure would be contrary to basic nexus and proportionality tests.

It is therefore not considered reasonable to require the child care centre to undertake the Ryan Road upgrade in isolation, especially noting other larger development parcels are likely to undertake the works in the future regardless.

## 11 CONCLUSIONS

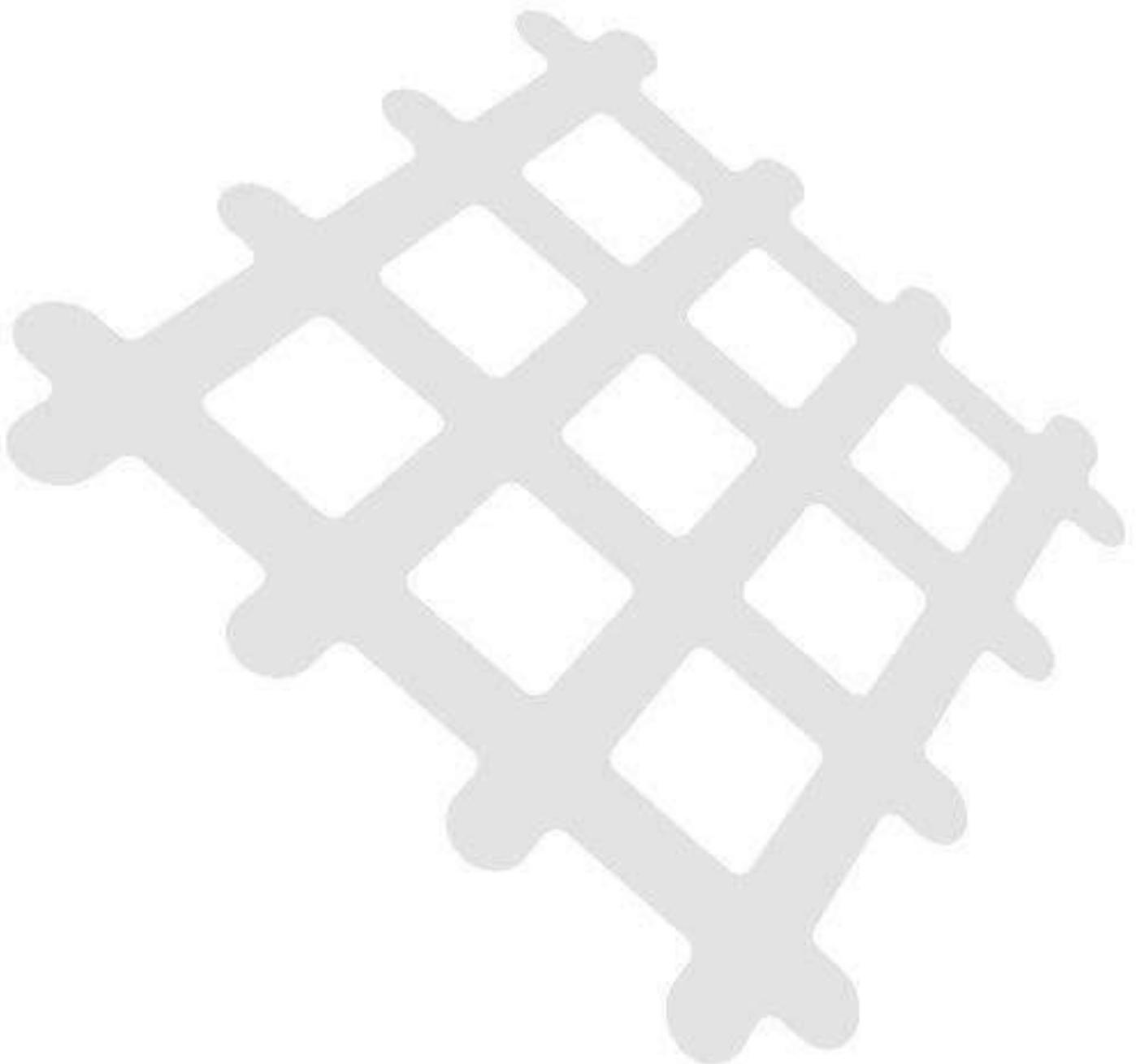
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It is proposed to develop the subject site for the purposes of childcare centre, with capacity for 114 children.

