Client	Date
The Permit Applicant	24 April 2026

Transport Impact Assessment Report

Proposed Childcare Centre Development

141-143 Vines Road, Hamlyn Heights

ratio:

Project
141-143 Vines Road, Hamlyn Heights

Prepared for
The Permit Applicant

Our reference
22039T

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Version	Date	Issue	Prepared by	Checked by
F01	23.04.2025	Final	S. Lewis	C. Greenland
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Acknowledgement of Country

We acknowledge the Traditional Owners of the land we work, live and travel on, and appreciate the rich cultures of the Aboriginal and Torres Strait Islander Peoples and their enduring connection to country.

Table of Contents

Appendices

Table of Figures

Table of Tables

1. Introduction

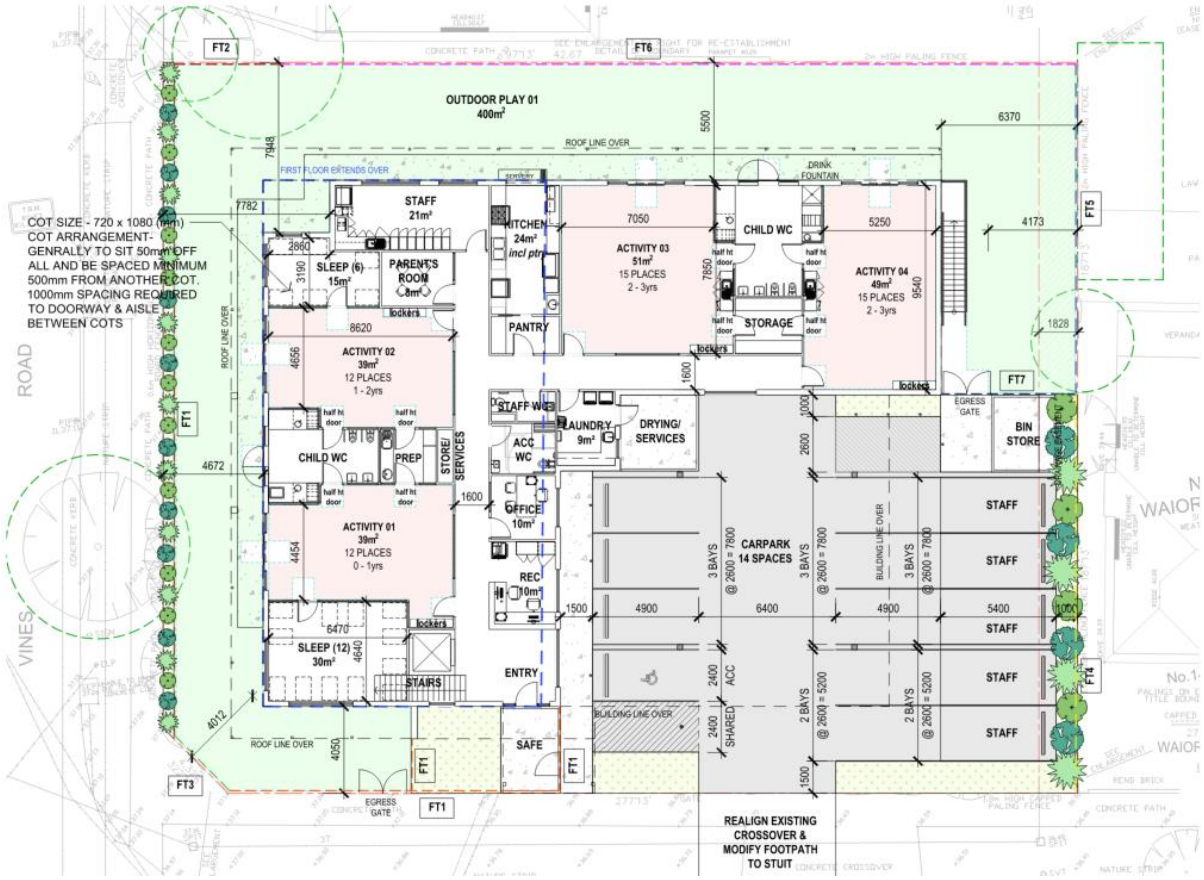
1.1. Background and Introduction

A Planning Permit is currently being sought pursuant to a proposed childcare centre development on land at 141-143 Vines Road in Hamlyn Heights.

The proposed development seeks to construct a two-storey childcare centre to accommodate a maximum of 109 children, along with an associated on-site car parking area to cater for car parking and waste facilities. Vehicular access is proposed to be provided via a slight reconfiguration of the existing double width vehicle crossover connecting to Waiora Avenue along the southern boundary of the site.

For reference, an excerpt of the site plan is provided in Figure 1-1, with a copy of the development plans also provided in Appendix A of this report.

Figure 1-1: Proposed Site Layout



Source: ON Architecture

Accordingly, Ratio Consultants has been commissioned by the Permit Applicant to undertake a Transport Impact Assessment of the proposed childcare centre development at 141-143 Vines Road in Hamlyn Heights.

1.2. Purpose and Structure of this Report

This report sets out an assessment of the anticipated parking, traffic and transport implications of the proposed Permit Application, including consideration of the:

- Existing traffic conditions surrounding the site.
- Parking demand likely to be generated by the proposed development.
- Suitability of the proposed parking in terms of supply and layout.
- Traffic generation characteristics of the proposed development.
- Proposed access arrangements for the site.
- Transport impact of the development proposal on the surrounding road network.

1.3. References

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

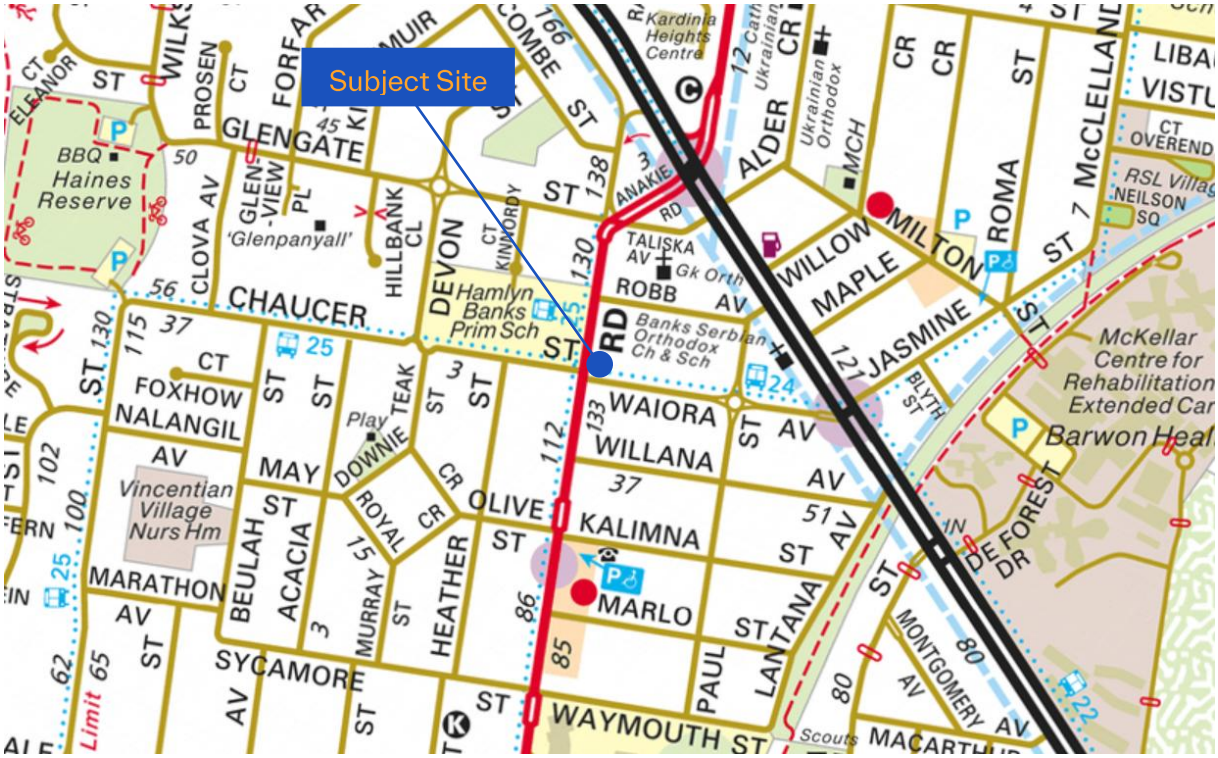
- Plans for the proposed development prepared by ON Architecture, attached as Appendix A (Drawing No. DA03).
- Greater Geelong Planning Scheme.
- Australian/New Zealand Standard, Parking Facilities Part 1: Off-Street Car Parking (AS2890.1:2004).
- Australian Standard, Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities (AS2890.1:2002).
- Australian/New Zealand Standard, Parking Facilities Part 6: Off-Street Parking for People with Disabilities (AS/NZS 2890.6:2009).
- A desktop inspection of the subject site and its surrounds.
- Traffic surveys as referenced within this report.
- Other documents as nominated.

2. Existing Conditions

2.1. Location and Environment

The subject site is located at 141-143 Vines Road in Hamlyn Heights. Figure 2-1 shows the location of the site in relation to the wider road network.

Figure 2-1: Planning Scheme Zones



(Source: Melways)

The subject site consists of two land parcels (141 and 143 Vines Road) and is rectangular in shape. Each land parcel is currently occupied by two x storey residential dwelling. The site has a frontage of approximately 40 metres to Waiora Avenue along the southern boundary, a frontage of approximately 31.5 metres to Vines Road along the western boundary and a total area of approximately 1,451 sqm.

Other land uses located within the vicinity of the subject site are predominantly residential in nature. It is important to note that Hamlyn Banks Primary School are located within a short walking distance (approximately 110 metres) to the west of the site.

Vehicle access to the site is currently provided via a double width crossover to Waiora Avenue along the southern boundary and via a single width crossover to Vines Road along the western boundary of the site.

Figure 2-2 shows the current aerial view of the site and its immediate surrounds.

Figure 2-2: Aerial View of the Site and Surrounds

(Source: Landchecker.com.au)

The subject site is zoned General Residential Zone – Schedule 4 (GRZ4) and is not covered by any overlays. Figure 2.3 shows the location of the site and the Greater Geelong Planning Scheme Zones.

Figure 2-3: Greater Geelong Planning Scheme Zones

(Source: Planning Maps Online)

2.2. Road Network

Waiora Avenue is classified as a Local Road that runs in an east-west direction along the southern frontage of the site and is under the jurisdiction of Council.

Waiora Avenue has a typical carriageway width of approximately 8.4 metres allowing for two-way vehicle movement. Waiora Avenue provides a connection to Vines Road at the western extent adjacent the subject site and Ballarat Road at the eastern extent, adjacent the site.

A pedestrian path and unrestricted on-street parking are provided for on both sides of the carriageway. Waiora Avenue operates at a posted speed limit of 50km/hr and is shown in Figure 2-4 and Figure 2-5.

Figure 2-4: Waiora Avenue facing West

(Source: Google Street View)

Figure 2-5: Waiora Avenue facing East

(Source: Google Street View)

Vines Road is classified as a Transport Road Zone 2 that runs in a north-south direction along the western frontage of the site and is under the jurisdiction of the Department of Transport and Planning (DTP).

Vines Road adjacent the site operates with a traffic lane, parking lane (with restrictions during weekday school pick up and drop off periods) and on-road bicycle lane in each direction. Vines Road provides a connection to Midland Highway at the northern extent and Church Street at the southern extent.

A pedestrian path and on-street parking are provided for on both sides of the carriageway. Vines Road is a School Zone and therefore is subject to a speed limit of 40km/hr between 8:00-9:30am and 2:30pm-4:00pm on school days, outside of these times Vines Road operates at a posted speed limit of 50km/hr.

Vines Road is shown in Figure 2-6 and Figure 2-7.

Figure 2-6: Vines Road facing North

(Source: Google Street View)

Figure 2-7: Vines Road facing South

(Source: Google Street View)

2.3. Sustainable Transport

Public Transport

The site has convenient access to public transport with the nearest bus services provided approximately 45 metres to the south of the site on Vines Road.

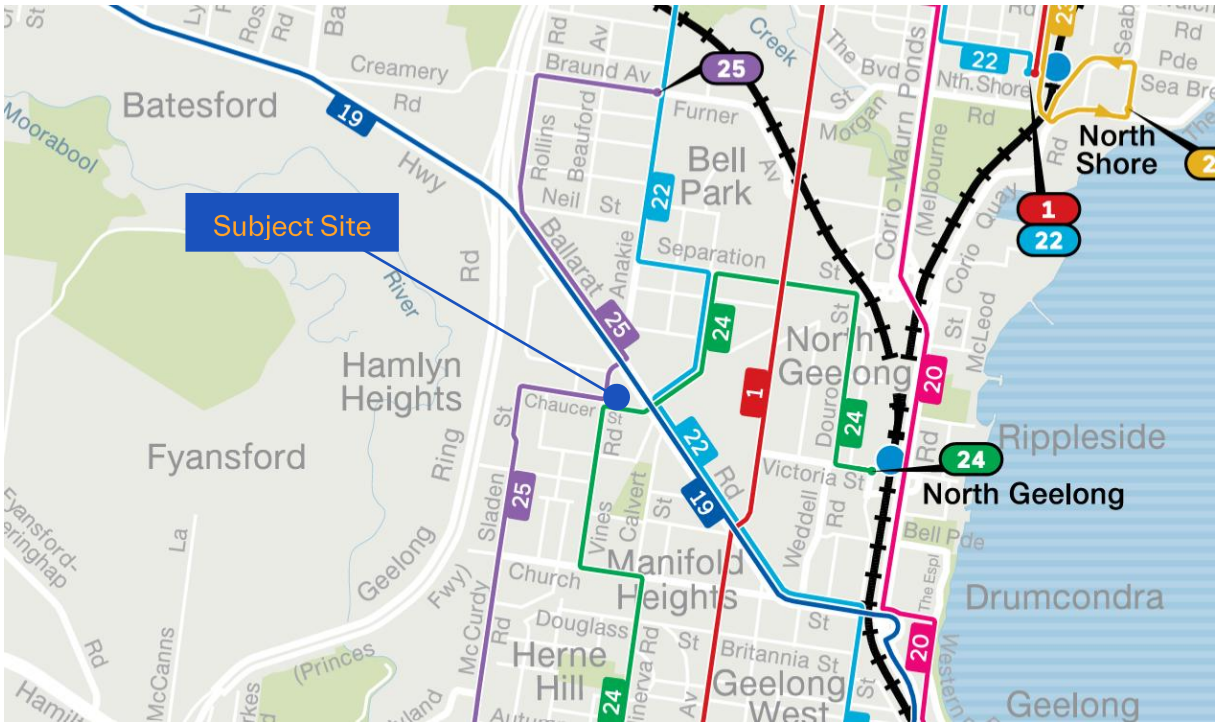
The bus services operating within the vicinity of the site are detailed in Table 2-1 and shown in Figure 2-8.

