Client
Wild Cherry School Bairnsdale

Date
29 January 2025

Planning
Transport
Urban Design
Waste Management

Transport Impact Assessment

Wild Cherry School – Caldwell Court, Johnsonville

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ratio:

Project
Wild Cherry School –Caldwell Court, Johnsonville

Prepared for
Wild Cherry School Bairnsdale

Our reference
20531T

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Version	Date	Issue	Prepared by	Checked by
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F02	29/01/2025	Issue as Final – Response to DTP comments	B. Thomson	B. Thomson

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1. Introduction

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1.1. Introduction

Ratio Consultants has been engaged by Wild Cherry School Bairnsdale to prepare a Transport Impact Assessment for the development of a P-12 school and early years development at Lot A and Lot 1 Caldwell Court in Johnsonville.

The proposed development involves the staged construction of an independent P-12 school and early learning facilities.

The report has been undertaken to address the transport engineering considerations of the proposal.

1.2. Purpose and Structure of this Report

The report sets out an assessment of the anticipated parking, traffic and transport implications of the proposed use, including consideration of the following:

— Existing traffic conditions of the surrounding area.

— Parking demand likely to be generated by the proposed use.

— Proposed vehicle and bus access and school pick up / drop off arrangements of the site.

— Public and active transport options, routes and facilities for future students.

— Traffic generation characteristics of the proposed development and impact on the surrounding road network.

1.3. Existing Development

The Wild Cherry School is currently located at 28 McKean Street, in Bairnsdale and provides kinder and primary school services to a total roll of 66 students.

Currently, students are able to access the government-funded Regional School Bus service, that provides out-of-town students access to bus routes heading to Bairnsdale. This is supported by the key school node for this route being the Bairnsdale Secondary College, in Bairnsdale.

Students are able to catch the bus to the key collection node in Bairnsdale and are then shuttled to the participating schools in the program in primary and secondary institutions. It is approximated that 50% of the current school roll travels to Bairnsdale via the bus service.

The school will be relocating the entire operations to Johnsonville, with the initial stage catering for Childcare/Kinder expansion and operations, with the primary school relocating in future years.

1.4. References

In preparing this report, reference has been made to the following:

— Wild Cherry School Master Plan (1304 MP-07) prepared by Mark Simnett Building Design, dated 28 October 2024.

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- Wild Cherry School Development Plan, prepared by Mark Simnett Building Design, dated 15 November 2024;
- Wild Cherry School Master Plan Report prepared by Mark Simnett Building Design, dated July 2023.
- Ratio Transport Impact Assessment Stage 1 Wild Cherry, dated 12 November 2024;
- East Gippsland Shire Planning Scheme.
- Australian/New Zealand Standard, Parking Facilities Part 1: Off-Street Car Parking (AS2890.1:2004).
- Australian/New Zealand Standard, Parking Facilities Part 2; Off-Street Commercial Vehicle Facilities (AS2890.2:2018).
- Desktop site inspection of subject site and surrounds.
- Other documents as nominated.

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2. Existing Conditions

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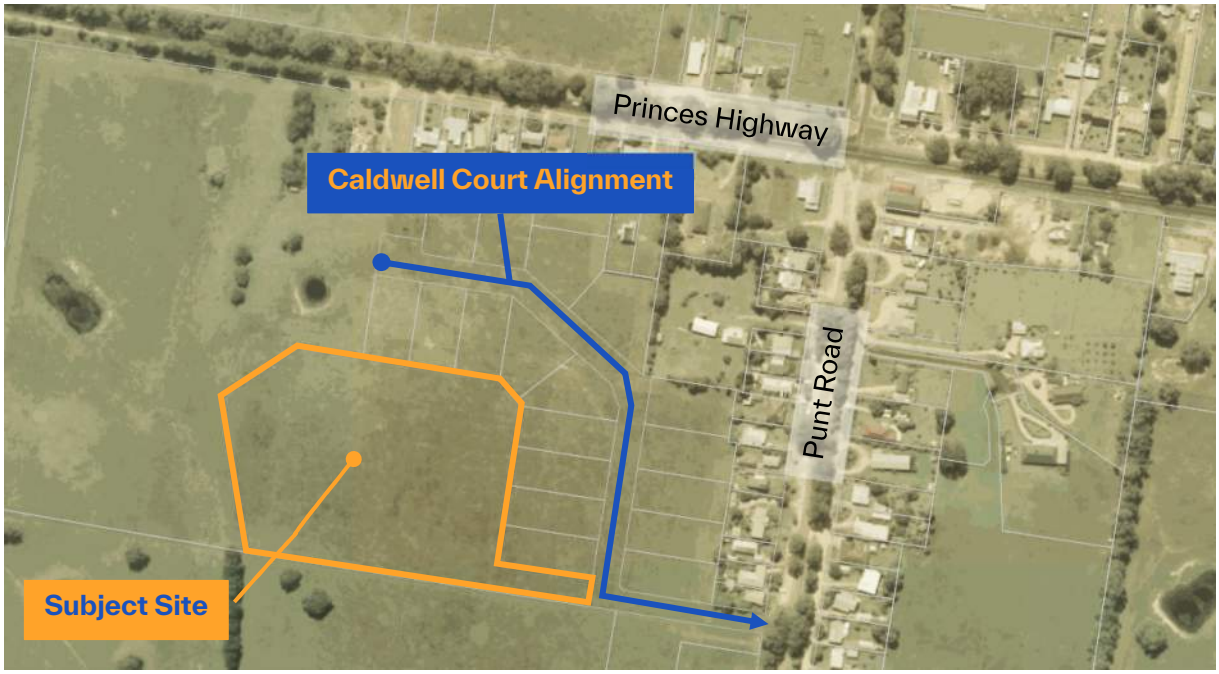
2.1. Location and Environment

The subject site is located in Johnsonville, approximately 22 kilometres east of the existing school site, in Bairnsdale. The site is located in the south-eastern edge of the town, on the newly constructed Caldwell Court, as shown in Figure 2.1.

The subject site is located within a primarily residential development within East Gippsland Shire Council. The site is zoned for low-density residential (LDRZ) and is located approximately 85 metres west of the Johnsonville township.

Figure 2.1: Locality Plan



Source: Landchecker

The overall subject site is generally rectangular in shape and has a frontage of approximately 20 metres to Caldwell Court and a total area of approximately 3.3 hectares.

Access to the subject site is from the eastern frontage to Caldwell Court and connection to Punt Road 130m to the east. Punt Road links to Princes Highway via a sign controlled intersection approximately 350m to the north.

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2.2. Road Network

Princes Highway

Princes Highway is an Arterial Road zoned Transport Zone 2 (TRZ2) under Department of Transport and Planning (DTP) control, aligned in a generally east-west direction, providing connection between Traralgon, where it reverts to the Princes Freeway to the west and Lakes Entrance and beyond to the east.

In proximity to the subject site, Princes Highway has a road reserve width of approximately 40 metres and comprises a single carriageway providing one traffic lane in each direction and a central right-turn lane from either direction into both Punt Road and Bumberrah Road with sealed shoulders.

Bus stops are provided on the shoulders of both sides of the road facilitating bus routes in either direction. Vline and local bus routes operate and stop along Princes Highway in close proximity to the subject site.

The speed limit on Princes Highway nearby the development site is currently 60km/h. A typical view of Princes Highway in the vicinity of the site is shown in Figure 2.2 and Figure 2.3.

Figure 2.2: Princes Highway, looking west from Punt Road

Source: Google Maps

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Figure 2.3: Princes Highway, looking east from Punt Road

Source: Google Maps

Punt Road

Punt Road is a local street that is under the control of Council, which runs in a north-south alignment between Princes Highway in the north and terminates approximately 200 metres south of its Y-intersection with McFarlane Road.

Punt Road has a road reserve width of approximately 40 metres and a single carriageway which provides one lane of traffic in each direction and a separate single lane unsealed service road on the eastern side of the road, providing property access to residential dwellings. Punt Road has a carriageway width of approximately 7.5 metres and the unsealed service road has a carriageway width of approximately 4.0 metres.

Informal parking occurs within gravel and grass verges on either side of the road and a footpath is located on the western side of the road which extends for the first 60 metres from Princes Highway. Punt Road has a posted speed limit of 60km/h.

A typical view of Punt Road in the vicinity of the site is shown in Figure 2.4 and Figure 2.5.

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Figure 2.4: Punt Road, looking north from Caldwell Court

Source: Google Maps

Figure 2.5: Punt Road, looking south from Caldwell Court

Source: Google Maps

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Caldwell Court

Caldwell Court is recently constructed local street which will be under the control of Council, which functions as a 'dog-leg' road that runs in a north-west to south-east alignment between Punt Road in the south-east and terminates approximately 500 metres to the north-west. Caldwell Court is open to public access at the time of completing this report.

In the vicinity of the subject site, Caldwell Court has a road reserve width of approximately 15 metres wide between Punt Road and the subject site and widening to approximately 20 metres as the road turns north.

Caldwell Court has a single carriageway, providing one lane of traffic in either direction as well as a footpath on the south-eastern side of the road.

A typical view of Caldwell Court in the vicinity of the subject site is shown in Figure 2.6.

Figure 2.6: Caldwell Court, looking west from Punt Road

Source: Google Maps

2.3. Existing Traffic Volumes

Turning Movement Count

In order to determine traffic conditions in the vicinity of the site, Ratio Consultants commissioned traffic movement surveys at the Princes Highway / Punt Road / Bumberrah Road intersection on Thursday 14 September 2023 between 8:00 am – 9:30 am and 2:30pm – 5:00pm. The peak hour movements are shown below in Figure 2.7.