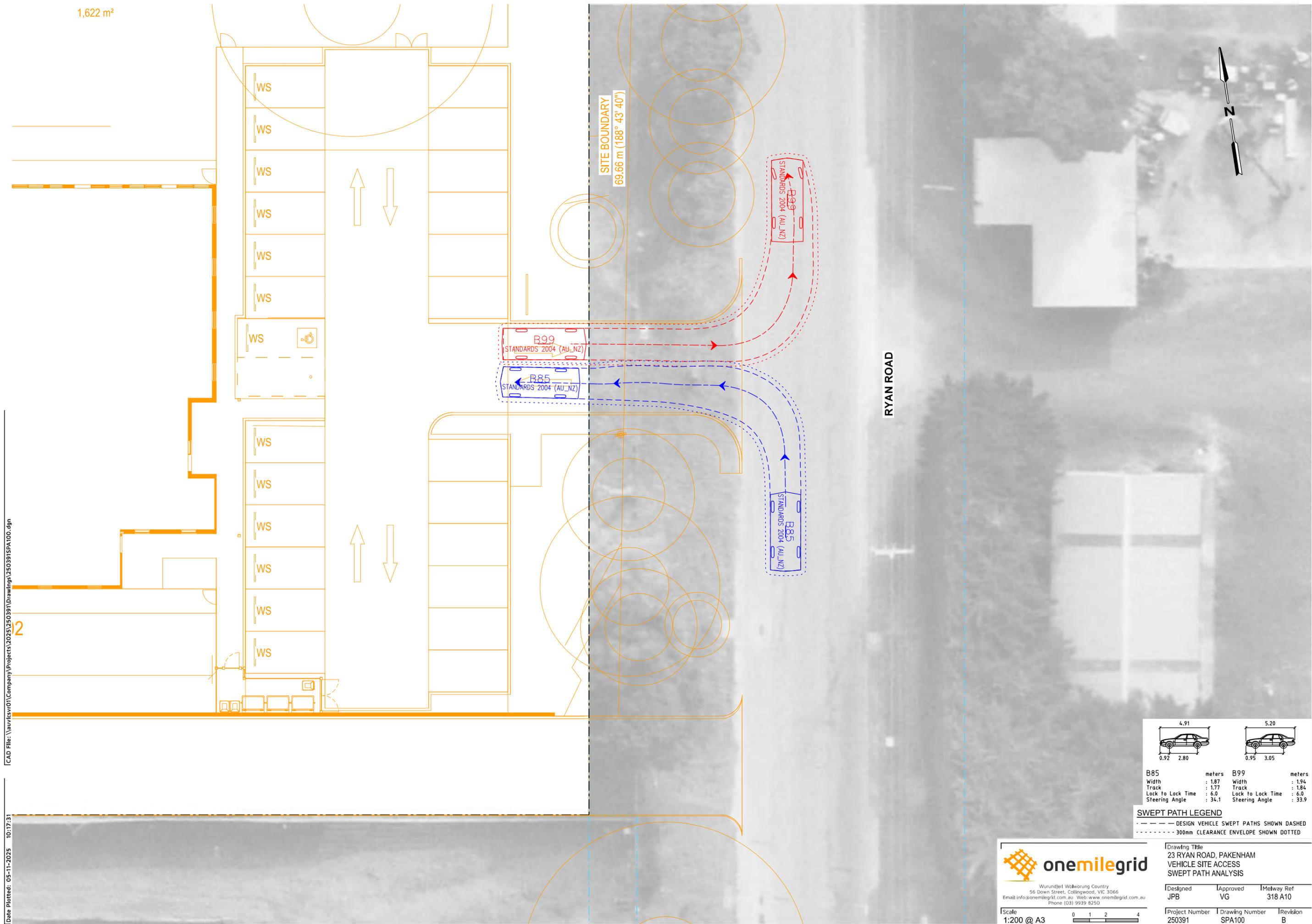
Considering the analysis presented above, it is concluded that:

- The car parking layouts and accesses have been designed generally in accordance with the requirements of the Planning Scheme and are considered appropriate;
- The proposed supply of car parking is appropriate for the proposed development;
- Bicycle parking is not proposed to be provided on-site, which is in accordance with the Planning Scheme requirements;
- The traffic volumes generated by the proposed development are expected to be readily absorbed into the surrounding road network; and
- It is more appropriate for the upgrade of Ryan Road to be undertaken by others.

# Appendix A Swept Path Diagrams



1,622 m<sup>2</sup>



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Width	Track	Width	Track
1.87	1.77	1.94	1.84
6.0	34.1	6.0	33.9

SWEPT PATH LEGEND  
 - - - - - DESIGN VEHICLE SWEEP PATHS SHOWN DASHED  
 ······ 300mm CLEARANCE ENVELOPE SHOWN DOTTED

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Drawing Title  
**23 RYAN ROAD, PAKENHAM**  
 VEHICLE SITE ACCESS  
 SWEEP PATH ANALYSIS

Designed JPB	Approved VG	Melway Ref 318 A10
Project Number 250391	Drawing Number SPA100	Revision B

Scale  
 1:200 @ A3

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Aerial Photography  
 Aerial photography provided by Nearmap