Table 2-1: Public Transport Services in the Vicinity of the Site

Route No.	Route Description	Nearest Stop	Walking Distance
24	Geelong Station – North Geelong Station	Vines Road	45 metres
25	Geelong Station – Bell Post Hill		80 metres

(Source: Public Transport Victoria)

Figure 2-8: Greater Geelong Network Map



(Source: Public Transport Victoria)

Pedestrian Network

The streets surrounding the site generally have pedestrian paths provided on both sides of the road to facilitate pedestrian movement through the area. Waiora Avenue and Vines Road have a pedestrian path along both sides of the road including along the site boundary.

Pedestrian paths are provided along the entire route connecting the site to the nearest bus infrastructure along Vines Road. Critically, a pedestrian crossing is provided on Vines Road providing a safe pedestrian connection between the site and Hamlyn Banks Primary School.

Bicycle Network

The subject site has convenient access to bicycle infrastructure including on-road bicycle lanes along Vines Road and Midland Highway.

2.4. Crash Analysis

A review has been conducted of VicRoads 'CrashStats' database for the five-year period of available data for any reported casualty crashes.

This database records all accidents causing injury that have occurred in Victoria since 1987 (as recorded by Victorian Police) and categorises these accidents as follows:

- *Fatal injury: at least one person was killed in the accident or died within 30 days as a result of the accident.*
- *Serious injury: at least one person as sent to Hospital as a result of the accident.*
- *Other injury: at least one person required medical treatment as a result of the accident.*

A summary of the accidents in the vicinity of the subject site for the last five-year period is presented in Table 2-2.

Table 2-2: Summary of Crashes in the Vicinity of the Subject Site (5 Year Period)

Location	Accident No.		
	Fatality	Serious Injury	Other Injury
Site Frontage			
Vines Road	0	0	0
Waiora Avenue	0	0	0
Nearby Intersections			
Vines Rd / Waiora Ave / Chaucer St	0	2	0
Waiora Avenue / Paul Street	0	0	0
Total	0	2	0

Table 2-2 indicates that over the last available five-year period, two crashes were recorded in the immediate vicinity of the subject site.

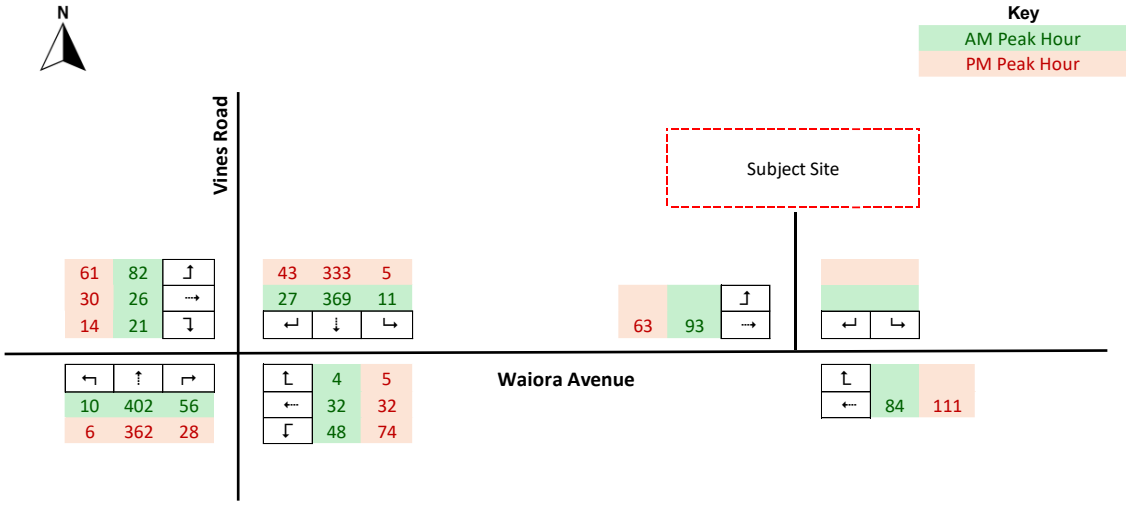
Given the road classifications and associated traffic volumes, it is considered that the road network is operating in a safe manner.

2.5. Traffic Survey

In order to determine the existing traffic conditions in the vicinity of the subject site, Ratio commissioned turning movement surveys at the Vines Road / Waiora Avenue / Chaucer Street intersection. The surveys were conducted during the AM and PM peak hours on Tuesday 1 April 2025.

The peak hour turning movements are shown in Figure 2.9 with detailed results shown in Appendix B of this report.

Figure 2-9: Existing Peak Hour Turning Movement Volumes



It is important to note that the traffic surveys were undertaken on a typical weekday (Tuesday) between 7:00am-9:30am and again between 2:30pm-6:00pm. These extensive peak hour periods were captured having regard to typical road network peak hours and noting the proximity to Hamlyn Banks Primary School located on the opposite side of Vines Road.

Specifically, Hamlyn Banks Primary School operates between the hours of 8:30am and 3:30pm. As such, due consideration has been given to capture accurate traffic conditions at the site, with the peak hour period captured within the traffic volumes presented in Figure 2-9 and Appendix B of this report.

2.6. Existing Conditions Traffic Assessment

General

An existing conditions peak hour intersection analysis has been undertaken of the Vines Road / Waiora Avenue / Chaucer Street intersection, using the analysis program SIDRA Intersection.

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 (DOS) is a ratio of arrival (or demand) flow to capacity. DOS above 1.0 represent oversaturated conditions and a DOS below 1.0 represent undersaturated conditions.

The operational rating associated with the DOS is summarised below.

Table 2-3: Ratings of Degree of Saturation (DoS)

Degree of Saturation (DoS)	Rating
Up to 0.6	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

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 which 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.

Vines Road / Waiora Avenue / Chaucer Street

The results for the existing development AM and PM peak hour intersection analysis for the Vines Road / Waiora Avenue / Chaucer Street intersection are summarised in Table 2-4 and Table 2-5, with full results provided in Appendix C of this report.

Table 2-4: Existing AM SIDRA Results - Vines Road / Waiora Avenue / Chaucer Street

Approach	Movement	AM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Vines Road (N)	Left	0.28	4	7
	Through	0.28	4	1
	Right	0.28	4	7
Waiora Avenue	Left	0.13	3	7
	Through	0.13	3	11
	Right	0.13	3	16
Vines Road (S)	Left	0.24	2	7
	Through	0.24	2	1
	Right	0.24	2	7
Chaucer Street	Left	0.21	5	7
	Through	0.21	5	11
	Right	0.21	5	16
Intersection		0.28		

Table 2-5: Existing PM SIDRA Results - Vines Road / Waiora Avenue / Chaucer Street

Approach	Movement	PM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Vines Road (N)	Left	0.23	2	7
	Through	0.23	2	1
	Right	0.23	2	7
Waiora Avenue	Left	0.14	4	7
	Through	0.14	4	10
	Right	0.14	4	14
Vines Road (S)	Left	0.23	3	7
	Through	0.23	3	1
	Right	0.23	3	7
Chaucer Street	Left	0.16	4	7
	Through	0.16	4	10
	Right	0.16	4	14
Intersection		**0.23**		

Based on the above, the Vines Road / Waiora Avenue / Chaucer Street intersection is currently operating within 'Excellent' conditions in the AM and PM peak hour periods, with minimal queues and delays currently.

3. The Proposal

3.1. General

A Planning Permit is currently being sought for the construction of a childcare centre development on land at 141-143 Vines Road in Hamlyn Heights.

More specifically, the development is proposed to incorporate the following land use yield and associated transport infrastructure, as summarised in Table 3-1.

Table 3-1: Development Summary

Land Use		
Land Use Clarification	Description	Size / Number
Childcare Centre	Childcare Centre	109 children 22 staff

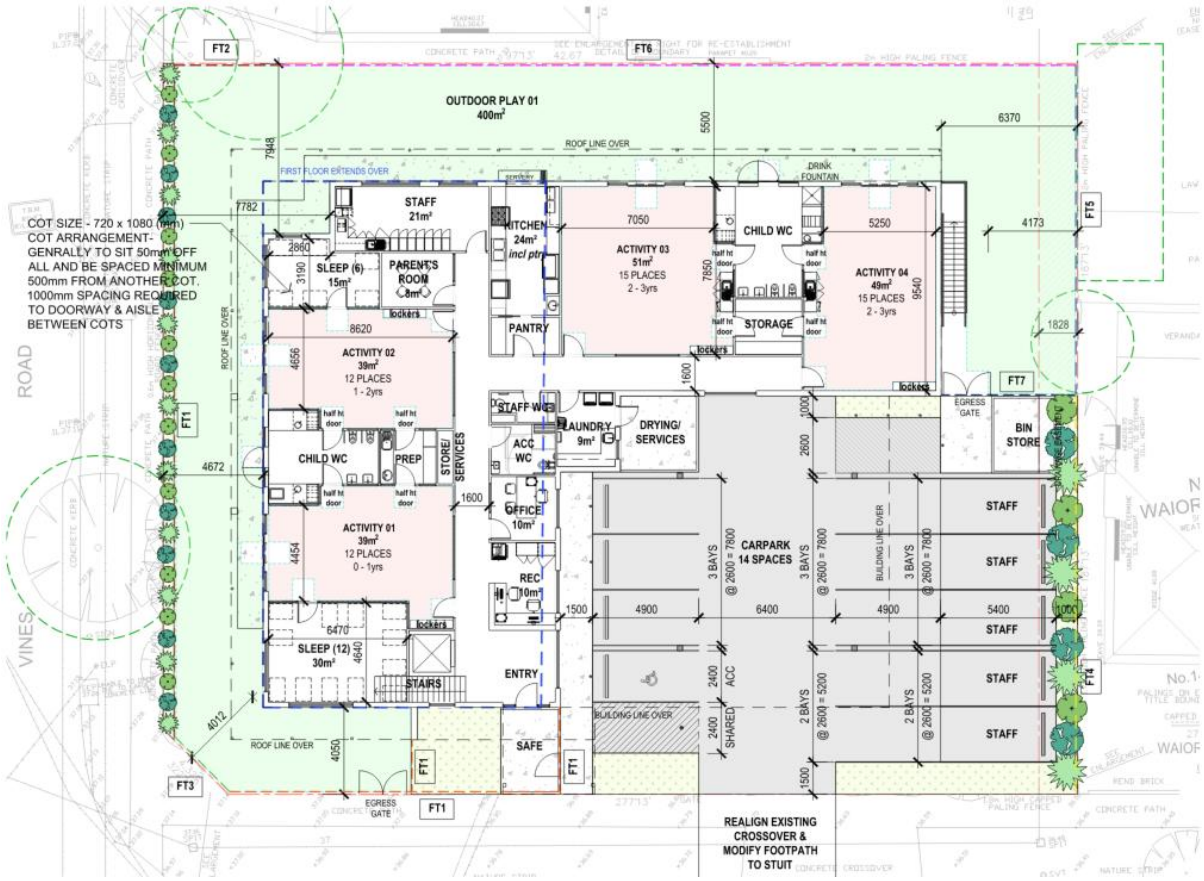
Transport Infrastructure		
Type		Description / Details
Pedestrian Facilities	Along southern boundary of the site via Waiora Avenue	
Vehicle Access	Waiora Avenue	Fully Directional [1]
Parking	Car Spaces	14 spaces [2]
Loading	Loading and Waste	Vehicles up to and including Small Rigid Vehicles (6.4m)

[1] Vehicle access proposed via a slight reconfiguration of the existing double-width crossover to Waiora Avenue in the south-east corner of the site.

[2] Including 8 standard spaces, 5 staff spaces and 1 space for people with disabilities.

The proposed site layout is shown in Figure 3-1 with a full copy of the plans in Appendix A of this report.

Figure 3-1: Proposed Site Layout



Source: ON Architecture

3.2. Vehicle Access Arrangements

Vehicle access is proposed to be provided via a slight reconfiguration of the existing double-width connection to Waiora Avenue in the south-east corner of the site that is slightly further offset from the intersection. The remaining existing vehicle access to Vines Road is proposed to be removed and reinstated to the satisfaction of the Relevant Authority.

3.3. Internal Design Features

Car Parking

A total of 14 on-site car parking spaces are proposed to be provided including a single parking space for people with disabilities. The on-site car parking provision includes 5 pairs of tandem parking spaces (10 spaces in total). It is also note that 5 of the 10 tandem spaces are proposed to be allocated to staff.

Pedestrian Access

Pedestrian access is proposed to be provided via Waiora Avenue along the southern boundary of the subject site.

4. Car Parking Assessment

4.1. Clause 52.06 Requirements

Car parking requirements for new developments are set out under Clause 52.06 of the Greater Geelong Planning Scheme. The purpose of Clause 52.06 if 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 users and enables easy and efficient use.*

As shown in Figure 4-1, the subject site is located within a Category 2 land category as identified in the *Car* Parking *Requirement Maps (Department of Transport and Planning, 2025).*

Therefore, the Category 2 rates outlined in Table 1 of Clause 52.06 of the Greater Geelong Planning Scheme are applicable.

Figure 4-1: Car Parking Requirement Map

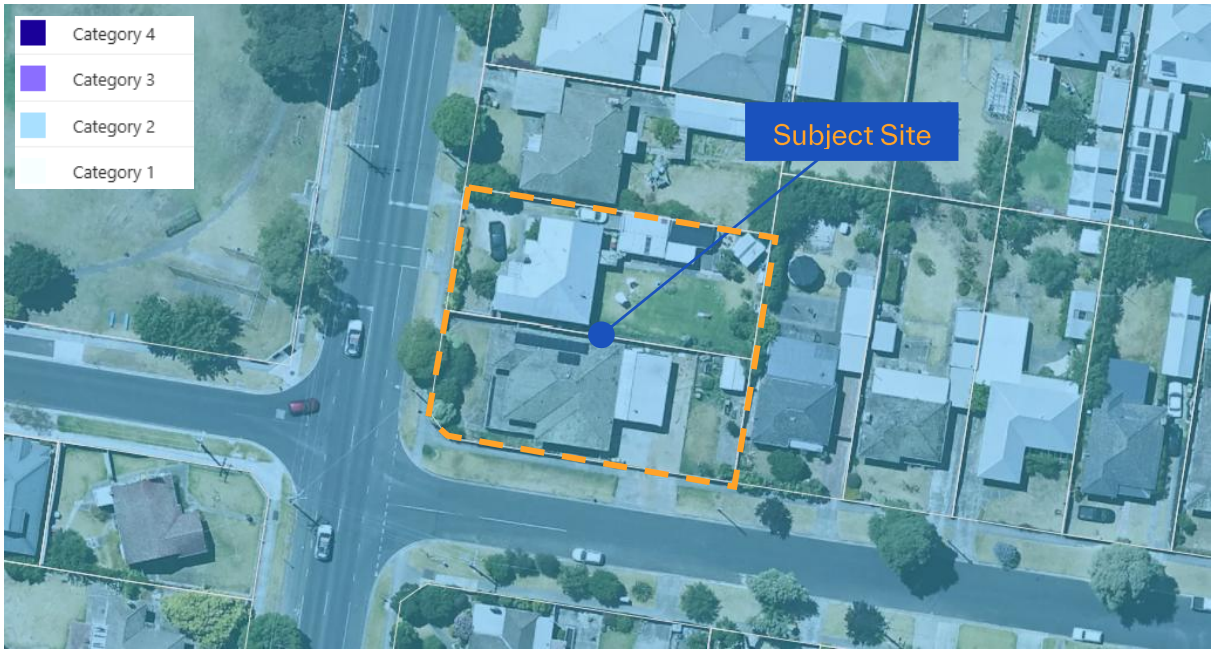


Table 4-1: Statutory Car Parking Requirements

Land Use	Size/No.	Statutory Car Parking Rate	Statutory Car Parking Requirement [1]
Childcare Centre	22 employees	0.5 spaces to each employee	11 spaces
Total			11 spaces

[1] Rounded down to the nearest whole number in accordance with Clause 52.06-5.