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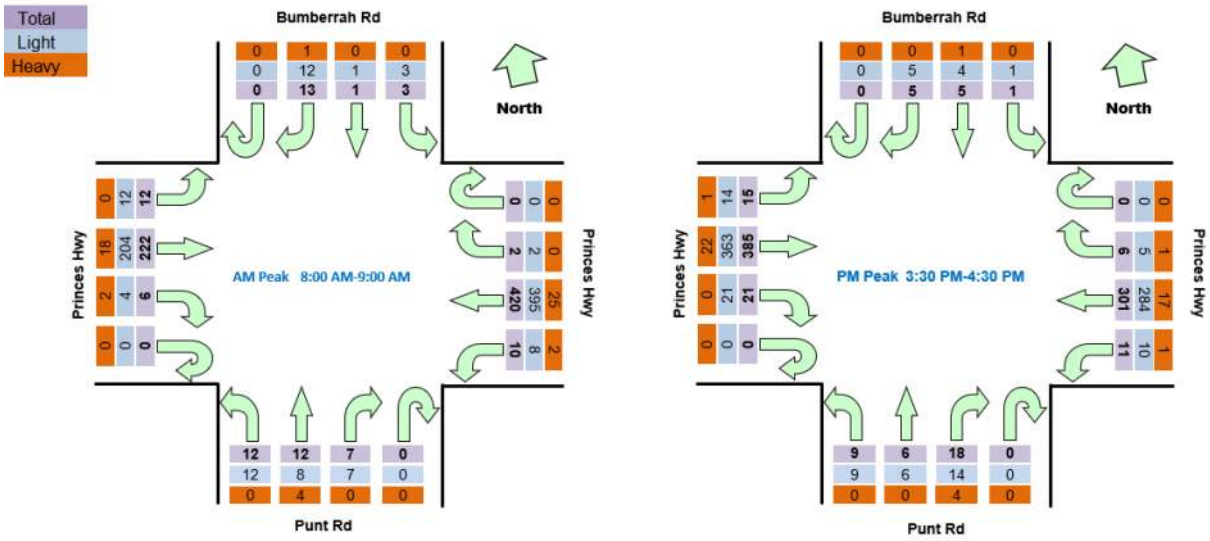
Figure 2.7: Peak Hour Turning Movement Volumes



In summary, the survey results showed:

AM PEAK PERIOD

- The weekday morning peak hour was between 8:00 am – 9:00 am with the dominant movement recorded as westbound through traffic (420 vehicles) along Princes Highway. A total of 642 through movements (two-way) were recorded along Princes Highway in the AM peak period.
- Punt Road experienced a total of 48 movements (ingress and egress) during the AM Peak period.

PM PEAK PERIOD

- The weekday afternoon peak hour was between 3:30 pm – 4:30 pm with the dominant movement recorded as eastbound through traffic (385 vehicles) along Princes Highway, being the inverse to the morning peak. A total of 686 through movements (two-way) were recorded along Princes Highway in the PM peak period.
- Punt Road experienced a total of 70 movements (ingress and egress) during the AM Peak period.

DTP TRAFFIC VOLUMES

Analysis of the Department of Transport and Planning Traffic Volumes for Princes Highway in Johnsonville have been gathered for comparison of through traffic volumes and growth rate on the arterial road network.

Accordingly, Digital Twin Victoria presents that Princes Highway experiences a two way AADT of 7,800 vehicles and a growth rate of 2%.

In summary, it is estimated that Princes Highway experiences in the order of 7,000 vehicles per day through the intersection. A further 600 vehicle movements per day current utilise Punt Road at the intersection with Princes Highway.

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2.4. Sustainable Transport

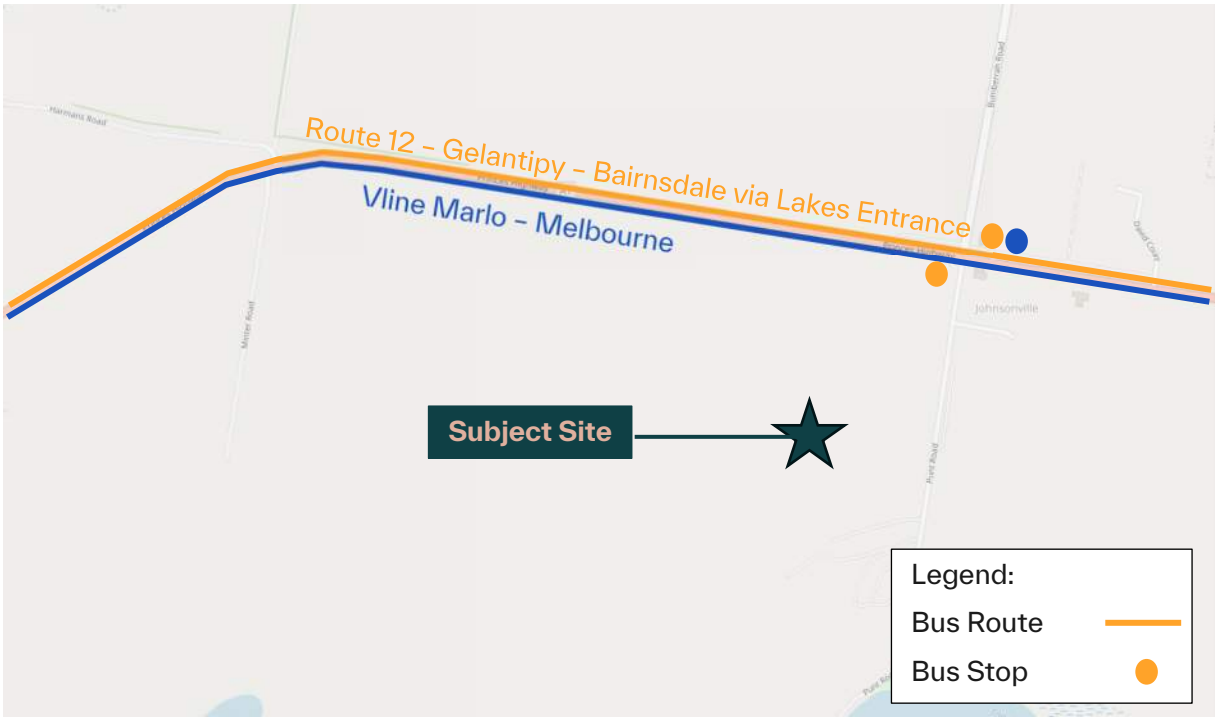
Public Transport

Buses operate through Johnsonville, with regional and V/Line stops located in the centre of town. Of these services, only the Vline service operating between Marlo and Melbourne via Lakes Entrance and Bairnsdale operates with a regular timetable suitable for supporting travel to/from Johnsonville.

All bus routes have bus stops located near the intersection of Princes Highway and Punt Road, which is approximately 480 metres from the subject site.

The public transport services in proximity to the subject site are shown in Figure 2.8.

Figure 2.8: Public Transport Services



Pedestrian and Bicycle Network

The subject site has limited access to active transport infrastructure within the immediate vicinity of the site.

Caldwell Court contains a footpath on the proposed school sites side of the road being the south-eastern side. However, Punt Road only contains a footpath for the first 60 metres of the road from Princes Highway on the western side of the road.

There is no cycling infrastructure in close proximity to the subject site.

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3. Proposal

3.1. Proposal

The proposal seeks to construct a P-12 school and early learning centre on land located at Lot A Caldwell Court, Johnsonville, comprising the following:

— 11 separate school buildings to cater for P-12 education purposes;

— A total of 68 formal on-site car parking spaces, accessed from Caldwell Court;

— 12 number of 'kiss and go' parking spaces, which are included within the total formal parking supply; and

— Provision of an on-site bus parking bay, capable of holding 3 coaches.

The site proposes to run both before and after-school activities to support parent pick-up and drop-off alignment with the workweek.

3.2. School Operation

The proposed school development ultimately seeks to include the following enrolment of students:

— 110 early learning students

— 161 primary school students.

— 138 secondary school students.

The ratio of teachers to students and subsequent number of teachers required for each level of schooling ultimately is provided in Table 3.1.

Table 3.1: Number of Teachers

School Level	Number of Students	Teacher to Student Ratio	Teachers Required (rounded up)
Kinder	110 students	11 students to every 1 teacher	11 teachers
Primary School	161 students	15 students to every 1 teacher	11 teachers
Secondary School	138 students	15 students to every 1 teachers	10 teachers
Total	**409 students**		**32 teachers**

The proposed development will be incrementally developed in stages beginning with the introduction of part of the early learning centre in 2026 and aims to be at full capacity by the

start of 2038. Table 3.2 outlines the staged development of the proposed school beginning in 2025.

Table 3.2: School Development Enrolment Staging

Stage	Year	Number of New Students (and Year Level)	Cumulative Number of Students
Stage 1	2026	66 Early Learning Students	66 students
Stage 2	2028	161 Primary School Students	227 Students
Stage 3	2030	23 Early Learning Students	250 Students
Stage 4	2032	22 Early Learning Students 46 Secondary School Students	318 Students
Stage 5	2034	22 Early Learning Students 46 Secondary School Students	386 Students
Stage 6	2036	23 Secondary School Students	409 Students

The proposed development masterplans for the school is provided in Figure 3.1.

Figure 3.1: Proposed School Development Plan

Source: Master Site Plan prepared by Mark Simnett, dated 15/11/2024

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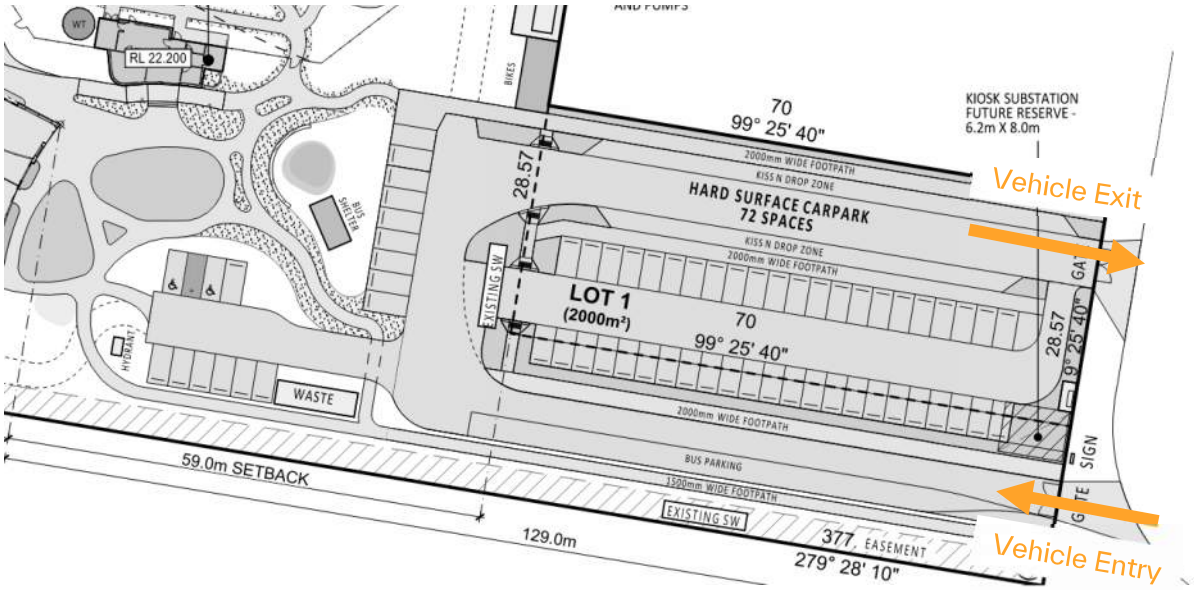
3.3. Access

Access to the proposed childcare centre is proposed to be managed via two (2) new crossovers to/from Caldwell Court, each dedicated for entry and exit purposes. All vehicles will be able to circulate within the site to exit in a forward direction.

Pedestrian access will be via the footpath connections on the north and southern side of the Caldwell Court access, to allow for students, parents and staff to access the site from the local path network.

Figure 3.2 shows the location of the access points and specified purposes (entry or exit).

