



Caringbah Social and Affordable Housing Transport Impact Assessment

Prepared for:
Homes NSW

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The Transport Planning Partnership

Caringbah Social and Affordable Housing Transport Impact Assessment

Client: Homes NSW

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APPENDICES

- A. ARCHITECTURAL PLANS
- B. SWEPT PATH ASSESSMENT (OPERATION)
- C. SIDRA MODELLING RESULTS
- D. SWEPT PATH ASSESSMENT (CONSTRUCTION)

1 Introduction

1.1 Background

This Transport Impact Assessment (TIA) has been prepared by The Transport Planning Partnership (TPPP) Pty Ltd on behalf of Homes NSW for a concurrent State Significant Development Application (SSD-84862461) and Planning Proposal for the redevelopment of existing social housing (the Project) at 2 Flide Street, Caringbah (the Site).

The project involves the construction of two residential flat buildings—one rising to part 13 and part 14 storeys, and the other to eight storeys—comprising a total of 164 social and affordable housing apartments. The development also includes a communal room and a two-level basement car park. To support the Proposal, adjustments to the permissible building height and floor space ratio (FSR) via an amendment to the Sutherland Shire Local Environment Plan 2015 are required.

1.2 Report Structure

The purpose of this TIA is to assess the transport impacts of the proposed development and to address the Secretary’s Environmental Assessment Requirements (SEARs) for the project issued on 2 May 2025 which identified the specific assessment requirements as summarised in Table 1.1. The relevant section where each requirement is addressed within this TIA is also provided.

Table 1.1: SEARS Requirements

9. TRANSPORT	
SEARS Requirements	Addressed in Report
<ul style="list-style-type: none"> Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GTIA) published by TfNSW. 	Throughout this report
<ul style="list-style-type: none"> If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts. 	Section 8

The Requirements for State Assessed Rezoning Proposal issued for the Project by Department of Planning, Housing and Infrastructure on 12 June 2025 identified the following specific assessment requirements as shown in Table 1.2.

Table 1.2: DPHI Requirements

DPHI Requirements	Addressed in Report
4. Relevant Issues <ul style="list-style-type: none"> • Transport – The section shall cover off all relevant issues relating to the site and proposed changes. Where a matter is covered in the EIS, there is no need to duplicate but reference to the section will be adequate. 	Throughout this report
5. Consultation <ul style="list-style-type: none"> • Details of consultation undertaken with Government agencies, council or other authorities, and community consultation that is to be undertaken in relation to the proposal. 	Section 1.3

1.3 Pre-DA Consultation

1.3.1 Sutherland Shire Council

Homes NSW undertook consultation with Sutherland Shire Council regarding the proposed development. Council provided preliminary information associated with an expansion of Caringbah Medical Precinct and a number of transport options that are being contemplated in relation to the local road network.

Council has also provided preliminary detail regarding their proposed Caringbah Town Centre Park on Flide Street, noting the potential future closure of Flide Street cul-de-sac.

1.3.2 Transport for New South Wales

TTPP initiated a Pre-DA consultation Transport for New South Wales (TfNSW) on 31 July 2025. TfNSW responded that they would provide comments in the SSDA review.

1.4 Report Structure

The contents of the report are set out as follows:

- Section 1 provides an introduction of the project background, how SEARS are addressed, pre-DA consultation and references adopted in the assessment.
- Section 2 discusses the existing conditions of the site and the future transport strategies in Caringbah.
- Section 3 provides a description of the proposed development including vehicular access and waste collection arrangement.
- Section 4 assesses the parking requirements of the proposed development.
- Section 5 assesses the traffic impacts of the proposed development when fully occupied.
- Section 6 assesses the existing and target mode share, and active and public transport impacts of the proposed development.

- Section 7 reviews crash history and assesses road safety.
- Section 8 provides a preliminary construction traffic management plan.
- Section 9 discusses the State Environmental Planning Policy 2021.
- Section 10 summarises the findings of this Transport Impact Assessment.

1.5 References

Preparation of this TIA has referenced to the following guidelines and standards:

- Sutherland Shire Development Control Plan 2015.
- State Environmental Planning Policy (Housing) 2021.
- TfNSW Guide to Transport Impact Assessment 2024.
- AS2890.1 (2004): Parking Facilities Part 1: Off-Street Car Parking.
- Draft AS2890.1 (2023): Parking Facilities Part 1: Off-Street Car Parking.
- AS2890.6 (2022): Off-Street Parking for People with Disabilities.

2 Existing Conditions

2.1 Site Description

The site is located within the Sutherland Shire local government area (LGA) and is zoned R4 High Density Residential under the Sutherland Shire Local Environmental Plan (SSLEP) 2015.

The site has a total area of approximately 3,596 square metres (sqm) and is bound by Flide Street to the north, Gardere Street to the west, Willawong Road to the east and the rail corridor for the T4 Eastern Suburbs & Illawarra Line to the south. Refer to Figure 2.1.

The site is accessible by public transport, being within 400m of the entrance to Caringbah Station and bus stops on the Kingsway which have frequent services to Sutherland, Miranda and Cronulla.

The site currently comprises 38 social housing units within two 3 storey buildings with a single level basement car park.

Figure 2.1: Site Location



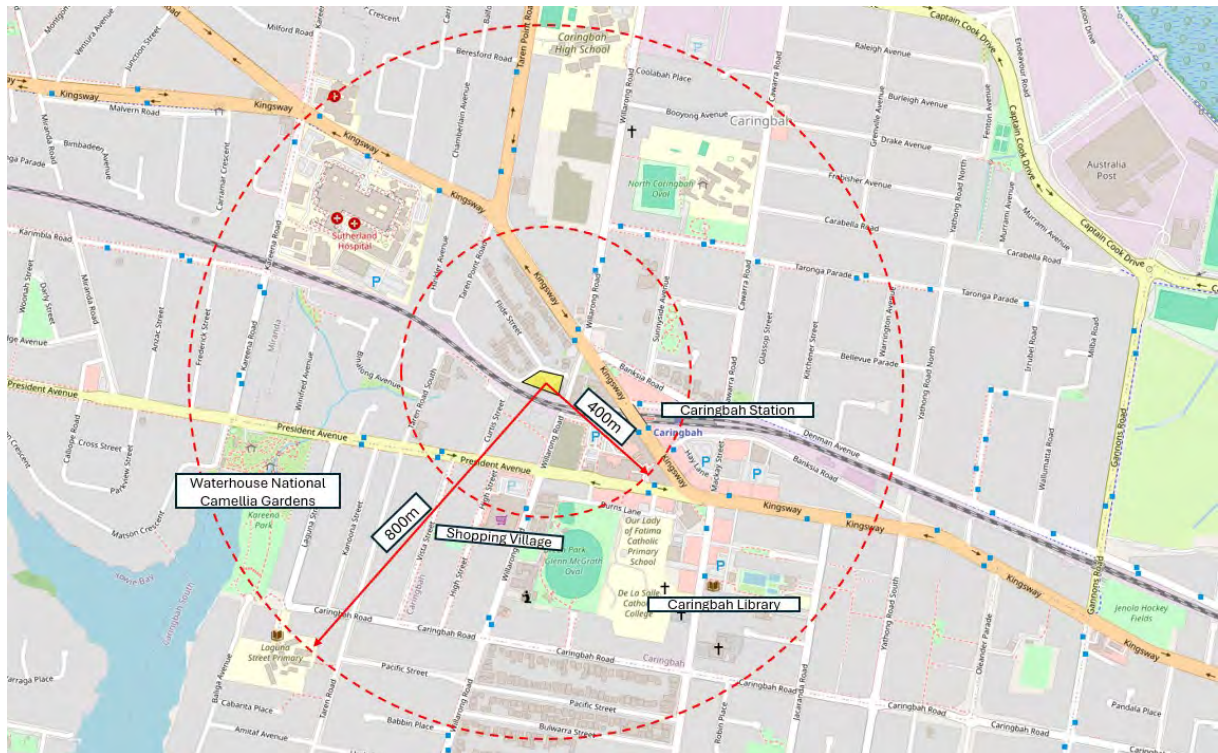
Source: Google Earth

The site is located within a radial distance of the following key locations as illustrated in Figure 2.2.

- Caringbah Shopping Village (270m)
- Sutherland Hospital (530m)
- Caringbah Railway Station (320m)
- Caringbah High School (730m)
- Caringbah Commercial Centre (380m)
- Caringbah North Public School
- Waterhouse National Cameillia Gardens (700m)

- Caringbah Library (635m).

Figure 2.2: Walking Distance from Site



Basemap Source: Open Street Maps

2.2 Surrounding Road Network

2.2.1 Kingsway

Kingsway is a classified State road, generally aligned in an east-west direction. It connects the coastline (Cronulla Beach) to the east and Princes Highway to the west. In the vicinity of the site, Kingsway generally comprises three travel lanes in either travel direction and intersects with Taren Point Road via a signalised intersection. In the vicinity of the site the Kingsway provides restricted kerbside parking outside peak hour times on Monday to Friday. During peak hours no kerbside parking is permitted along Kingsway. In the vicinity of the site, Kingsway has a posted speed limit of 60km/h.

Vehicles travelling eastbound along Kingsway are prohibited from turning right onto Taren Point Road. Vehicles over 9m travelling westbound along Kingsway are prohibited from turning left into Taren Point Road.

2.2.2 Flide Street

Flide Street is a two-lane, two-way local road, aligned in a north-west to south-east direction. It connects with Taren Point Road to the north-west and is a cul-de-sac at the south-eastern end. Unrestricted on street parking is generally permitted on both sides of the road. However, due to the narrow width of the road, residents tend to park their vehicles by mounting the kerb. Flide Street has a default 50km/h posted speed limit. Some commuters also park near the eastern end of Flide Street and take train to destinations further afield.

2.2.3 Gardere Street

Gardere Street is a two-lane, two-way local road, aligned in an east-west direction. It connects with Taren Point Road to the west and Flide Street to the east. Unrestricted on street parking is generally permitted on both sides of the road. Similarly, residents tend to park their vehicles by mounting the kerb along the southern side of the road due to the relatively narrow width of the road. Flide Street has a default 50km/h posted speed limit.

2.2.4 Willarong Road

Willarong Road is a two-way no through road with on-street parking along both sides of the street, located to the direct east of the site. There is no direct road connection between Flide Street and Willarong Road.

2.2.5 Taren Point Road

Taren Point Road is a classified State road to the north of Kingsway and is a local road to the south of Kingsway. It is generally aligned in a north-south direction, connecting with Gardere Road to the south and transitions to Rocky Point Road to the north at Captain Cook Bridge, providing key connection between Sutherland and Kogarah. In the vicinity of the site, Taren Point Road is a two-lane, two-way road, with unrestricted kerbside parking available on either side of the road. It has a posted speed limit of 50km/h.

2.3 Public Transport

The nearest train station is Caringbah train station, which is located some 400m walking distance (6-minute walk) from the site via a pedestrian connection between Flide Street and Willarong Road. Caringbah train station is serviced by T4 – Eastern Suburbs and Illawarra train line, which provides rail connection between Cronulla/ Waterfall and Bondi Junction via Wollie Creek and the Sydney CBD. The service frequency is once every 10 to 15 minutes in the peak periods.

The site is serviced by several bus routes with connections to the surrounding suburban hubs, including Miranda, Sutherland and Lilli Pilli. The nearest bus stop is located on Kingsway just west of Willarong Road, which is a 210m walking distance (3-minute walk) from the site. This bus stop services several bus routes, including 969, 971, 977, 985, and 988.

The bus network map within the site vicinity is shown in Figure 2.3, with a summary and frequency of the nearby bus services outlined in Table 2.1.

Figure 2.3: Bus Network Map – South and South-West Network Map

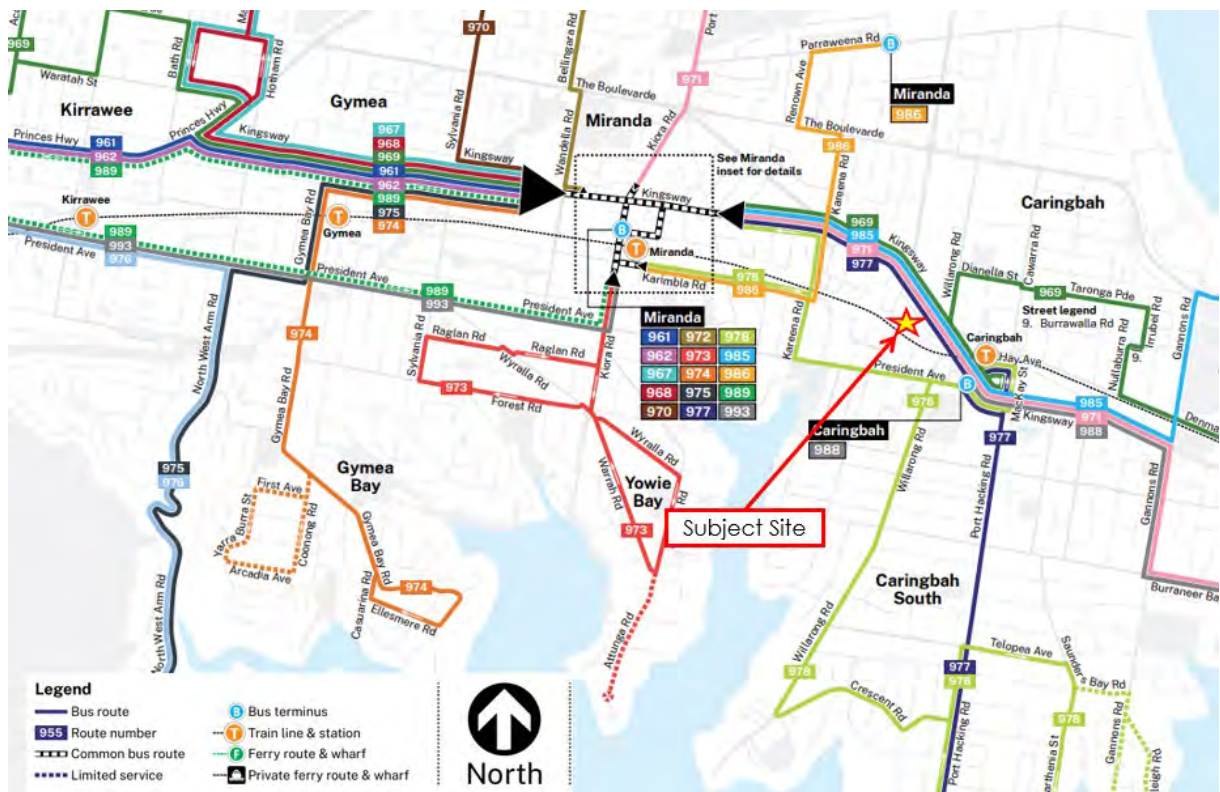


Table 2.1: Existing Public Transport Services

Route No.	Route Description	Nearest Bus Stop	Distance from Site	Frequency	
				Peak	Off-Peak
968	Bonnet Bay to Miranda via Kareela	Kingsway opposite Caringbah Station	350m	30 minutes	60 minutes
969	Cronulla to Sutherland	Kingsway at the Willarong Road	210m	60 minutes	60 minutes
971	Hurstville to Cronulla	Kingsway at the Willarong Road	210m	30 minutes	30 minutes
977	Miranda to Lilli Pilli (Loop Service)	Kingsway at the Willarong Road	210m	20 minutes	30 minutes
978	Miranda to Dolans Bay via Port Hacking (Loop Service)	Kingsway opposite Caringbah Station	350m	30 minutes	60 minutes
985	Cronulla to Miranda via Woolooware Bay	Kingsway at the Willarong Road	210m	30 minutes	60 minutes

Route No.	Route Description	Nearest Bus Stop	Distance from Site	Frequency	
				Peak	Off-Peak
988	Caringbah to Cronulla via Burraneer	Kingsway at the Willarong Road	210m	One service each during AM and PM peak	
N11	City Town Hall to Cronulla (Night Service)	Kingsway opposite Caringbah Station	350m	60 minutes between 1:30am and 5:30am	

Source: TfNSW

The following school services provided in Table 2.2 are also provided at the Caringbah Station bus stops.

Table 2.2: Existing Public Transport Services (Schools)

Route Number	Route Description	Location of Service	Frequency	
			Weekday AM	Weekday PM
2C	Woolooware HS to Saunders Bay Rd after Parthenia St, Caringbah South	Kingsway opposite Caringbah Station	No Services in the AM Period	1 Service
6C	Endeavour Sports HS to Woolooware HS	Kingsway opposite Caringbah Station	1 Service	No Services in the PM Period
750S	Caringbah to Taren Point	Kingsway opposite Caringbah Station	No Services in the AM Period	1 Service
S12	Crescent Rd before Mirral Rd, Caringbah South to Woolooware HS	Kingsway opposite Caringbah Station	1 Service	No Services in the PM Period
S15	Endeavour Sports HS to Woolooware HS to Caringbah Station	Kingsway opposite Caringbah Station	1 Service	No Services in the PM Period
S43	Caringbah Station to Endeavour Sports HS	Kingsway at the Willarong Road	1 Service	No Services in the PM Period
S372	Caringbah Station to Endeavour Sports HS	Kingsway opposite Caringbah Station	1 Service	No Services in the PM Period
S379	Cronulla HS to Euralong Rd after Rutherford Av, Burraneer via Caringbah	Kingsway opposite Caringbah Station	1 Service	No Services in the PM Period
S381	OLO Mercy College to Miranda Westfield before Kiara Rd, Miranda	Kingsway at the Willarong Road	No Services in the AM Period	1 Service
S382	OLO Mercy College to Miranda Station via Caringbah Station	Kingsway at the Willarong Road	No Services in the AM Period	1 Service

Reference: Transport for NSW

2.4 Pedestrian and Cycling Facilities

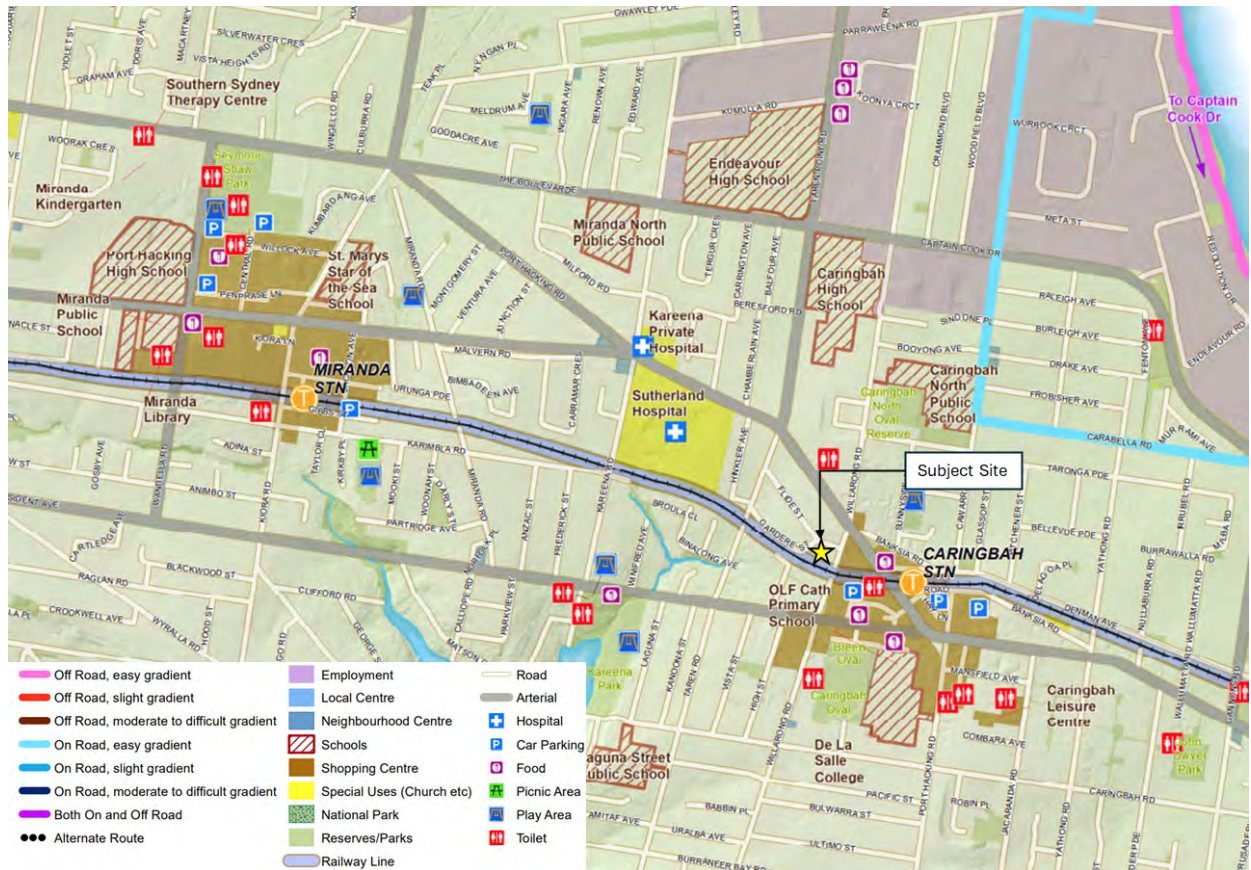
In the immediate vicinity of the site, pedestrian footpaths are provided on the south side of Flide Street and the east side of Gardere Street but terminated past the site. Pedestrian footpaths are also provided on both sides of Willarong Road, the east side of Taren Point Road and both sides of Kingsway, in the vicinity of the site.