Based on the assessment above, the application has a statutory requirement to provide 11 car parking spaces.

The development proposes a total of 14 on-site car parking spaces representing a surplus of 3 spaces against the requirements of the Greater Geelong Planning Scheme and is therefore acceptable.

4.2. DDA Car Parking

In addition to the car parking requirements in the Planning Scheme, requirements pertaining to the provision of accessible (DDA) parking is listed within the National Construction Code (NCC). An assessment of the NCC accessible car parking requirements is set out in Table 4-2.

Table 4-2: NCC Car Parking Requirements for People with Disabilities

Description	Class	BCA Disabled Parking Requirement
Childcare Centre	Class 4	1 space for every 50 car parking spaces or part thereof

The proposed development generates a BCA requirement to provide a single space for people with disabilities.

In this instance it is proposed to provide one space for people with disabilities, which meets the NCC requirement. It should be noted that accessible parking spaces are included in the total number of spaces required by Clause 52.06-5 of the Greater Geelong Planning Scheme.

5. Bicycle Parking

5.1. Clause 52.34 – Bicycle Facilities

Clause 52.34 of the Greater Geelong Peninsula Planning Scheme seeks to encourage cycling as a mode of travel through the provision of appropriate bicycle parking and associated facilities and does not specify statutory bicycle parking requirements for childcare centre land uses.

Accordingly, no formal bicycle parking spaces are proposed as part of the development. This is consistent with the requirements of the Planning Scheme and is therefore considered appropriate in this instance.

6. Access Arrangements & Car Parking Layout

6.1. Clause 52.06 Design Standard Assessment

An assessment against the relevant design standards of Clause 52.06-9 of the Greater Geelong Planning Scheme is provided below:

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 6-1.

Table 6-1: Design Standard 1 Assessment

Requirement	Comments
Must be at least 3m wide.	Satisfied - All accessways have a minimum width of 3.0 metres or greater in accordance with this standard.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	Satisfied – The accessways and internal layout have been designed to be at least 4.2 metres wide at all changes of direction.
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 – The swept path assessment (refer to Appendix D) confirms that vehicles parked in the end spaces can exit in a forward direction in one manoeuvre.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheelbase of 2.8m.	Satisfied – A headroom clearance of at least 2.1m has been provided throughout the car park area.
If the accessway serves four or more car spaces or connects to a road in a Road Zone, the accessway must be designed so that cars can exit the site in a forward direction.	Satisfied – The internal layout allows all vehicles to enter and 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 ten or more car parking spaces and is either more than 50m long or connects to a road in a Road Zone.	Satisfied – The development is proposed to be accessed via a double width access to Waiora Avenue, thereby satisfying the requirement to facilitate vehicles passing.

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 – Compliant pedestrian visibility splays are achieved at the vehicle exit point.
If an accessway to four or more car parking spaces is from land in a Road Zone, the access to the car spaces must be at least 6m from the road carriageway.	N/A – Access to the car spaces is not from a Road Zone.
If entry to the car space is from a road, the width of the accessway may include the road.	N/A - Entry to the car spaces is not accessed directly from a road.

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 6-2.

Table 6-2: Design Standard 2 Assessment

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	Satisfied – All standard car parking spaces are designed in accordance with the dimensional requirements set out in Table 2 of Design Standard 2 with car parking spaces proposed to be 4.9m long x 2.6m wide spaces, accessible via a 6.4m aisle (which meets the minimum requirements). The tandem spaces are proposed to be 5.4m long as per the requirements of the Planning Scheme. Design of the accessible parking space satisfies the dimensional requirements as stipulated within AS2890.6:2009.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than:	Satisfied – The car parking spaces have been designed to accord with Diagram 1 of Design Standard 2.

— 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.	
Car spaces in garages must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage.	N/A – No garage car parking spaces 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 – The tandem car parking spaces are proposed to be provided with an additional 500m in length.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	N/A – No dwellings are proposed as part of the development.
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 of Design Standard 2 by 500mm.	Satisfied – The accessible car parking space meets the dimensional requirements of AS/NZS 2890.6:2009.

6.2. Swept Path Assessment

An assessment of site access point and circulation was undertaken using the 'Autodesk Vehicle Tracking' software and is attached in the B99 (99.8 percentile car) was used in the assessment and it was found that the site can be adequately accessed and circulated by all vehicles.

The B85 (85th percentile car) was also assessed and it was found that each space could be accessed (ingress and egress) in a satisfactory manner and that cars will be able to enter/exit the site in a forward direction. Refer to Appendix D for swept path assessment of all relevant design vehicles.

6.3. Summary

The assessment indicates that the access arrangements and car parking layout have been designed appropriately and in accordance with the requirements of the Greater Geelong Planning Scheme and/or AS/NZS 2890.1:2004.

7. Loading & Waste Collection

7.1. Statutory Requirement

Clause 65.01 'Decision Guidelines' of the Greater Geelong 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."*

7.2. Loading and Waste Collection Arrangements

Loading and unloading activities associated with the proposed development will be limited.

Loading activities associated with the development can be undertaken primarily by vans. It is anticipated that this small-scale loading can occur adequately within a free car space outside of peak times.

Waste collection is proposed to be collected on-site by a private waste collector.

A swept path assessment (Appendix D) was conducted and demonstrated that a 6.4m Mini-Rear Loader Waste Collection Vehicle can access the site in a forward direction, manoeuvre through the site to the waste collection area and depart in a forward direction.

It is noted that a number of parking spaces would need to be temporarily vacant to accommodate the manoeuvring of the waste collection vehicle. Accordingly, it is recommended that waste collection be scheduled either outside of peak periods or operating hours, when parking demand is reduced.

Having regard to the above, the loading and waste management outcomes are considered satisfactory.

7.3. Adequacy of Loading & Waste Collection Arrangements

Based on the above, the waste collection and loading arrangements are considered to be acceptable.

8. Traffic Assessment

8.1. Traffic Generation

The Transport for New South Wales "*Guide to Transport Impact Assessment*" provides direction on peak hour traffic generation for childcare centres based on survey data from numerous established sites.

The TfNSW Guide includes network peak hour vehicle trip rates for childcare centres. The traffic rates identified include:

Network AM Peak Hour – 0.69 vehicle trips per child

Network PM Peak Hour – 0.33 vehicle trips per child.

Accordingly, the proposed 109-place childcare centre is anticipated to generated approximately 75 vehicle movements during the AM peak hour period and 36 vehicle movements during the PM peak hour period.

8.2. Traffic Distribution

The development is projected to generate 75 and 36 vehicle movements during the AM and PM peak hours respectively, comprising of both arrivals and departures via the proposed access to / from Waiora Avenue.

The site is well served by the local road network which allows for simultaneous two-way traffic (i.e. one traffic lane in each direction), allowing development traffic to easily permeate through to the wider road network. All traffic is proposed to arrive / depart the site via the access with Waiora Avenue, from where traffic is anticipated to travel to/from west to the Vines Road / Waiora Avenue / Chaucer Street intersection and to/from the east to the Waiora Avenue / Midland Highway intersection.

A review of the turning movement distribution at Vines Road / Waiora Avenue / Chaucer Street intersection has been undertaken and the turning distributions have been determined utilising the existing surveyed traffic volumes.

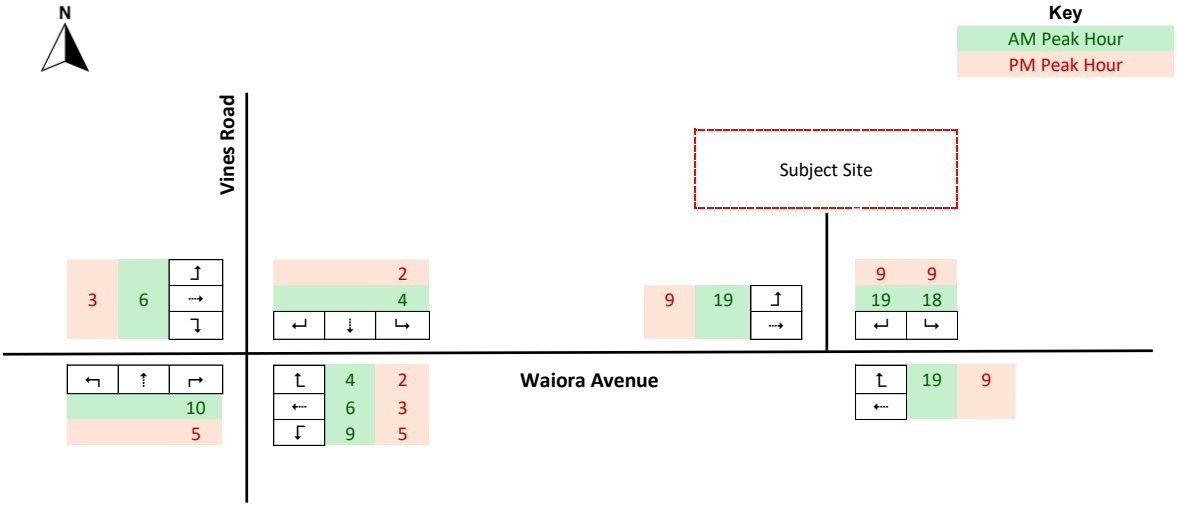
Accordingly, the following traffic distribution is anticipated

- 50% to/from the Vines Road / Waiora Avenue / Chaucer Street intersection, from where:
    - 10% to/from the north via Vines Road.
    - 25% to/from the south via Vines Road.
    - 15% to/from the west via Vines Road.
- 50% to/from the east towards Waiora Avenue / Midland Highway intersection.

8.3. Traffic Generation Summary

Based on the various factors outlined in the previous sections, Figure 8-1 has been prepared to show the estimated increase in vehicle turning movements in the vicinity of the site during the peak hour periods.

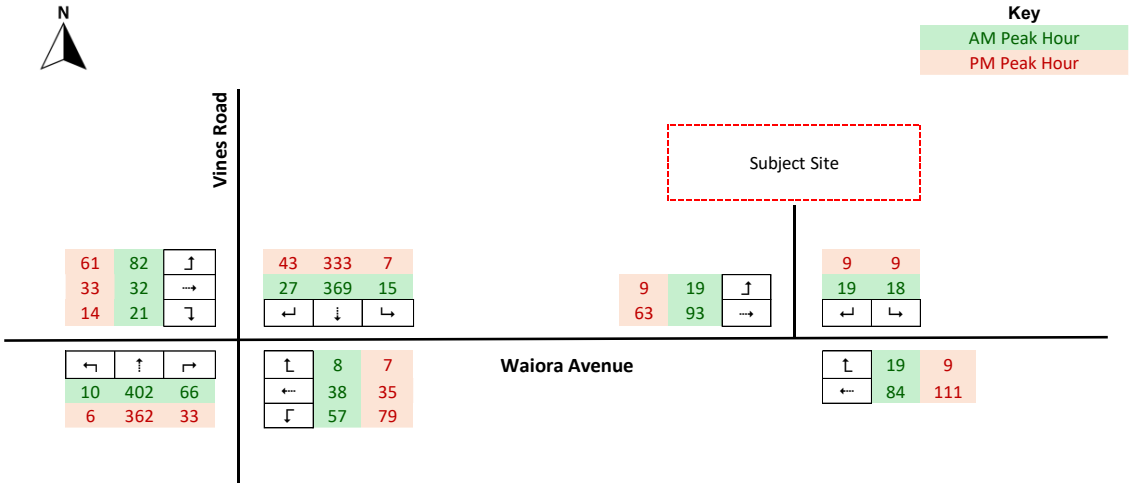
Figure 8-1: Peak Hour Site Generated Traffic Volumes



8.4. Post Development Traffic Volumes

By combining the existing surveyed traffic volumes with the anticipated site generated traffic movements, the resultant estimated post development peak hour traffic volumes are shown in Figure 8-2.

Figure 8-2: Post Development Peak Hour Traffic Volumes



8.5. Post Development Traffic Impacts

A post development conditions weekday AM and PM peak hour intersection analysis has been undertaken of the following intersections using SIDRA Intersection modelling:

- Waiora Avenue / Site Access intersection.
- Vines Road / Waiora Avenue / Chaucer Street intersection.

Club Court / Site Access

The results of the post development AM and PM peak hour SIDRA analysis for the Waiora Avenue / Site Access intersection are detailed in Appendix E and summarised in Table 8-1 and Table 8-2.

Table 8-1: Post Development AM SIDRA Results – Waiora Avenue / Site Access

Approach	Movement	AM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Waiora Avenue (E)	Through	0.06	1	1
	Right	0.06	1	6
Site Access	Left	0.03	1	6
	Right	0.03	1	6
Waiora Avenue (W)	Left	0.06	0	6
	Through	0.06	0	0
Intersection		0.06		

Table 8-2: Post Development PM SIDRA Results – Waiora Avenue / Site Access

Approach	Movement	PM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Waiora Avenue (E)	Through	0.06	1	0
	Right	0.06	1	6
Site Access	Left	0.02	1	6
	Right	0.02	1	6
Waiora Avenue (W)	Left	0.04	0	6
	Through	0.04	0	0
Intersection		0.06		

Based on the above, the Waiora Avenue / Site Access intersection is expected to operate within 'Excellent' conditions in each of the critical peak hour periods, with negligible queues and delays projected for all approaches.

Vines Road / Waiora Avenue / Chaucer Street

The results for the post development AM and PM peak hour intersection analysis for the Vines Road / Waiora Avenue / Chaucer Street intersection are summarised in Table 8-3 and Table 8-4, with full results provided in Appendix E of this report.