1,622 m<sup>2</sup>

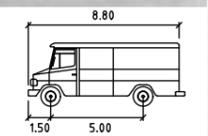
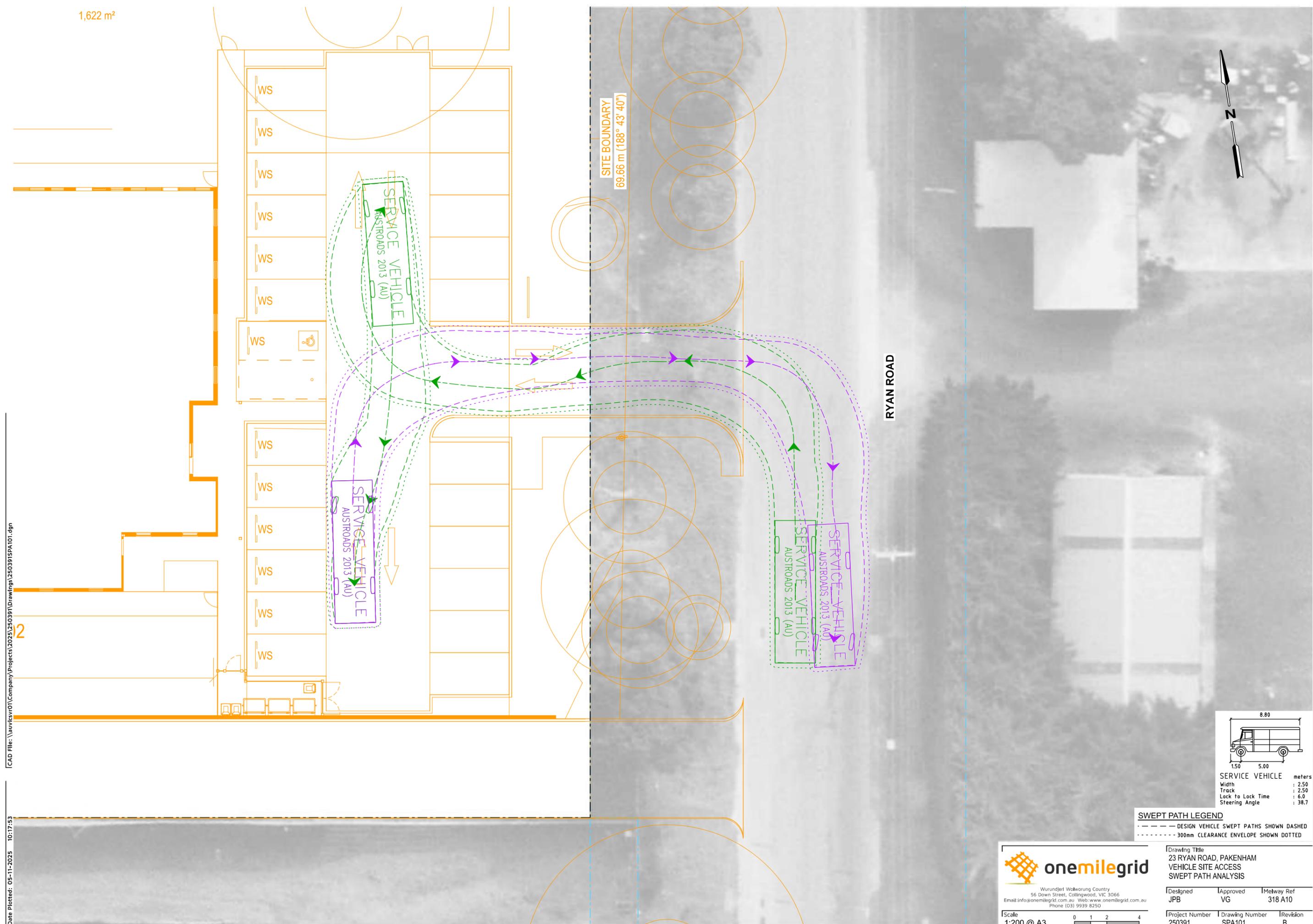
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We acknowledge and extend our appreciation to the Wurundjeri People, the Traditional Owners of the land.  
We pay our respects to leaders and Elders past, present and emerging for they hold the memories,  
the traditions, the culture, and the hopes of all Wurundjeri Peoples.

Aerial Photography  
Aerial photography provided by Nearmap



SERVICE VEHICLE meters  
 Width : 2.50  
 Track : 2.50  
 Lock to Lock Time : 6.0  
 Steering Angle : 38.7

**SWEPT PATH LEGEND**  
 - - - - - DESIGN VEHICLE SWEEP PATHS SHOWN DASHED  
 ······ 300mm CLEARANCE ENVELOPE SHOWN DOTTED

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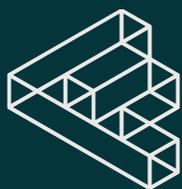
Scale: 1:200 @ A3

Drawing Title 23 RYAN ROAD, PAKENHAM VEHICLE SITE ACCESS SWEPT PATH ANALYSIS		
Designed JPB	Approved VG	Melway Ref 318 A10
Project Number 250391	Drawing Number SPA101	Revision B

# Sustainability Management Plan

23 Ryan Road,  
Pakenham, VIC

19/01/2026



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# Sustainability Management Plan (SMP)

## Proposed Childcare Facility Development

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### DOCUMENT VERSION

Version	Date	Changelog	Author	Review
0	15/10/25	Issued for Client Review (FCS 65352)	JC	-
1	06/11/25	Updated as per client's comments and latest drawings (FCS 65352)	JC	-
2	19/01/26	Updated BESS credit shading and ceiling fans	JC & DG	-