A pedestrian footpath connection is provided between Flide Street and Willarong Road, which enables shorter walking distance between the site and Caringbah train station.

Signalised pedestrian crossings are provided across all legs of the Kingsway/ Taren Point Road intersection, with a mid-block signalised crossing across Kingsway to provide a safe pedestrian passage between the site and Caringbah train station.

The nearest cycling infrastructure is the shared path along the southern side of Kingsway, which connects further onto the dedicated bicycle paths on Denman Avenue. The surrounding cycling network in the vicinity of the site is shown in Figure 2.4. There are no cycling facilities within walking distance of the site.

Figure 2.4: Cycling Guide Map



Basemap Source: Sutherland Shire Council Cycling Guide

2.5 Existing Traffic Volumes

2.5.1 Automatic Tube Counts

TTPP commissioned an automatic tube count survey to be undertaken on Gardere Street south of Flide Street from Monday 4 August 2025 to Sunday 10 August 2025. The survey location is shown in Figure 2.5.

Figure 2.5: Automatic Tube Counts Location



Daily and hourly traffic profiles have been produced using the data obtained from the automatic tube count surveys. These profiles have been presented in Figure 2.6 and Figure 2.7, respectively.

Based on Figure 2.6, the average weekday traffic volume on Gardere Street is 154 vehicles per day with approximately 4.58% heavy vehicle proportion.

2.5.2 Intersection Surveys

TTPP commissioned turning movement counts at the following intersections on Tuesday 5 August 2025 between 7am-9am and 4pm-6pm:

- Kingsway / Hinkler Avenue.
- Kingsway / Taren Point Road (TCS 0547).

The locations of the intersection turning movement counts are shown in Figure 2.8.

Figure 2.8: Intersection Turning Movement Count Locations



Basemap Source: Google Maps

Based on the traffic surveys, the identified AM and PM peak hours are 8:00am – 9:00am and 4:30pm – 5:30pm. The existing AM and PM peak traffic volumes are shown in Figure 2.9 and Figure 2.10 respectively.

Figure 2.9: 2025 Traffic Volume - AM Peak



Basemap Source: Google Maps

Figure 2.10: 2025 Traffic Volume - PM Peak

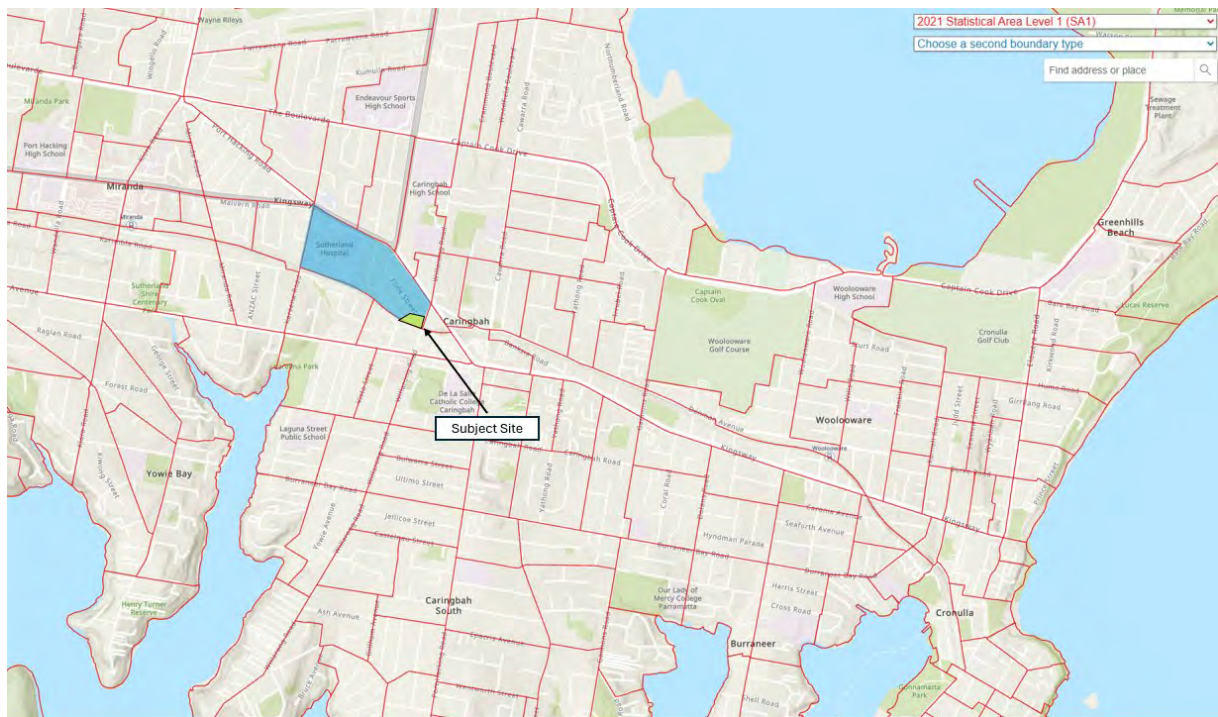


Basemap Source: Google Maps

2.6 Journey to Work Data

Mode share patterns were analysed using the latest ABS Census data (2021) for the selected statistical areas to understand the existing travel patterns of residents and workers within the site and surrounding areas. The selected Statistical Area Level 1 (SA1) referenced in this assessment is shown in Figure 2.11.

Figure 2.11: Selected SA1 (2021)



Basemap Source: ABS Maps

A summary of the existing place of work of residents who drive to work is shown in Table 2.3 and Figure 2.11 indicates the location of the place of work destinations relative to the site. The below tables indicate that a large portion (32%) of employed residents or workers within the surrounding area work within Sutherland Shire. A comparison between 2016 and 2021 which demonstrates a decrease in employed individuals travelling to the surrounding area and Sydney inner city.

Table 2.3: Place Of Work (POW) (employed residents)

Proportion of Workers Travelling from Selected SA1 (%)			
Place of work (SA3)	2016	Place of work (SA3)	2021
Cronulla - Miranda - Caringbah	40%	Cronulla - Miranda - Caringbah	32%
Sydney Inner City	25%	Sydney Inner City	19%
Sutherland - Menai - Heathcote	9%	Botany	7%
Botany	5%	POW No Fixed Address (NSW)	4%

North Sydney - Mosman	4%	Sutherland - Menai - Heathcote	7%
POW No Fixed Address (NSW)	4%	Bankstown	5%
Wollongong	3%	Hurstville	3%
Kogarah - Rockdale	3%	Eastern Suburbs - South	3%
Fairfield	2%	Liverpool	3%
Eastern Suburbs - North	2%	Parramatta	2%
Other	2%	Other	15%
	100%		100%

Reference: Australian Bureau of Statistics (ABS)

A summary of the Journey to Work mode share of employed residents in the same SA1 region from 2016 and 2021 Census data is provided in Table 2.4.

Table 2.4: Method of Travel to Work (Employed Residents)

Journey to Work Mode	Proportion of Workers Travelling from Selected SA1 (%)	
	2016	2021
Car, as driver	70%	44%
Car, as passenger	6%	1%
Bus	0%	0%
Train	14%	3%
Bicycle	0%	0%
Walk only	8%	5%
Motorcycle	0%	0%
Worked at home	2%	47%
Total	100%	100%

Reference: Australian Bureau of Statistics (ABS)

Typically, the Covid-19 pandemic influenced the mode of travel with people switching from public transport to driving. This pattern is common in many places as reflected by comparing the 2016 and 2021 mode of travel work data.

Table 2.4 indicates that the proportion of employed residents within the selected SA1 region travelling by private car (as a driver or passenger) decreased from 70% in 2016 to 44% in 2021. This is consistent with trends which have been observed during the time period. The 2021 mode of travel for the selected SA1 region was heavily influenced by the Covid-19 pandemic, as

reflected in the proportion of residents working from home increasing from 2% in 2016 to 47% in 2021.

For analytical purposes, the 2016 mode of travel to work has been adopted in this traffic impact assessment as the 2021 data was significantly affected by the Covid-19 pandemic.

2.7 Strategic Context

2.7.1 Caringbah Town Centre Park

As part of the Caringbah Precinct Plan, the Caringbah Town Centre Park project proposes to redevelop an existing carpark and two acquired residential properties at 155 and 157 Willarong Road to create a multi-purpose and inclusive recreational facility that integrates meeting places and picnic areas to encourage stronger community involvement and social engagement. The new park is located at the corner of Willarong Road and the Kingsway, which is directly opposite the site.

The dwellings houses were demolished in February 2025. Council will be preparing a draft design following the community input from the recent public consultation. Construction of the park is expected to commence in mid-late 2026, subject to design and approvals.

Council is of the view that the community park is not expected to generate traffic movements as most visitors are people who live and work within walking distance.

Figure 2.12: New Community Park



Reference: Sutherland Shire Council

2.7.2 Caringbah Medical Precinct

Sutherland Shire Council zoned the R4 high density residential land referred to as the 'Caringbah Medical Precinct' to include medical service facilities to the north west of Caringbah Town Centre, as part of its Development Control Plan (DCP) 2015. This precinct is within an 800m radius of Caringbah train station, and is to the east of Sutherland Hospital. The extent of the Caringbah Medical Precinct is outlined in Figure 2.13.

Figure 2.13: Current Caringbah Medical Precinct

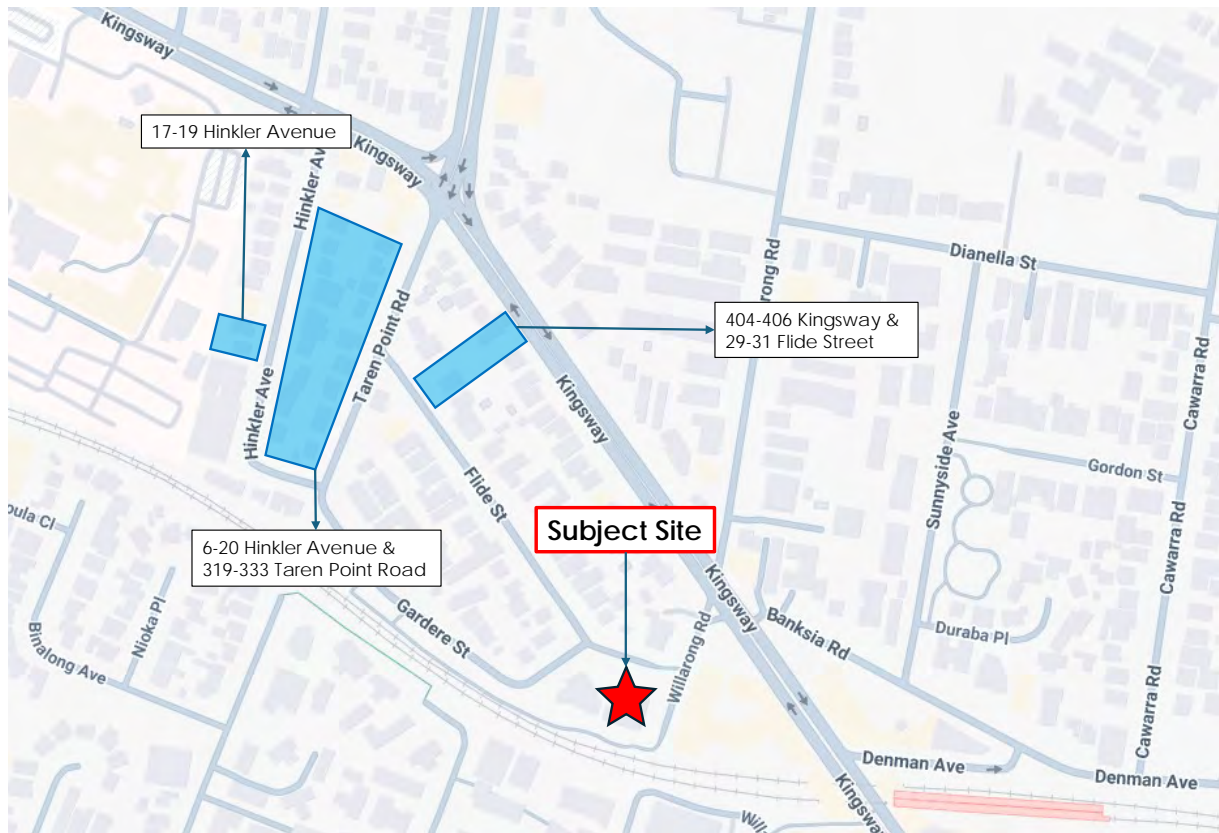


Reference: Sutherland DCP 2015 Chapter 9

A review of Council DA tracker and Nearmap imageries indicates the following residential and health service developments have been constructed or approved for future developments within the Caringbah Medical Precinct:

- A residential and medical centre development has been developed at 416-422 Kingsway, 2b And 2c Hinkler Avenue. It is a mixed use development comprising health services facilities and 5 storeys of residential apartments. Traffic movements associated with this development would have been captured in the traffic surveys undertaken in August 2025.
- A residential and medical centre development is under construction at 17-19 Hinkler Avenue. It involves 18 apartments with 385m² ground floor medical facilities and basement car parking.
- A residential and medical centre development is under construction at 404-406 Kingsway & 29-31 Flide Street. It is a six storey mixed use building containing 39 residential units and two health services facilities with basement car parking.
- A residential and medical centre development has been approved at 6-20 Hinkler Road and 319-333 Taren Point Road. It involves three 7-9 storey residential flat buildings and health services facility with basement car parking. Demolition of existing buildings within the site has not commenced at this stage.

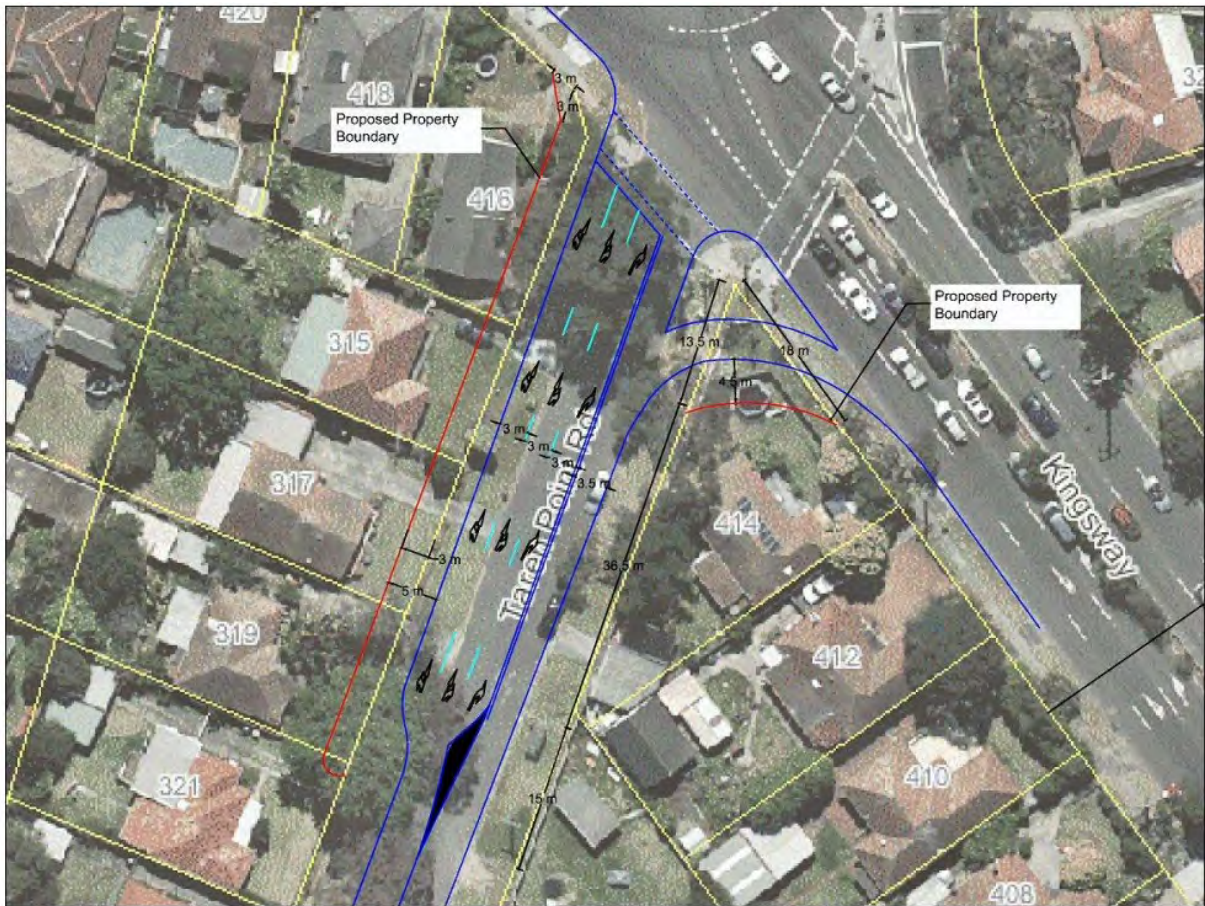
Figure 2.14: Recently Approved Developments with Caringbah Medical Precinct



Basemap Source: Google Maps

As shown in DCP 2015, Council is planning to widen the Kingsway/ Taren Point Road intersection as shown in Figure 2.15 to improve the intersection performance in order to accommodate additional traffic resulting from redevelopment of the Caringbah Medical Precinct. Timing for the delivery is unknown at this stage.

Figure 2.15: Caringbah Medical Precinct Intersection Widening



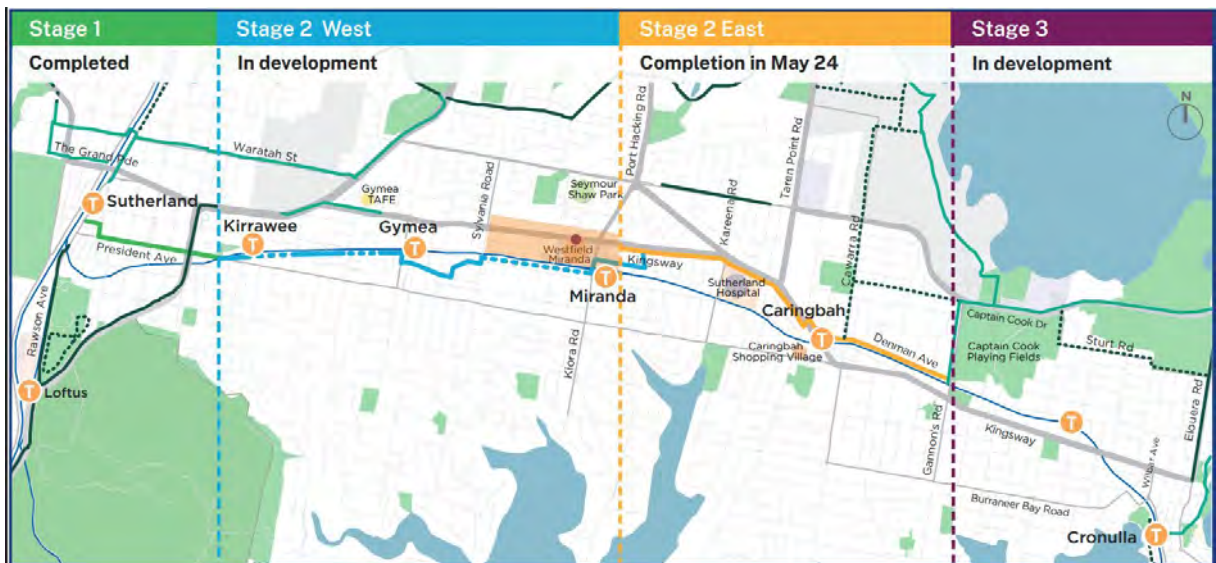
Reference: Sutherland DCP 2015 Chapter 9

2.7.3 Sutherland to Cronulla Active Transport Link (SCATL)

SCATL is a regional active transport link between Sutherland and Cronulla that generally runs parallel to the rail line. Stage 2 East being located in Caringbah was completed in mid-2024 as shown in Figure 2.16 and the remaining sections in Stage 2 West and Stage 3 are currently in development.