Table 8-3: Post Development AM SIDRA Results - Vines Road / Waiora Avenue / Chaucer Street

Approach	Movement	AM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Vines Road (N)	Left	0.29	5	7
	Through	0.29	5	1
	Right	0.29	5	7
Waiora Avenue	Left	0.17	4	7
	Through	0.17	4	11
	Right	0.17	4	17
Vines Road (S)	Left	0.24	2	7
	Through	0.24	2	1
	Right	0.24	2	7
Chaucer Street	Left	0.23	6	7
	Through	0.23	6	12
	Right	0.23	6	17
Intersection		**0.29**		

Table 8-4: Post Development PM SIDRA Results - Vines Road / Waiora Avenue / Chaucer Street

Approach	Movement	PM Peak Period		
		DoS	95%ile Queue (m)	Ave. Delay (s)
Vines Road (N)	Left	0.23	3	7
	Through	0.23	3	1
	Right	0.23	3	7
Waiora Avenue	Left	0.16	4	7
	Through	0.16	4	10
	Right	0.16	4	14
Vines Road (S)	Left	0.23	3	7
	Through	0.23	3	1
	Right	0.23	3	7
Chaucer Street	Left	0.16	4	7
	Through	0.16	4	10
	Right	0.16	4	14
Intersection		**0.23**		

As shown in the preceding tables, the Vines Road / Waiora Avenue / Chaucer Street intersection is anticipated to continue to operate at an 'Excellent' level during the AM and PM peak hours. The results indicate minimal increases in queuing and delays during these periods.

Summary

Having regard to the analysis and discussion within the previous sections, the additional traffic generated by the proposed development is expected to have negligible impacts on the operation of the Vines Road / Waiora Avenue / Chaucer Street, which is expected to continue to operate in a satisfactory manner.

Similarly, the site access point to Waiora Avenue is also expected to function without any operational issues, with minimal queues and delays during the AM and PM peak hours.

9. Conclusion

Based on the analysis and discussion presented within this report, the following conclusions are made:

- The proposed development generates a statutory car parking requirement of 11 spaces.
- The proposed on-site car parking provision 14 car parking spaces exceeds the statutory requirement and is therefore acceptable.
- The proposed access arrangements, car/bicycle parking layout have been designed in accordance with the dimensional requirements of Clause 52.06 of the Greater Geelong Planning Scheme and/or the relevant sections of the Australian Standard AS2890 series.
- CAD-based swept paths have been completed which confirm the key vehicle movements can be completed with adequate clearance through the site access points and relevant key areas within the site.
- The proposed development does not trigger a statutory requirement for bicycle parking provision.
- The proposed development is expected to generate 75 vehicle movements in the AM peak hour and 36 vehicle movements in the PM peak hour.
- The level of traffic generated by the proposed development can be accommodated by the adjacent road network without creating adverse traffic safety or capacity impacts.

Overall, based on the assessments undertaken, the proposed development is considered to be acceptable from a transport engineering perspective and is not expected to create adverse traffic or parking impacts in the area.

Appendix A – Site Layout Plan

PLANNING

Rev	Amendment	Date
-	-	-

109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC.

DRAWING SCHEDULE

ON Architecture Pty Ltd abn 71 627 522 043
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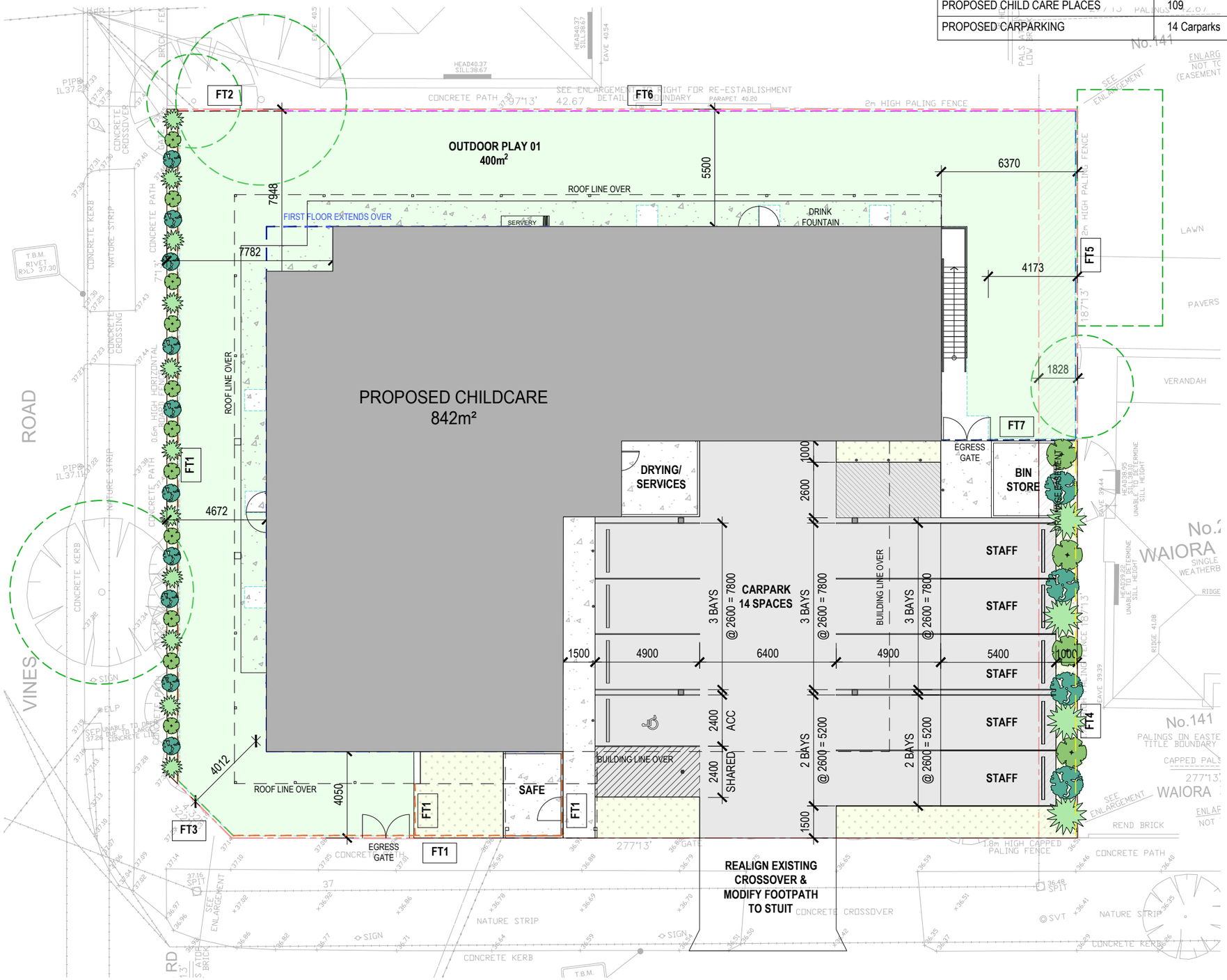
Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
FRONT COVER DRAWING SCHEDULE

Scale
Drawn LO
Client
Date 22/04/2026
Job No. 202500052
Dwg No. **DA01**
Rev: -
A3 SHEET

SITE DATA	
SITE AREA	1452sqm
BUILDING AREAS (GFA) • Ground • First **TOTAL**	 522sqm 320sqm **842sqm**
PROPOSED CHILD CARE PLACES	109
PROPOSED CARPARKING	14 Carparks



SITE PLAN
1:200

PLANNING

Rev	Amendment	Date
-	-	-

FENCE TYPE LEGEND

FT.01
1800mm OPEN RAILING FENCE WITH TOP BAR

FT.02
1800mm - 2000mm TAPERED ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE, REFER ELEVATIONS

FT.03
2000mm WHITE BRICK FEATURE FENCE

FT.04
2000mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.05
2500mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.06
2600mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.07
2300mm OPEN RAILING FENCE WITH TOP BAR

FT.08
1800mm ALUMINUM BATT FENCE PAINTED WHITE

FT.09
1800mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.10
2000mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.11
2200mm TIMBER FEATURE FENCE

NOTES:
IMPACT RATED FENCING TO ALL STREET FACING FENCES

ALL NOISE BARRIERS MUST BE DESIGNED & CONSTRUCTED IN COMPLIANCE WITH ACOUSTIC REPORT. NOISE BARRIERS MUST ACHIEVE THE HEIGHT SPECIFIED ABOVE OUTDOOR PLAY FFL.

ON ARCHITECTURE

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Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
SITE PLAN

Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA02**	Rev:	-

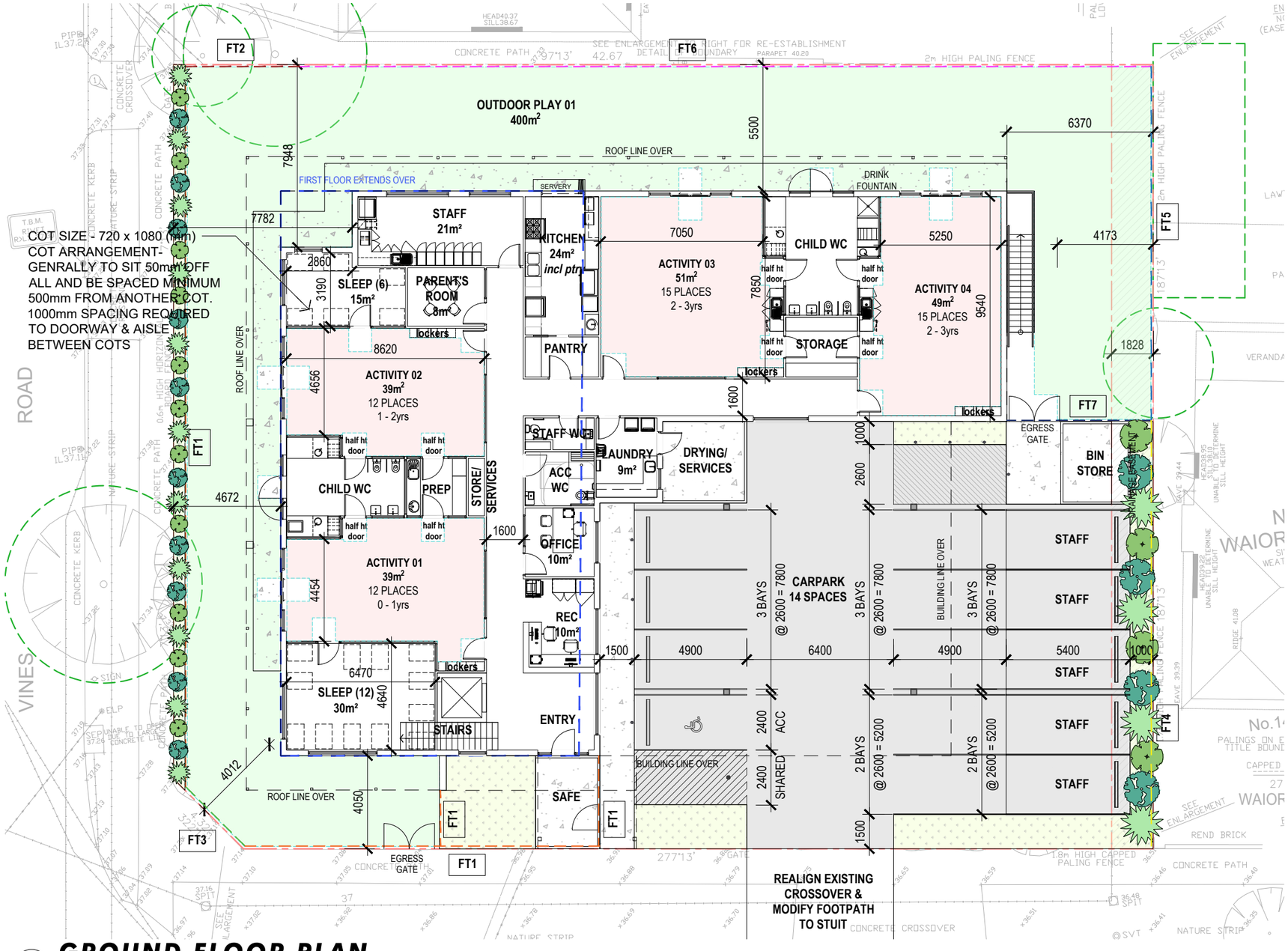
N

A3 SHEET

ACTIVITY AREA SCHEDULE								
ROOM	PLACES	AGE	STAFF RATIO	STAFF No.	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	12	0-2	1:4	3	39	39sqm	7sqm	46sqm
ROOM 2	12	0-2	1:4	3	39	39sqm	7sqm	46sqm
ROOM 3	15	2-3	1:4	4	48.75	49sqm	8sqm	57sqm
ROOM 4	15	2-3	1:4	4	48.75	49sqm	8sqm	57sqm
ROOM 5	22	4-5	1:11	2	71.5	72sqm	8sqm	80sqm
ROOM 6	33	4-5	1:11	3	107.25	108sqm	8sqm	116sqm
TOTALS	109			22	354.25	356sqm	46sqm	402sqm

OUTDOOR PLAY AREA SCHEDULE					
ROOMS	PLACES	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1 ROOM 2 ROOM 3 ROOM 4	12 12 15 15	378	400sqm	12sqm	412sqm
ROOM 5 ROOM 6	22 33	385	385sqm	5sqm - Doors 6sqm - Circulation 4sqm - Shed	400sqm
TOTALS	109	763	785sqm	27sqm	812sqm

SITE DATA	
SITE AREA	1452sqm
BUILDING AREAS (GFA) • Ground • First **TOTAL**	 522sqm 320sqm **842sqm**
PROPOSED CHILD CARE PLACES	109
PROPOSED CARPARKING	14 Carparks



NOTE: ALL INTERNAL WINDOWS SHOWN IN PLAN HAVE 1050mm SILL & 2400mm HEAD HEIGHTS

GROUND FLOOR PLAN
1:200

PLANNING

Rev	Amendment	Date
-	-	-

FENCE TYPE LEGEND

FT.01
1800mm OPEN RAILING FENCE WITH TOP BAR

FT.02
1800mm - 2000mm TAPERED ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE, REFER ELEVATIONS

FT.03
2000mm WHITE BRICK FEATURE FENCE

FT.04
2000mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.05
2500mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.06
2600mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.07
2300mm OPEN RAILING FENCE WITH TOP BAR

FT.08
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FT.09
1800mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.10
2000mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.11
2200mm TIMBER FEATURE FENCE