## INITIATIVES TO BE MARKED ON DRAWINGS

### Water & Stormwater Management

- Mark-up showing roof catchment area to be diverted to the Rainwater tank – If required, the use of a charged pipe system will be explicitly acknowledged on the drawings and charged pipes will not run underneath the building footprint.
- Location and size of the rainwater tank proposed
- Note showing connection to the toilets.
- Mark-up showing driveway area to be diverted to raingarden and type of raingarden selected (in-ground)
- Location of the proposed 6 m<sup>2</sup> of raingarden treating the driveway/terrace/... - The raingarden can be separated, and the location should be chosen in accordance with the civil/drainage engineer and the landscape consultant (minimum 300mm away from boundary or structural footings and LPOD location consideration)
- Mark-up showing the 280 m<sup>2</sup> of driveway to divert to the proposed raingardens
- Note showing use of native or drought-tolerant species for landscaped area. Watering will not be required after an initial period when plants are getting established. If irrigation is required, it will be connected to rainwater tanks.
- Note showing WELS rating for water fittings/fixtures (refer to report) – Fixtures (e.g. dishwasher) provided as part of base building work have to be chosen within one WELS star of the best available at the time of purchase.

### Energy Efficiency

- Note showing commitment to exceeding the section J energy efficiency requirement of NCC 2022
- Note showing the maximum illumination power density (W/m<sup>2</sup>) of the development meets the requirements in NCC 2022
- Lighting sensors for external lighting (motion detectors, timers etc.)
- 5kW Solar PV system on the roof of the development
- All-Electric development

### Indoor Environment Quality

- External horizontal shading for North, west and east-facing regular-use space windows.
- Note showing commitment to Outside Air Fan in all the regular spaces, providing O/A rates 50% above minimum from AS1668, **AND** a monitoring system to ensure CO<sub>2</sub> concentration remains below 800ppm
- Horizontal shading depth should be 25% of the height from the windowsill to the bottom of the shading.
- Glazing to improve daylight performance by maximising VLT to achieve a minimum of 40%
- Ceiling fan to all children's rooms

### Transport

- Bike space location for employees (2 spaces)
- Bike space location for visitor (2 spaces)

### Urban Ecology

- Show extent of vegetated areas around the site (includes lawn)

## INTRODUCTION

Frater Consulting Services has been engaged to undertake a Sustainability Management Plan for the proposed childcare development located at 23 Ryan Road, Pakenham. This has been prepared to address Cardinia Shire Council's sustainability requirements, particularly Clause 15.01-2S: Building design, of the local planning policy.

City of Cardinia Shire, as part of the CASBE (Council Alliance for a Sustainable Built Environment), has identified the following key categories to be addressed:

- Energy Performance;
- Water Resources;
- Stormwater Management;
- Indoor Environment Quality;
- Building Materials;
- Construction, Building & Waste Management;
- Transport; and
- Urban Ecology / Innovation.

The site has been assessed using the BESS tool. BESS was developed by association of councils led by Merri-bek City Council. This tool assesses the energy and water efficiency, thermal comfort and overall environmental sustainability performance of new buildings or alterations. It was created to demonstrate how new development can meet sustainability requirements as part of a planning permit application for the participating council.

Each target area in the BESS tool typically ranges from 1% to 100%. A minimum score of 50% is required for the energy, water, stormwater, and IEQ areas. An overall score of 50% signifies 'Best Practice', while over 70% indicates 'Excellence'. The results of the BESS assessment are included in Appendix E.

The Stormwater Treatment Objective – Relative Measure BlueFactor, which addresses stormwater quality, has been used in the development process to ensure that best-practice requirements for stormwater management are met. The results of the BlueFactor assessment are included in Appendix A.



## SITE DESCRIPTION

The proposed site is located at 23 Ryan Road, Pakenham. The 4,009 m<sup>2</sup> site is currently occupied by a single-story building that is proposed for demolition prior to the development's construction. It is located approximately 66 km southeast of the Melbourne CBD.