Figure 3.2: Proposed Site Access



3.4. Car Parking

The school site is proposed to include 62 formalised car parking spaces on site. Additionally, a school pick up / drop off area containing 18 spaces and bus parking containing 3 bus spaces will be located on site. Table 3.3 details the quantum of car parking spaces and parking types located on-site.

Table 3.3: Car Parking Supply

Parking Type	Supply
Formalised 90 Degree Parking	62 spaces
Kiss and Go Parallel Parking	18 spaces
DDA Parking	2 spaces
Bus Parking Bay	3 bus (coach) spaces
	9 parallel car parking spaces (interim)

In the interim, prior to bus services accessing the development, the allocated bus parking bays can be used as drop-off / pick-up spaces by parents, which results in an additional 9 car parking spaces which can be relied upon.

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3.5. Pedestrian Access

There is limited pedestrian infrastructure within the vicinity of the school development and the school site has a limited walkable school catchment, thereby it is assumed that students are unlikely to walk to school. Footpaths are however, provided along Caldwell Court and for a small duration of Punt Road, although do not currently connect between Caldwell Court and Princes Highway.

Internal pedestrian movements will be catered for through the internal pedestrian path network, which particularly within the car park provides a safe pathway network for children to not be required to share the road with vehicles.

3.6. Alternative Transport

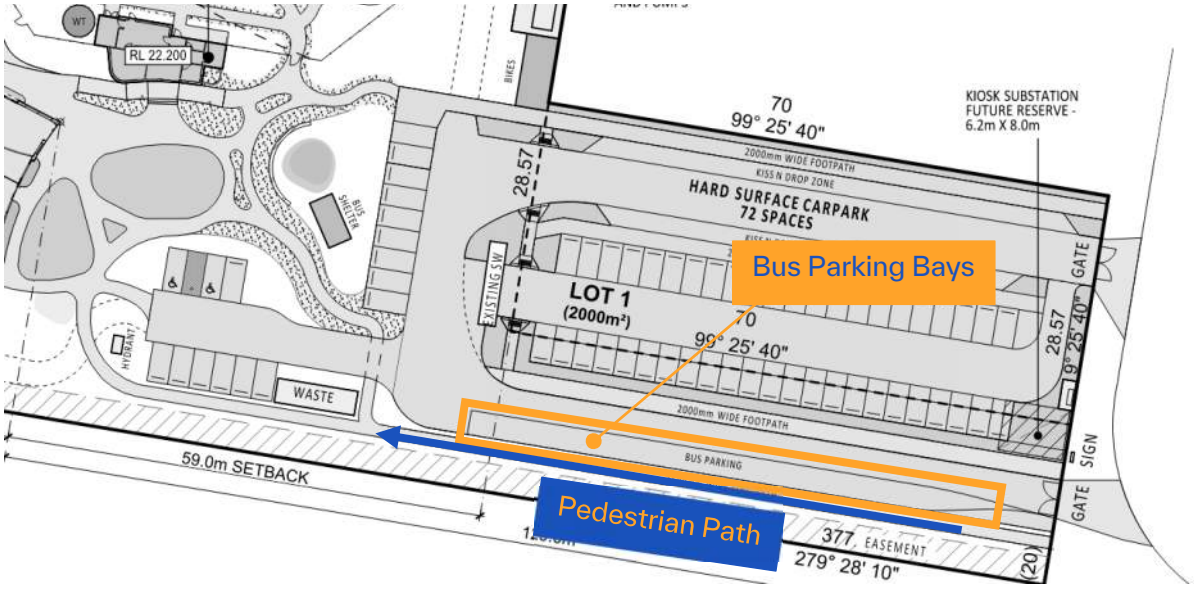
Buses are anticipated to be provided by the school from Stage 5 of the development, at the commencement of secondary students to assist in transporting students to and from the school.

The provision of a bus parking bay capable of storing three (3) coaches, which will service approximately half of all student trips to and from the school, excluding early learning students due to their age.

As part of the proposal, a bus parking area will be provided with convenient access to / from the school buildings via internal pedestrian paths. A total of three (3) bus parking bays are proposed to cater to the pick up and drop off of students which will be managed by the school, at the time of preparing this report.

The location of the bus parking bay is provided in Figure 3.3.

Figure 3.3: Bus Parking Bay Location



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4. Car Parking Assessment

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4.1. Clause 52.06 – Car Parking Assessment

Parking for new developments is set out under Clause 52.06 of East Gippsland Shire Planning Scheme. The purpose of Clause 52.06 is defined in the scheme as follows:

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

Table 1 of Clause 52.06 outlines the parking requirements for various uses. The subject site is not subject to any Parking Overlays and is not within a PPTN area and is therefore subject to Column A parking rates under Clause 52.06 of the East Gippsland Shire Planning Scheme.

Accordingly, the statutory car parking requirements for the proposed development are set out in Table 4.1.

Table 4.1: Statutory Car Parking Requirements

Use	Size/No.	Column A Parking Rate	Requirement
Child care centre	110 children	0.22 spaces to each child.	24 spaces
Primary School	11 employees	1 space to each employee that is part of the maximum number of employees on the site any time.	11 spaces
Secondary School	10 employees	1.2 spaces to each employee that is part of the maximum number of employees on the site at any time.	12 spaces
Total			**47 spaces**

Based on the above, the proposed use has a statutory requirement to provide 47 parking spaces on site. The proposed development includes a provision for 80 formalised parking spaces (inclusive of kiss and go spaces) on site, therefore exceeding the statutory parking requirements.

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4.2. Adequacy of Car Parking Supply

The on-site car parking provision seeks to accommodate all staff and visitor pick up / drop off demands on-site, without reliance on any parking external to the site. As discussed previously in Section 3.6, buses will be provided by the school to cater for approximately 45% of students and an additional 5% are anticipated to travel via VLine services. The remaining 50% of students are anticipated to arrive by car.

Private bus services are anticipated to begin prior to at the commencement of Stage 5. Prior to this stage, the proposed bus parking bays can be utilised in the interim, resulting in an additional 9 spaces as parallel parking spaces for parents between Stage 1-4.

Table 4.2 outlines the ratio of car spaces per student arriving by car to car parking spaces throughout the different stages of the project.

Table 4.2: Proposed Car Parking Allocation

Stage	No. of Car Spaces	No. of Staff	No. of Students	~No. of Students arriving by vehicle (100% of roll Stage 1-2 & 50% of roll Stage 3-6)*	No. of car spaces available to parents	Ratio of car spaces per student arriving by car (occupancy rate of 1.5)
1	17	6	66	66	11	0.25
2	52	17	227	227	35	0.23
3	69	19	250	125	50	0.60
4	80	24	318	159	56	0.53
5	80	29	386	248	51	0.31
6	80	31	409	260	49	0.28

**All Early Learning Students are anticipated to arrive by car*

The table demonstrates that during the initial stage of the project, the car parking supply will exceed the statutory requirements for childcare provision, acknowledging the staff parking has already been allocated.

The car parking supply will be progressively rolled out across the initial stages of the school, to account for the progressive development of the school roll and parking needs, as well as catering to the construction activities that will be occurring on site.

Over time, as the school roll develops, and student numbers increase, it can be expected that the parking demand ratio will decrease due to more students from each family being accommodated and opportunities for car-pooling being developed as the school community expands.

Morning drop-off activity tends to be less concentrated than afternoon pick-ups, with parents tending to drop children at school more quickly over a wider period of time, with timing often related to the convenience or work commitments of parents. As such, it is considered that the proposed provision of parking will comfortably accommodate peak drop-off demands.

Conversely, pick up activity tends to be more concentrated, with parents often arriving immediately prior to the finish of the school and waiting for the students to leave class. This can lead to congested parking conditions at these times. Kiss and go spaces near the exit of the school site have been proposed to assist in mitigating these congestion issues, with

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children being picked up directly at the car and leaving the site freely without being required to loop through the car park.

It is acknowledged that the proposed arrangements do not account for a level of student pick up and drop off outside the regular peak periods of the school day. The school proposes to run a before and after school programme, to reflect the regional nature of the school, the geographical spread of enrolments and the location of the school relative to central employment areas in the region.

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5. Design Review

5.1. Planning Scheme Assessment

The proposed access arrangements and car parking layouts have been designed in accordance with the objectives and design requirements of Clause 52.06-9 of the East Gippsland Shire Planning Scheme. An assessment against the relevant design standards of Clause 52.06-9, is as follows:

Design Standard 1 – Accessways

Design Standard 1 of Clause 52.06-9 relates to the design of accessways. The requirements of Design Standard 1 are assessed against the proposal in Table 5.1.

Table 5.1: Design Standard 1 - Accessways

Requirement	Comments
Must be at least 3m wide	**Satisfied** – Access to / from the site is provided via a 4.8 metre wide and 6 metre wide, single width (one-way) crossovers from Caldwell Court. All internal accessways accessible to the public, have been provided with minimum 3.5 metre in width. All car parking spaces are accessed via an accessway with a minimum of 6 metres.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide	**Satisfied** – The changes of direction have a width in excess of 4.2 metres.
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** – All vehicles can exit the site in a forward direction with one manoeuvre and there are no dead-ends proposed within the car park.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	**Not Applicable** – There are no overhead obstructions provided on-site.
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 car can exit the site in a forward direction.	**Not Applicable –** No accessways connect to a road in a Transport Zone 2 or Transport Zone 3.

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	Regardless of not connecting to a Transport Zone 2 or Transport Zone 3, all vehicles are able to exit the site in a forward direction.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves 10 or more car parking spaces and is either more than 50m long or connects to a road in a Transport Zone 2 or Transport Zone 3.	**Satisfied** – The entrance accessway serves more than 10 vehicles and is greater than 50 metres in length. However, it is deemed appropriate, as the entrance is one-way and the accessway serves as a loop. Thus, reducing the need for vehicles to pass one another.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	**Satisfied** – The accessways at the site frontage will be clear of obstructions and provides the minimum requirements for pedestrian sight triangles for the exit to Caldwell Court.
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 6m from the road carriageway.	**Not Applicable** – The accessway does not connect to a Transport Zone 2 or Transport Zone 3. Regardless, the access to car parking spaces on-site is provided greater than 6 metres from Caldwell Court.
If entry to the car space is from a road, the width of the accessway may include the road.	**Not Applicable** – No car parking spaces are accessed from the road frontage.

Design Standard 2 – Car Parking Spaces

Design Standard 2 of Clause 52.06-9 relates to the design of car parking spaces, The requirements of Design Standard 2 are assessed against the proposal in Table 5.2.

Table 5.2: Design Standard 2 - Car Parking Spaces

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	**Satisfied** - All 90-degree car parking spaces are in accordance with the minimum dimensions outlined in Table 2 of Design Standard 2. Kiss and Go parallel car parking spaces are 2.3 metres wide and accessed from a 6 metre accessway in accordance with Table 2 of Design Standard 2.