The Kingsway/ Willarong Road/ Banksia Road intersection has recently been upgraded to be signalled to improve safety for people walking, cycling and driving.

Figure 2.16: Overview of SCATL Stages



As part of the SCATL project, a new shared path along Willarong Road will be constructed between Captain Cook Drive and Kingsway to provide connection from Caringbah Centre to the industrial areas of Caringbah and Taren Point, Caringbah High School, and high-density residential areas. It will also provide connection to the proposed Caringbah Town Centre Park located adjacent to the Kingsway/ Willarong Road intersection. Upgrading the footpath to a shared pathway (>1.8m in width) will provide a quality pedestrian/ cycle link to improve movement and pedestrian flows.

3 Proposed Development

3.1 Proposed Description

The proposed development comprises the construction of two residential flat buildings—one rising to part 13 and part 14 storeys, and the other to eight storeys—comprising a total of 164 social and affordable housing apartments. The development also includes a communal room and a two-level basement car park. Refer to the proposed site layout Figure 3.1 and Figure 3.2.

The proposal includes bulk earthworks, tree removal and associated landscaping and public domain works.

To support the Proposal, a concurrent Planning Proposal seeks amendments to the development standards within SSLEP as follows:

- Building Height – Increase the maximum building height development standard from 16m to 50m.
- Floor Space Ratio (FSR) – Increase the maximum FSR development standard from 1.2:1 to 4:1.

The existing buildings on the site were approved for demolition under Division 5.1 of the *Environmental Planning and Assessment Act 1979*, and does not form part of this proposal. This included removal of all trees on top of the existing basement.

Figure 3.1: Proposed Site Layout (Lower Ground Level 00)

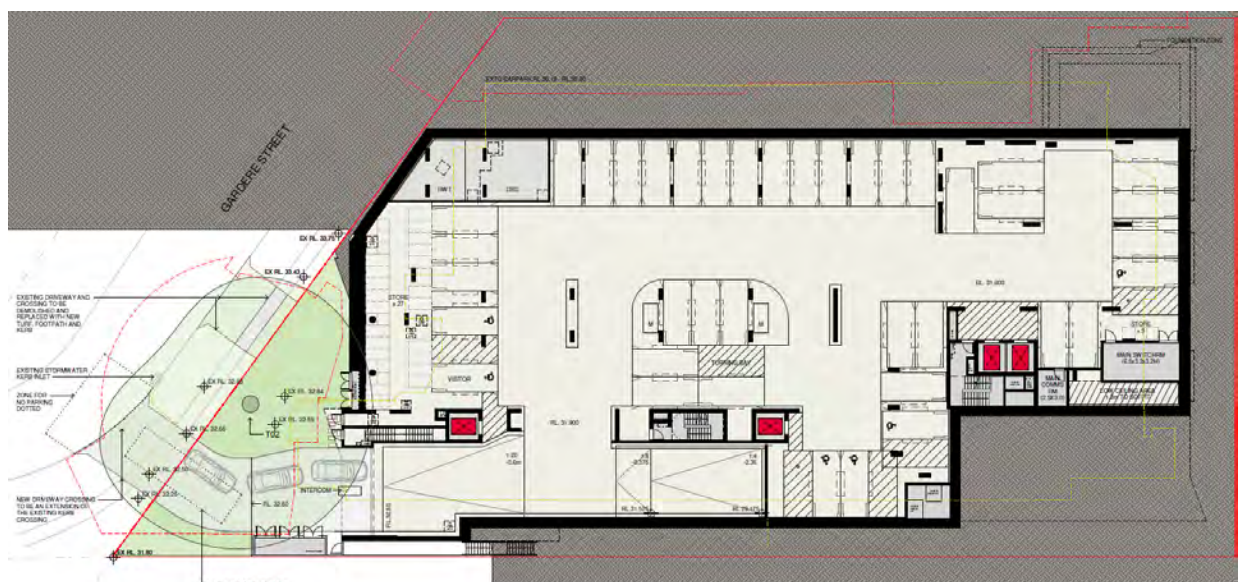


Figure 3.2: Proposed Site Layout (Basement 01)



The proposal is to deliver 164 units as follows:

- 104 social apartments owned by Homes NSW, including:
 - › 54 one-bedroom units
 - › 42 two-bedroom units
 - › 8 three-bedroom units
- 60 social apartments owned by a Community Housing Provider, including:
 - › 23 one-bedroom units
 - › 29 two-bedroom units
 - › 8 three-bedroom units

The total apartment provision is 77 one-bedroom units, 71 two-bedroom units and 16 three-bedroom units.

The residential units will be designed to meet the design criteria stipulated in Liveable Housing Design Guidelines 2017 (LHDG) as follows:

- All 104 social units are LHDG gold level.
- 12 social units are LHDG gold level and are also compliant with Schedule 4 of the Housing SEPP.
- All 60 affordable units are silver level livable housing units.

The gold and silver rating relates to the performance criteria established by the Liveable Housing Design Guidelines to achieve housing that allows residents to age in place.

A two-level basement car park is to be provided to accommodate 84 car parking spaces including nine accessible spaces.

Architectural plans are provided in **Appendix A**.

3.2 Proposed Vehicle Access Arrangements

The site has three road frontages, namely:

- Gardere Street is a local road located to the west of the site.
- Flide Street is a local road located to the north of the site.
- Willarong Road is a local road located to the east of the site.

Currently, a driveway is located near the south-western end of the Gardere Street frontage. It is proposed to relocate the driveway further south-west to facilitate vehicle access to the two-level car park. This is to be located to the south of an existing large tree.

All traffic movements would be permitted at the vehicle access.

3.3 Proposed Pedestrian and Cyclist Access Arrangements

Pedestrian access to the social housing units is via the stairs and accessible ramp on the Gardere Street frontage.

Pedestrian access to the affordable housing units is via a gate near the north-eastern corner of the site. A secondary pedestrian access is provided on the Willarong Road.

A shared pedestrian and bicycle entry is located on the Flide Street frontage. A bicycle storage room is located on the southern end of the site with the capacity to accommodate 76 secure bicycle stacked lockers. There are 21 storage lockers in the basement car park suitable for storing bicycles.

Visitor bicycle parking is available in the form of three racks (i.e., 6 spaces) located adjacent to the Willarong Road pedestrian access.

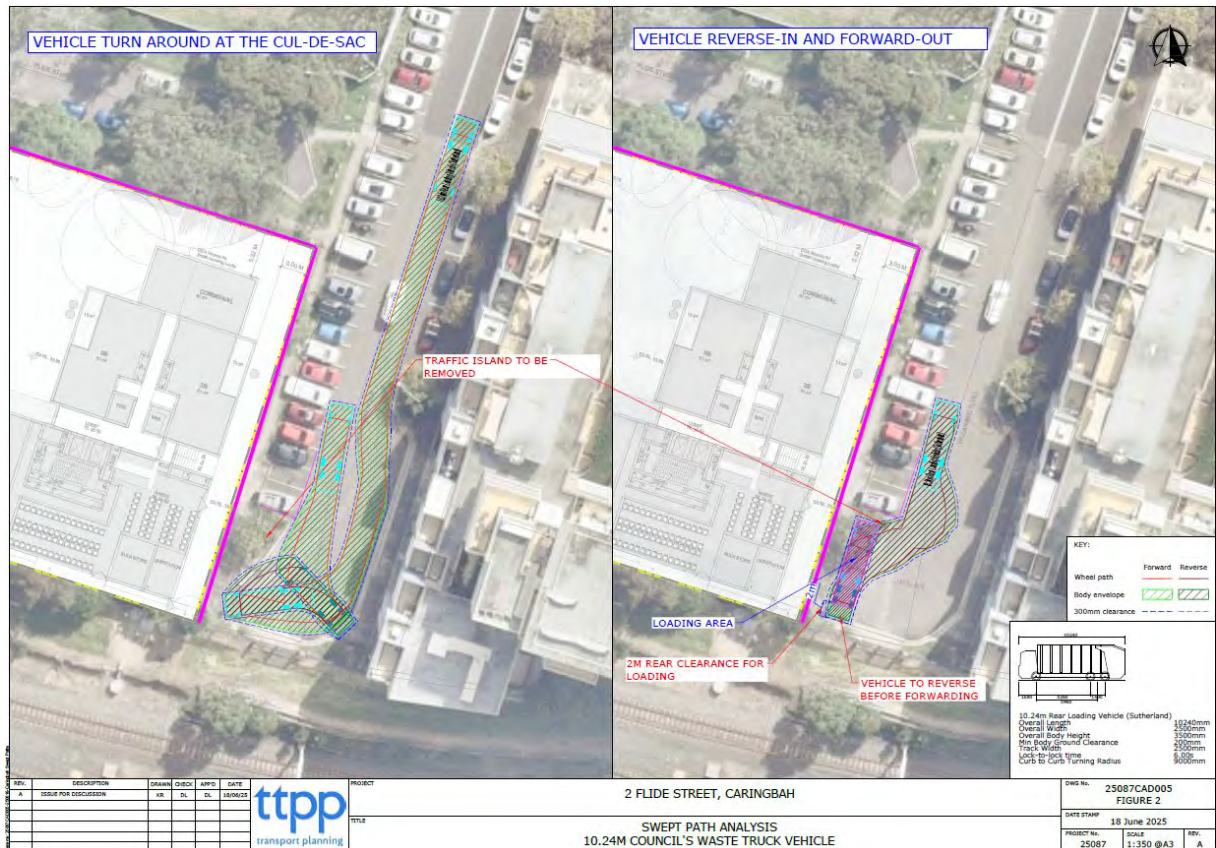
3.4 Waste Collection Arrangements

Kerbside waste collection will be undertaken by council's 10.24m rear-loading waste truck.

Homes NSW is proposing kerbside waste collection at the southern end of Willarong Road, where a waste storage room can be located within a short distance from the kerb. Waste collection activities involve waste personnel manually wheeling bins to/from the waste storage room.

A swept path assessment of the 10.24m waste truck is shown in Figure 3.3 with an enlargement presented in **Appendix B**. A 2m rear clearance can be available behind the waste truck to enable unloading of waste bins. The existing parking spaces along Willarong Road would not be affected by the manoeuvring of the waste truck.

Figure 3.3: Swept Path of a Waste Truck on Willarong Road



4 Parking Assessment

4.1 Car Parking

The proposed development is to be undertaken pursuant to Part 2, Division 1 – In-fill Affordable Housing of the Housing SEPP 2021. Hence, the car parking requirements set out in the Housing SEPP applies and prevail Council's Development Control Plan (DCP).

Part 2, Division 1 of Housing SEPP states that for an in-fill affordable housing developed by a registered social housing provider, the following parking rates apply:

- For each dwelling containing 1 bedroom – at least 0.4 parking spaces.
- For each dwelling containing 2 bedrooms – at least 0.5 parking spaces.
- For each dwelling containing at least 3 bedrooms – at least 1 parking space.

Parking rates from the TfNSW Guide to Transport Impact Assessment (GTIA) are not applicable. GTIA Section 8.3 indicates that parking controls for affordable housing are specified in the Housing SEPP which are given precedence over the parking rates set out in the GTIA.

While the Housing SEPP does not specify requirements on visitor parking, Homes NSW is proposing to provide one visitor parking space in the residual space in the car park to facilitate client service visits and building maintenance workers etc.

Table 4.1: Car Parking Housing SEPP Requirement

Dwelling Type	Yield	Reference	Minimum Parking Rate	Minimum Car Parking Requirement
Social units				
1-bedroom	54	Housing SEPP	0.4 spaces per unit	21.6
2-bedroom	42	Housing SEPP	0.5 spaces per unit	21.0
3-bedroom	8	Housing SEPP	1 space per unit	8.0
Visitor	0	Housing SEPP	0 spaces required	0
Affordable units				
1-bedroom	23	Housing SEPP	0.4 spaces per unit	9.2
2-bedroom	29	Housing SEPP	0.5 spaces per unit	14.5
3-bedroom	8	Housing SEPP	1 space per unit	8.0
Visitor	0	Housing SEPP	0 spaces required	0
Total	164			82

The Housing SEPP requires a minimum of 82 parking spaces for residents. The proposed development provides 83 residential car spaces and one visitor parking space which can satisfy the Housing SEPP requirement.

4.2 Accessible Parking

The Housing SEPP does not specify minimum accessible parking requirements. However, given Homes NSW social housing tenants have a higher likelihood than the rest of the population to have mobility impairments, Homes NSW has set a target to design 20% of the social units to have the capacity to accommodate a tenant who relies on a wheelchair.

Homes NSW targets a minimum 20% of the car spaces required for the social units to be accessible parking spaces for the social (gold) apartments that are designed based on Schedule 4 of the Housing SEPP.

The proposed development provides nine accessible spaces for residents in the basement carpark, representing 18% of the social housing parking provision. This is very close to Homes NSW's 20% target for accessible parking.

AS2890.6:2009 requires an accessible car parking space with an adjacent shared area to each have dimensions of 2.4m wide by 5.4m long with an aisle width of 5.8m. The design provides a 5.4m long and 2.4m wide accessible space and an adjacent shared area of the same size for each of the nine accessible spaces. Therefore, the design satisfies the dimensional requirements in AS2890.6:2009.

4.3 Bicycle Parking

Sutherland DCP 2015 and Housing SEPP do not stipulate bicycle parking rates for affordable housing developments.

Homes NSW set a target to provide 1 bicycle space per social housing unit. Given the proposed yield of 104 social housing units, 104 bicycle spaces are required as part of the proposed development.

Homes NSW also set a target to provide 0.5 bicycle spaces per affordable housing unit. Given the proposed yield of 60 affordable housing units, 30 bicycle spaces are required as part of the proposed development.

Therefore, it is a target to provide 134 bicycle spaces.

The proposed development provides 76 stacked bicycle lockers in a bicycle storage room on the upper ground level, and 21 storage cages in the car park which are suitable for horizontal bicycle parking. This gives a total of 97 bicycle parking spaces for residents. In addition, residents have the option to store their bicycles in their apartments if not within a bicycle locker

/ storage cage. On this basis, the target bicycle parking provision can be met in this development.

In addition, six visitor bicycle spaces (3 racks) are provided outside the building adjacent to the secondary pedestrian access off Willarong Road.

4.4 Motorcycle Parking

Sutherland DCP 2015 and SEPP 2021 do not stipulate a motorcycle parking rate requirement for social and affordable housing development. However, two motorcycle parking spaces have been proposed for this development.

4.5 Car Park Layout Review

The draft revision to standard AS 2890.1 (2004) - Parking Facilities - Part 1: Off-street car parking, recommends an increase in the length of off-street car parking spaces from 5.4 m to 5.6 m.

It is a change that would be difficult to apply post DA, and would also incur a \$4.55 modification. The revised standard is expected to be finalised in the short to medium term. Therefore, the car park has been designed to be compliant with the current AS2890.1 (2004) and the draft AS2890.1 (2023) to 'future proof' the car park design.

A review of the car park design has been undertaken and a summary of the key design elements is shown as follows:

Vehicle Access

- Vehicle access is to be provided off of Gardere Street via a new driveway just south of the existing driveway. The proposed driveway complies with the design requirements in AS2890.1 for a residential car park.

Parking Space Dimensions

- As discussed above, residential car parking spaces are designed with dimensions of 2.4m width by 5.6m length. These dimensions meet the existing minimum requirement of 2.4m width by 5.4m length for parking spaces, and the draft revised standard AS2890.1 (2003) minimum requirement of 2.4m width by 5.6m length for Class 1A car parking facilities.
- Accessible visitor parking spaces have been designed with minimum dimensions of 2.4m width by 5.6m length with an adjacent shared area adopting the same dimensions. This can meet the AS2890.6 requirements.

Aisle Width and Vehicle Manoeuvring

- All the car parking spaces are configured as 90-degree spaces. The existing AS2890.1 (2004) and the draft AS2890.1 (2023) require Class 1A car parking spaces to have a minimum aisle width of 5.8m. In addition, a 0.3m clearance width is required to high

obstructions. The parking aisles are compliant with the existing AS2890.1 (2004) and the draft AS2890.1 (2023).

- The circulation roadway is required to have a minimum width of 3.0m for a single lane or 5.5m wide for a two-way lane, plus a 0.3m kerb to high obstructions/walls.
- Ramp kerbs are to be less than 0.15m in height. The design enables vehicles passing each other. The swept path assessment in **Appendix B** demonstrates that a 99th percentile car and an 85th percentile car can pass at driveway and along most aisles. The only exceptions are shown as follows – refer to Section 4.6 for the recommended traffic management measures:
 - First internal intersection after the boom gate on the ground level
 - Parking aisle at the bottom of the internal ramp.

Driveway/ Ramp Gradients

- The driveway meets the maximum grade requirement of 5% (1 in 20) for the first 6m into the property.
- The internal ramp has a compliant gradient of 25% (1 in 4) which meets the maximum grade of 25% (1 in 4) suitable for residential use.
- A vertical clearance assessment for a B99 vehicle travelling along the internal ramp from the lower ground level 00 to the basement level 01 is provided in **Appendix B** which meets the ground clearance requirement based on AS2890.1 (2004).

Headroom Clearance

- A minimum 2.2m headroom clearance would be provided above the circulation roadway between the car park access.
- A minimum 2.5m headroom clearance would be provided above accessible parking spaces
- The proposed headroom clearances comply with the minimum requirements set out in AS2890.1 and AS2890.6.

Other Considerations

- Columns have generally been designed to be located outside of the parking space design envelope shown in Figure 6.1 of the draft AS 2890.1 (2023) to suit the additional 300mm clearance as required from the current AS2890.1 (2004).
- Appropriate pedestrian sight distance (3m x 5m) has been provided in accordance with the requirements of Figure 3.2 of the draft AS2890.1 (2023) at the access driveway. The existing requirements (2m x 2.5m) can also be satisfied.
- The internal configuration of the basement car park has generally been designed in accordance with the AS2890.1 (2004), draft AS2890.1 (2023) and AS2890.6 (2022).

4.6 Traffic Management

The swept path assessment in **Appendix B** demonstrates that a 99th percentile car and an 85th percentile car cannot pass each other at the following locations:

- First internal intersection after the boom gate on the ground level.
- Parking aisle at the bottom of the internal ramp.

The following traffic measures are recommended to manage the two-way traffic flow and the limited sight distance at the first internal intersection on the lower ground level 00 – refer to Figure 4.1 and Appendix B:

- Install a movement sensor on the internal ramp to alert traffic with flashing lights on the northern approach to the intersection that a vehicle is travelling up the ramp.
- Provide flashing lights, STOP sign and hold line on the northern approach to the intersection.
- Provide flashing lights to alert traffic on the western approach to the intersection when a movement sensor detects a vehicle approaching on the northern approach. Boom gate is to be programmed to hold traffic until there is no traffic coming from the northern approach.

The following traffic measures are recommended to manage the two-way traffic flow on basement level 01 – refer to Figure 4.2 and Appendix B:

- Install flashing lights to manage the traffic conflicts at the bottom of the ramp.
- When a fob reader detects a resident's vehicle is going down the ramp to an allocated parking space located on basement level 01, this will activate the flashing lights on basement level 01. Drivers approaching the up ramp will be held until the vehicle going down the ramp has cleared the conflict zone.
- Provide flashing lights, STOP sign and hold line between the accessible parking space and the long column.
- Install additional flashing lights on the wall/ columns to hold the vehicles in the six parking spaces located between the bottom of the ramp and the hold line.