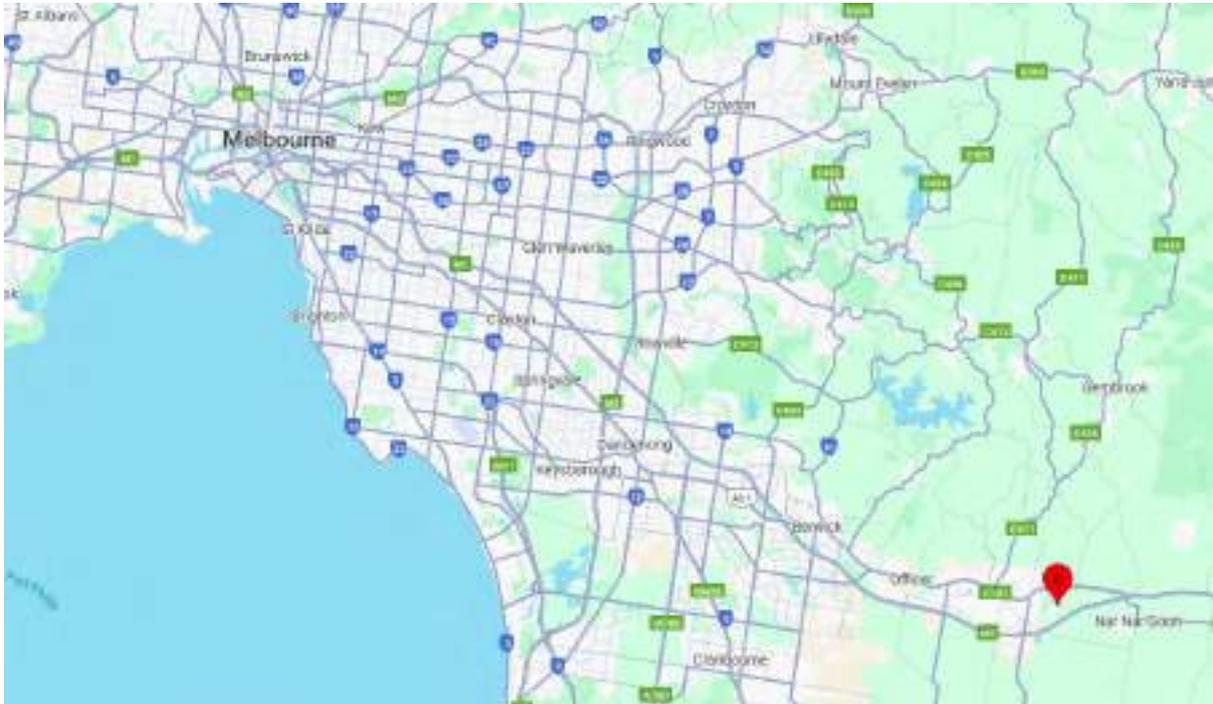


Figure 1: Location of the proposed childcare in Pakenham with relation to Melbourne CBD  
(Source: Google Maps)

## PROPOSED DEVELOPMENT

The proposal involves developing the site into a single-storey childcare facility capable of accommodating up to 114 children. The site's area is approximately 4,009m<sup>2</sup>. The facility will include seven children's rooms, a laundry, a staff room, a kitchen, offices, and a large outdoor play area on the ground.

## ENERGY EFFICIENCY

Energy and its key elements should be integrated into the design of the proposed development. These elements contribute to reducing greenhouse gas emissions by utilising energy-efficient appliances, implementing energy conservation measures, and utilising renewable energy.

### Energy Efficiency

Prior to the building construction stage of the project, a section J (NCC 2022) DTS assessment will occur with the following commitments:

- 10% improvement on floor and ceiling insulation level requirement from NCC 2022;
- Wall and glazing performance to be in line with DTS requirements
- Heating/cooling system to be chosen within one star of the best available product in the range at the time of purchase, or COP/EER 85% or better than the most efficient equivalent capacity unit available if no star rating is available; and
- Water heating system to be chosen within one star of the best available product in the range at the time of purchase, or 85% or better than the most efficient equivalent capacity unit available if no star rating is available.

Alternatively, prior to the building construction stage of the project, energy modelling will occur with the aim of exceeding the requirements of NCC 2022, using an NCC J1V3 modelling process. This will be achieved through the use of high-performance building fabric and glazing, low-energy lighting and building services. **The reference building model will include the minimum improvement committed above for floors and ceilings.** This method will allow for flexibility in glazing performance. Results in BESS using the J1V3 approach would yield a slightly lower score under BESS Energy 1.1; however, our BESS assessment has been prepared to ensure that the energy section and overall compliance are maintained.

### Heating and Cooling Systems

To reduce the energy consumption, heating and cooling will be provided by energy-efficient air conditioners (chosen within one star of the best available product in the range at the time of purchase or COP/EER 85% or better than the most efficient equivalent capacity unit available if no star rating is available).

### Hot Water Heating

Hot water will be provided with an efficient electric heat pump hot water system for the development.

### All-Electric Development

No gas connection will be provided for the development. This will reduce reliance on fossil fuels and align with local and state decarbonisation targets.