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A wall, fence, column, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than: — A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column' permitted on Diagram 1. — A structure, which may project into the space if it is at least 2.1m above the space.	**Satisfied** – Car parking spaces are not located near obstructions that will impact on the envelope of the vehicle. Any landscaping or objects that may be provided will be at least 300mm clear of parking spaces.
Car spaces in garages or carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide of a double space measured inside the garage or carport.	**Not Applicable** – No garages or carports are proposed.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	**Satisfied–** Parallel parking spaces have been designed in accordance with AS2890.1, where spaces on end of the row are provided as 5.4m long parking spaces, and middle spaces provided as 6.7m in length.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	**Not Applicable** – No parking is proposed for a dwelling.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 500mm.	**Satisfied** – The DDA space is 2.4 metres wide and 5.4 metres long with an accompanying shared zone of the same dimensions, in accordance with AS2890.6-2009.

Design Standard 6 – Safety

Design Standard 6 of Clause 52.06-9 relates to the design of car parking spaces, The requirements of Design Standard 6 are assessed against the proposal in Table 5.3.

Table 5.3: Design Standard 6 - Safety

Requirement	Comments
Car parking must be well lit and clearly signed.	**Satisfied** – The car park will primarily be used during daylight hours and is not covered.
The design of the car parks must maximise natural surveillance and pedestrian visibility from adjacent buildings.	**Satisfied** – The car park is located adjacent to school buildings and will be clear of visual obstructions.
Pedestrian access to car parking areas from the street must be convenient.	**Satisfied** – There are two (2) pedestrian connections from Caldwell Court alongside

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	the vehicle crossovers, providing direct pedestrian connection to the street. Where car parking is provided in a parallel arrangement, footpaths will directly abut the car parking spaces.
Pedestrian routes through car parking areas and building entries and other destination points must be clearly marked and separated from traffic in high activity areas.	**Satisfied** – There is a proposed internal pedestrian path network within the car park to provide users, particularly children a safe connection from bus bays and car parking spaces to the school buildings.

5.2. Bus Access and Parking

The bus parking arrangements and access to the site have been design to facilitate the largest expected bus within the site and exit in a forward direction. Accordingly:

- The proposed crossovers and accessways to / from and for circulation through the car park range in width between 3.5 metres and 6.4 metres. Due to the car park being designed for one-way traffic movement, a 14.5 metre long rigid bus is able to circulate the site and access bus bays comfortably. A swept path assessment was conducted and is further explained in Section 5.5.
- As previously stated, the internal road network has been designed for one-way traffic movement and has been designed to allow for buses to circulate. To facilitate this, a minimum aisle width of 3.5 metres has been adopted, which allows for adequate bus circulation.
- The bus bay has been designed with a 4 metre wide aisle and 3 metre wide parallel bus parking spaces located on the southern side of the access aisle. The bus bay's have been provided with a 15 metre long splayed entry to allow for buses to park up against the pedestrian footpath.

5.3. Pick Up and Drop Off

Short term 'Kiss and Go' parking spaces (P2min) is proposed for parents who drive children to/from school and are not seeking to exit their vehicles. These parking spaces are proposed to be located near the car park exit to allow parents to easily leave the school site and nearby to the internal pedestrian path network.

A total of 18 car parking spaces are provided on either side of the access aisle, with direct pedestrian footpath links to the parked vehicles.

5.4. Loading and Unloading Arrangements

Clause 65.01 'Decision Guidelines' of the East Gippsland Shire Planning Scheme outlines the provision of loading requirements, and states the following:

"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."*

Loading and unloading activities associated with the school will be related to the delivery of goods.

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It is considered that all loading and unloading associated with the proposed school development can appropriately be undertaken in the waste collection area at the western end of the southern access aisle on the basis of the following reasons:

- This designated area has been designed for the collection of waste and delivery of goods. These activities will occur outside of the general area where children will be permitted, should loading activities be required during school hours.
- The designated waste and loading area has been designed to be removed from the internal road networks traffic circulation to reduce the chance of conflicts occurring.
- Goods can be readily transported to the buildings by trolley or foot from parked vehicles, noting the provision of the internal pedestrian path network.

5.5. Swept Path Assessment

Access and Circulation

An assessment of the accessibility to / from the site and circulation was undertaken using the B99 vehicle (99th percentile cars as defined in AS/NZS 2890.1:2004) – refer to Appendix A. It shows that the site access arrangements and internal circulation is undertaken in a satisfactory manner, with vehicles able to enter and exit the site in a forward direction.

The waste access arrangements have been undertaken using an 8.8 metre long rear loader. It shows that access to and from the waste collection point and internal circulation is undertaken in a satisfactory manner, with vehicles able to enter and exit the site in a forward direction.

Additionally, an assessment of the accessibility to / from the site was undertaken using a Long Rigid Bus (14.5 metres in length) for assessing bus access. It was found that the site access arrangements and bus circulation route could be undertaken in a satisfactory manner, with vehicles able to enter and exit the site in a forward direction – refer to Appendix A.

Car Parking Accessibility

The proposed car parking spaces have been designed in accordance with Clause 52.06-9 of East Gippsland Planning Scheme and relevant sections of Australian Standards AS2890.6:2006, as per Section 5.1. A swept path was undertaken ensuring all car parking spaces are accessible.

5.6. Concept Layout Plan

In order to facilitate the largest expected bus to and from the subject site. A review of the wider road connections to/from Princes Highway has been inspected.

Princes Highway and Punt Road intersection has recently been upgraded to separate right turn movements north-south from the through movements on Princes Highway. Additionally, this intersection already services rigid vehicle access to the north and south for the neighbouring land uses within the town centre.

At the intersection of Caldwell Court and Punt Road, the intersection has recently been constructed to service the Caldwell Court subdivision. Ratio has liaised with the developer of this site to obtain the as-built plans of the intersection and a swept path assessment of the intersection has been undertaken to confirm accessibility for buses to and from the school.

A Concept Layout Plan (CLP) has been prepared for the minor kerb and channel works that will be required to support bus movements to/from Caldwell Court and Punt Road, noting the likely concentration of bus and private vehicle movements to/from the school.

Whilst it is not anticipated that coaches will service the site from the initial stages of the school operation, and bus sizes will be confirmed as the roll expands, the CLP has been

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prepared to reflect the largest impact on the intersection, should Coaches require access to/from Caldwell Court.

A copy of the CLP can be found in Appendix C.

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6. Traffic Considerations

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6.1. Traffic Generation

Staff

It is assumed that ultimately all of the 47 staff members (teachers and admin) will travel to and from the site via private vehicles. It is assumed that all staff will arrive at the site during the AM peak period, whereas the majority of staff will depart the site after the PM peak period (i.e. when children are departing school). Accordingly, it is expected that staff will generate 47 vehicle movements in the AM peak hour period.

Buses

Ultimately private school chartered buses will cater for approximately 50% of the total primary and secondary student roll of 299 students for transport to / from the school site. This equates to approximately 150 students arriving and departing the school using the private buses. It is conservatively assumed that each bus will carry 50 students, therefore a total of three (3) buses are required to service the total school roll. Therefore, a total of 6 bus movements will be generated during each of the peak periods.

Parent Cars

The remainder of traffic generated by the site will be from the remaining 50% of primary and secondary student in addition to the entire early learning cohort, with an assumed average student occupation per car of 1.5. This equates to 259 students out of a total school population of 409, travelling by car. Accordingly, the ultimate traffic generation for the proposed school is estimated to be in the order of 346 vehicle trips during each of the morning drop-off and afternoon pick-up periods (173 vph in, 173 vph out).

Summary

The overall traffic generation for the proposed school development for the total 409 students, for the AM and PM peak hours on typical school day, are shown in Table 6.1.

Table 6.1: Full Development School Traffic Generation (Stage 7 - Year 14)

	AM School Peak 8:00am – 9:00am	PM School Peak 3:00pm – 4:00pm
Arriving Trips (vph)	223 (47 staff)	176
Departing Trips (vph)	176	176
Total Trips:	**399**	**352**

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6.2. Traffic Distribution

The additional traffic generated by the school development will flow from Caldwell Court to the Punt Road and Princes Highway intersection. The traffic will then distribute to the surrounding road network, via Princes Highway.

Based on the existing school population it is assumed that approximately 80% of all traffic generated will arrive and depart from the west of the subject site, with the remaining 20% arriving and departing from east of the site.

6.3. Growth

In order to determine an appropriate growth rate for Princes Highway traffic, reference has been made to VicRoads Open Data portal for the section Princes Highway between Swan Reach Road and Phillips Lane. It suggests that a growth rate 2% applies to Princes Highway and has been adopted for analysis purposes.

6.4. Peak Hour Traffic Volumes

Based on the preceding discussion, the anticipated traffic volumes at the intersection of Princes Highway and Punt Road and Caldwell Court and Punt Road for the ultimate school roll of 409 students is detailed in Figure 6.1.

Figure 6.1: Princes Hwy / Punt Rd Intersection Full Development + Growth

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6.5. Traffic Analysis

General

A peak hour intersection analysis has been undertaken of the Princes Highway / Punt Road intersection, using intersection analysis program SIDRA.

SIDRA Parameters

The key parameters used to determine the operational capacity of an intersection are queue length, average delay and degree of saturation (or volume to capacity ratio).

Degree of Saturation is a ratio of arrival (or demand) to capacity. Degrees of saturation above 1.0 represent oversaturated conditions and degrees of saturation below 1.0 represent under saturated conditions. The operational rating associated with the degree of saturation is summarised in Table 6.2.

Table 6.2: Ratings of Degree of Saturation

Degree of Saturation (DoS)	Rating
Up to 0.60	Excellent
0.61 – 0.70	Very Good
0.71 – 0.80	Good
0.81 – 0.90	Fair
0.91 – 1.00	Poor
Greater than 1.00	Very Poor

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Although operating conditions with a degree of saturation around 1.00 are undesirable, it is acknowledged that this level of congestion is typical of many metropolitan intersections during the AM and PM peak hours.

The 95th percentile queue length is the value below with 95 percent of all observed cycle queue lengths fall, or 5 percent of all observed queue lengths exceed.

Average Delay is the average time, in seconds, that all vehicles making a particular movement can expect to wait at an intersection.

6.6. Intersection Design

The intersection of Princes Highway and Punt Road is an unsignalised 4-way intersection with Give-Way controls to Princes Highway and Stop Sign controls on Bumberrah Street to Princes Highway. Princes Highway has a single lane of through traffic which allows left turns and a channelised right turn lane in each direction. Punt Road and Bumberrah Road are both single lane streets in either direction that allow all turning movements on the intersections approach.

6.7. Results

The results of the SIDRA analysis for the intersection are attached as Appendix B. The results are summarised in Table 6.3.