Figure 4.1: Proposed Traffic Management Measures on the Upper Ground Floor

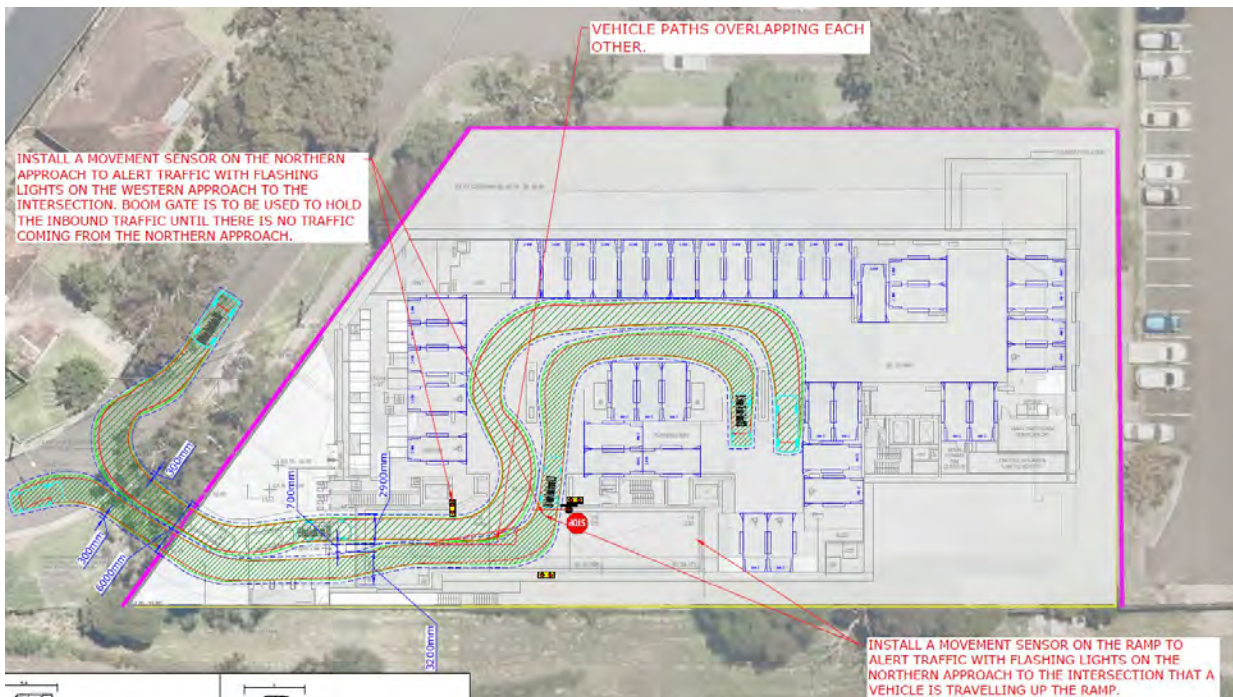
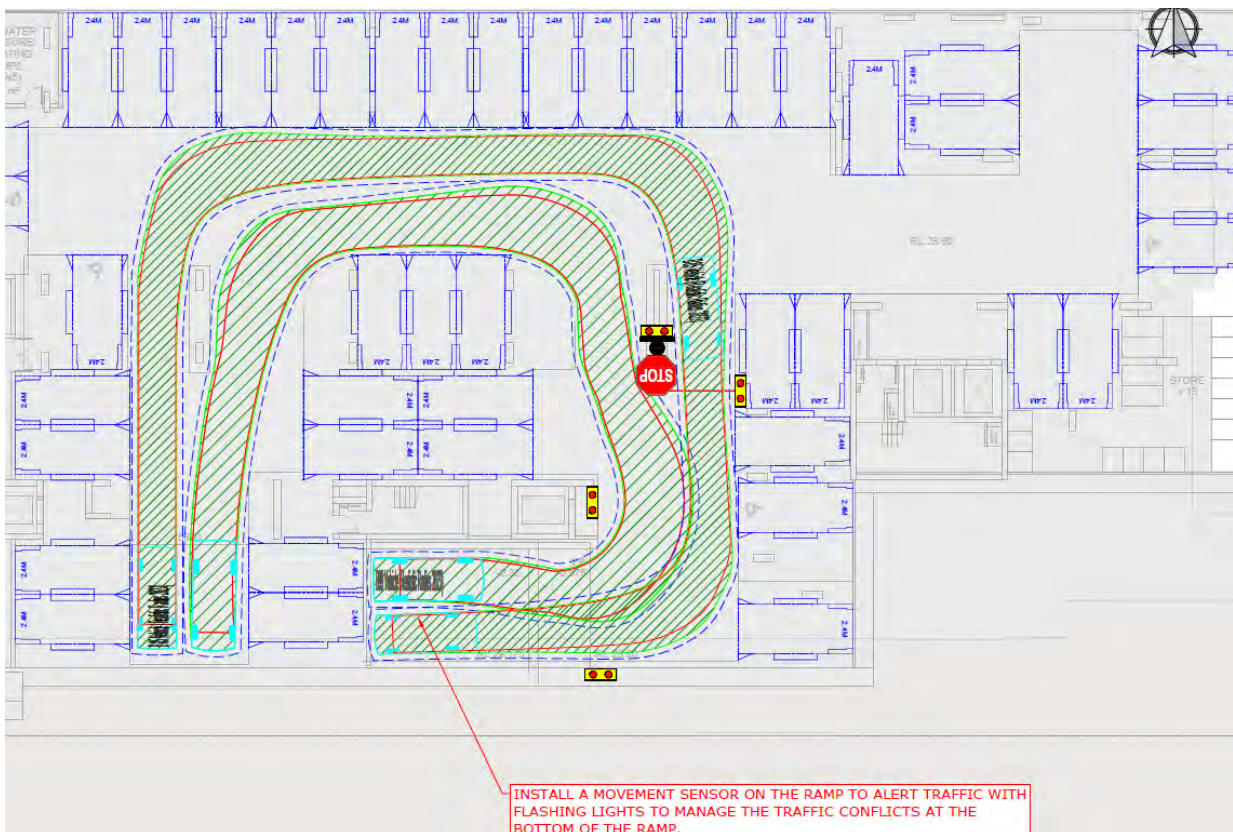


Figure 4.2: Proposed Traffic Management Measures on Basement Level 01



4.7 Access Control

Homes NSW is proposing the following access control measures:

- Roller door located about 17m from the site boundary to access the basement parking area. A traffic median would be provided to site an intercom / fob reader to access the basement parking area.
- Loops would be installed in the slab for exit movements from the car parking area.

AS2890.1 requires a minimum queue length of three vehicles at a car park with control points at entrances. The 17m distance enables the provision of three marked queueing bays between the roller shutter and site boundary which can satisfy this requirement so that queueing does not impact footpath pedestrian traffic or the traffic flow along Gardere Street.

5 Traffic Assessment

5.1 Background Traffic Growth

Background traffic growth for future years has been based on the Sydney Strategic Travel Forecast Model (STFM) provided by TfNSW, a strategic transport planning model that considers population and employment growth. The STFM is used for a high-level assessment of major infrastructure proposals, transport strategies and policy decision making.

The STFM provides future year traffic volumes to determine the relative traffic growth between baseline traffic and future year traffic conditions. These rates have been adopted to determine the future base traffic volumes. Growth has been applied on through movements along Kingsway and turning movements between Kingsway and Taren Point Road where growth rates are positive.

5.2 Proposed Traffic Generation

The proposed development traffic has been assessed against the traffic generation rates set out for high density residential developments with high public transport accessibility in the TfNSW Guide to Traffic Impact Assessment (2024).

The typical traffic generation rates are shown as follows for high density residential developments with high public transport accessibility:

- 0.19 vehicle trips per unit in the AM peak hour
- 0.15 vehicle trips per unit in the PM peak hour
- 1.52 daily vehicle trips per unit

The use of high density residential traffic generation rates is considered conservative for social housing units given their lower traffic generating potential during the morning and evening peak hours from TTPP's project experience. These typical rates have been adopted as part of a conservative traffic assessment.

A net change of the traffic generation as compared with the existing use of the site is provided in Table 5.1.

Table 5.1: Traffic Generation Estimates

Land Use	Yield	Traffic Generation Rate			Traffic Generation Estimate (vehicle trips)		
		AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Existing Site							
High Density Residential	38 units	0.19	0.15	1.52	7	6	58
Proposed Site							
High Density Residential (Social Housing)	104 units	0.19	0.15	1.52	20	16	158
High density Residential (Affordable Housing)	60 units				11	9	91
Net Increase					24	19	191

Using TfNSW traffic generation rates, the 164 units are anticipated to generate an additional 24 vehicle trips in the AM peak hour, an additional 19 vehicle trips in the PM peak hour and an additional 191 daily trips as compared to the existing site.

5.3 Distribution and Assignment of Development Traffic

In terms of traffic distribution of the proposed residential development on the surrounding road network, the following distribution proportions have been assumed:

- AM peak: 20% inbound traffic / 80% outbound traffic movements
- PM peak: 80% inbound traffic / 20% outbound traffic movements.

Development traffic has been assigned to routes based on relative proportions of destinations from the 2016 Census Journey to Work data shown in Table 2.3.

5.4 Adjacent Approved Developments

An assessment has been made of the traffic generation potential for the following approved mixed-use developments adjacent to the proposed development:

- 6-20 Hinkler Avenue & 319-333 Taren Point Road
- 17-19 Hinkler Avenue
- 404-406 Kingsway & 29-31 Flide Street

Traffic generation of the above sites has been sourced from the respective Traffic Impact Assessments for each site. However, the TIAs for 17-19 Hinkler Avenue and 404-406 Kingsway do not provide traffic distribution. TPPP has assumed the following traffic distribution proportions:

- Residential uses
 - AM Peak: 20% inbound, 80% outbound

- PM Peak: 80% inbound, 20% inbound
- Medical uses
 - AM Peak and PM Peak: 50% inbound, 50% outbound

A summary of the net traffic generation of the adjacent developments is provided in Table 5.2.

Table 5.2: Adjacent Approved Developments – Net Traffic Generation

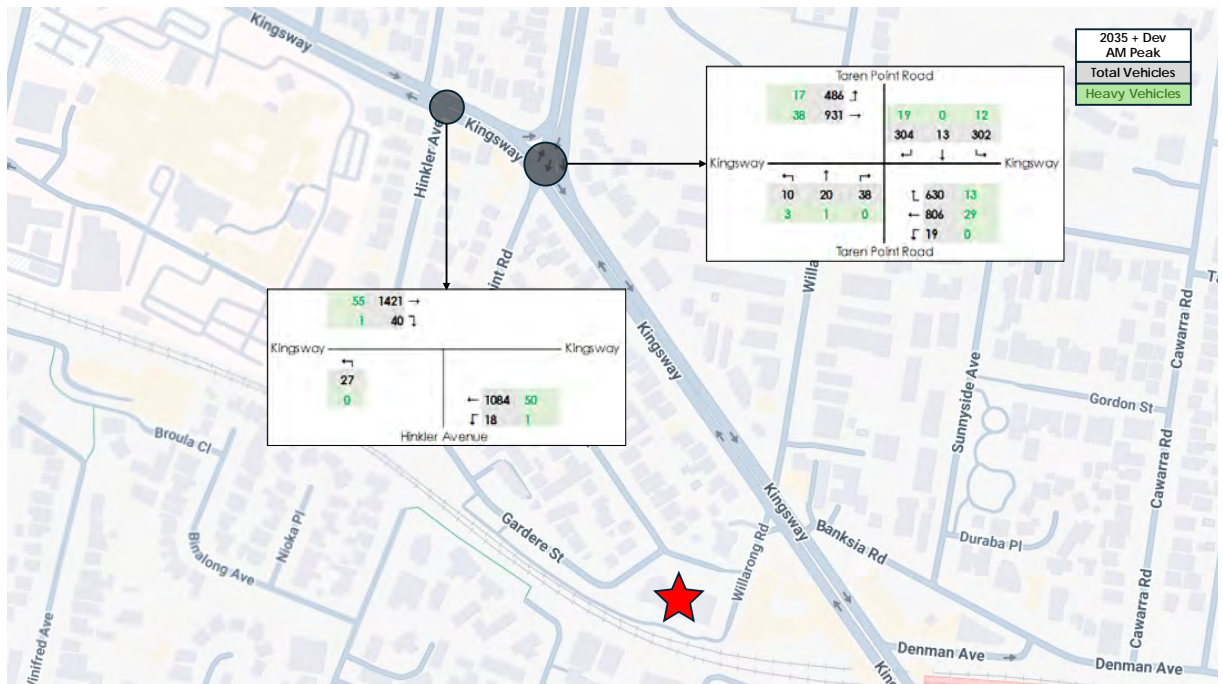
Adjacent Development	AM Peak		PM Peak	
	Inbound	Outbound	Inbound	Outbound
6-20 Hinkler Avenue & 319-333 Taren Point Road	15	39	31	14
17-19 Hinkler Avenue	22	22	22	22
404-406 Kingsway & 29-31 Flide Street	44	51	50	44
Total	81	112	103	80

Adjacent development traffic has also been assigned to routes based on relative proportions of destinations from the 2016 Census Journey to Work data shown in Table 2.3.

5.5 Future Traffic Volumes

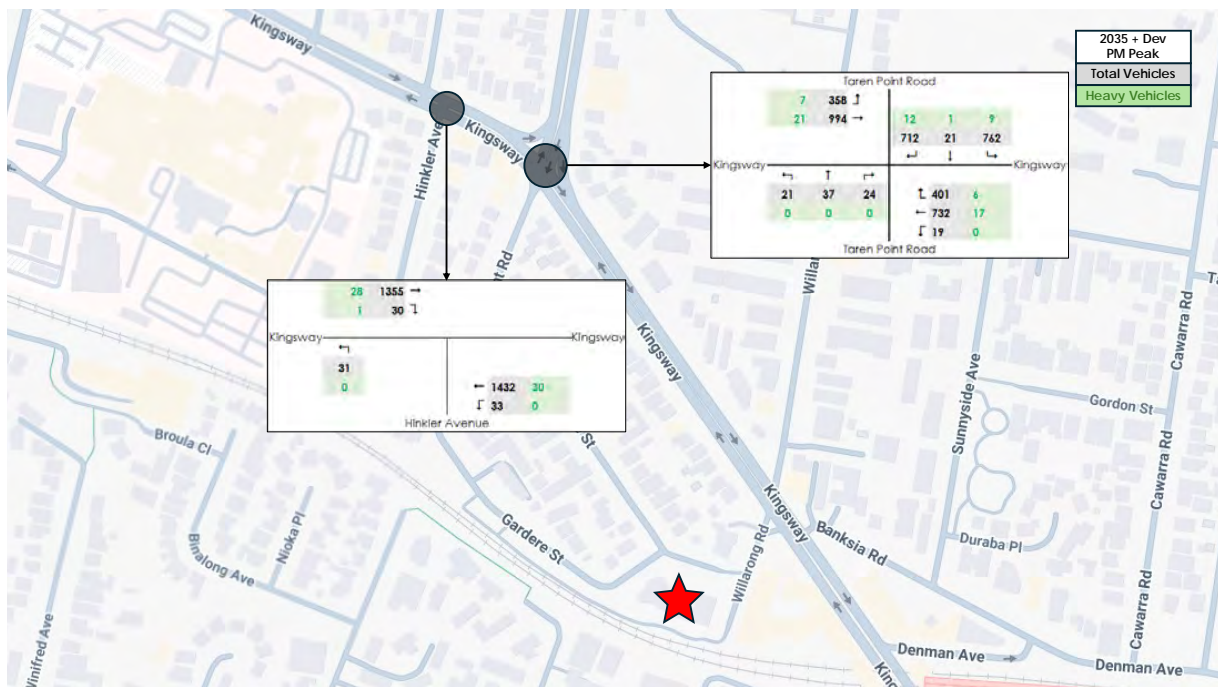
The future traffic volumes are derived by adding the proposed development traffic to the future background traffic volumes for year 2035 and traffic volumes associated with the adjacent approved developments. The future AM and PM peak hour traffic volumes surrounding the site are presented in Figure 5.1 and Figure 5.2.

Figure 5.1: Future Traffic Volume for Year 2035 (AM Peak Hour)



Basemap Source: Google Maps

Figure 5.2: Future Traffic Volume for Year 2035 (PM Peak Hour)



Basemap Source: Google Maps

5.6 Intersection Capacity Analysis

5.6.1 Modelled Scenarios

Intersection capacity analysis has been conducted using SIDRA Intersection 10 modelling software on key surrounding intersections to assess the traffic implications arising from the proposal. The following scenarios have been assessed:

- **Scenario 0 (S0)** – 2025 Existing Base case
- **Scenario 1 (S1)** – 2035 Future Base with background traffic growth (10 years) and adjacent developments
- **Scenario 2 (S2)** – Scenario 1, plus proposed development

5.6.2 Level of Service Criteria

TfNSW uses the performance measure level of service to define how efficient an intersection is operating under given prevailing traffic conditions. Level of service is directly related to the delays experienced by traffic travelling the intersection. Level of service ranges from LoS A to LoS F. LoS A indicates the intersection is operating with spare capacity, while LoS F indicates the intersection is operating above capacity. LoS D is the long-term desirable level of service.

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

Table 5.3 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 5.3: TfNSW Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

5.6.3 Intersection Capacity Analysis Results

A summary of the AM and PM peak traffic modelling results is provided in Table 5.4 and Table 5.5 respectively.

Table 5.4: SIDRA Intersection Analysis Results - AM Peak

Intersection	Control	Movement	S0 – Existing Base 2025		S1 – Future 2035		S2 – Future 2035 + Development	
			Avg Delay (s)	LoS	Avg Delay (s)	LoS	Avg Delay (s)	LoS
Kingsway / Hinkler Avenue	Priority - Give Way	West approach Right Turn	14	A	14	A	14	A
TCS 0547 - Kingsway / Taren Point Road	Signals	-	35	C	36	C	36	C

Table 5.5: SIDRA Intersection Analysis Results - PM Peak

Intersection	Control	Movement	S0 – Existing Base 2025		S1 – Future 2035		S2 – Future 2035 + Development	
			Avg Delay (s)	LoS	Avg Delay (s)	LoS	Avg Delay (s)	LoS
Kingsway / Hinkler Avenue	Priority - Give Way	West approach Right Turn	20	B	25	B	26	B
TCS 0547 - Kingsway / Taren Point Road	Signals	-	39	C	41	C	41	C

In the S0 (existing base year), the Kingsway / Hinkler Avenue and Kingsway / Taren Point Road intersections currently operate satisfactorily at LoS C or better in both peaks.

In S1 (future 2035), background growth increases average delay slightly at Kingsway / Hinkler Avenue and Kingsway / Taren Point Road as compared to S0 in both peaks, regardless of the proposed development. In the AM peak, average delay is expected to increase by one second at TCS 0547. In the PM peak, average delay at Kingsway / Hinkler Avenue is expected to increase by five seconds for the worst movement while average delay at Kingsway / Taren Point is expected to increase by two seconds.

In S2 (future 2035 + development) during the AM peak, modelling results indicate that the additional traffic associated with the proposed development would not increase intersection delay. In the PM peak, the additional development traffic is expected to increase the average delay by up to one second at Kingsway / Hinkler Avenue and would not make any material difference to the intersection performance.

Overall, from a traffic perspective, the proposed development would have minimal traffic impacts on the surrounding road network. All assessed intersections in the S2 future with development scenario are expected to operate at the same LoS as the S1 future base scenario.

6 Active and Public Transport Network

6.1 Target Mode Share

The following considerations have been given to setting a target mode share for the proposed residential development:

- Key work destinations as shown in the Census 2016 data are predominantly located in the surrounding Sutherland Shire area and Sydney CBD and which can be accessed by a combination of private cars, the T4 train line and a number of train lines shown in Figure 2.3. The site is located within a 210m walking distance to the bus stops on Kingsway, therefore it is reasonable to assume that there will be a minor uptake of bus trips. The site is also within a 400m walking distance to Caringbah train station which would allow residents travelling to work to use the existing T4 line for access to Cronulla, Sutherland and Sydney CBD. Therefore, it is expected that there will be a minor increase in the train mode share.
- The SCATL project as discussed in Section 2.7.3 will provide a new shared path along Willarong Road between Captain Cook Drive and Kingsway to provide connection from Caringbah Centre to Caringbah High School. It will also provide connection to the proposed Caringbah Town Centre Park located adjacent to the Kingsway/ Willarong Road intersection.
- School children can walk / cycle to the nearby schools e.g. Caringbah North Public School (1.1km walking distance) and Caringbah High School (1.3km walking distance).
- Residents can walk / cycle to the nearby Caringbah local centre for shopping, leisure and work.

As the above top travel locations for shopping, school, leisure and work will be accessible by public transport, on foot or by bicycle, a mode shift of 5% has been targeted for the proposed development to promote a mode shift towards more sustainable transport options, and also to reflect more walking trips that can be generated by non-work trips.

A modal shift between 3%-5% is typically considered to be a significant achievement, based on knowledge on local and international green travel plans, and advice from experts in Land and Environment Court proceedings.