NOTES:
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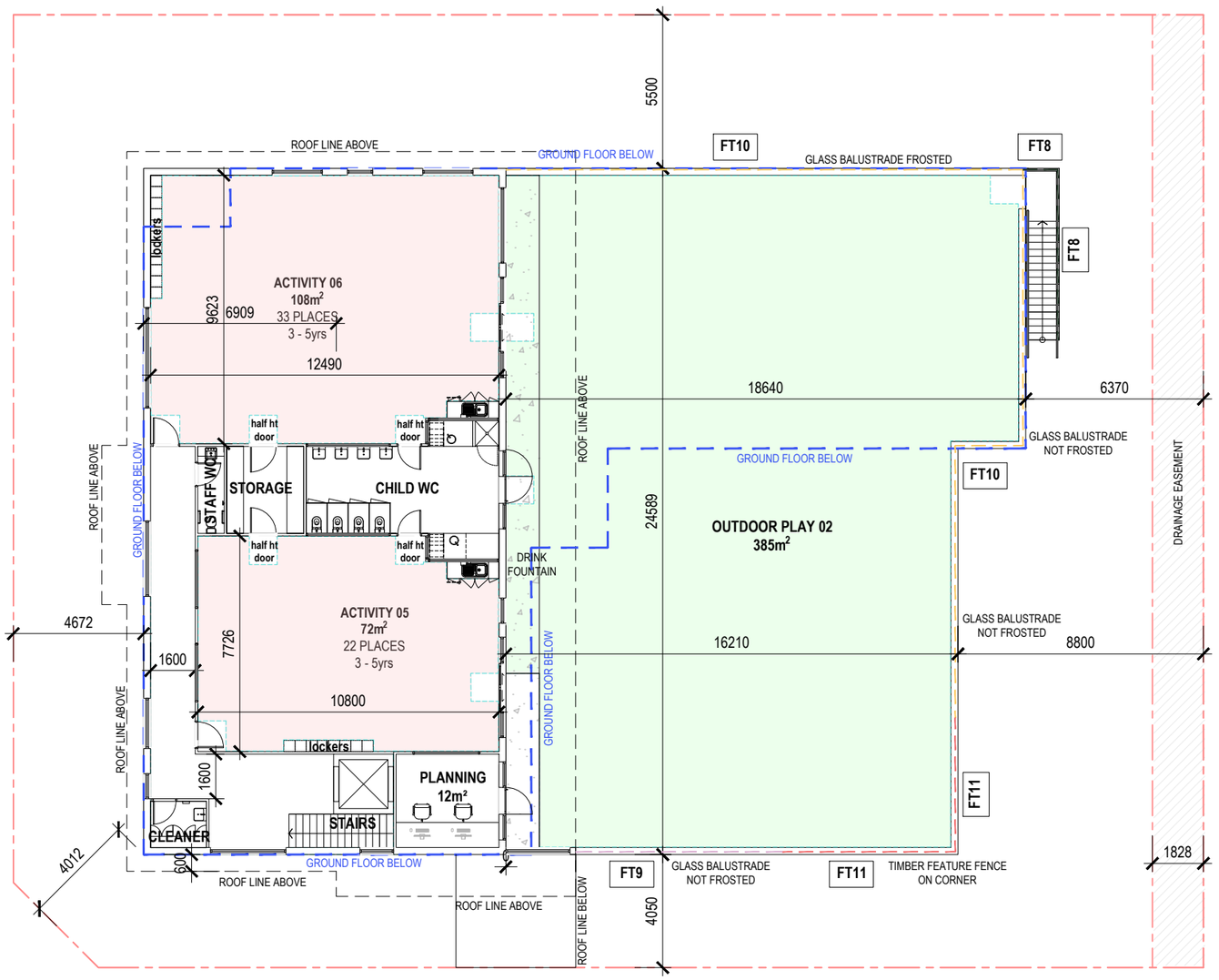
Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
GROUND FLOOR PLAN

Scale	As indicated	Drawn	LO		
Client					
Date	22/04/2026				
Job No.	202500052				
Dwg No.	**DA03**		Rev: -		A3 SHEET

ACTIVITY AREA SCHEDULE								
ROOM	PLACES	AGE	STAFF RATIO	STAFF No.	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	12	0-2	1:4	3	39	39sqm	7sqm	46sqm
ROOM 2	12	0-2	1:4	3	39	39sqm	7sqm	46sqm
ROOM 3	15	2-3	1:4	4	48.75	49sqm	8sqm	57sqm
ROOM 4	15	2-3	1:4	4	48.75	49sqm	8sqm	57sqm
ROOM 5	22	4-5	1:11	2	71.5	72sqm	8sqm	80sqm
ROOM 6	33	4-5	1:11	3	107.25	108sqm	8sqm	116sqm
TOTALS	109			22	354.25	356sqm	46sqm	402sqm

OUTDOOR PLAY AREA SCHEDULE					
ROOMS	PLACES	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1 ROOM 2 ROOM 3 ROOM 4	12 12 15 15	378	400sqm	12sqm	412sqm
ROOM 5 ROOM 6	22 33	385	385sqm	5sqm - Doors 6sqm - Circulation 4sqm - Shed	400sqm
TOTALS	109	763	785sqm	27sqm	812sqm



NOTE: ALL INTERNAL WINDOWS SHOWN IN PLAN HAVE 1050mm SILL & 2400mm HEAD HEIGHTS

PLANNING

Rev	Amendment	Date
-	-	-

FENCE TYPE LEGEND

FT.01
1800mm OPEN RAILING FENCE WITH TOP BAR

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1800mm - 2000mm TAPERED ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE, REFER ELEVATIONS

FT.03
2000mm WHITE BRICK FEATURE FENCE

FT.04
2000mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.05
2500mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

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2200mm TIMBER FEATURE FENCE

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Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
FIRST FLOOR PLAN

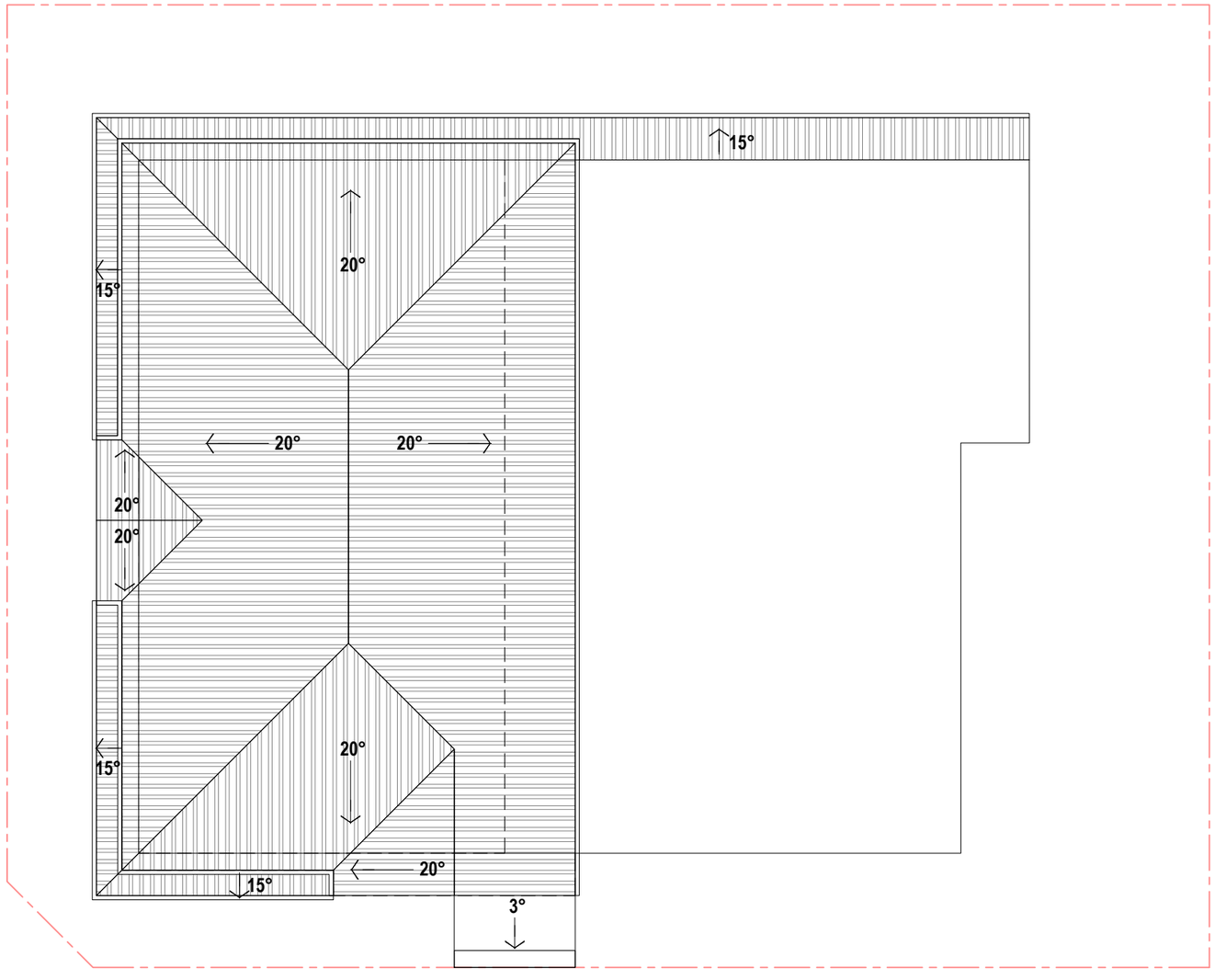
Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA04**	Rev:	-

A3 SHEET

FIRST FLOOR PLAN
1:200

PLANNING

Rev	Amendment	Date
-	-	-



ROOF PLAN

1:200

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Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
ROOF PLAN

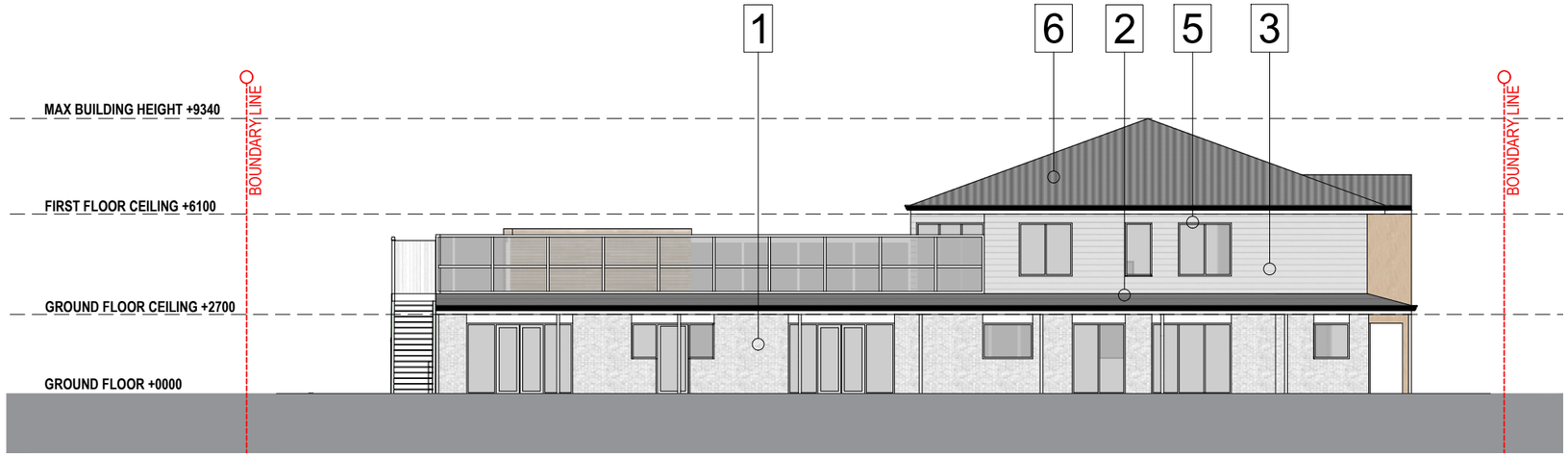
Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA05**	Rev:	-

N

A3 SHEET

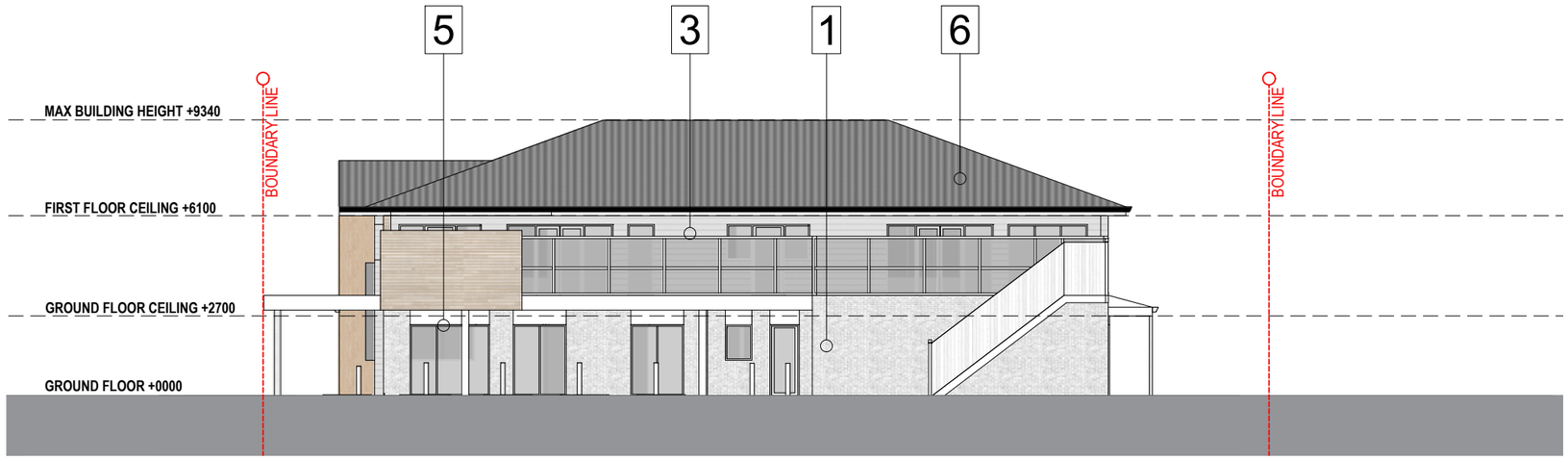
PLANNING

Rev	Amendment	Date
-	-	-



NORTH ELEVATION

1:200



EAST ELEVATION

1:200

MATERIALS LEGEND

01	PGH WHITE COLOUR STANDARD BRICK	02	TIMBER LOOK AXON CLADDING	03	AXON CLADDING, LIGHT	04	TIMBER BATTEN FEATURE PANEL	05	SURFMIST FRAMING FLASHING & CAPPING - MONUMENT, OR SIMILAR	06	COLORBOND 'SURFMIST' TRIMDEK ROOF SHEETING, OR SIMILAR