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Table 6.3: SIDRA Results - Princes Highway / Punt Road Intersection + 15 Years Growth

Approach	Movement	AM Peak			PM Peak		
		D.O.S.	95%ile Queue (m)	Average Delay (s)	D.O.S.	95%ile Queue (m)	Average Delay (s)
Princes Highway (East)	Left	0.33	0	6	0.24	0	6
	Through	0.33	0	1	0.24	0	1
	Right	0.01	1	7	0.01	1	8
Punt Road	Left	0.75	37	19	0.73	40	17
	Through	0.75	37	43	0.73	40	45
	Right	0.76	37	51	0.73	40	55
Princes Highway (West)	Left	0.17	0	6	0.28	0	6
	Through	0.17	0	0	0.28	0	0
	Right	0.21	6	9	0.17	5	7
Bumberrah Road	Left	0.26	6	14	0.24	5	15
	Through	0.26	6	41	0.24	5	41
	Right	0.26	6	65	0.24	5	64
Intersection		**0.75**			**0.73**		

As shown in the preceding table, the intersection is expected to operate with 'Good' conditions in the AM and PM peak hour periods at full development.

On the basis of the above, the existing unsignalised intersection is expected to readily cater for the proposed school development generated traffic.

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7. Conclusion

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The proposed Early Learning and P-12 School development at Lot A Caldwell Court, in Johnsonville, comprises 11 education related buildings and outdoor recreational area. The proposed development also includes the provision of on-site bus parking, 80 formalised on-site car parking spaces for staff, parents and students.

Based on the preceding assessment, it is concluded:

— The subject site is located within a new subdivision, in the southern area of Johnsonville.

— The site is limited in public and active transport access to the site, with V/Line services on Princes Highway and irregular bus route from Bairnsdale.

— The school seeks to commence teaching on-site in 2026, with projections of a full roll by 2038.

— The provision of car parking exceeds the requirements of Clause 52.06 of the East Gippsland Planning Scheme and will meet the needs of staff and parents.

— A review of the car parking demand anticipated across the school growth strategy projects that buses are likely to be required to service the school once the secondary school portion of the site opens.

— The proposed car park and access arrangements have been suitably designed and are in accordance with Design Standards of the East Gippsland Planning Scheme.

— A swept path analysis has been undertaken to demonstrate the adequacy of car park access and circulation for private vehicles and the largest expected buses, which have been shown to all have the ability to enter and exit the site in a forward direction.

— A concept layout plan has been prepared to inform the modifications required for the Punt Road / Caldwell Court intersection, prior to the regular use of coaches to service the school.

— The subject site does not have any connectivity to the bicycle network and will not be providing any on-site bicycle parking. It is assumed that the majority of students and staff will travel to/from the site by either private vehicle or bus.

— Should future infrastructure be provided within the vicinity of the site, there is sufficient space to provide the bicycle parking to support alternative access to the site.

— The fully developed school is estimated to generate 223 vehicle movements during the AM peak hour and 176 vehicles movements during the PM peak into the site and up to 176 movements out of the site in both of the peak periods.

— The existing intersection of Princes Highway and Punt Road is adequately able to cater for this level of traffic and is expected that the proposed school development is not likely to create any adverse traffic impacts on the wider surrounding road network.

Overall, the proposed school development is not expected to create adverse traffic or parking impacts within the surrounding precinct.

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Appendix A : Swept Path Assessment

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SIGN SCHEDULE

#2 GIVE WAY R1-2

NO. PARKING SPACES:

90 DEGREE: 63
BUS BAYS: 3
PARALLEL: 18

VACANT

CROSSOVER TO GRASSED OVERFLOW

1m WIDE VEGETATION BETWEEN PROPERTY BOUNDARY AND PEDESTRIAN FOOTPATH

2m WIDE PEDESTRIAN FOOTPATH

SUBJECT SITE
WILD CHERRY STEINER SCHOOL
DEVELOPMENT

KISS AND GO ZONE

COURT

PROPOSED BUS BAY

PROPOSED 3m X 10m BIN LOCATION

CALDWELL

PUNT ROAD

15.0 (TAPER)

N

UNFINISHED DRAWING
SUBJECT TO FURTHER AMENDMENT
FOR DISCUSSION PURPOSES ONLY
INFORMATION SHOWN IS CURRENT AS AT
DATE : * / * / *
CONTACT : *

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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ISSUE	APP'D	DATE	COMMENTS
B	B.T.	8.12.23	CLIENT COMMENTS
A	B.T.	27.09.23	INITIAL ISSUE

GENERAL NOTES

1. ARCHITECTURAL BASE PLAN PREPARED BY MARK SIMNETT BUILDING DESING REF No. 1304 MP - 07 MASTER PLAN SITE 1000 (A3).dwg DATED 11/05/2023
2. ALL DIMENSIONS ARE IN METRES AND MEASURED TO THE INVERT OF KERB AND CHANNEL
3. LOCAL ROAD - PUNT ROAD (SPEED ZONE 50KM/H)
   - CALDWELL COURT (SPEED ZONE 50KM/H)

DESIGNED	T. HO	27.09.23
CHECKED	S. McKENZIE	27.09.23
AUTHORISED	B. THOMSON	27.09.23
SCALE 1:400@A3	0 4 8	

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LOT A CALDWELL COURT, JOHNSONVILLE
East Gippsland Shire
PROPOSED WILD CHERRY STEINER SCHOOL
CAR PARK CONCEPT LAYOUT

DATE	SHEET NO.	DRAWING NO.	ISSUE
27.09.23	01 of 07	20531-CLP-001	B

CAD File: Y:\20501-21000\20531T - Lot A Caldwell Court, Johnsonville\Design\Design\Layouts\20531T-CLP-001\20531-CLP-001-B.dgn

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PUNT

ROAD

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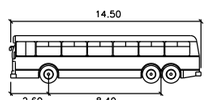

LONG RIGID BUS

meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Wild Cherry Steiner School Proposed Car Park
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Mark Simnett Building Design
2) Swept Path Design Speed 5km/h

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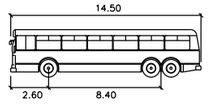

LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
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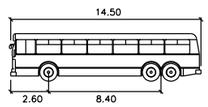

LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Wild Cherry Steiner School Proposed Car Park
Swept Path Assessment

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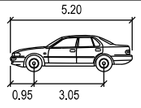

B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Wild Cherry Steiner School Proposed Car Park
Swept Path Assessment

NOTE:
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2) Swept Path Design Speed 5km/h

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CALDWELL

PUNT

ROAD

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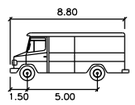

SERVICE VEHICLE

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

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Wild Cherry Steiner School Proposed Car Park
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Mark Simnett building Design
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-CLP-SK05-B.dgn	06 of 07	T.H.	1:400 @A3	8/12/23

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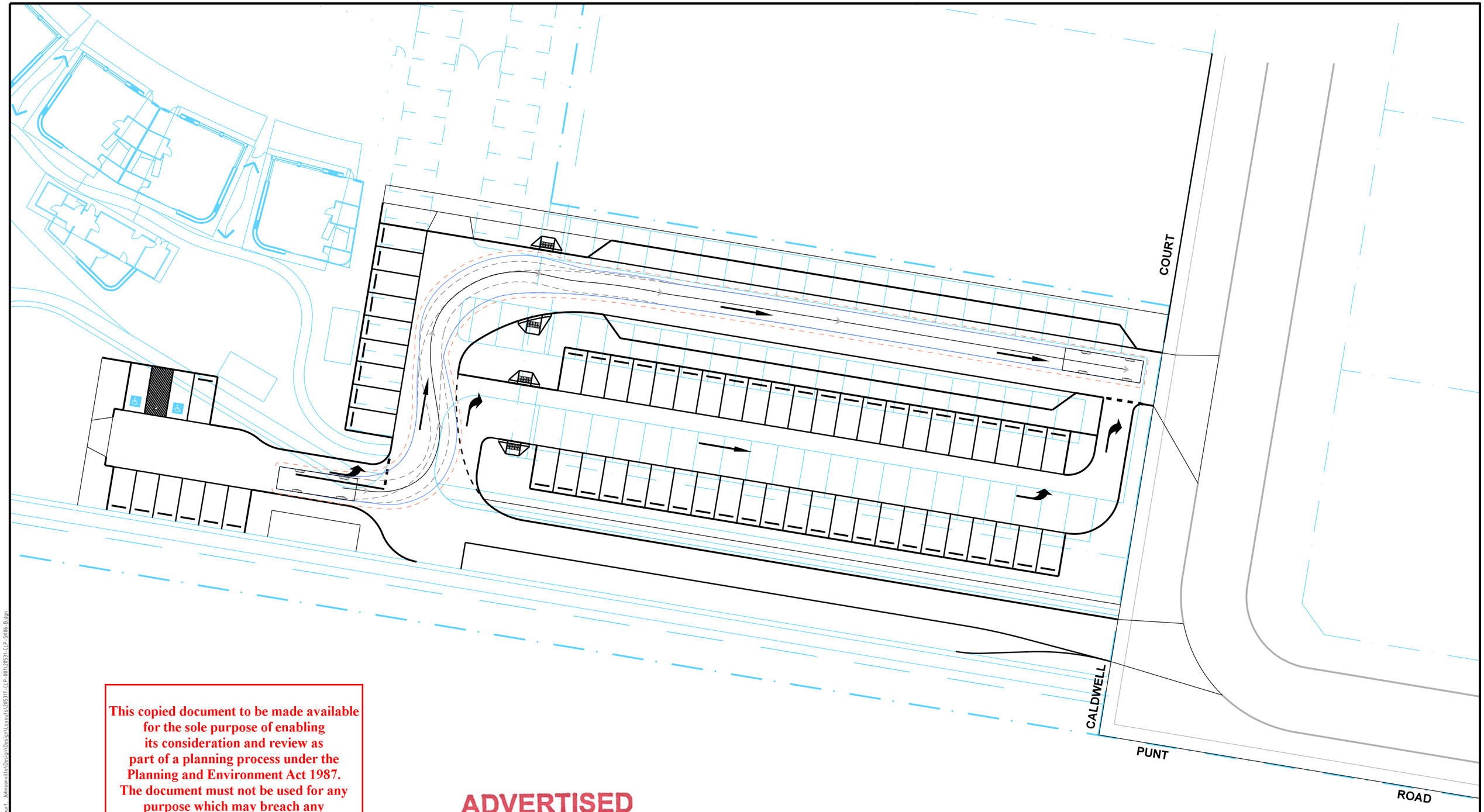

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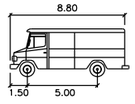
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011



SERVICE VEHICLE

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

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Wild Cherry Steiner School Proposed Car Park
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Mark Simnett building Design
2) Swept Path Design Speed 10km/h