## **Lighting**

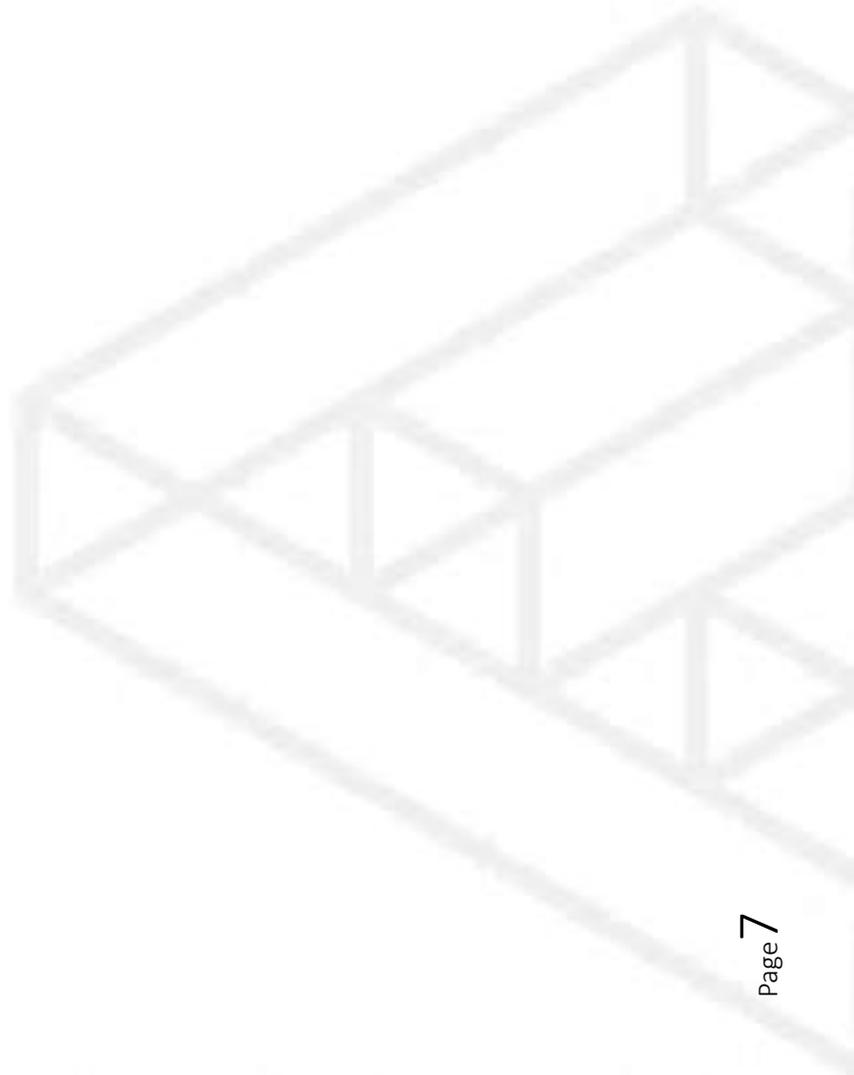
The maximum illumination power density ( $W/m^2$ ) of the development will meet NCC 2022 requirements by using LED lighting throughout.

## **Lighting Sensors**

Common areas and transient spaces will be controlled using occupancy sensors and/or daylight sensors. Ventilation in these areas will be controlled using timers and other sensors.

## **Solar PV System**

A 5kW solar photovoltaic system for renewable energy generation will be installed on the roof of the development. This will offset a portion of greenhouse gas emissions and energy use for the project (lighting, pumps, etc.).



## WATER EFFICIENCY & STORMWATER MANAGEMENT

Water saving, use, and reuse, along with their key elements, should be integrated into the design of the proposed development. These principles contribute to reducing water demand and promoting water reuse. Stormwater management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring natural systems are protected and enhanced whilst promoting on-site retention and aim to reduce runoff or peak flows.

### Water Efficient Fittings

The development will include efficient fittings and fixtures to reduce the volume of mains water used. The following WELS star ratings will be specified;

- Toilets – 4 Star;
- Taps (bathroom and kitchen) – 5 Star
- Showerhead if provided – 4 Star with aeration device (6.0-7.5L/min); and,
- Dishwasher – 5 Star.

### Rainwater Collection & Use

Rainwater runoff from the entire roof area will be collected and stored in rainwater tanks<sup>1</sup> with a total effective capacity of 10,000L for the development.

If required, a charged pipe system or multiple tanks will be installed to collect water from the entire roof of the development.

**In the case of a charged pipe system, the charged pipes will not run underneath the building footprint (slab). Stakeholders (builder/developer/architect) will be required to explicitly acknowledge this solution and have the capacity to install it.**

Rainwater collected will be used for toilet flushing throughout the development. These initiatives will significantly reduce the stormwater impacts of the development and help achieve compliance with the Blue Factor calculator (See Appendix A).

### Stormwater Treatment – Raingardens

At least 280 m<sup>2</sup> of the carpark/driveway area runoff from the development will be diverted towards a minimum of 6 m<sup>2</sup> of rain garden before being released at the legal point of discharge.

This will treat the stormwater runoff from part of the driveway area by filtering coarse pollutants before releasing the outflows to the legal point of discharge on site (See Appendix A for details).

<sup>1</sup> Please note that any stormwater detention volume requirement for the site will be in addition to the proposed rainwater retention and that the proposed tank will not be directly topped up by mains water.