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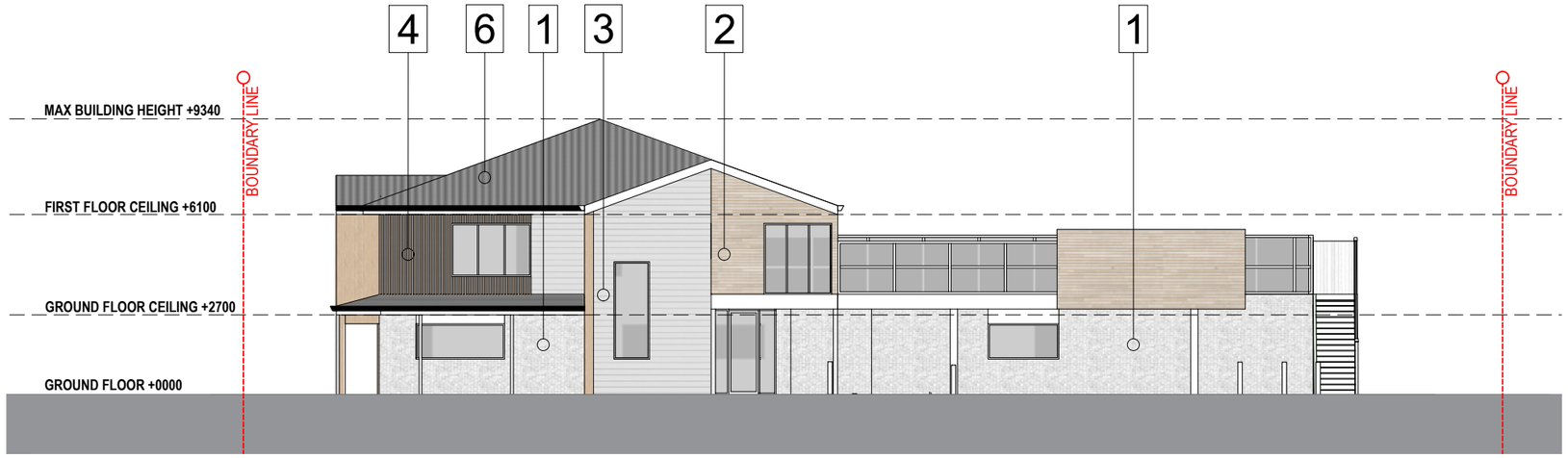
Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
ELEVATIONS

Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA06**	Rev:	- A3 SHEET

PLANNING

Rev	Amendment	Date
-	-	-



SOUTH ELEVATION
1:200

WEST ELEVATION
1:200

MATERIALS LEGEND

01 PGH WHITE COLOUR STANDARD BRICK

02 TIMBER LOOK AXON CLADDING

03 AXON CLADDING, LIGHT

04 TIMBER BATTEN FEATURE PANEL

05 SURFMIST FRAMING FLASHING & CAPPING - MONUMENT, OR SIMILAR

06 COLORBOND 'SURFMIST' TRIMDEK ROOF SHEETING, OR SIMILAR

ON ARCHITECTURE

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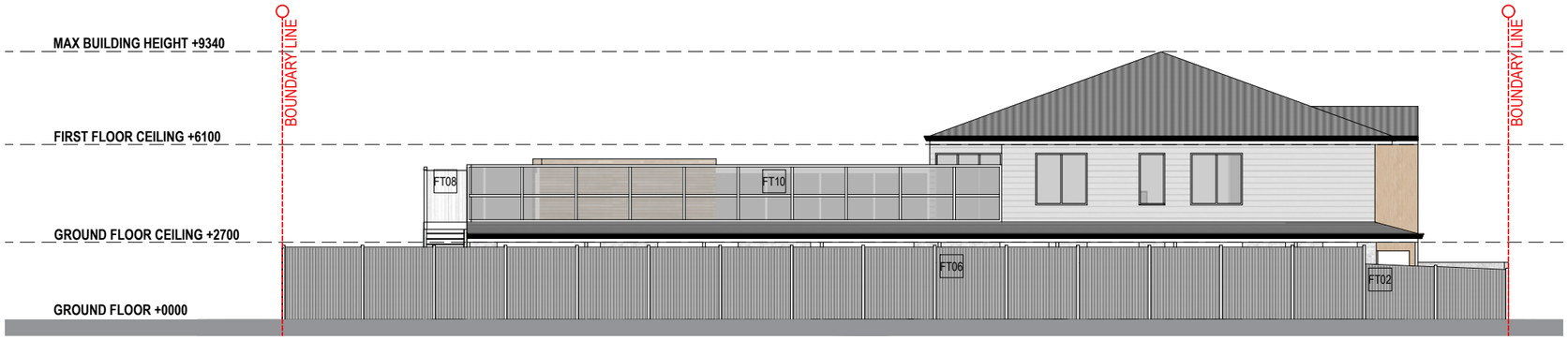
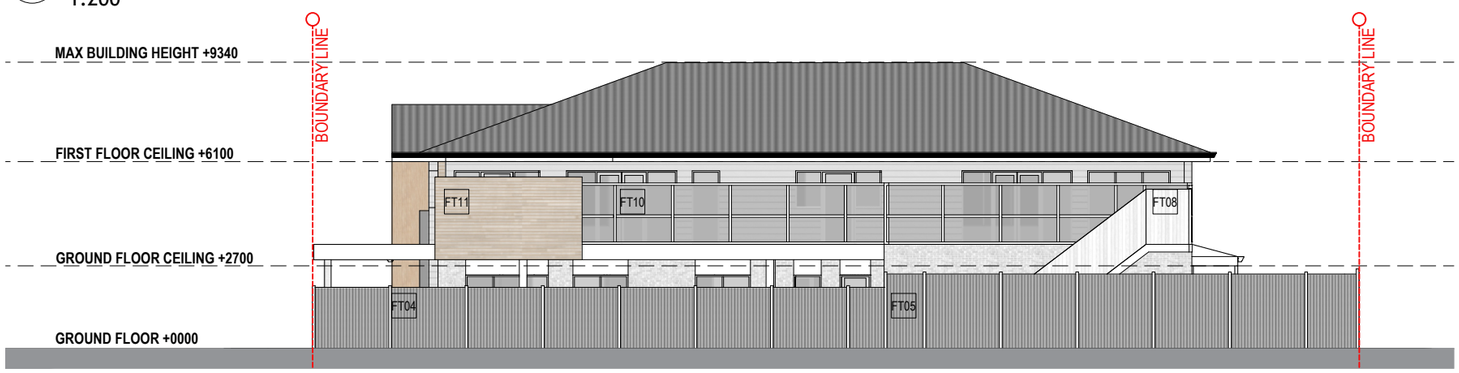
Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
ELEVATIONS

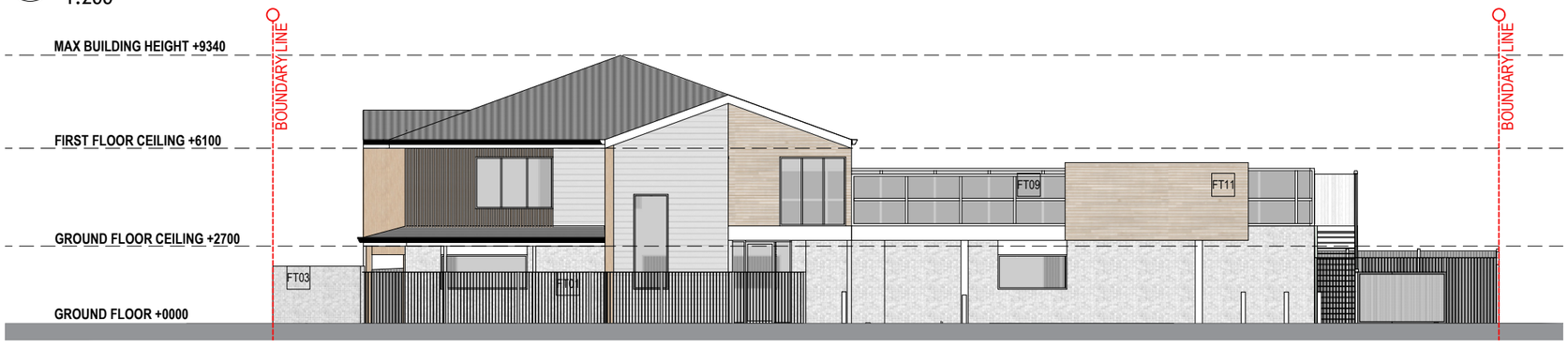
Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA07**	Rev: -	A3 SHEET



NORTH ELEVATION
1:200



EAST ELEVATION
1:200



SOUTH ELEVATION
1:200

WEST ELEVATION
1:200

PLANNING

Rev	Amendment	Date
-	-	-

FENCE TYPE LEGEND

FT.01
1800mm OPEN RAILING FENCE WITH TOP BAR

FT.02
1800mm - 2000mm TAPERED ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE, REFER ELEVATIONS

FT.03
2000mm WHITE BRICK FEATURE FENCE

FT.04
2000mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.05
2500mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.06
2600mm ACOUSTIC PAINTED TIMBER PALING BOUNDARY FENCE

FT.07
2300mm OPEN RAILING FENCE WITH TOP BAR

FT.08
1800mm ALUMINUM BATT FENCE PAINTED WHITE

FT.09
1800mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.10
2000mm WHITE ALUMINIUM FRAME, GLASS INFILL BALUSTRADE

FT.11
2200mm TIMBER FEATURE FENCE

NOTES:
IMPACT RATED FENCING TO ALL STREET FACING FENCES

ALL NOISE BARRIERS MUST BE DESIGNED & CONSTRUCTED IN COMPLIANCE WITH ACOUSTIC REPORT. NOISE BARRIERS MUST ACHIEVE THE HEIGHT SPECIFIED ABOVE OUTDOOR PLAY FFL.

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Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
FENCE ELEVATIONS

Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA08**	Rev: -	A3 SHEET

PLANNING

Rev	Amendment	Date
-	-	-

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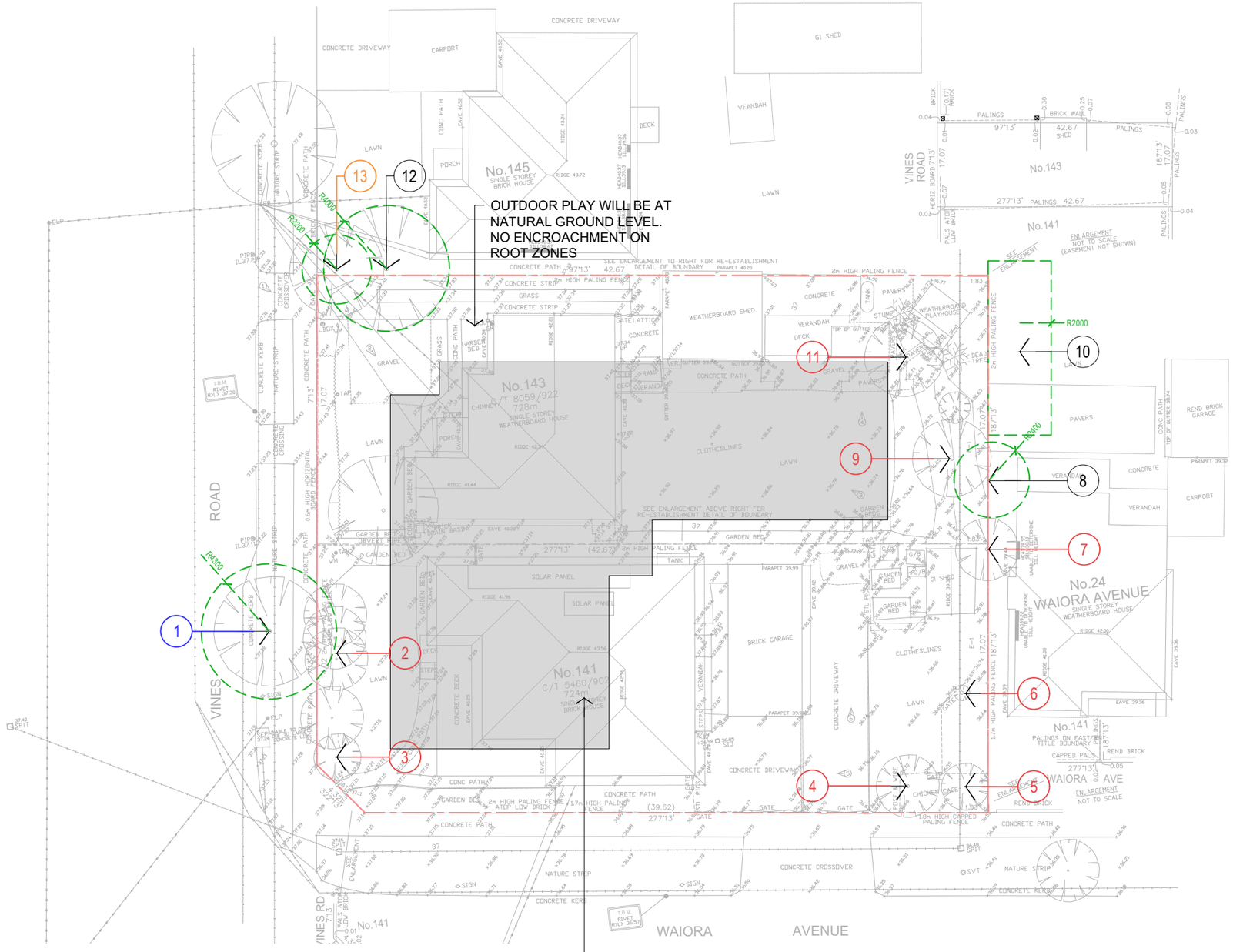
Mark Nield m 0432 680 486 e m.nield@onarchitecture.com.au

Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
CONCEPT IMAGES

Scale		Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA09**	Rev:	- A3 SHEET

SITE DATA	
SITE AREA	1452sqm
BUILDING AREAS (GFA) • Ground • First **TOTAL**	 522sqm 320sqm **842sqm**
PROPOSED CHILD CARE PLACES	109
PROPOSED CARPARKING	14 Carparks



TREE PROTECTION ZONE PLAN

1:300

PLANNING

Rev	Amendment	Date
-	-	-

TREE No.	TREE PRO. ZONE RADIUS (mm)	PROPOSED NEW ENCROACH. AREA: (m^2)
1	4300	NIL
2	2000	DEMOLISH
3	2000	DEMOLISH
4	3800	DEMOLISH
5	2000	DEMOLISH
6	2800	DEMOLISH
7	3600	DEMOLISH
8	2400	NIL
9	3000	DEMOLISH
10	2000	NIL
11	2000	DEMOLISH
12	4000	NIL
13	2200	NIL

ON ARCHITECTURE

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Project
109 PLACE CHILD CARE
143 VINES ROAD, HAMLYN HEIGHTS, VIC

DRAWING
TREE PROTECTION ZONE PLAN

Scale	As indicated	Drawn	LO
Client			
Date	22/04/2026		
Job No.	202500052		
Dwg No.	**DA10**	Rev:	-

N

A3 SHEET

Appendix B – Traffic Survey Results

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Waiora Ave and Vines Rd, Hamlyn Heights