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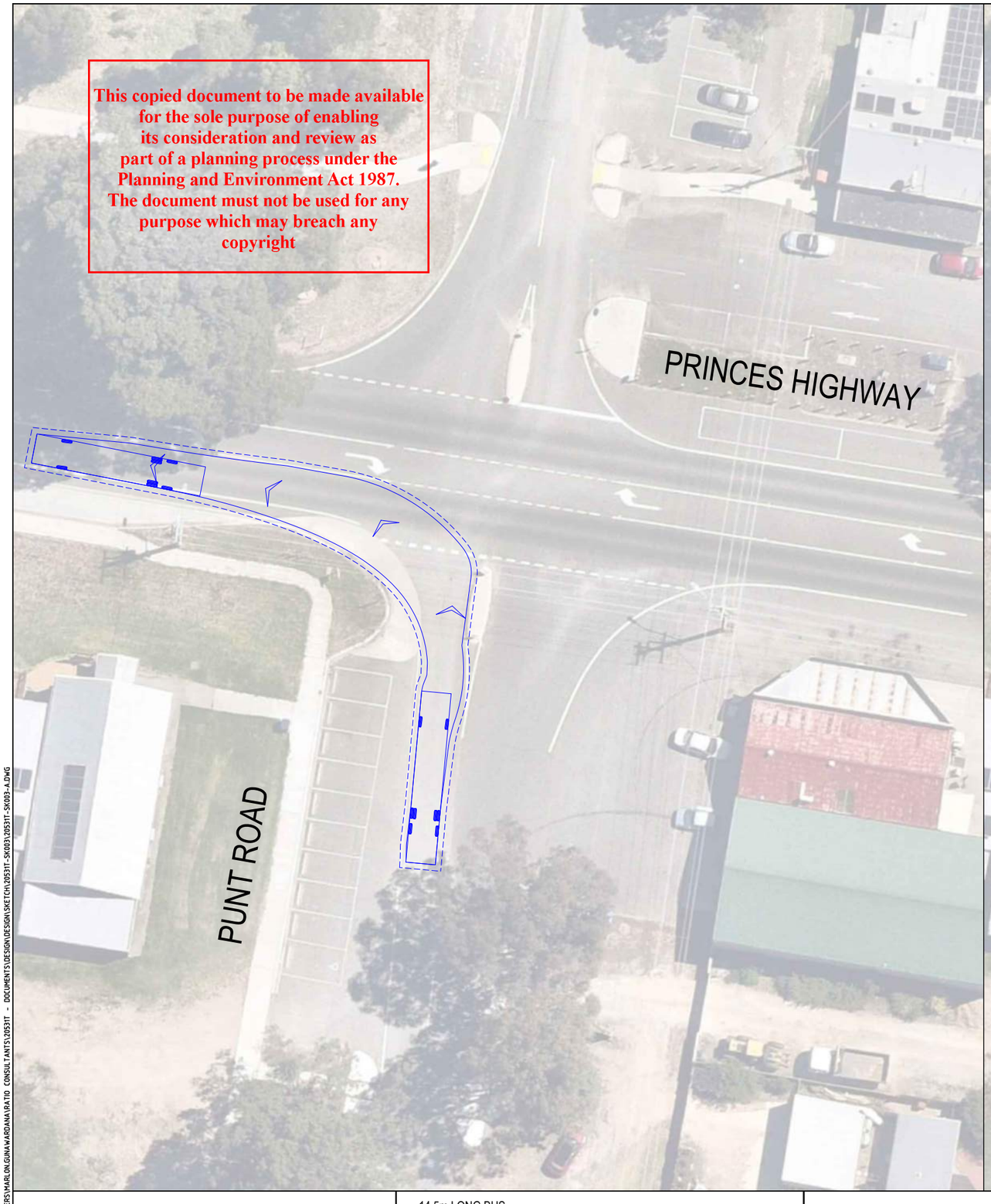

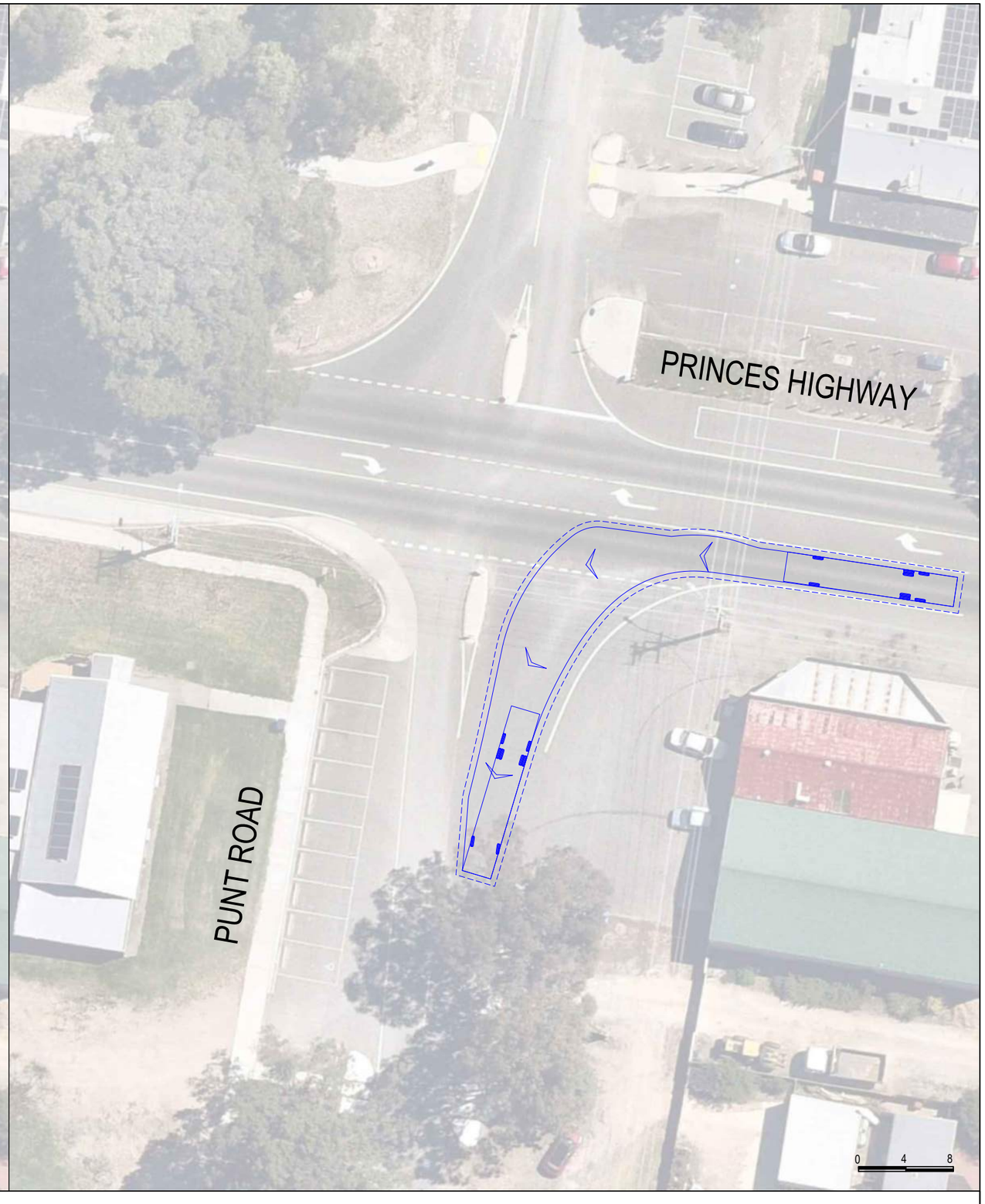

ratio:
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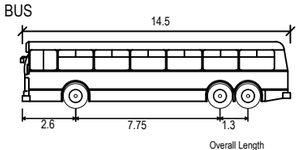
ABN 005 422 104
LEVEL 5, 65 DOVER STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

14.5m LONG BUS



VEHICLE ENVELOPE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
500mm CLEARANCE (FORWARD)
500mm CLEARANCE (REVERSE)

Overall Length	14.500m
Overall Width	2.500m
Overall Body Height	3.102m
Min Body Ground Clearance	0.337m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	15.000m

Proposed School Development
Lot A Caldwell Court, Johnsonville
Swept Path Assessment

ADVERTISED PLAN

NOTE:
1) Base plans supplied by Mark Simnett Building Design on 13/01/2025
2) Maximum Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531T-SK003-A	1 of 2	M.G.	1:400 @A3	17/01/2025

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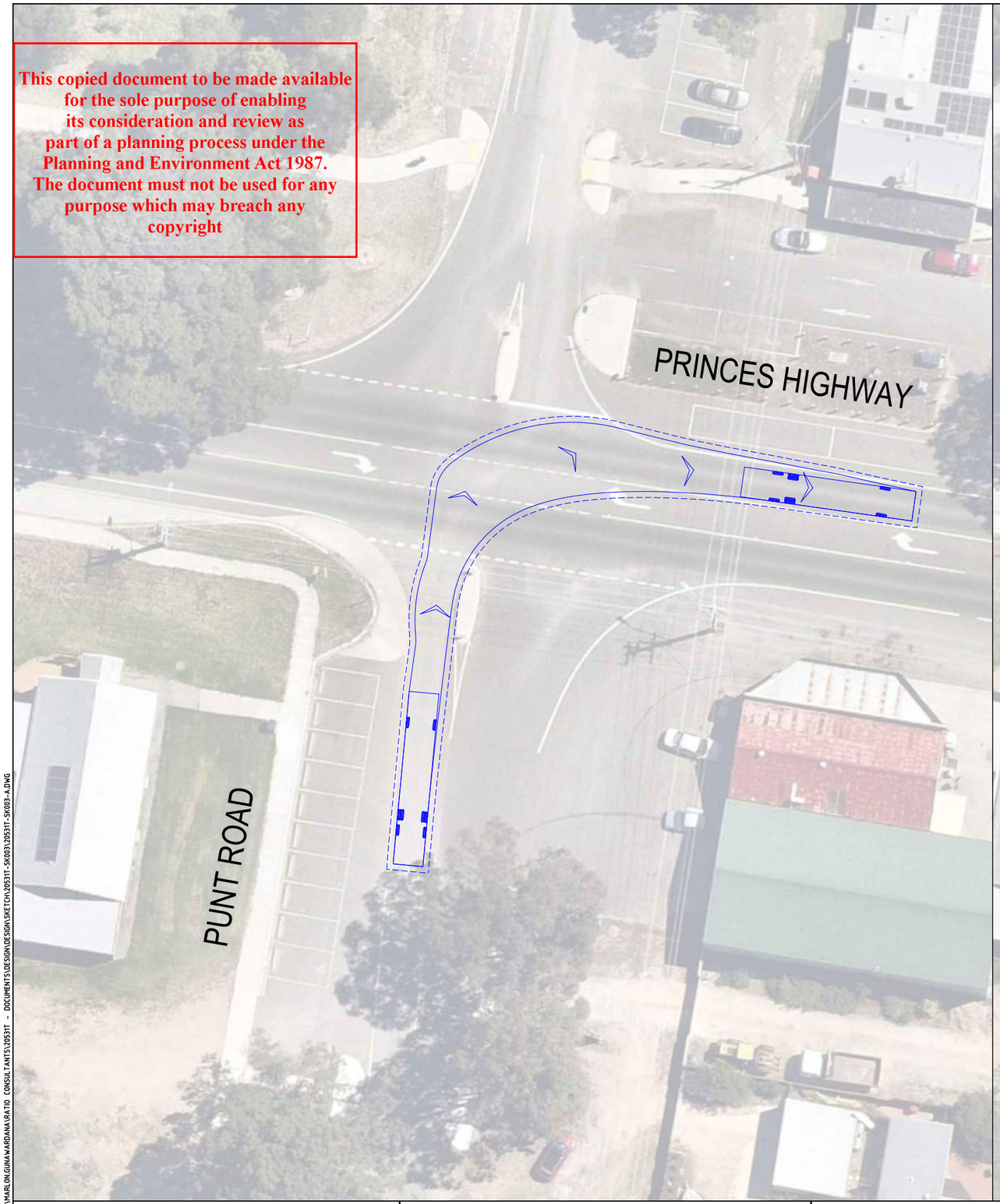