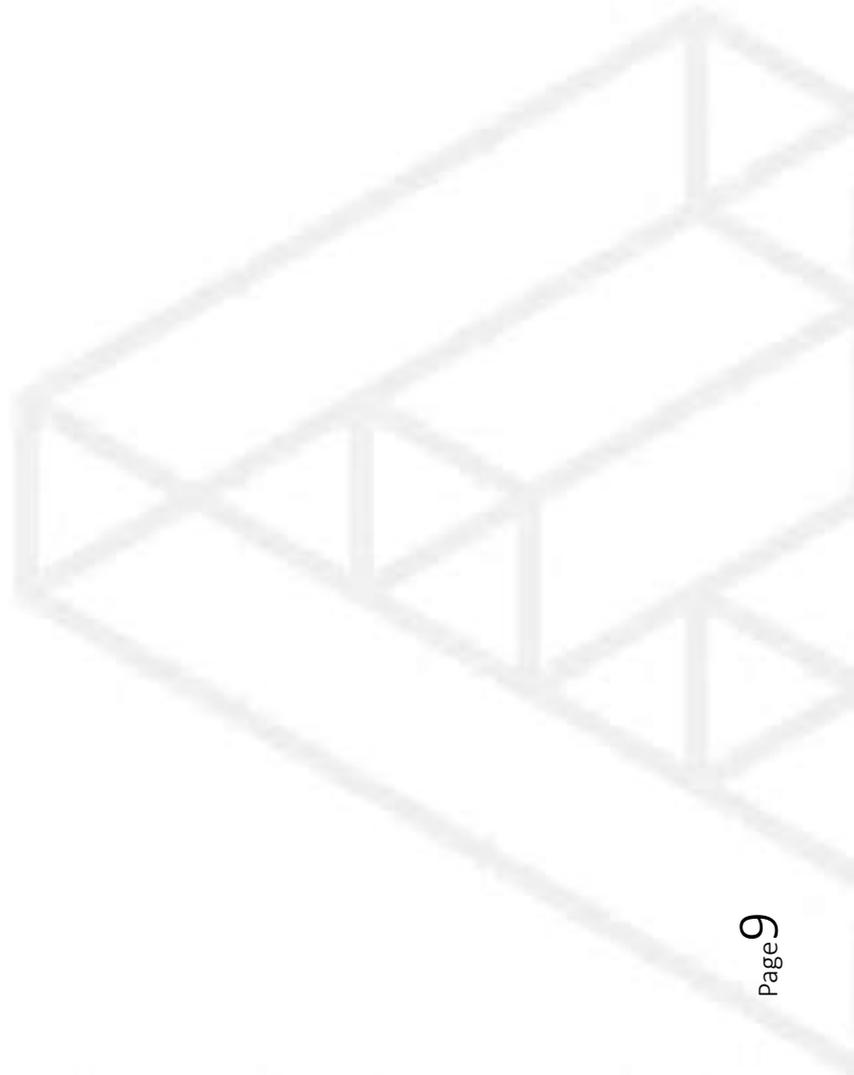
The raingardens could be implemented within the landscaped areas adjacent to the driveway and will be installed at least 300mm away from the boundary or structural footings. The exact location should be confirmed with the civil/ drainage engineer and the landscape consultant. The raingardens treating the driveway will be installed in-ground.

### **Water Efficient Appliances**

All appliances provided in the development as part of the base building work (e.g., dishwasher) will be selected within one WELS star of the best available.

### **Water Efficient Landscaping**

Native or drought-tolerant plants will be implemented for the landscaped areas on site. Water use or irrigation will not be required after an initial period when plants are getting established. If irrigation is required, it will be connected to rainwater tanks.



## INDOOR ENVIRONMENT QUALITY

Indoor Environment Quality (IEQ) and its key elements should be integrated into the design of the proposed development. These elements play a significant role in the health, well-being, and satisfaction of the occupants involved in development. Facilitating a good IEQ design provides a naturally comfortable indoor environment and less dependence on building services such as artificial lighting, mechanical ventilation, and heating and cooling devices.

### Volatile Organic Compounds

All paints, adhesives, sealants, and flooring will have low VOC content. Alternatively, products with no VOCs will be selected. Paints such as eColour or equivalent should be considered. Please refer to Appendix D for VOC limits.

### Formaldehyde Minimisation

All engineered wood products will have 'low' formaldehyde emissions and be certified as E0 or better. Alternatively, products will be specified with no Formaldehyde. Products such as ecological panels – 100% post-consumer recycled wood (or similar) will be considered for use within the development. Please refer to Appendix D for formaldehyde limits.

### Daylight Levels

Daylight penetration will be enhanced with light internal colours to improve daylight reflection. All children rooms will be provided with large windows. The depth of most rooms from a window will be limited, and multiple windows on different façades will be installed wherever possible, allowing a large amount of daylight to penetrate the rooms.

Internal windows will also be provided between rooms and between the room and the internal corridor, further improving the spread of daylight within the development.

Please refer to Appendix C for the daylight Hand Calculation showing compliance with best-practice requirements in the children's room areas.

### Mechanical Ventilation – Improved Outside Air Rates & CO2 Monitoring

O/A will be provided in all child room spaces, with a commitment to a 50% increase in O/A provision from AS1668. **Additionally**, a CO2 monitoring system can be installed to maintain CO2 levels below 800 ppm.

Wherever possible, the design should also allow for crossflow ventilation, as it will reduce the need for mechanical ventilation. Openable windows will be specified throughout the children's rooms to enable natural ventilation. Child Rooms 4, 7 and 8 will have access to crossflow ventilation.

## **Thermal Comfort - Shading**

Improved horizontal projection, fixed shading (north, east and west) will be provided on all children's room glazing. This will help to reduce glare and control solar gains, improving the thermal comfort of the development.