GPS *-38.118279, 144.328771*

Date:	Tue 01/04/25
Weather:	Overcast
Suburban:	Hamlyn Heights
Customer:	Ratio

North:	Vines Rd
East:	Waiora Ave
South:	Vines Rd
West:	Chaucer St

Survey Period	AM:	7:00 AM-9:30 AM
	PM:	2:30 PM-6:00 PM
Traffic Peak	AM:	8:15 AM-9:15 AM
	PM:	3:00 PM-4:00 PM

All Vehicles

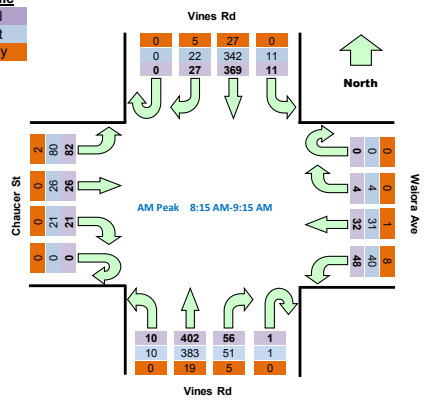
Time		North Approach Vines Rd				East Approach Waiora Ave				South Approach Vines Rd				West Approach Chaucer St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	2	30	0	0	0	2	1	0	4	44	0	0	0	4	6	475	
7:15	7:30	0	3	30	1	0	1	1	5	0	7	54	1	0	0	2	7	562	
7:30	7:45	0	2	26	0	0	0	4	4	0	13	49	1	0	0	9	6	732	
7:45	8:00	0	6	55	0	0	0	2	3	0	13	55	4	0	2	8	8	936	
8:00	8:15	0	1	56	1	0	2	4	8	0	10	77	3	0	3	4	11	1070	
8:15	8:30	0	6	103	0	0	3	9	15	0	11	101	2	0	2	5	25	1089	Peak
8:30	8:45	0	10	96	9	0	0	6	9	0	19	124	4	0	7	12	22	944	
8:45	9:00	0	7	89	2	0	0	11	13	0	18	110	4	0	8	3	25		
9:00	9:15	0	4	81	0	0	1	6	11	1	8	67	0	0	4	6	10		
9:15	9:30	0	4	46	3	0	0	2	5	0	4	58	1	1	2	6	5		
14:30	14:45	0	7	59	0	0	2	10	13	0	5	51	5	0	3	2	4	918	
14:45	15:00	0	19	98	1	0	3	8	11	0	4	59	3	0	2	2	5	975	
15:00	15:15	0	19	90	1	0	1	13	20	0	6	111	1	0	0	7	10	993	Peak
15:15	15:30	0	7	75	3	0	2	7	22	0	13	81	1	0	10	9	33	931	
15:30	15:45	0	8	74	0	0	0	8	16	0	5	84	2	0	4	8	9	896	
15:45	16:00	0	9	94	1	0	2	4	16	0	4	86	2	0	0	6	9	874	
16:00	16:15	0	5	79	2	0	4	6	17	0	7	78	3	0	2	4	10	863	
16:15	16:30	0	7	86	2	0	0	8	18	0	8	75	3	0	2	5	14	857	
16:30	16:45	0	8	74	0	0	1	9	17	0	4	68	0	0	3	4	8	816	
16:45	17:00	0	8	99	2	0	0	6	20	0	8	60	0	0	5	3	11	839	
17:00	17:15	0	5	75	0	0	3	10	13	0	8	77	2	0	3	4	11	797	
17:15	17:30	0	5	77	1	0	0	7	16	0	6	59	2	0	3	6	5		
17:30	17:45	2	10	84	1	0	1	11	13	0	6	73	4	0	1	5	8		
17:45	18:00	0	6	67	0	0	3	11	10	0	4	66	5	0	2	1	5		

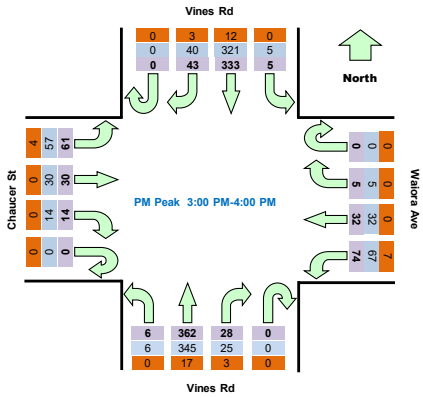
Peak Time		North Approach Vines Rd				East Approach Waiora Ave				South Approach Vines Rd				West Approach Chaucer St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:15	9:15	0	27	369	11	0	4	32	48	1	56	402	10	0	21	26	82	1089
15:00	16:00	0	43	333	5	0	5	32	74	0	28	362	6	0	14	30	61	993

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy





Appendix C – Existing Conditions SIDRA Results

MOVEMENT SUMMARY

Site: [101] Vines Road / Chaucer Street / Waiora Avenue - AM Peak (Existing) (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.4.216

Vines Road / Chaucer Street / Waiora Avenue - AM Peak (Existing)
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Vines Road (S)															
1	L2	All MCs	11	0.0	11	0.0	0.279	7.3	LOS A	0.6	4.4	0.16	0.20	0.16	56.2
2	T1	All MCs	423	5.0	423	5.0	0.279	0.4	LOS A	0.6	4.4	0.16	0.20	0.16	58.5
3	R2	All MCs	59	0.0	59	0.0	0.279	7.3	LOS A	0.6	4.4	0.16	0.20	0.16	55.9
Approach			493	4.3	493	4.3	0.279	1.3	NA	0.6	4.4	0.16	0.20	0.16	58.2
East: Waiora Avenue															
4	L2	All MCs	51	0.0	51	0.0	0.132	7.0	LOS A	0.5	3.3	0.57	0.75	0.57	50.4
5	T1	All MCs	34	0.0	34	0.0	0.132	11.0	LOS B	0.5	3.3	0.57	0.75	0.57	50.8
6	R2	All MCs	4	0.0	4	0.0	0.132	15.8	LOS C	0.5	3.3	0.57	0.75	0.57	50.2
Approach			88	0.0	88	0.0	0.132	9.0	LOS A	0.5	3.3	0.57	0.75	0.57	50.5
North: Vines Road (N)															
7	L2	All MCs	12	0.0	12	0.0	0.237	7.2	LOS A	0.3	2.4	0.10	0.13	0.10	56.6
8	T1	All MCs	388	5.0	388	5.0	0.237	0.2	LOS A	0.3	2.4	0.10	0.13	0.10	59.0
9	R2	All MCs	28	0.0	28	0.0	0.237	7.4	LOS A	0.3	2.4	0.10	0.13	0.10	56.3
Approach			428	4.5	428	4.5	0.237	0.9	NA	0.3	2.4	0.10	0.13	0.10	58.8
West: Chaucer Street															
10	L2	All MCs	86	0.0	86	0.0	0.208	7.3	LOS A	0.8	5.4	0.59	0.77	0.59	50.0
11	T1	All MCs	27	0.0	27	0.0	0.208	11.4	LOS B	0.8	5.4	0.59	0.77	0.59	50.4
12	R2	All MCs	22	0.0	22	0.0	0.208	15.9	LOS C	0.8	5.4	0.59	0.77	0.59	49.8
Approach			136	0.0	136	0.0	0.208	9.5	LOS A	0.8	5.4	0.59	0.77	0.59	50.0
All Vehicles			1145	3.5	1145	3.5	0.279	2.7	NA	0.8	5.4	0.22	0.28	0.22	56.6

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.

MOVEMENT SUMMARY

Site: [102] Vines Road / Chaucer Street / Waiora Avenue - PM Peak (Existing) (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.4.216

Vines Road / Chaucer Street / Waiora Avenue - PM Peak (Existing)
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

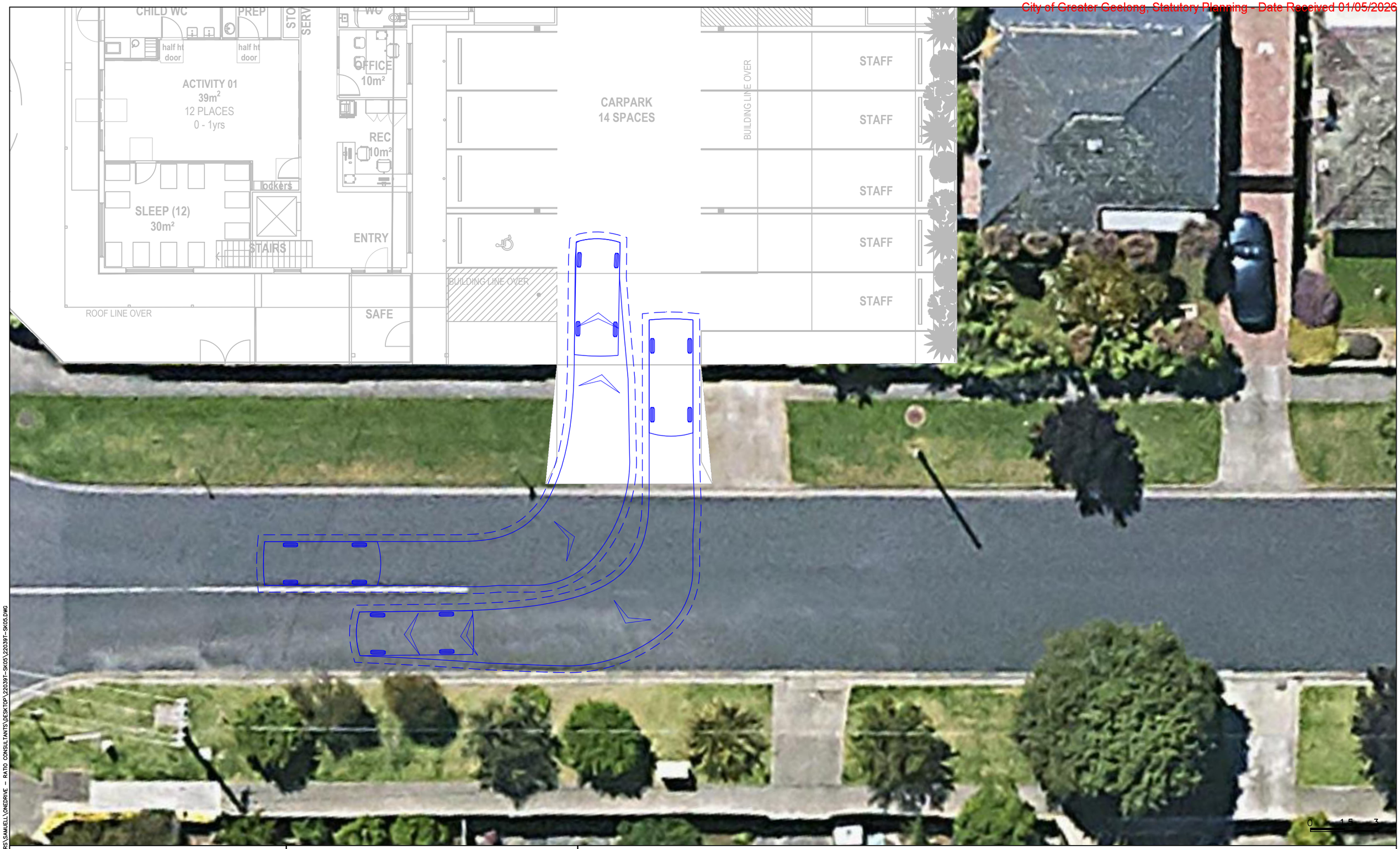
Vehicle Movement Performance

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Vines Road (S)															
1	L2	All MCs	6	0.0	6	0.0	0.229	6.9	LOS A	0.3	2.1	0.09	0.11	0.09	56.7
2	T1	All MCs	381	5.0	381	5.0	0.229	0.2	LOS A	0.3	2.1	0.09	0.11	0.09	59.1
3	R2	All MCs	29	0.0	29	0.0	0.229	7.0	LOS A	0.3	2.1	0.09	0.11	0.09	56.5
Approach			417	4.6	417	4.6	0.229	0.8	NA	0.3	2.1	0.09	0.11	0.09	58.9
East: Waiora Avenue															
4	L2	All MCs	78	0.0	78	0.0	0.144	6.9	LOS A	0.5	3.8	0.51	0.70	0.51	51.1
5	T1	All MCs	34	0.0	34	0.0	0.144	9.7	LOS A	0.5	3.8	0.51	0.70	0.51	51.4
6	R2	All MCs	5	0.0	5	0.0	0.144	13.8	LOS B	0.5	3.8	0.51	0.70	0.51	50.9
Approach			117	0.0	117	0.0	0.144	8.0	LOS A	0.5	3.8	0.51	0.70	0.51	51.2
North: Vines Road (N)															
7	L2	All MCs	5	0.0	5	0.0	0.226	7.2	LOS A	0.4	3.2	0.14	0.17	0.14	56.3
8	T1	All MCs	351	5.0	351	5.0	0.226	0.3	LOS A	0.4	3.2	0.14	0.17	0.14	58.7
9	R2	All MCs	45	0.0	45	0.0	0.226	7.1	LOS A	0.4	3.2	0.14	0.17	0.14	56.0
Approach			401	4.4	401	4.4	0.226	1.2	NA	0.4	3.2	0.14	0.17	0.14	58.4
West: Chaucer Street															
10	L2	All MCs	64	0.0	64	0.0	0.156	7.0	LOS A	0.6	4.0	0.55	0.74	0.55	50.5
11	T1	All MCs	32	0.0	32	0.0	0.156	9.7	LOS A	0.6	4.0	0.55	0.74	0.55	50.9
12	R2	All MCs	15	0.0	15	0.0	0.156	14.1	LOS B	0.6	4.0	0.55	0.74	0.55	50.3
Approach			111	0.0	111	0.0	0.156	8.7	LOS A	0.6	4.0	0.55	0.74	0.55	50.6
All Vehicles			1045	3.5	1045	3.5	0.229	2.6	NA	0.6	4.0	0.21	0.27	0.21	56.7

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.