Table 6.1: Existing and Target Mode Share

Journey to Work Mode	Existing Mode Share (based on Census 2016)	Target Mode Share	Change
Car, as driver	70%	65%	- 5%
Car, as passenger	6%	6%	-
Bus	0%	1%	+ 1%
Train	14%	16%	+ 2%

Bicycle	0%	1%	+ 1%
Walk only	8%	9%	+ 1%
Motorcycle	0%	0%	-
Worked at home	2%	2%	-
Total	100%	100%	100%

Reference has been made to the TfNSW Guide to Traffic Impact Assessment (2024) person trip rates for high density residential developments with high public transport accessibility:

- 0.66 person trips per unit in the AM peak hour
- 0.56 person trips per unit in the PM peak hour

Table 6.2: Future Person Trips (Outbound) in AM Peak Hour

Mode	Target Mode Share	Person Trips
Car, as driver	65%	70
Car, as passenger	6%	6
Bus	1%	1
Train	16%	17
Bicycle	1%	1
Walk only	9%	10
Motorcycle	0%	0
Worked at home	2%	2
Total	100%	108

6.2 Active and Public Transport Network

The existing active and public transport networks will be retained as per existing conditions. The proposed development would not alter the active or public transport infrastructure.

Residents' mode choice for working, school, leisure and shopping would involve walking, cycling and bus trips considering the site is conveniently located with easy access to bus services and is close to the town centre.

Key destinations including retail shops and restaurants are located within a walkable distance within the town centres, while schools are located within walking distance to the north.

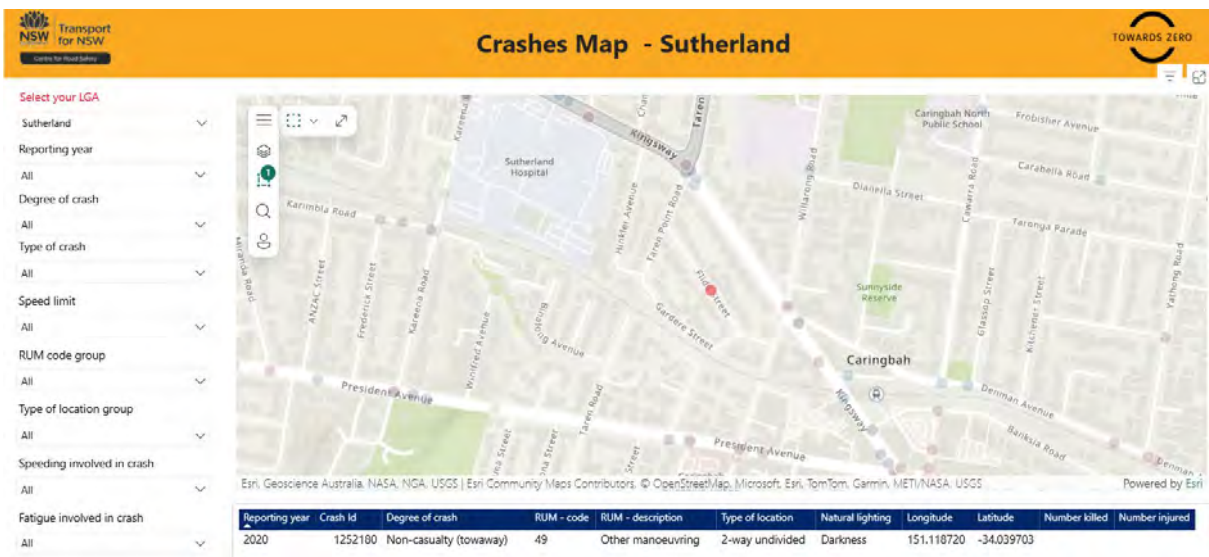
An existing shared path is available on the south side of Kingsway which will be eventually connected to Sutherland and Cronulla when the active transport link project (Figure 2.16) is complete. A new shared path will be constructed along Willarong Road to provide direct connection between the proposed development and the shared path on Kingsway and further north to Woollooware.

Residents will benefit from the extensive walking and cycling links to reach Caringbah Town Centre, Sutherland, Cronulla and Woollooware, which could reduce car dependency for these short-medium trips and hence reducing local traffic congestion.

7 Road Safety Assessment

TTPP obtained crash data from NSW Centre of Road Safety for the period between 1 January 2019 and 31 December 2023 for Gardere Street and Flide Street in the vicinity of the site. During this period, there has been one crash recorded in the vicinity of the site as shown in Figure 7.1.

Figure 7.1: Crash Location (2019 to 2023)



The crash occurred at a mid-block location on Flide Street involving a vehicle travelling in an unknown direction hitting a parked vehicle on a Saturday night. This was a towaway event.

This isolated crash does not indicate any pattern or evidence of safety issues in the vicinity of the site.

8 Preliminary Construction Management Plan

8.1 Description of Works

This preliminary construction traffic management plan (CTMP) has been prepared to address the SEARS requirement (No. 9 – Transport).

At this stage, a construction contractor has not been appointed and therefore, details provided in this preliminary CTMP may change subject to a detailed construction methodology which will be available at a later stage. Any changes proposed by the appointed contractor will require further approvals from the relevant consent authorities for the Construction Certificate.

The purpose of this preliminary CTMP is to detail how traffic and pedestrians will be managed during the proposed construction works. This CTMP framework will provide a strategy to reduce the impacts to traffic and access on the surrounding roads during each construction stage to provide a safe road environment, while maintaining access for all road users and the local community.

Construction works would involve construction of two residential flat buildings—one rising to part 13 and part 14 storeys, and the other to eight storeys—to accommodate 104 social housing units and 60 affordable housing units. At this stage, it is anticipated the construction will be completed in four stages as shown in Table 8.1.

Table 8.1: Indicative Construction Stages

Stage	Activities
Early Works / excavation	Tree clearing, excavation, below ground services and below ground structure
Construction	Structure, roof, façade, services
Fit-out	Architectural finishes and fitout
External works	Construction of driveway on Gardere Street Completion of external works

8.2 Hours of Construction

The construction hours will be generally limited to:

- 7:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm on Saturdays
- No work on Sundays or Public Holidays.

8.3 Construction Fencing

Wire mesh will have been installed around the site to create separation for vehicles and pedestrians from the construction site. Scaffolding and fall protection arrangements will have been installed along the southern boundary of the site to minimise the risks associated with falling objects onto the railway corridor.

8.4 Construction Vehicle Types

It is anticipated that the heavy vehicles required for the proposed construction works would be 19m truck and dog trailers and 10-wheelers (e.g. heavy rigid vehicles).

All construction vehicles will enter the site in a reverse direction and a forward direction under traffic control, for the purpose of avoiding tree protection areas and corresponding with the construction methodology.

Swept path analysis has been undertaken demonstrating vehicle access to and from the site. The swept paths are provided in **Appendix D**.

8.5 Vehicle Access Arrangement

The existing driveway off Gardere Street will be maintained as the only construction site access/ exit for the transportation of machines into the site. This will involve construction vehicles making a reverse movement into the driveway from Gardere Street under traffic control. The site access would be located at the existing driveway on Gardere Street.

In accordance with Transport for NSW (formerly RMS) Traffic Control at Worksites Manual (TCaWS 2022), it is a current practice to use portable traffic control devices (PTCD) when the existing permanent speed limit is above 45km/h. The decision to not use a PTCD must be documented in the traffic management plan and must be considered in associated risk assessment.

Portable boom barriers will be installed on Gardere Street north-eastbound and at the Gardere Street/ Flide Street intersection, to hold general vehicles when a construction truck is accessing/ exiting the site, given the large turning circle required by the trucks as shown in the swept path assessment in Appendix B. This is to ensure construction vehicles can safely and sufficiently enter/exit the site. Portable boom barriers will be controlled by a traffic controller using a remote control.

The proposed traffic management measures will involve:

- When a truck is travelling slowly along Gardere Street north-eastbound past the driveway, then reverse into the site.

- General traffic approaching the Gardere Street eastbound and Flide Street westbound will be temporarily held on approaches to the Gardere Street/ Flide Street intersection.
- General traffic travelling behind the truck on Gardere Street north-eastbound will be temporarily held at the bend south of the driveway.
- When a truck is leaving the site in a forward direction
 - General traffic approaching the Gardere Street eastbound and Flide Street westbound will be temporarily held on approaches to the Gardere Street/ Flide Street intersection.
 - General traffic travelling on Gardere Street north-eastbound to be temporarily held at the bend south of the driveway.

Sight distance towards each portable boom barrier is sufficient along Gardere Street and Flide Street with a straight road alignment.

8.6 Nominated Truck Haulage Routes

Haulage routes have been selected on the basis that all trucks are to utilise state and regional roads as much as possible before travelling on local roads. All truck drivers will be advised of the designated routes to and from the site, and will be informed to strictly follow the routes to minimise the traffic impacts on the local streets, within the vicinity of the site.

It is expected that all trucks will originate to/ from the north and the west via Taren Point Road and Kingsway. However, due to turning movement restrictions at the Kingsway/ Taren Point Road intersection, which trucks are not permitted to turn from Kingsway onto Taren Point Road, it is expected that all trucks to/ from the north and west will access the site via Taren Point Road, before travelling on Gardere Street and Flide Street.

All trucks will exit the site via Flide Street and Taren Point Road before either turning left onto Kingsway or continue northbound on Taren Point Road at the signalised intersection.

A swept path assessment has been undertaken in **Appendix D** for the truck movements within the local road network, including along Taren Point Road, Gardere Street and Flide Street. The swept path indicates that 19m truck and dog trailers could travel to and from the site via the nominated haulage routes. However, due to the narrow road width and on-street parking observed on both sides of the roads, it is proposed to install 'No Stopping' signage along sections of the local roads to prevent on-street parking that could otherwise impede the turning movements of truck and dog trailers. This is detailed in Section 8.13.

The nominated truck routes to/ from the site is shown in Figure 8.1. Trucks shall only be permitted to enter/ exit the site under traffic control using portable boom barriers.

- During the site induction phase and regular management meetings, staff would be instructed to use public transport when travelling to the site and public transport timetables.

Workers will also be informed of restricted parking conditions on-site and the surrounding road network. Workers may park on Flide Street but they will be encouraged to carpooling if driving is the choice of transport. These roads typically have low parking occupancy in close vicinity of the site and no adverse parking impact is anticipated.

8.9 Construction of Permanent Driveway

A permanent driveway will be constructed near the south-western end of the Gardere Street frontage, just south of the existing driveway.

Construction of the driveway is expected to be undertaken over several days, during which pedestrians will be temporarily shifted to walk within the closed parking lane, with temporary skid resistant and DDA compliant ramps to be provided to enable a smooth transition between the existing footpath and the temporary pedestrian path. Water-filled barriers and traffic cones will be installed to create separation for pedestrians from the construction works and general traffic.

During the evenings, the temporary pedestrian path will be removed and a synthetic walkway (e.g. steel plate or the like) will be placed on the footpath area to maintain pedestrian access along the east side of Gardere Street.

8.10 Construction Traffic Generation

Construction traffic generation is to be confirmed by the contractor following appointment and as part of the construction certification process.

However, based upon our experience, it is unlikely that there would be more than 10 trucks per day entering the site or the work zone. The most intense use would likely take place during the infrequent concrete pours when 6-8 trucks might enter in an hour for a short period. However generally, there would be no more than one to two trucks per hour.

The peak construction activities may require a peak workforce of approximately 75 workers per day. Assuming all construction workers travel by car with an average car occupancy of 1.4 people per car, this would generate in the order of 54 car trips arriving before the construction start time and 54 car trips after the construction end time. These time periods generally fall outside of the road network peak periods.

8.11 Traffic Impact

Workers would commute to/from site before the construction start time and after the construction end time, which generally fall outside of the road network peak periods.

Given the construction workers car trips generally occur outside the network peak hour and the low number of construction heavy vehicles that would occur during the day, traffic impact during construction is expected to be minimal as well.

Construction workers will be encouraged to take public transport and carpooling. A secure tool storage facility can be provided on-site to allow tradespeople to safely store tools required for the project allowing them to use public transport or carpooling to and from the site on a daily basis.

Notwithstanding the above, construction vehicle impacts are to be minimised by restricting vehicle access during peak periods. Construction vehicles are to be permitted access outside of school pick up and drop off periods, to minimise impact to traffic flows along the adjoining road network.

8.12 Impact on Pedestrian and Cyclists

Wire mesh will have been installed around the site to create separation for vehicles and pedestrians from the construction site.

During the construction of the driveway, pedestrians will be re-directed to the temporary pedestrian path within the parking lane, with temporary skid resistant ramps to be provided to enable a smooth transition between the existing footpath and the temporary pedestrian path. Water-filled barriers and traffic cones will be installed to create separation for pedestrians from the construction works and general traffic.

Pedestrians walking past the driveway may be temporarily held by traffic controllers and concertina gates when trucks are entering and exiting the site. Pedestrians would only be held for a short period and would not be detoured in anticipation of trucks entering the site.

Pedestrian/ cycling access on all pedestrian and cycling facilities surrounding the work site is to be maintained at all times.

All relevant permit approvals will be obtained from Council prior to the commencement of such construction works.

8.13 Impact on On-Street Parking

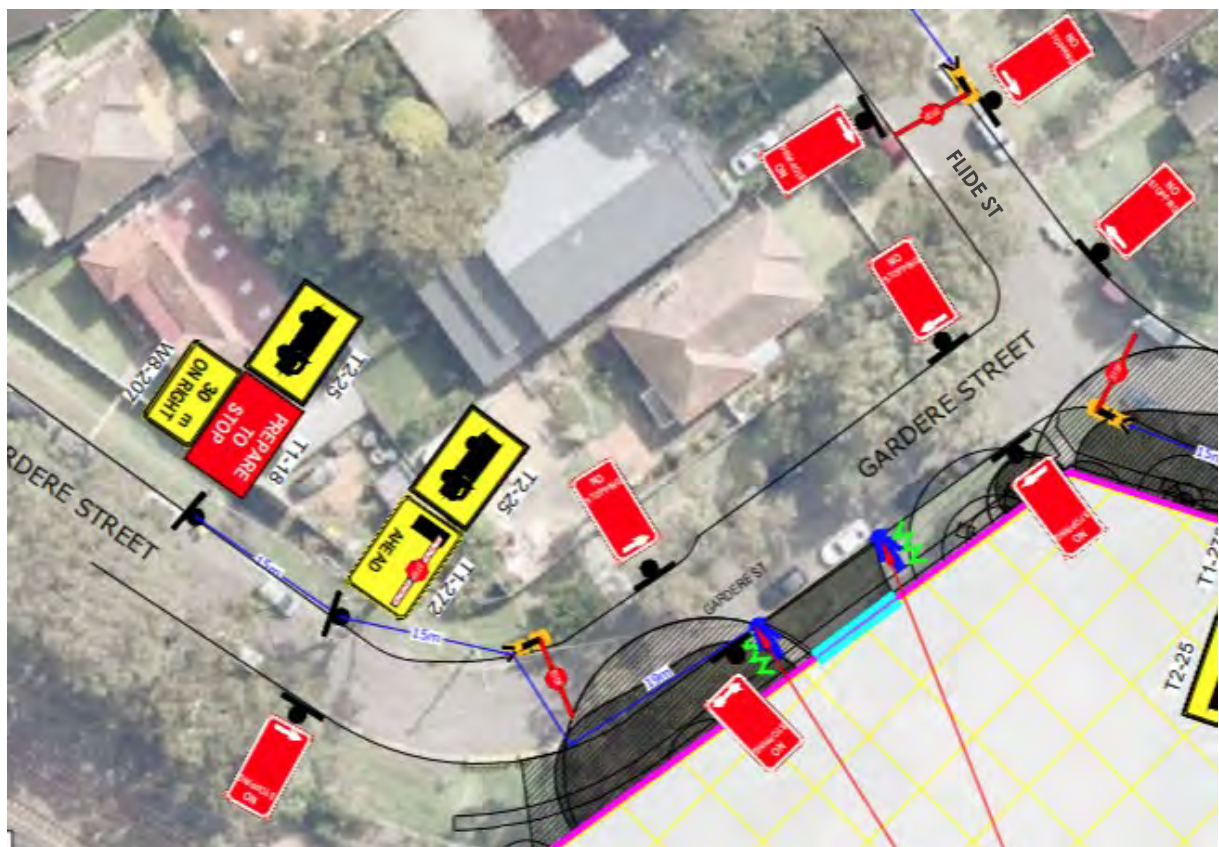
To facilitate the turning movements of 19m truck and dog trailers within the local road network and Gardere Street driveway, a number of on-street parking spaces will be removed in the

vicinity of the site. 'No Stopping' signage will be installed to prevent on-street parking at the following locations as illustrated in Figure 8.2:

- Northwest side of Gardere Street: approx. 5 spaces
- Southeast side of Gardere Street: approx. 9 spaces
- Southeast side of Flide Street: approx. 2 spaces
- Northwest side of Flide Street: approx. 3 spaces.

Based on the above, it is proposed to temporarily remove a total of 19 on-street parking spaces on Flide Street and Gardere Street. These on-street parking spaces are unrestricted and generally used by the surrounding residents of the area. It is expected that the parking demand can be sufficiently accommodated within the surrounding on-street parking on Flide Street and Gardere Street, which have spare capacity according to historical Nearmap aerial imagery view.

Figure 8.2: Removal of On-Street Parking Spaces



8.14 Impact on Public Transport

There are no bus stops in the vicinity of the site and therefore construction works are not anticipated to impose any impacts on public transport.

8.15 Impact on Emergency Services

The proposed construction activities are not expected to create any adverse impacts to emergency vehicle access. As such, no special provisions for emergency service vehicles would be required as part of the proposed construction activities. Emergency vehicle access is to be maintained at all times.

8.16 Community and Motorist Notification

Homes NSW would inform neighbouring properties of any construction activities, prior to those activities taking place. This includes any adjacent buildings and properties to the site, which may be impacted by the construction works, temporary on-street parking removal, temporary traffic management measures, the and the designated haulage routes along the local roads.

Notifications may be provided via letterbox drop at least 14 days prior to the construction activities. The Contractor would regularly liaise with the neighbouring properties to minimise the impacts of the construction works during the construction period.

The communication strategy includes communicating the contact details of the site manager to allow for relevant stakeholders to provide feedback and file complaints. The contact details of the appointed site manager and the Homes NSW Community Engagement team would also be made available to relevant authorities, to resolve any issues that local residents and neighbouring properties may raise about the construction activities. Each feedback and complaint will be dealt with as they occur.

Notwithstanding this, the contact details of the site manager would be made available on the site gate at all times.

Temporary advanced warning signs will advise motorists of their approach to the site access.

8.17 Dust Management

The following dust management measures will be implemented:

- The site manager will monitor the dust emissions and implement water suppression during machine movements and/or loading activities as required.
- Restriction of dust producing works on windy days.
- Protection of stockpiles.
- A wheel wash area will be provided within the site to scrub and clean all dirt and debris from the tyres of all construction vehicles prior to exiting the site. This will avoid debris to spill onto the road and as such would not require a road sweeper the frontage roads.

- Any materials loaded on the trucks would be fully covered to avoid spillage. Similarly, vehicle loads would be covered when hauling to/ from the site.

8.18 Noise Management

The following noise management measures will be implemented:

- All noise-creating activities are to be limited to the construction working hours outlined in Section 8.7.
- All plant and equipment are to be muffled in accordance with manufacturers' requirements.
- Regular inspections will be performed by the site manager to determine the extent of noise at the nearest affected residence or workplace.
- The complaints register will be checked daily and any corrective action necessary taken immediately to ensure minimal interruptions.
- In the event of excessive noise is being created by the works, work will stop immediately.
- Work methodologies will be modified to ensure that noise emissions during works are minimised.
- Site manager will be notified of any noise complaints immediately.

9 Conclusion

The Transport Planning Partnership (TPPP) has undertaken a Transport Impact Assessment on behalf of Homes NSW for a State Significant Development Application and Planning Proposal for construction of a residential flat building to accommodate 104 social housing units and 60 affordable housing units at 2 Flide Street, Caringbah.

Key findings in this traffic and transport assessment include:

- The proposed development is subject to a total statutory parking requirement of 82 car spaces in accordance with Housing SEPP. The Housing SEPP does not specify requirements on visitor parking.
- The development will provide 83 resident car parking spaces (including nine accessible parking spaces) which satisfies the Housing SEPP parking requirements. In addition, Homes NSW will provide one visitor parking space to minimise visitor parking impacts on surrounding roads.
- The proposed parking layout is generally consistent with the dimensional requirements as set out in the Australian/New Zealand Standard for Off-Street Car Parking (AS2890.1:2004, draft AS2890.1:2023 and AS2890.6:2009).
- A new driveway would be provided near the southern end of the Gardere Street frontage.
- The development is expected to generate a net increase in the order of 24 and 19 vehicle trips during the weekday AM and PM peak hours respectively, as compared to the existing use of the site respectively. SIDRA modelling results indicate that the key assessed intersections can accommodate the additional development traffic. All intersections are expected to operate at the same LoS with the development traffic as the future base scenarios.
- Construction traffic management measures include:
 - During construction of a new driveway on Gardere Street, a temporary pedestrian path would be provided within the parking lane, with temporary skid resistant ramps to enable a smooth transition between the kerb and parking lane.
 - To facilitate the turning movements of 19m truck and dog trailers within the local road network and the Gardere Street driveway, a total of 19 parking spaces would be temporarily removed on Gardere Street and Flide Street. It is expected that the parking demand can be sufficiently accommodated within the surrounding on-street parking as spare capacity can be seen according to historical Nearmap aerial imagery view.