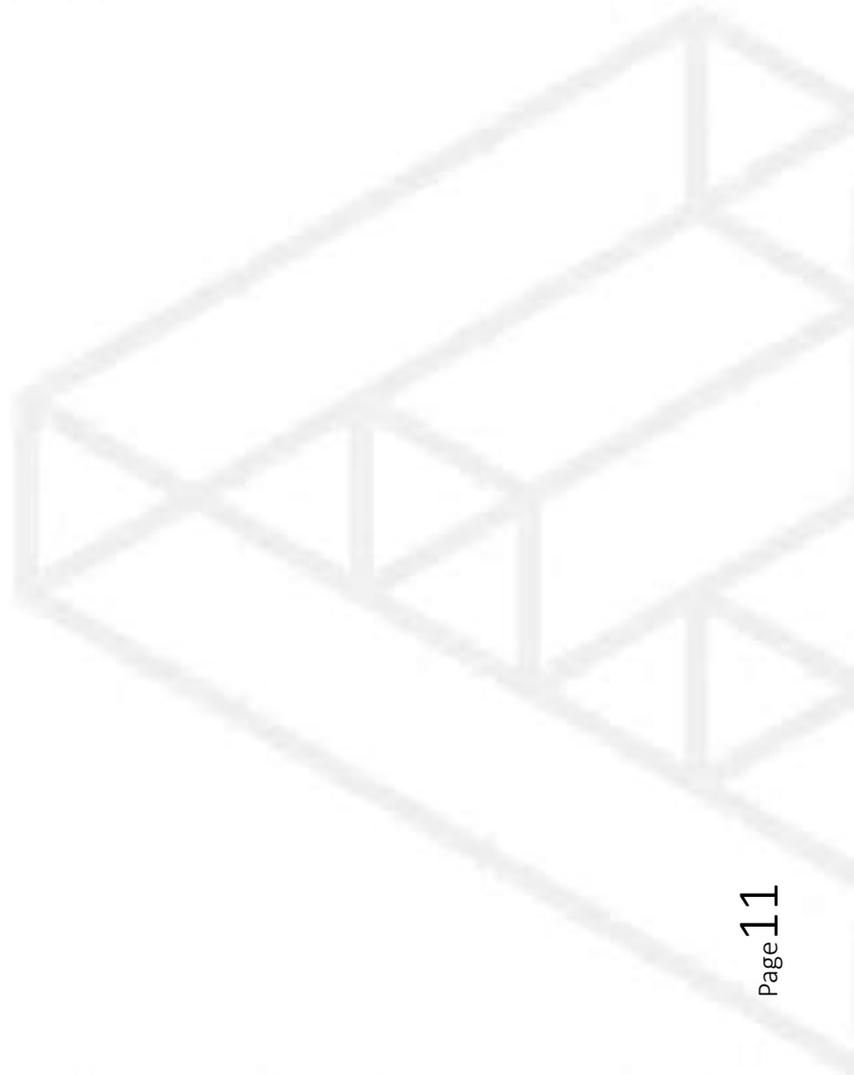
All west and east-facing glazing in the childroom is provided with a horizontal projection above. This is typically not the most appropriate type of shading for east/west façades; however, installing external adjustable or vertical shading for childrooms is not possible, as it would pose a hazard for children moving in and out of the room. For this reason, these improved horizontal projections are deemed appropriate for east and west-facing glazing.

***Horizontal shading depth should be 25% of the height from the windowsill to the bottom of the shading.***

**Based on all shading types proposed on each façade in the development, we have input 50% under IEQ 3.4 in BESS.**

## **Ceiling Fans**

Ceiling fans will be provided to all children's rooms which will help provide comfortable indoor spaces and reduce energy needed for heating and cooling. Ceiling fans are to permanently installed and have a speed controller.



## CONSTRUCTION, BUILDING & WASTE MANAGEMENT

Building Management and its key elements will be integrated into the design of the proposed development. These principles help ensure efficient and effective ongoing building performance. Waste management and its key elements will be integrated into the design of the proposed development. These principles help ensure minimal waste is sent to landfill through disposal, recycling, and on-site waste storage and/or collection.

### **Metering and Monitoring**

The development will be separately metered for potable water and energy. Effective metering ensures that tenants are responsible for their consumption and can reduce it.

### **Construction Waste Management**

A waste management plan will be introduced to all on-site staff at a site orientation session to ensure that the waste generated on-site is minimised and disposed of correctly. At least 80% of on-site construction waste will be reused or recycled.

### **Construction Environmental Management**

The builder will identify environmental risks related to construction and include management strategies, such as maintaining effective erosion and sediment control measures during construction and operation. They will also ensure appropriate staging of earthworks (e.g., avoid bare earthworks in high-risk areas of the site during the dominant rainfall period).

### **Operational Waste**

A dedicated storage area will be provided on the ground floor. The storage area will be sufficiently sized to accommodate the general and recycling waste. Recycling facilities will be as conveniently accessible as general waste disposal facilities.

### **Universal Access**

The development will be designed for universal access in accordance with AS1428.2 to allow persons with limited mobility to enter and use the premises.

## TRANSPORT

### **Bicycle Parking**

Employees will be able to store their bicycles within the development. A minimum of two spaces will be provided.

Two additional visitor bike spaces will be provided outdoors in the development's carpark.