Organisation: RATIO CONSULTANTS PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, April 22, 2025 6:45:56 PM
Project: Not Saved

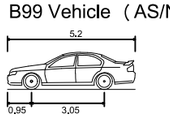
Appendix D – Swept Path Assessment



ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
LEVEL 5, 65 DOVER STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B99 Vehicle (AS/NZS2890.1:2004)



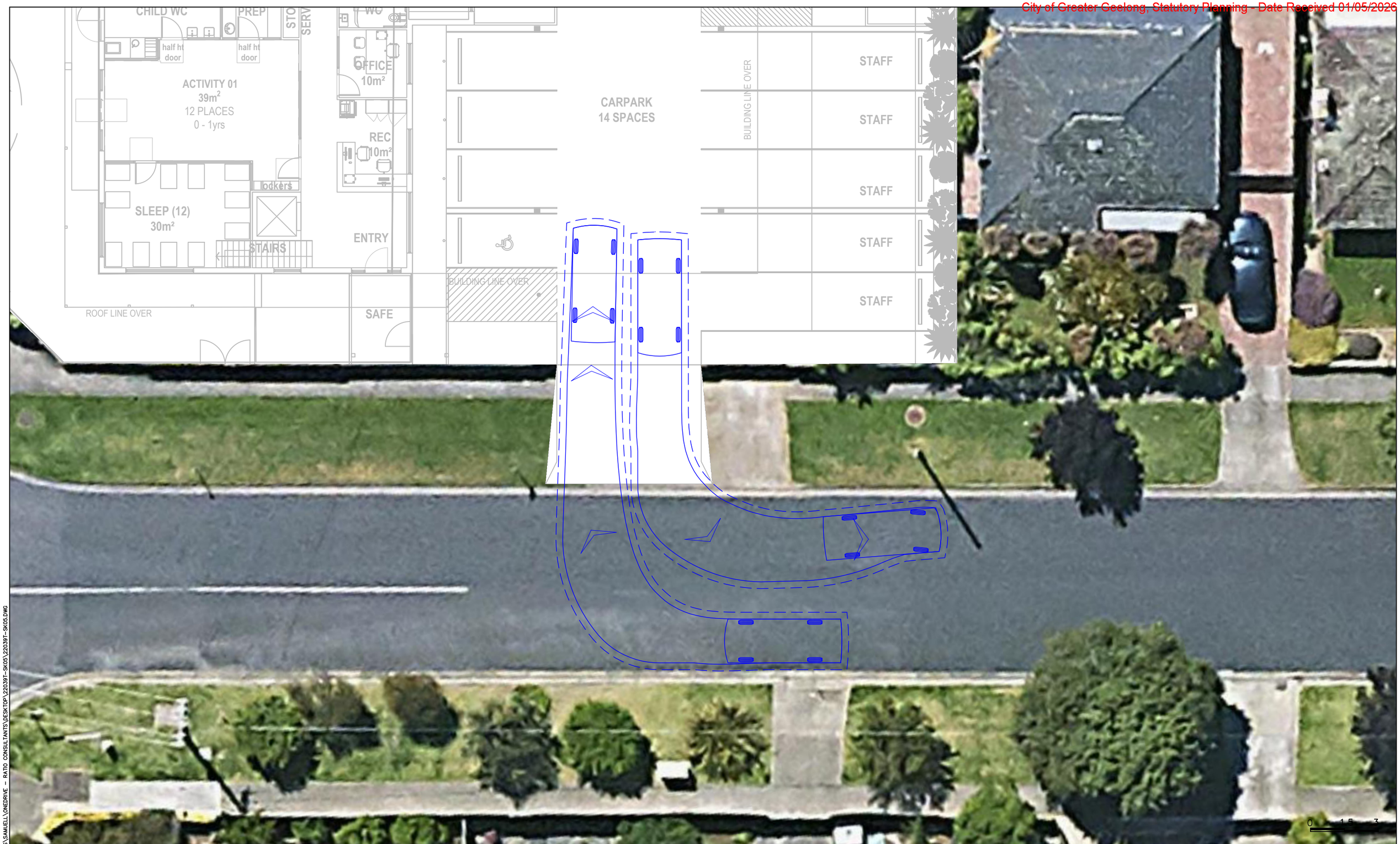
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

Proposed Childcare Centre Development
143 Vines Road, Hamlyn Heights
Swept Path Assessment

NOTE:
1) Base Plan Supplied on 23/04/2026
2) Maximum Design Speed 10km/h

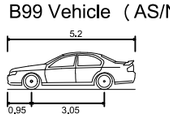
RATIO REFERENCE	SHEET No.	SCALE	DATE
22039T-SK05/SL	1 of 4	1:150@A3	23/04/2026



ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
LEVEL 5, 65 DOVER STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B99 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

Proposed Childcare Centre Development
143 Vines Road, Hamlyn Heights
Swept Path Assessment

NOTE:
1) Base Plan Supplied on 23/04/2026
2) Maximum Design Speed 10km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
22039T-SK05/SL	2 of 4	1:150@A3	23/04/2026

FIRST FLOOR EXTENDS OVER

SERVERY

DRINK FOUNTAIN

STAFF 21m²

KITCHEN 24m² incl ptry

ACTIVITY 03 51m² 15 PLACES 2 - 3yrs

CHILD WC

ACTIVITY 04 49m² 15 PLACES 2 - 3yrs

SLEEP (6) 15m²

PARENTS ROOM 8m²

lockers

PANTRY

STORAGE

ROOF LINE OVER

ACTIVITY 02 39m² 12 PLACES 1 - 2yrs

half ht door

STAFF WC

LAUNDRY 9m²

DRYING/ SERVICES

EGRESS GATE

BIN STORE

ACC WC

CHILD WC

PREP

STORE/ SERVICES

OFFICE 10m²

CARPARK 14 SPACES

BUILDING LINE OVER

ACTIVITY 01 39m² 12 PLACES 0 - 1yrs

REC 10m²

SLEEP (12) 30m²

STAIRS

ENTRY

STAFF

4012

ROOF LINE OVER

SAFE

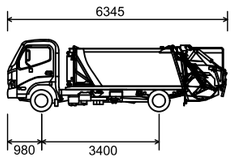
BUILDING LINE OVER

0 2 4

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
LEVEL 5, 65 DOVER STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Mini-Rear Loader Waste Collection Vehicle



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	6.345m
Body Width	1.700m
Overall Body Height	2.080m
Min Body Ground Clearance	0.205m
Track Width	1.670m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.450m

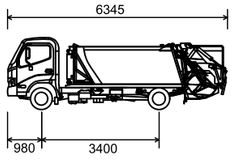
Proposed Childcare Centre Development
143 Vines Road, Hamlyn Heights
Swept Path Assessment

NOTE:
1) Base Plan Supplied on 23/04/2026
2) Maximum Design Speed 10km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
22039T-SK05/SL	3 of 4	1:200@A3	23/04/2026

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

Mini-Rear Loader Waste Collection Vehicle



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	6.345m
Body Width	1.700m
Overall Body Height	2.080m
Min Body Ground Clearance	0.205m
Track Width	1.670m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.450m

Proposed Childcare Centre Development
143 Vines Road, Hamlyn Heights
Swept Path Assessment

NOTE:
1) Base Plan Supplied on 23/04/2026
2) Maximum Design Speed 10km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
22039T-SK05/SL	4 of 4	1:200@A3	23/04/2026

Appendix E – Post Development SIDRA Results

MOVEMENT SUMMARY

Site: [105] Site Access / Waiora Avenue - AM Peak (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Site Access / Waiora Avenue - AM Peak
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Waiora Avenue (E)															
5	T1	All MCs	88	0.0	88	0.0	0.056	0.1	LOS A	0.1	0.9	0.10	0.13	0.10	58.6
6	R2	All MCs	20	0.0	20	0.0	0.056	5.8	LOS A	0.1	0.9	0.10	0.13	0.10	56.0
Approach			108	0.0	108	0.0	0.056	1.2	NA	0.1	0.9	0.10	0.13	0.10	58.1
North: Site Access															
7	L2	All MCs	19	0.0	19	0.0	0.031	5.8	LOS A	0.1	0.8	0.22	0.56	0.22	52.3
9	R2	All MCs	20	0.0	20	0.0	0.031	6.2	LOS A	0.1	0.8	0.22	0.56	0.22	52.1
Approach			39	0.0	39	0.0	0.031	6.0	LOS A	0.1	0.8	0.22	0.56	0.22	52.2
West: Waiora Avenue (W)															
10	L2	All MCs	20	0.0	20	0.0	0.058	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	56.6
11	T1	All MCs	98	0.0	98	0.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.1
Approach			118	0.0	118	0.0	0.058	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.6
All Vehicles			265	0.0	265	0.0	0.058	1.8	NA	0.1	0.9	0.07	0.18	0.07	57.4

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.

MOVEMENT SUMMARY

Site: [106] Site Access / Waiora Avenue - PM Peak (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Site Access / Waiora Avenue - PM Peak
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Waiora Avenue (E)															
5	T1	All MCs	117	0.0	117	0.0	0.063	0.0	LOS A	0.1	0.4	0.03	0.05	0.03	59.5
6	R2	All MCs	9	0.0	9	0.0	0.063	5.6	LOS A	0.1	0.4	0.03	0.05	0.03	56.8
Approach			126	0.0	126	0.0	0.063	0.4	NA	0.1	0.4	0.03	0.05	0.03	59.2
North: Site Access															
7	L2	All MCs	9	0.0	9	0.0	0.015	5.7	LOS A	0.1	0.4	0.18	0.55	0.18	52.4
9	R2	All MCs	9	0.0	9	0.0	0.015	6.1	LOS A	0.1	0.4	0.18	0.55	0.18	52.2
Approach			19	0.0	19	0.0	0.015	5.9	LOS A	0.1	0.4	0.18	0.55	0.18	52.3
West: Waiora Avenue (W)															
10	L2	All MCs	9	0.0	9	0.0	0.037	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	56.9
11	T1	All MCs	66	0.0	66	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.3
Approach			76	0.0	76	0.0	0.037	0.7	NA	0.0	0.0	0.00	0.07	0.00	59.0
All Vehicles			221	0.0	221	0.0	0.063	1.0	NA	0.1	0.4	0.03	0.10	0.03	58.5

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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Project: C:\Users\samuell\OneDrive - Ratio Consultants\Desktop\22039T-SID001.sipx

MOVEMENT SUMMARY

Site: [103] Vines Road / Chaucer Street / Waiora Avenue - AM Peak (Post Dev) (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Vines Road / Chaucer Street / Waiora Avenue - AM Peak (Post Dev)
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Vines Road (S)															
1	L2	All MCs	11	0.0	11	0.0	0.288	7.3	LOS A	0.7	5.2	0.18	0.22	0.18	56.0
2	T1	All MCs	423	5.0	423	5.0	0.288	0.4	LOS A	0.7	5.2	0.18	0.22	0.18	58.4
3	R2	All MCs	69	0.0	69	0.0	0.288	7.4	LOS A	0.7	5.2	0.18	0.22	0.18	55.8
Approach			503	4.2	503	4.2	0.288	1.5	NA	0.7	5.2	0.18	0.22	0.18	57.9
East: Waiora Avenue															
4	L2	All MCs	61	0.0	61	0.0	0.171	7.1	LOS A	0.6	4.3	0.59	0.76	0.59	50.1
5	T1	All MCs	40	0.0	40	0.0	0.171	11.4	LOS B	0.6	4.3	0.59	0.76	0.59	50.5
6	R2	All MCs	8	0.0	8	0.0	0.171	16.5	LOS C	0.6	4.3	0.59	0.76	0.59	49.9
Approach			109	0.0	109	0.0	0.171	9.4	LOS A	0.6	4.3	0.59	0.76	0.59	50.2
North: Vines Road (N)															
7	L2	All MCs	16	0.0	16	0.0	0.239	7.1	LOS A	0.3	2.4	0.10	0.14	0.10	56.6
8	T1	All MCs	388	5.0	388	5.0	0.239	0.2	LOS A	0.3	2.4	0.10	0.14	0.10	59.0
9	R2	All MCs	28	0.0	28	0.0	0.239	7.4	LOS A	0.3	2.4	0.10	0.14	0.10	56.3
Approach			433	4.5	433	4.5	0.239	0.9	NA	0.3	2.4	0.10	0.14	0.10	58.7
West: Chaucer Street															
10	L2	All MCs	86	0.0	86	0.0	0.226	7.4	LOS A	0.8	5.9	0.61	0.78	0.62	49.8
11	T1	All MCs	34	0.0	34	0.0	0.226	11.7	LOS B	0.8	5.9	0.61	0.78	0.62	50.2
12	R2	All MCs	22	0.0	22	0.0	0.226	16.6	LOS C	0.8	5.9	0.61	0.78	0.62	49.6
Approach			142	0.0	142	0.0	0.226	9.8	LOS A	0.8	5.9	0.61	0.78	0.62	49.8
All Vehicles			1187	3.4	1187	3.4	0.288	3.0	NA	0.8	5.9	0.24	0.31	0.24	56.3

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.

MOVEMENT SUMMARY

Site: [104] Vines Road / Chaucer Street / Waiora Avenue - PM Peak (Post Dev) (SID001)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Vines Road / Chaucer Street / Waiora Avenue - PM Peak (Post Dev)
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Vines Road (S)															
1	L2	All MCs	6	0.0	6	0.0	0.233	7.0	LOS A	0.3	2.5	0.10	0.13	0.10	56.6
2	T1	All MCs	381	5.0	381	5.0	0.233	0.2	LOS A	0.3	2.5	0.10	0.13	0.10	59.0
3	R2	All MCs	35	0.0	35	0.0	0.233	7.0	LOS A	0.3	2.5	0.10	0.13	0.10	56.4
Approach			422	4.5	422	4.5	0.233	0.9	NA	0.3	2.5	0.10	0.13	0.10	58.7
East: Waiora Avenue															
4	L2	All MCs	83	0.0	83	0.0	0.161	6.9	LOS A	0.6	4.2	0.52	0.71	0.52	50.9
5	T1	All MCs	37	0.0	37	0.0	0.161	9.9	LOS A	0.6	4.2	0.52	0.71	0.52	51.3
6	R2	All MCs	7	0.0	7	0.0	0.161	14.1	LOS B	0.6	4.2	0.52	0.71	0.52	50.7
Approach			127	0.0	127	0.0	0.161	8.2	LOS A	0.6	4.2	0.52	0.71	0.52	51.0
North: Vines Road (N)															
7	L2	All MCs	7	0.0	7	0.0	0.227	7.1	LOS A	0.4	3.2	0.14	0.18	0.14	56.3
8	T1	All MCs	351	5.0	351	5.0	0.227	0.3	LOS A	0.4	3.2	0.14	0.18	0.14	58.7
9	R2	All MCs	45	0.0	45	0.0	0.227	7.1	LOS A	0.4	3.2	0.14	0.18	0.14	56.0
Approach			403	4.3	403	4.3	0.227	1.2	NA	0.4	3.2	0.14	0.18	0.14	58.3
West: Chaucer Street															
10	L2	All MCs	64	0.0	64	0.0	0.163	7.0	LOS A	0.6	4.2	0.56	0.74	0.56	50.5
11	T1	All MCs	35	0.0	35	0.0	0.163	9.8	LOS A	0.6	4.2	0.56	0.74	0.56	50.9
12	R2	All MCs	15	0.0	15	0.0	0.163	14.3	LOS B	0.6	4.2	0.56	0.74	0.56	50.2
Approach			114	0.0	114	0.0	0.163	8.8	LOS A	0.6	4.2	0.56	0.74	0.56	50.6
All Vehicles			1066	3.4	1066	3.4	0.233	2.7	NA	0.6	4.2	0.22	0.28	0.22	56.6

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.