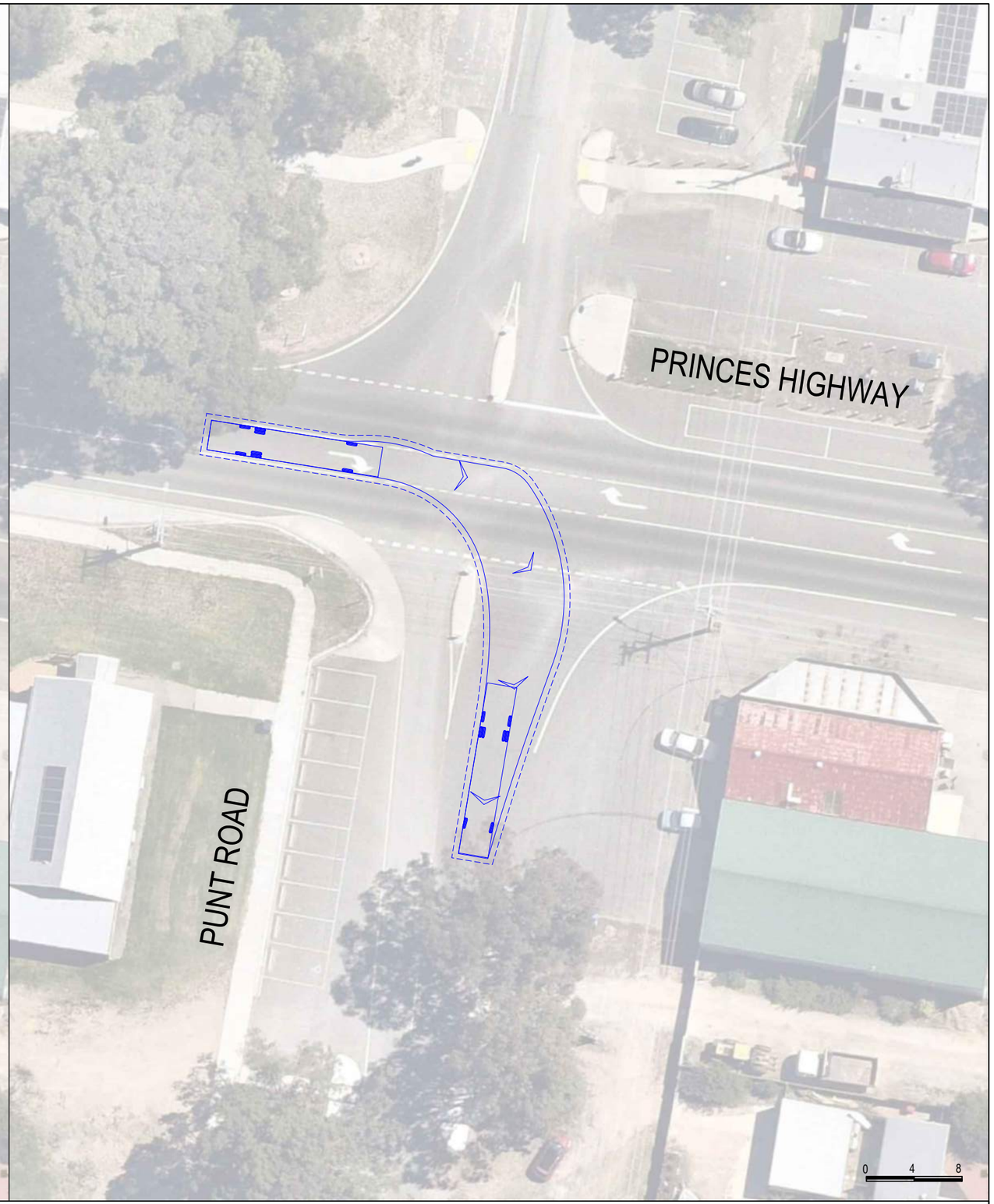

ratio:

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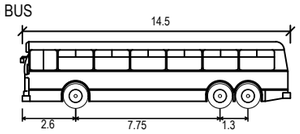
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

14.5m LONG BUS



VEHICLE ENVELOPE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
500mm CLEARANCE (FORWARD)
500mm CLEARANCE (REVERSE)

Overall Length	14.500m
Overall Width	2.500m
Overall Body Height	3.102m
Min Body Ground Clearance	0.337m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	15.000m

Proposed School Development
Lot A Caldwell Court, Johnsonville
Swept Path Assessment

ADVERTISED PLAN

NOTE:
1) Base plans supplied by Mark Simnett Building Design on 13/01/2025
2) Maximum Design Speed 10km/h

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CALDWELL COURT

PUNT ROAD

SERVICE VEHICLE
AUSTROADS 2023 (AU)

SERVICE VEHICLE
AUSTROADS 2023 (AU)

5.95m

0 2.5 5

ratio:

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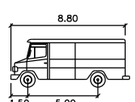
https://ratio.com.au/



SERVICE VEHICLE

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

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 5km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-SK002-1-B.dgn	01 of 03	T.H.	1:250 @A3	01/11/2023

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RESIDENTIAL

CALDWELL COURT

PUNT ROAD

SERVICE VEHICLE
AUSTROADS 2023 (AU)

SERVICE VEHICLE
AUSTROADS 2023 (AU)

0 2.5 5

ratio:

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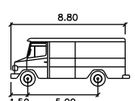
https://ratio.com.au/



SERVICE VEHICLE

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

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-SK002-2-B.dgn	02 of 03	T.H.	1:250 @A3	01/11/2023

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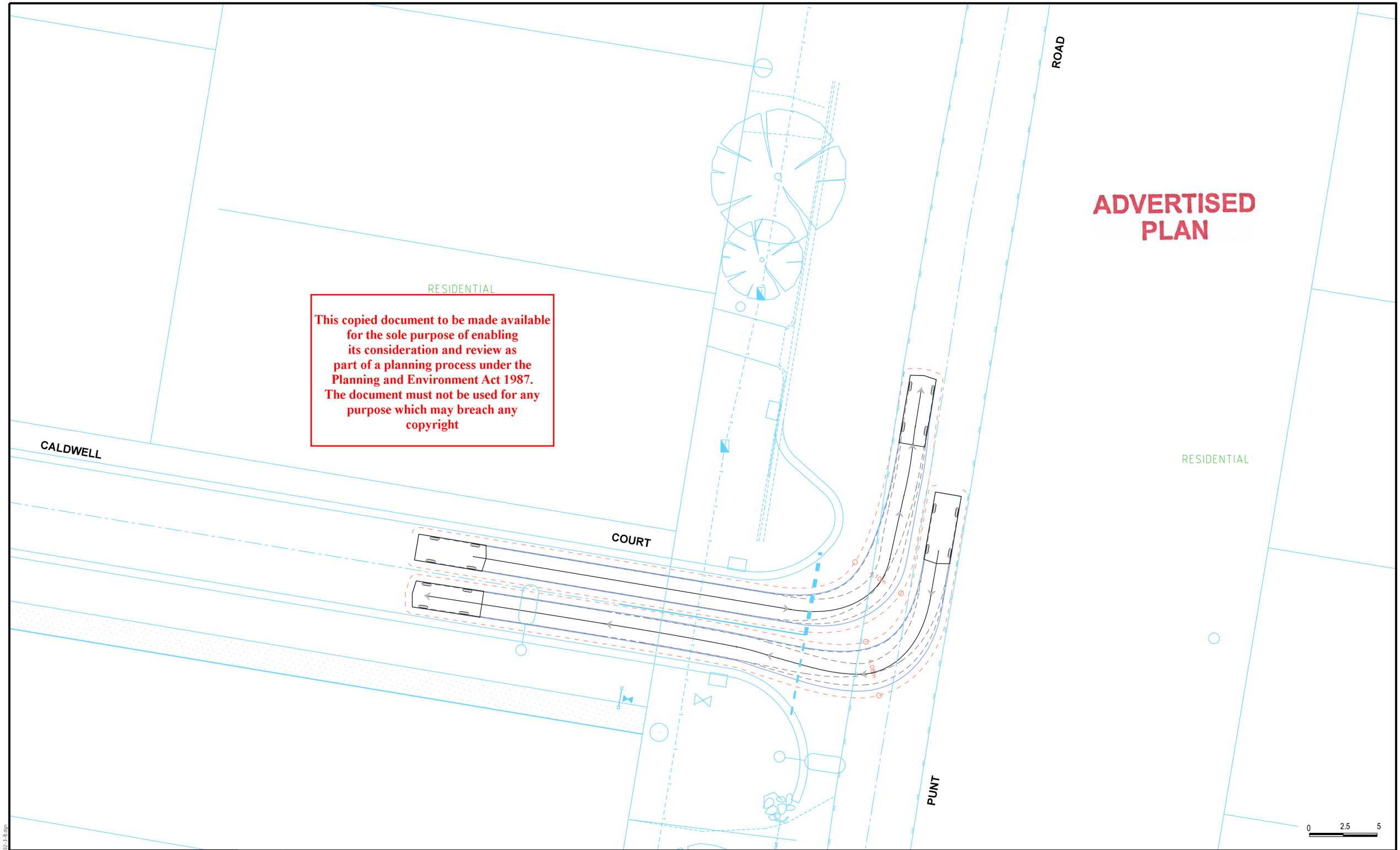

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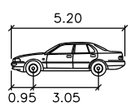

B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-SK002-3-B.dgn	03 of 03	T.H.	1:250 @A3	01/11/2023