Overall, the traffic and parking aspects of the proposed development are considered to be satisfactory.

Appendix A

Architectural Plans

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Do not scale drawings.

Print in Colour.

Client

Homes NSW



Legend:

- Site Boundary
- Surrounding Property Boundary
- Transport NSW Railway Boundary
- Existing Building
- Existing Site Elements
- Extent of Lower Ground Carpark
- Extent of Existing Carpark and Foot Path
- Extent of Indicative Landscaping outside of the Site Boundary
- Construction Period Tree Protection Zone - Consolidated Area
- Existing Trees
Txx: Refer to arborist report for tree identification
- Proposed trees
- CL: Clothesline

Legend Landscape: Refer to arborist drawings for final location/requirements

Data Issue Record

Rev	Date	Description
3	19.09.2025	SSDA
2	16.09.2025	For Information
1	12.09.2025	Frozen SSDA Plans

Project Title
Flide Street, Caringbah
First Nations Country
Gadigal
Project Address
**2 Flide Street
Caringbah**
Project No.
S12899

Drawing Title
**DA03 - General Arrangement Plans
Basement 01**

Phase
SSDA
Status
For Approval
Drawing no.
DA03.001

Scale
1 : 200 @ A1
Revision
3

	LEVEL CARS				M/BIKE	BICYCLE		STORAGE (NOT IN APT)
	RESI	RESI-ACC	VISITOR			RESI	VISITOR	
07								1
04								1
01						78	6	
00	33	5	1 (ACC)	2	-	-	-	30
B1	41	4	-	-	-	-	-	18
TOTAL		84		2		140 ^a		50

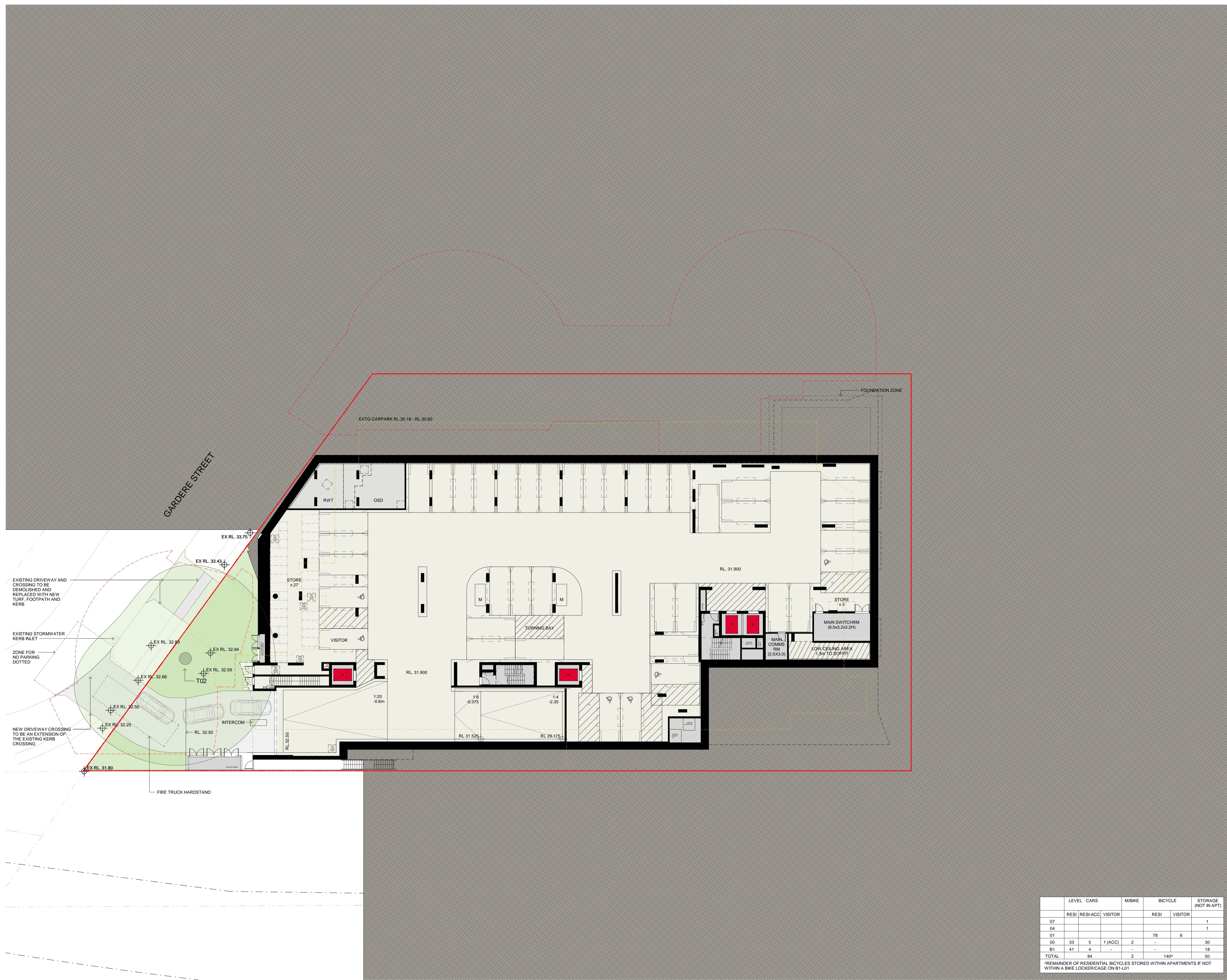
^aREMAINDER OF RESIDENTIAL BICYCLES STORED WITHIN APARTMENTS IF NOT WITHIN A BIKE LOCKER/CAGE ON B1-L01

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Do not scale drawings.

Print in Colour.

Client
Homes NSW



Legend:

- Site Boundary
- Surrounding Property Boundary
- Transport NSW Railway Boundary
- Existing Building
- Existing Site Elements
- Extent of Lower Ground Carpark
- Extent of Existing Carpark and Foot Path
- Extent of Indicative Landscaping outside of the Site Boundary
- Construction Period Tree Protection Zone - Consolidated Area

- Existing Trees
- Txx: Refer to arborist report for tree identification
- Proposed trees
- CL Clothesline

Legend Landscaping: Refer to arborist drawings for final location/requirements

Data Issue Record

Rev	Date	Description
3	19.09.2025	SSDA
2	16.09.2025	For Information
1	12.09.2025	Frozen SSDA Plans

3	19.09.2025	SSDA
2	16.09.2025	For Information
1	12.09.2025	Frozen SSDA Plans

Project Title
Flide Street, Caringbah

First Nations Country
Gadigal

Project Address
**2 Flide Street
Caringbah**

Project No.
S12899



Drawing Title
**DA03 - General Arrangement Plans
Lower Ground Level 00**

Phase
SSDA

Status
For Approval

Drawing no.
DA03.100

Scale
1 : 200 @ A1

Revision
3

LEVEL	CARS			M/BIKE	BICYCLE		STORAGE (NOT IN APT)
	RESI	RESI-ACC	VISITOR		RESI	VISITOR	
07							1
04							1
01						78	6
00	33	5	1 (ACC)	2	-	-	30
B1	41	4	-	-	-	-	18
TOTAL				2		140 ^a	50

^aREMAINDER OF RESIDENTIAL BICYCLES STORED WITHIN APARTMENTS IF NOT WITHIN A BIKE LOCKER/CAGE ON B1-L01



Legend:

- Site Boundary
- Surrounding Property Boundary
- Transport NSW Railway Boundary
- Existing Building
- Existing Site Elements
- Extent of Lower Ground Carpark
- Extent of Existing Carpark and Foot Path
- Extent of Indicative landscaping outside of the Site Boundary
- Construction Period Tree Protection Zone - Consolidated Area

Existing Trees
 Txx: Refer to arborist report for tree identification
 Proposed trees
 CL: Clothesline
 Legend Landscaping: Refer to arborist drawings for final location/requirements

Data Issue Record
Current Revision released by

Rev	Date	Description
3	19.09.2025	SSDA
2	16.09.2025	For Information
1	12.09.2025	Frozen SSDA Plans

Project Title
Flide Street, Caringbah

First Nations Country
Gadigal

Project Address
2 Flide Street
Caringbah

Project No.
S12899

Drawing Title
DA03 - General Arrangement Plans
Upper Ground Level 01

Phase
SSDA

Status
For Approval

Drawing No.
DA03.101

Scale
1 : 200 @ A1

Revision
3

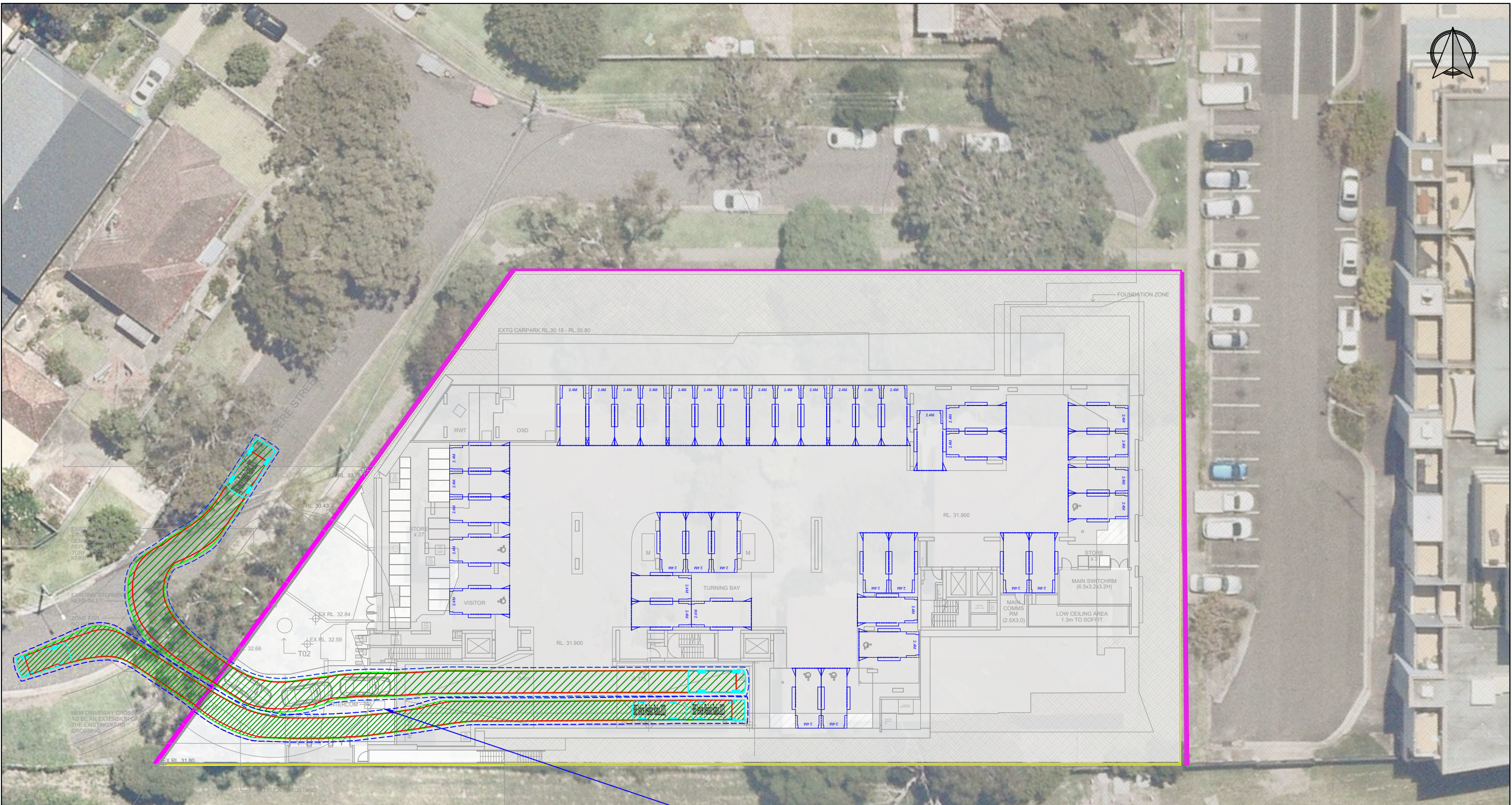


LEVEL	CARS			M/BIKE	BICYCLE		STORAGE (NOT IN APT)
	RESI	RESI+ACC	VISITOR		RESI	VISITOR	
07							1
04							1
01						78	6
00	33	5	1 (ACC)	2	-	-	30
B1	41	4	-	-	-	-	18
TOTAL	84			2		140*	50

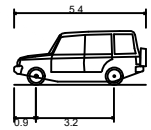
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Appendix B

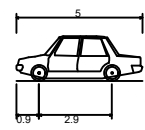
Swept Path Assessment (Operation)



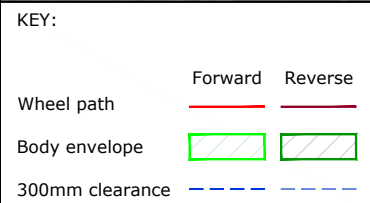
PROPOSED INTERCOM IS LOCATED ON A FLAT GRADE ($\leq 1:20$).



B99 Vehicle (Realistic Radius 2023)
 Overall Length 5.400m
 Overall Width 2.100m
 Overall Body Height 2.200m
 Min Body Ground Clearance 0.120m
 Track Width 2.000m
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 6.350m



B85 Vehicle (Realistic Radius 2023)
 Overall Length 5.000m
 Overall Width 1.900m
 Overall Body Height 1.800m
 Min Body Ground Clearance 0.120m
 Track Width 1.800m
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 5.800m



DRAWING PLANS USED:
 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

Filename: 25087CAD016_250923_Caringbah_Design_Review

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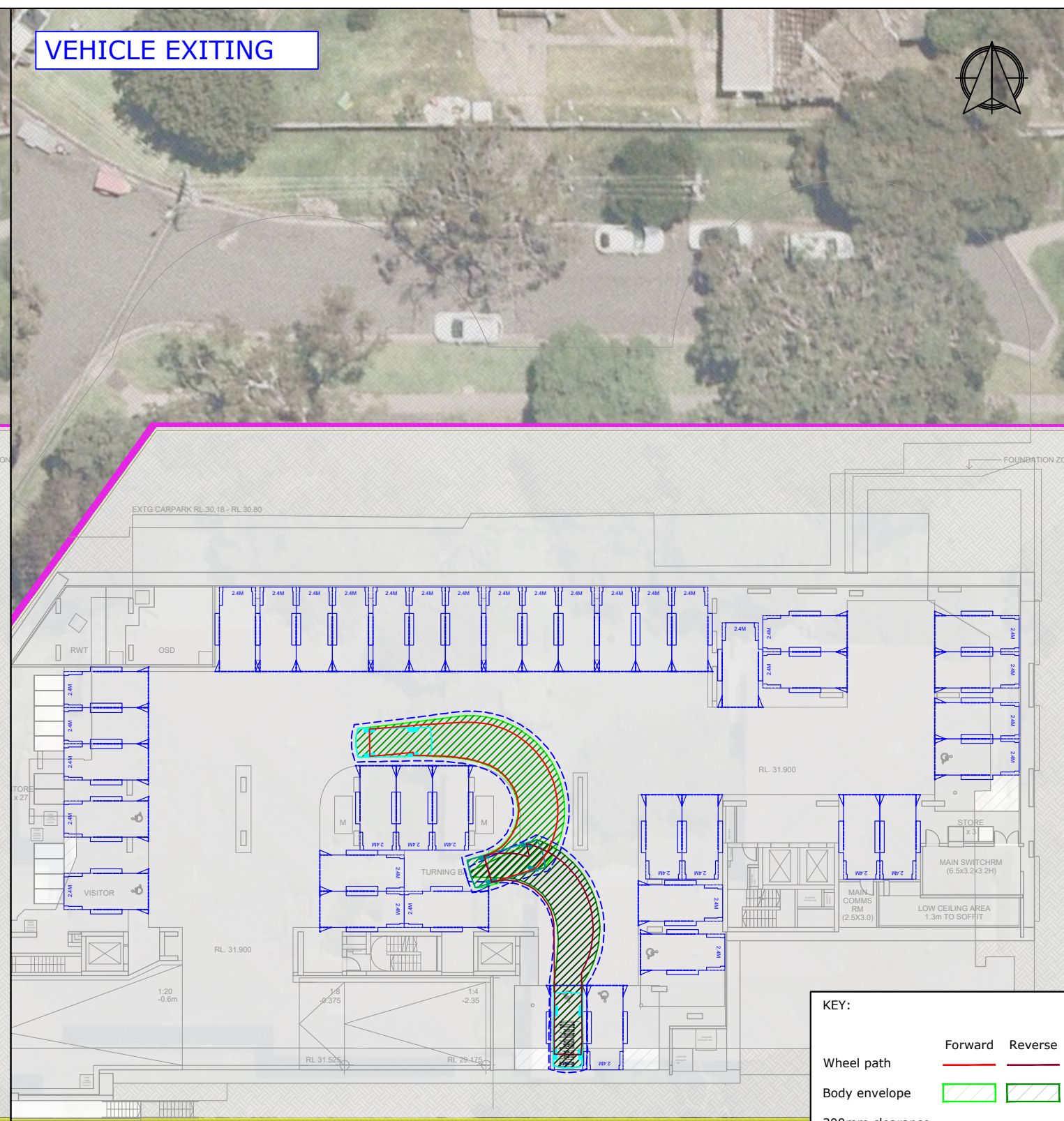
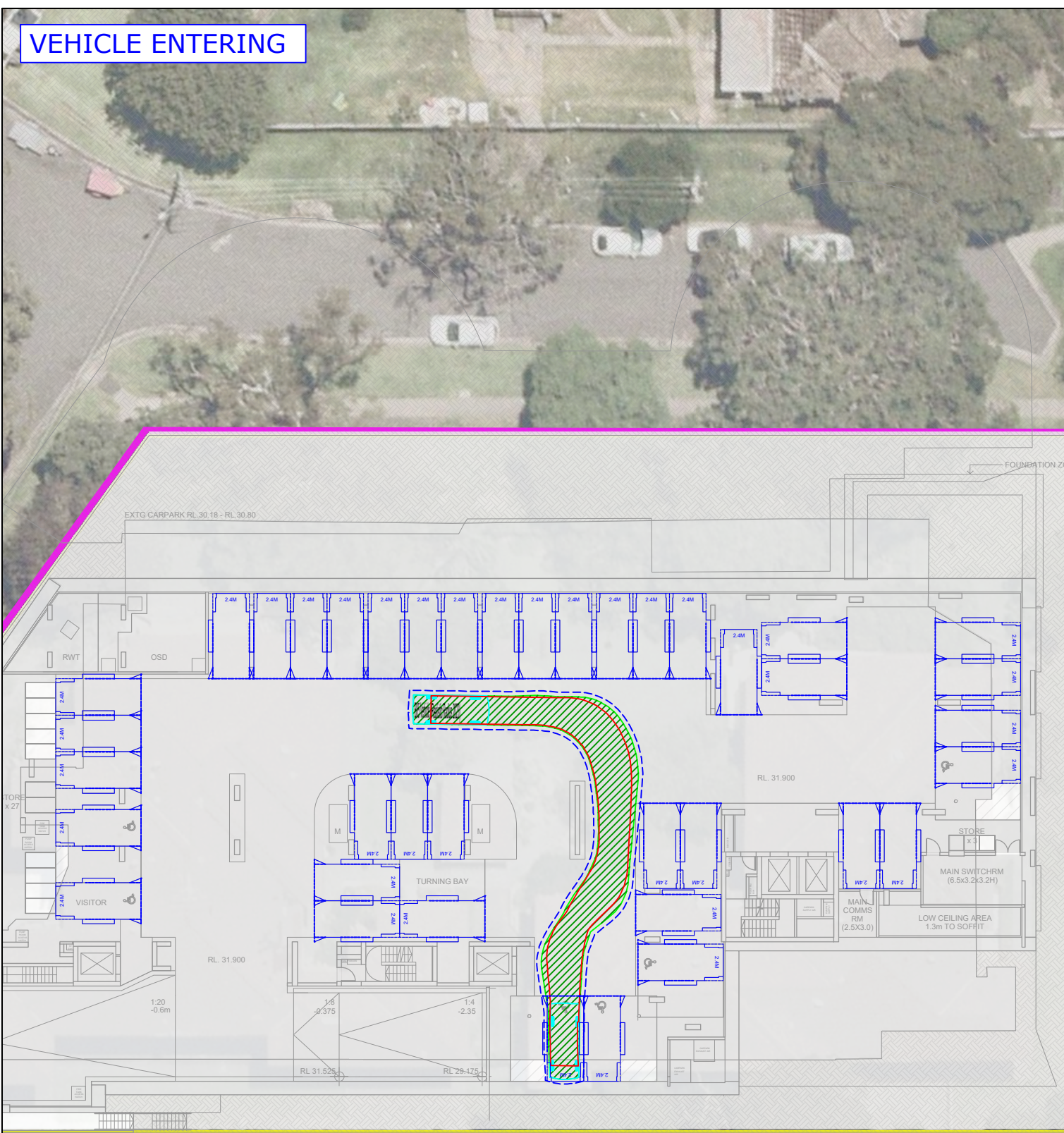
PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS: LOWER GROUND LEVEL
 AS2890.1: 2023 - 5.4M B99 VEHICLE AND 5.0M B85 VEHICLE