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Appendix B : SIDRA Results

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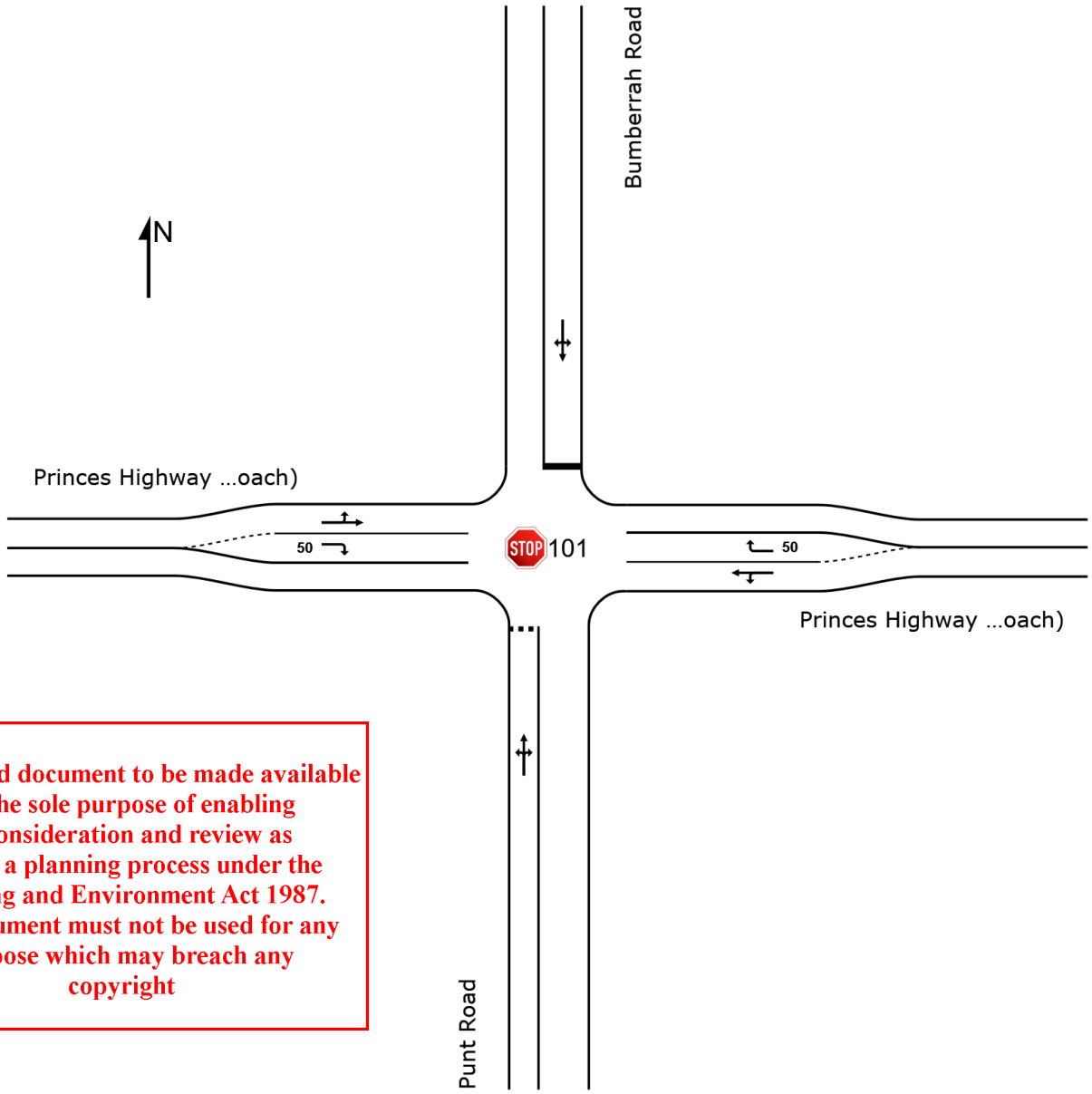
SITE LAYOUT

Site: 101 [Princes Highway / Punt Road Intersection AM Peak (Site Folder: AM Peak)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: 101 [Princes Highway / Punt Road Intersection AM Peak (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Punt Road															
1	L2	All MCs	188	1.0	188	1.0	0.747	19.0	LOS C	5.2	36.5	0.89	1.29	2.02	40.3
2	T1	All MCs	13	1.0	13	1.0	0.747	42.5	LOS E	5.2	36.5	0.89	1.29	2.02	40.6
3	R2	All MCs	54	1.0	54	1.0	0.747	51.4	LOS F	5.2	36.5	0.89	1.29	2.02	40.4
Approach			255	1.0	255	1.0	0.747	27.0	LOS D	5.2	36.5	0.89	1.29	2.02	40.4
East: Princes Highway (East Approach)															
4	L2	All MCs	57	1.0	57	1.0	0.331	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	56.8
5	T1	All MCs	557	10.0	557	10.0	0.331	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.2
6	R2	All MCs	3	1.0	3	1.0	0.002	6.5	LOS A	0.0	0.1	0.39	0.54	0.39	51.6
Approach			617	9.1	617	9.1	0.331	0.7	NA	0.0	0.1	0.00	0.06	0.00	59.0
North: Bumberrah Road															
7	L2	All MCs	4	1.0	4	1.0	0.259	13.6	LOS B	0.8	5.6	0.90	1.03	1.00	31.5
8	T1	All MCs	1	1.0	1	1.0	0.259	40.7	LOS E	0.8	5.6	0.90	1.03	1.00	31.5
9	R2	All MCs	17	1.0	17	1.0	0.259	65.2	LOS F	0.8	5.6	0.90	1.03	1.00	31.5
Approach			22	1.0	22	1.0	0.259	54.2	LOS F	0.8	5.6	0.90	1.03	1.00	31.5
West: Princes Highway (West Approach)															
10	L2	All MCs	16	1.0	16	1.0	0.168	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.1
11	T1	All MCs	295	10.0	295	10.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
12	R2	All MCs	182	1.0	182	1.0	0.206	8.8	LOS A	0.9	6.2	0.60	0.80	0.60	50.4
Approach			493	6.4	493	6.4	0.206	3.4	NA	0.9	6.2	0.22	0.31	0.22	55.8
All Vehicles			1386	6.5	1386	6.5	0.747	7.3	NA	5.2	36.5	0.26	0.39	0.47	52.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Princes Highway / Punt Road Intersection PM Peak (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Punt Road															
1	L2	All MCs	184	1.0	184	1.0	0.731	16.8	LOS C	5.6	39.9	0.89	1.29	2.01	40.3
2	T1	All MCs	3	1.0	3	1.0	0.731	45.2	LOS E	5.6	39.9	0.89	1.29	2.01	40.6
3	R2	All MCs	66	1.0	66	1.0	0.731	54.9	LOS F	5.6	39.9	0.89	1.29	2.01	40.4
Approach			254	1.0	254	1.0	0.731	27.1	LOS D	5.6	39.9	0.89	1.29	2.01	40.3
East: Princes Highway (East Approach)															
4	L2	All MCs	62	1.0	62	1.0	0.238	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.6
5	T1	All MCs	378	10.0	378	10.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	59.0
6	R2	All MCs	4	1.0	4	1.0	0.004	7.5	LOS A	0.0	0.1	0.51	0.60	0.51	51.2
Approach			444	8.7	444	8.7	0.238	0.9	NA	0.0	0.1	0.00	0.09	0.00	58.6
North: Bumberrah Road															
7	L2	All MCs	1	1.0	1	1.0	0.235	15.2	LOS C	0.7	5.0	0.93	1.02	1.00	31.0
8	T1	All MCs	4	1.0	4	1.0	0.235	40.6	LOS E	0.7	5.0	0.93	1.02	1.00	31.0
9	R2	All MCs	14	1.0	14	1.0	0.235	64.4	LOS F	0.7	5.0	0.93	1.02	1.00	31.0
Approach			19	1.0	19	1.0	0.235	56.4	LOS F	0.7	5.0	0.93	1.02	1.00	31.0
West: Princes Highway (West Approach)															
10	L2	All MCs	14	1.0	14	1.0	0.276	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.2
11	T1	All MCs	498	10.0	498	10.0	0.276	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
12	R2	All MCs	188	1.0	188	1.0	0.167	7.5	LOS A	0.7	5.3	0.51	0.70	0.51	51.3
Approach			700	7.4	700	7.4	0.276	2.2	NA	0.7	5.3	0.14	0.20	0.14	57.1
All Vehicles			1417	6.6	1417	6.6	0.731	7.0	NA	5.6	39.9	0.24	0.37	0.44	53.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix C : Concept Layout Plan

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COURT

MATCH INTO
EXISTING KERB
INVERT AS SHOWN

MATCH INTO
EXISTING KERB
INVERT AS SHOWN

ROAD

PUNT

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A	B.T.	11.12.23	INITIAL ISSUE

GENERAL NOTES

1. ARCHITECTURAL BASE PLAN PREPARED BY CROSSCO CONSULTING REF No. 2514 bP Caldwell Crt 31-10-23.dwg DATED 31/10/2023
2. ALL DIMENSIONS ARE IN METRES AND MEASURED TO THE INVERT OF KERB AND CHANNEL
3. LOCAL ROAD - CALDWELL COURT (SPEED ZONE 50KM/H)
   - PUINT ROAD (SPEED ZONE 50KM/H)

DESIGNED	T. HO	11.12.23
CHECKED	S. McKENZIE	11.12.23
AUTHORISED	B. THOMSON	11.12.23
SCALE 1:250 @ A3	0 2.5 5	

ratio:
RATIO CONSULTANTS PTY LTD
ACN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

LOT A CALDWELL COURT, JOHNSONVILLE
East Gippsland Shire
CALDWELL CT / PUNT RD INTERSECTION
CONCEPT LAYOUT PLAN

DATE	SHEET NO.	DRAWING NO.	ISSUE
11/12/2023	01 of 04	20531-CLP-002	A

CAD File: Y:\20501-21000\20531T - Lot A Caldwell Court, Johnsonville\Design\Design\Layouts\20531-CLP-002\20531-CLP-002-1-A.dgn

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RESIDENTIAL

CALDWELL

COURT

RESIDENTIAL

8.59m

PUNT

ADVERTISED
PLAN

0 2.5 5

ratio:

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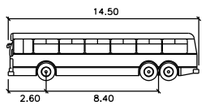

LONG RIGID BUS

meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-CLP-002-SK01-A.dgn	02 of 04	T.H.	1:250 @A3	11/12/2023

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CALDWELL

COURT

8.35m

RESIDENTIAL

PUNT

ADVERTISED
PLAN

0 2.5 5

ratio:

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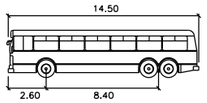

LONG RIGID BUS

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
20531-CLP-002-SK02-A.dgn	03 of 04	T.H.	1:250 @A3	11/12/2023

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PUNT

ADVERTISED
PLAN

0 2.5 5

ratio:

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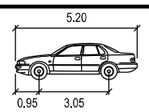

B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

VEHICLE ENVELOPE
500mm CLEARANCE
TIRES
CENTRE LINE

Lot A Caldwell Court, Johnsonville
Punt Road / Caldwell Court Intersection
Swept Path Assessment

NOTE:
1) Base Plan Supplied By Crossco Consulting
2) Swept Path Design Speed 10km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
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