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PROJECT No.	SCALE	REV.
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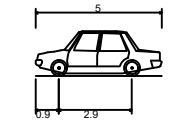
VEHICLE ENTERING

VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



B85 Vehicle (Realistic Radius 2023)

Overall Length	5.000m
Overall Width	1.900m
Overall Body Height	1.800m
Min Body Ground Clearance	0.120m
Track Width	1.800m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.800m

DRAWING PLANS USED:
 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
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PROJECT: 2 FLIDE STREET, CARINGBAH

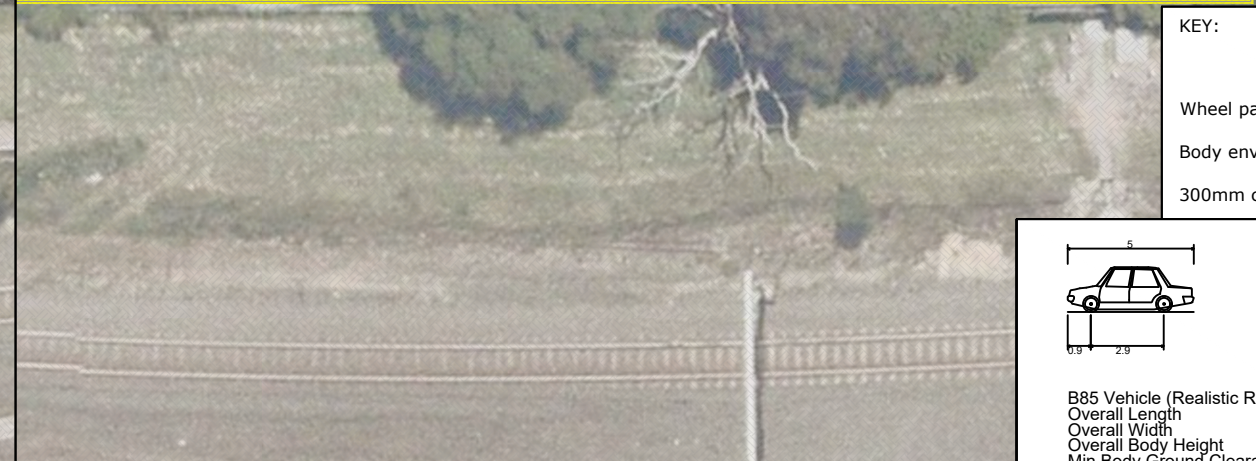
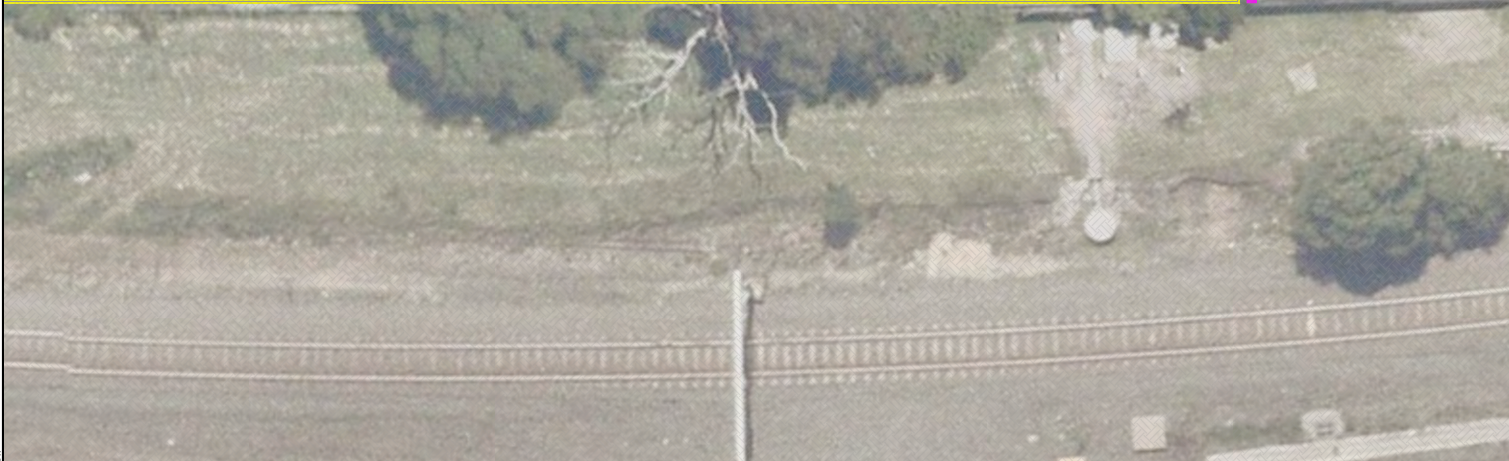
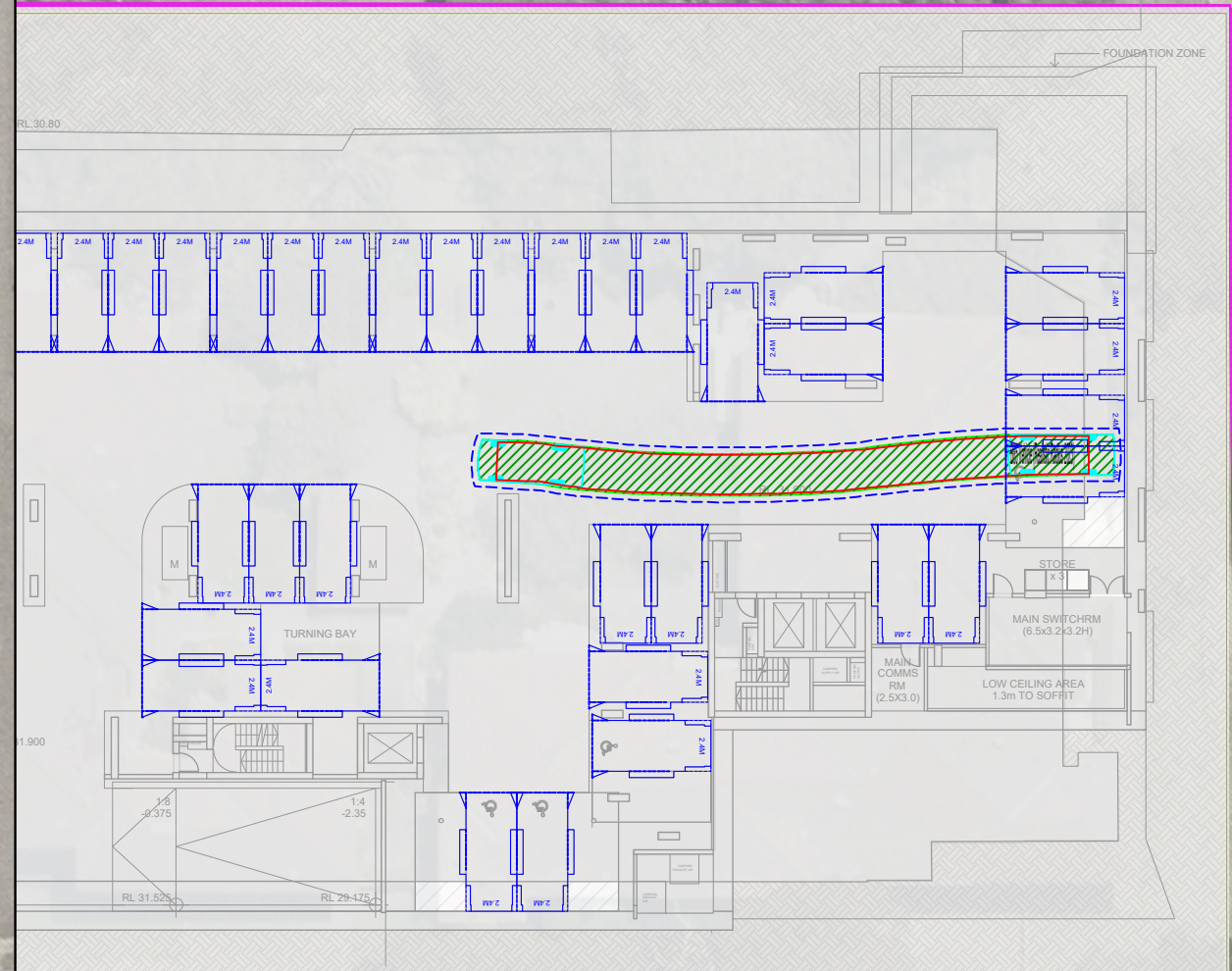
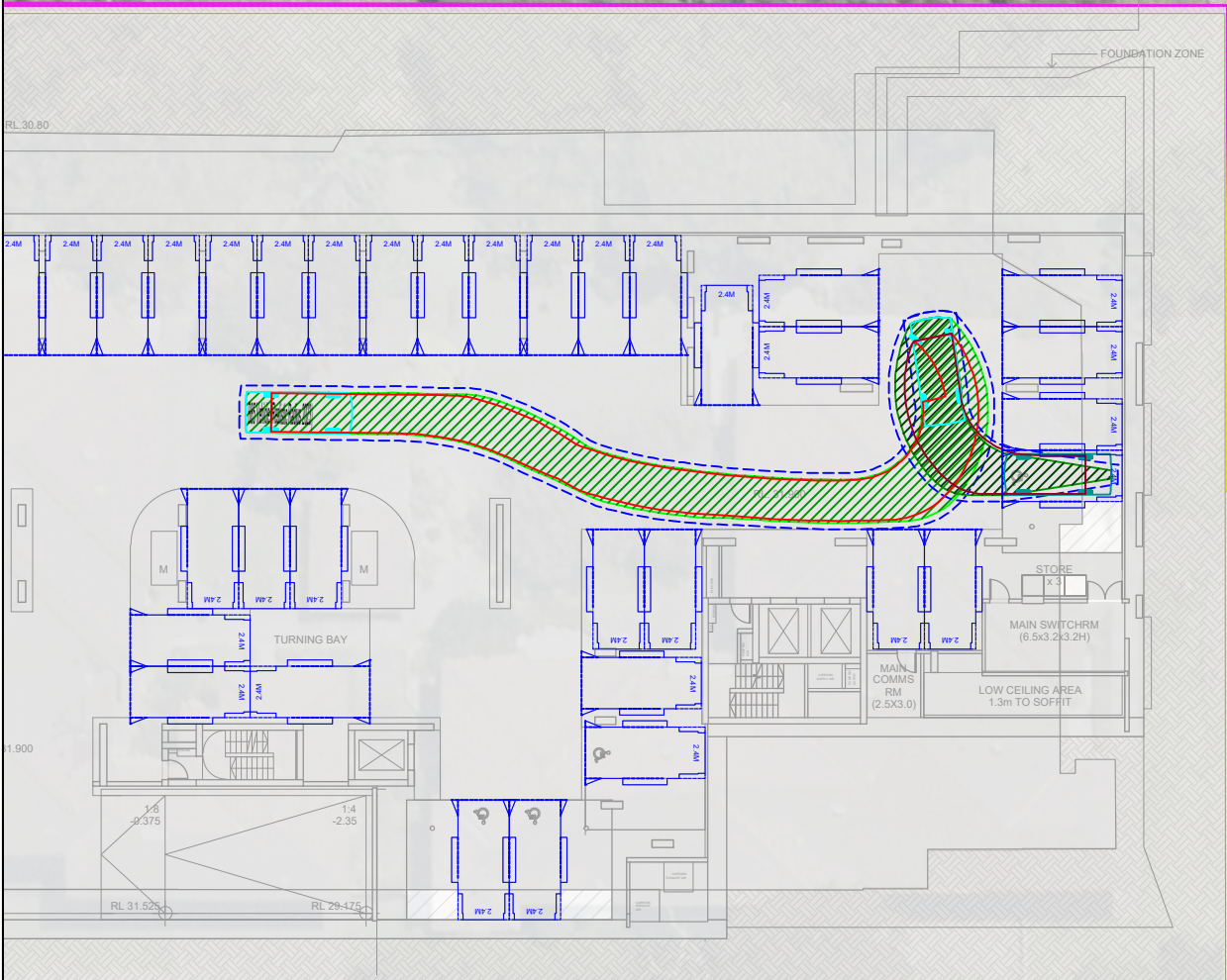
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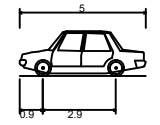
VEHICLE ENTERING-REVERSE IN

VEHICLE EXITING-FORWARD OUT



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



B85 Vehicle (Realistic Radius 2023)

Overall Length	5.000m
Overall Width	1.900m
Overall Body Height	1.800m
Min Body Ground Clearance	0.120m
Track Width	1.800m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.800m

DRAWING PLANS USED:
 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



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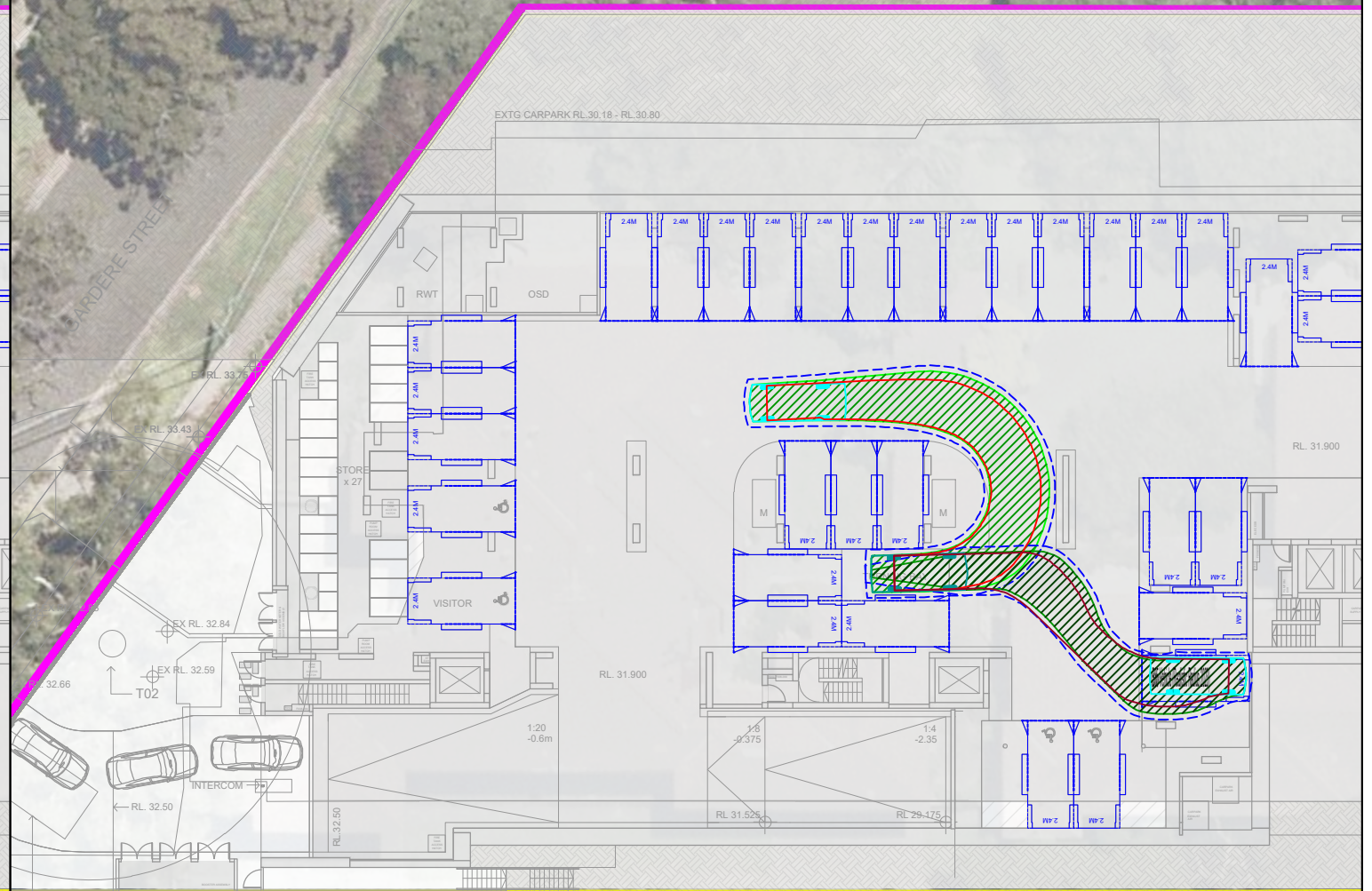
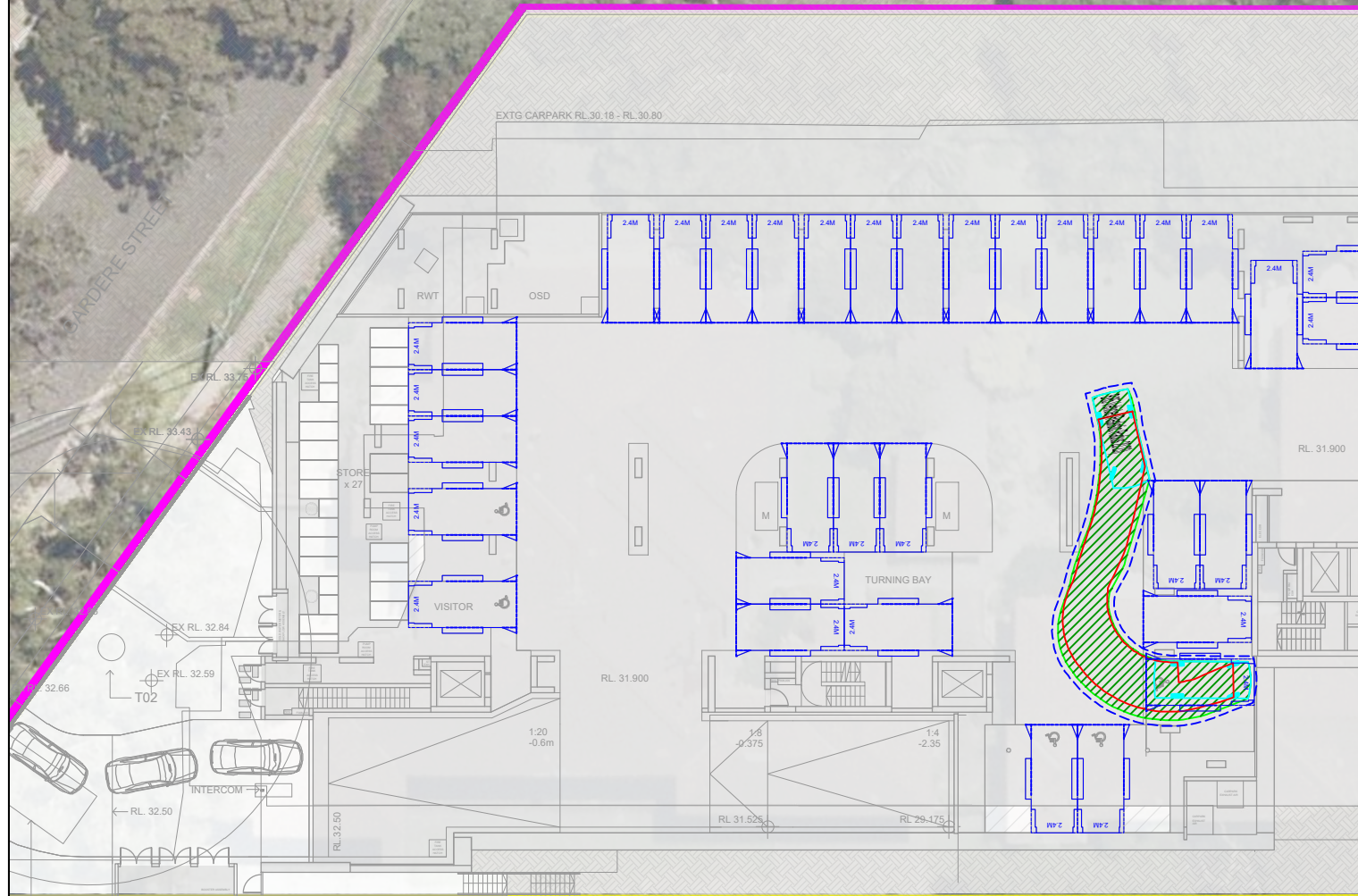
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Filename: 25087CAD016_250923_Caringbah_Design_Review

VEHICLE ENTERING-FORWARD-IN

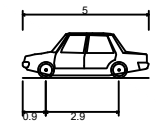
VEHICLE EXITING-REVERSE OUT



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 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



B85 Vehicle (Realistic Radius 2023)	
Overall Length	5.000m
Overall Width	1.900m
Overall Body Height	1.800m
Min Body Ground Clearance	0.120m
Track Width	1.800m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.800m

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEEP PATH ANALYSIS: LOWER GROUND LEVEL
 AS2890.1:2023 - 5.0M B85 VEHICLE

DWG No. 25087CAD016	
FIGURE (4)	
DATE STAMP 23 SEPTEMBER 2025	
PROJECT No. 25087	SCALE 1:350 @A3
REV. A	

Filename: 25087CAD016-250923-Cairingbah Design_Review

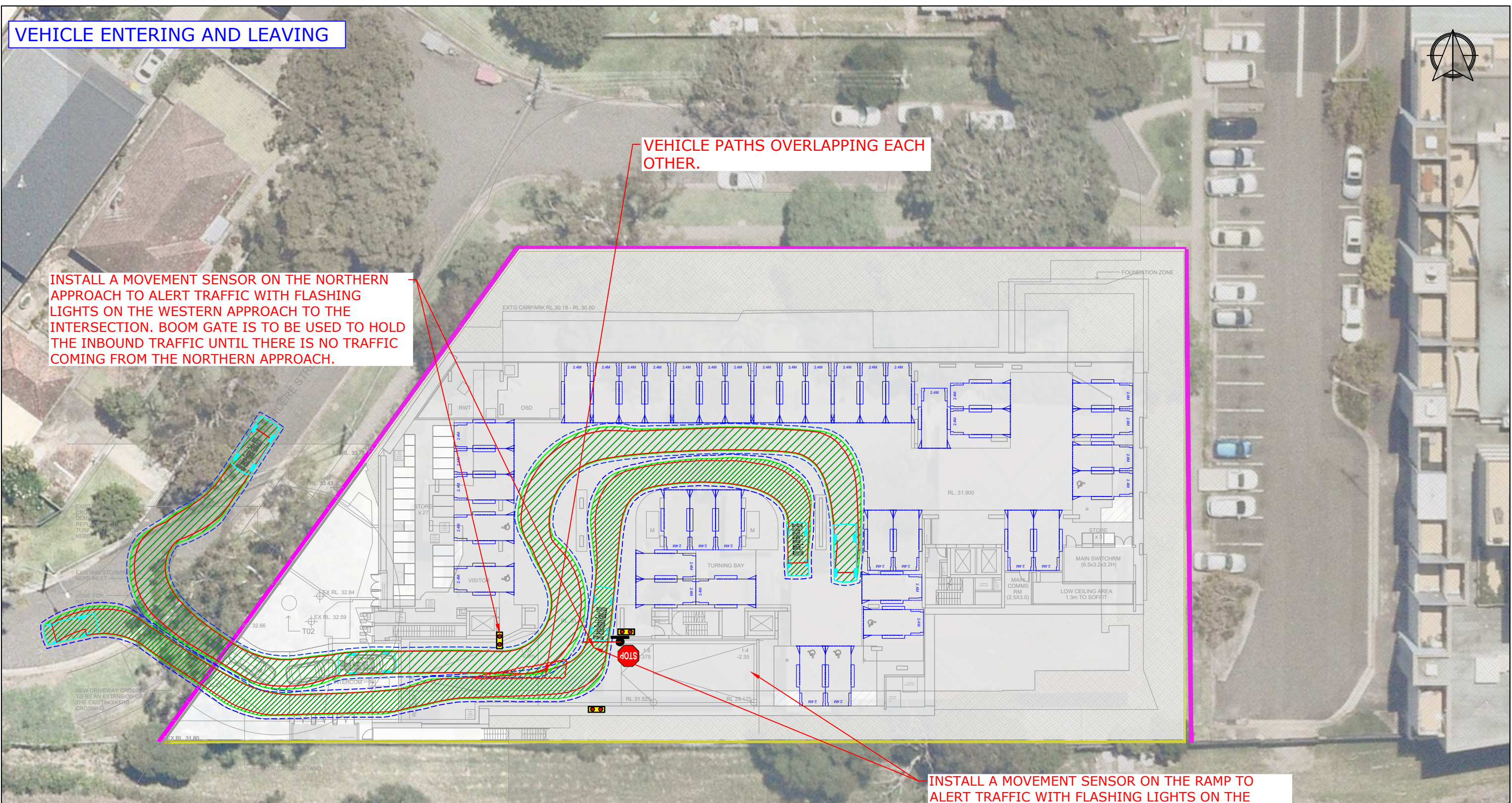
VEHICLE ENTERING AND LEAVING



VEHICLE PATHS OVERLAPPING EACH OTHER.

INSTALL A MOVEMENT SENSOR ON THE NORTHERN APPROACH TO ALERT TRAFFIC WITH FLASHING LIGHTS ON THE WESTERN APPROACH TO THE INTERSECTION. BOOM GATE IS TO BE USED TO HOLD THE INBOUND TRAFFIC UNTIL THERE IS NO TRAFFIC COMING FROM THE NORTHERN APPROACH.

INSTALL A MOVEMENT SENSOR ON THE RAMP TO ALERT TRAFFIC WITH FLASHING LIGHTS ON THE NORTHERN APPROACH TO THE INTERSECTION THAT A VEHICLE IS TRAVELLING UP THE RAMP.



KEY:

Wheel path: Forward (red line), Reverse (green line)

Body envelope: Forward (red outline), Reverse (green outline)

300mm clearance: Dashed blue line

LEGEND:

Sign Post (black symbol)

Flashing Lights (yellow and red symbol)

Stop Line (red line)

(Not To Scale)

DRAWING PLANS USED:
 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



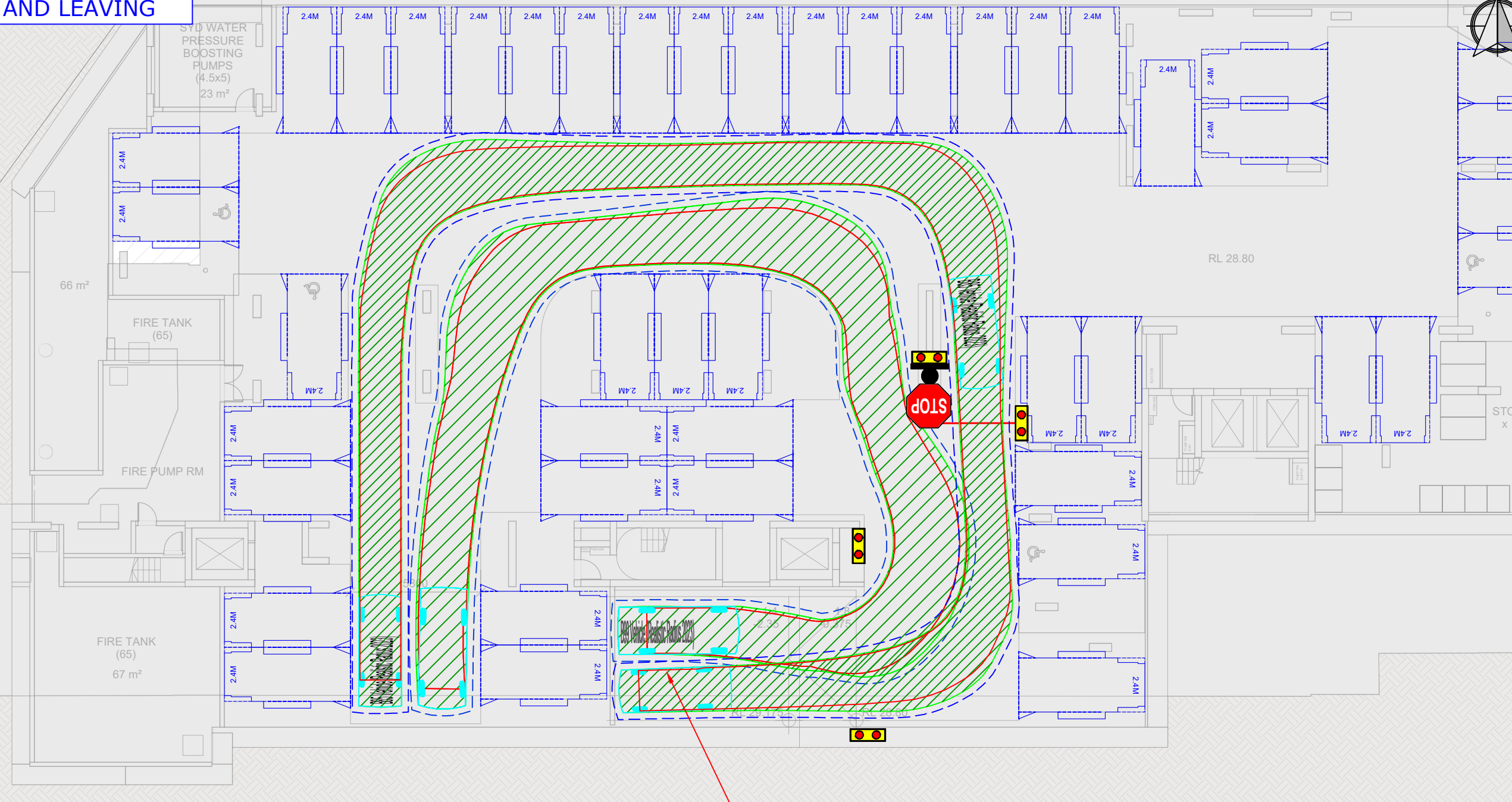
PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS: LOWER GROUND LEVEL
 AS2890.1: 2023 - 5.4M B99 VEHICLE AND 5.0M B85 VEHICLE

DWG No.	25087CAD016		
	FIGURE (5)		
DATE STAMP	23 SEPTEMBER 2025		
PROJECT No.	SCALE	REV.	
25087	1:350 @A3	A	

Filename: 25087CAD016_250923_Caringbah_Design_Review

VEHICLE ENTERING AND LEAVING



INSTALL A MOVEMENT SENSOR ON THE RAMP TO ALERT TRAFFIC WITH FLASHING LIGHTS TO MANAGE THE TRAFFIC CONFLICTS AT THE BOTTOM OF THE RAMP.



KEY:

- Wheel path: Forward (solid red line), Reverse (dashed red line)
- Body envelope: Forward (solid green line), Reverse (dashed green line)
- 300mm clearance: Dashed blue line

LEGEND:

- Sign Post: Black silhouette
- Flashing Lights: Yellow and red circles
- Stop Line: Red line

(Not To Scale)

DRAWING PLANS USED:

- BASE - DRAWING "3.001" - "BASEMENT LEVEL 01" PLAN, REVISION [3], DATED 22/09/25

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS: BASEMENT LEVEL 01
AS2890.1: 2023 - 5.4M B99 VEHICLE AND 5.0M B85 VEHICLE

DWG No. 25087CAD016
FIGURE (6)

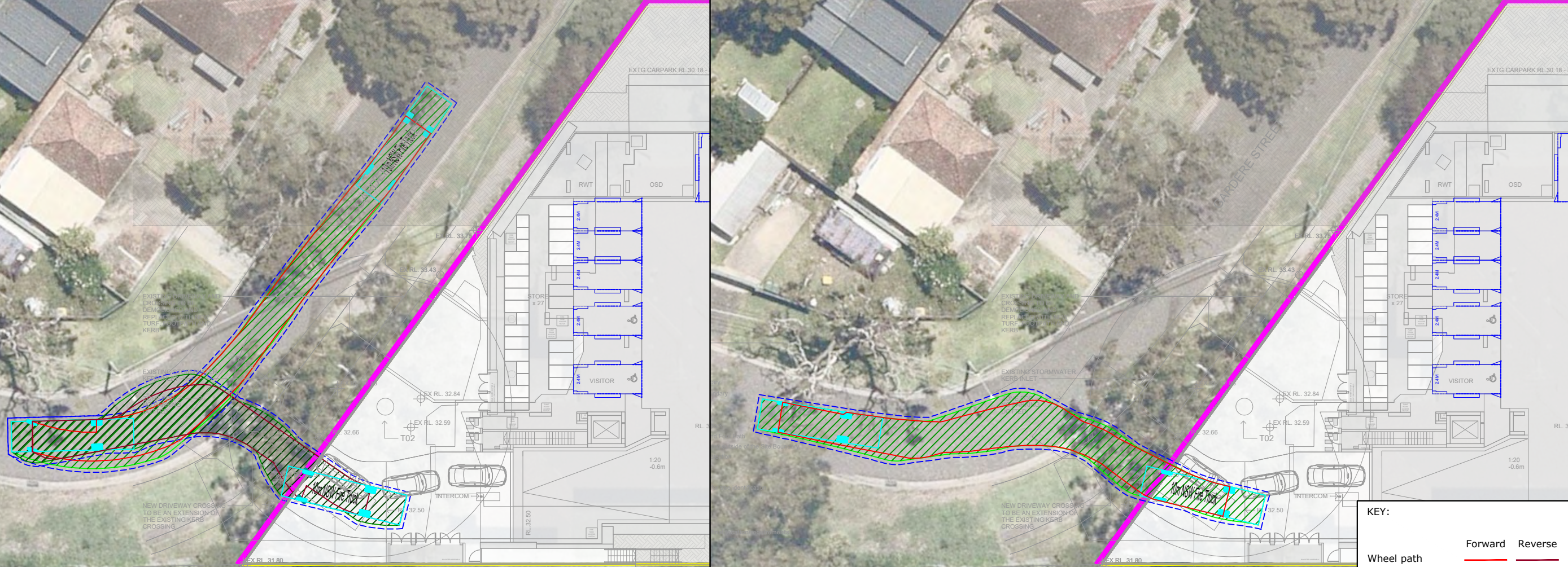
DATE STAMP: 23 SEPTEMBER 2025

PROJECT No. 25087 | SCALE 1:200 @A3 | REV. A

Filename: 25087CAD016_250923-Caringbah Design Review

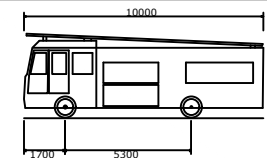
VEHICLE ENTERING: REVERSE-IN

VEHICLE EXITING: FORWARD-IN



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



10m NSW Fire Truck	
Overall Length	10000mm
Overall Width (Incl mirrors)	3700mm
Overall Body Height	418mm
Min Body Ground Clearance	2500mm
Track Width	4.00s
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11500mm

DRAWING PLANS USED:
 • BASE - DRAWING "3.100" - "LOWER GROUND LEVEL 00" PLAN, REVISION [3], DATED 22/09/25

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEEP PATH ANALYSIS: LOWER GROUND LEVEL
 10M NSW FIRE TRUCK (GENERAL FIRE APPLIANCE)

DWG No.	25087CAD016		
	FIGURE (7)		
DATE STAMP	23 SEPTEMBER 2025		
PROJECT No.	SCALE	REV.	
25087	1:350 @A3	A	

Filename: 25087CAD016-250923-Caringbah Design Review

VEHICLE ENTERING

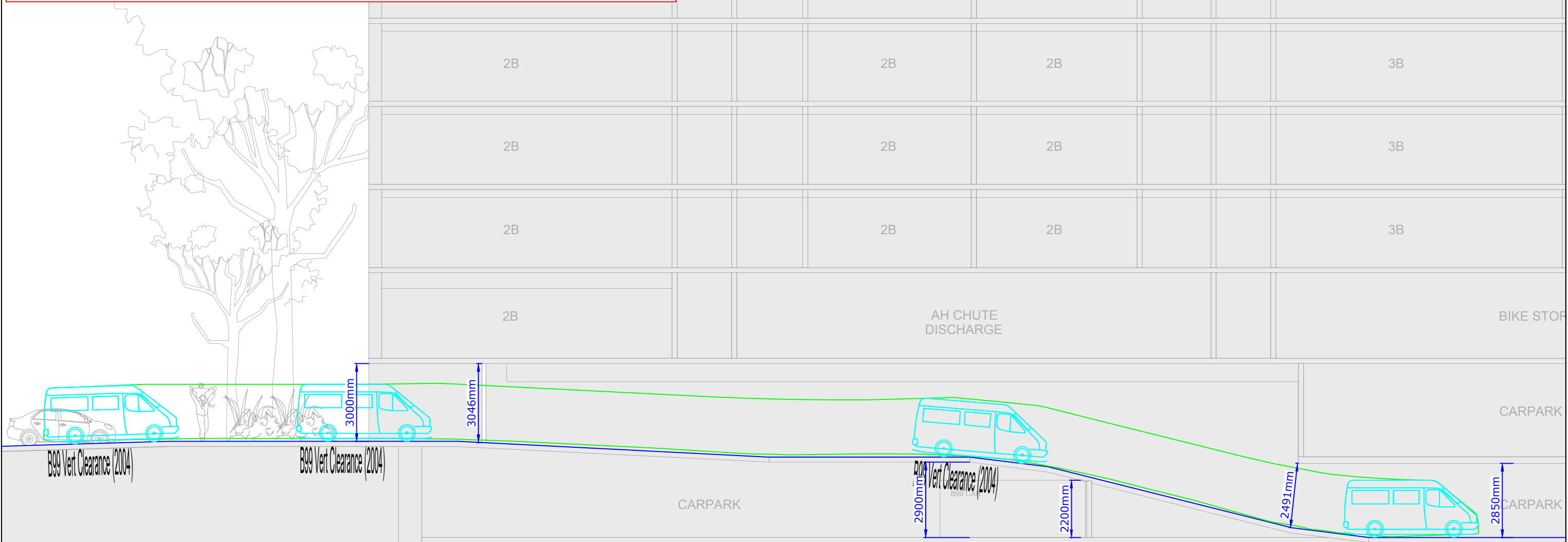
NOTES:

ENSURE THE FOLLOWING MINIMUM HEADROOM CLEARANCES ARE PROVIDED TO ANY STRUCTURE, SERVICES, SIGNAGE, ETC. IN ACCORDANCE WITH AS2890.1, AND AS2890.6:

- ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m
- ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m

NOTES:

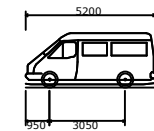
- PLEASE PROVIDE RL'S, LENGTH AND GRADIENTS ALONG THE FULL LENGTH OF THE LONG SECTION PLAN.
- PLEASE INDICATE PROPERTY LINE ON THE PLAN.
- THE DESIGN VEHICLE USED FOR GROUND CLEARANCE IS 5.2M B99 VEHICLE BASED ON AS2890.1:2004.



DRAWING PLANS USED:

- BASE - DRAWING "10.001" - "SECTION A-A" PLAN, REVISION [1], DATED 22/09/25

KEY:
— Vertical Clearance
— Driveway / Ramp Profile



B99 Vert Clearance (2004)
 Overall Length 5200mm
 Overall Width 1940mm
 Overall Body Height 2200mm
 Min Body Ground Clearance 120mm
 Track Width 1840mm
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 8000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



PROJECT	2 FLIDE STREET, CARINGBAH			DWG No.	25087CAD016	
TITLE	VERTICAL CLEARANCE ASSESSMENT: AS2890.1:2004 B99 VEHICLE			FIGURE (13)		
				DATE STAMP		
				23 SEPTEMBER 2025		
PROJECT No.		SCALE		REV.		
25087		1:150 @A3		A		

Filename: 25087CAD016_250923_Caringbah Design_Review

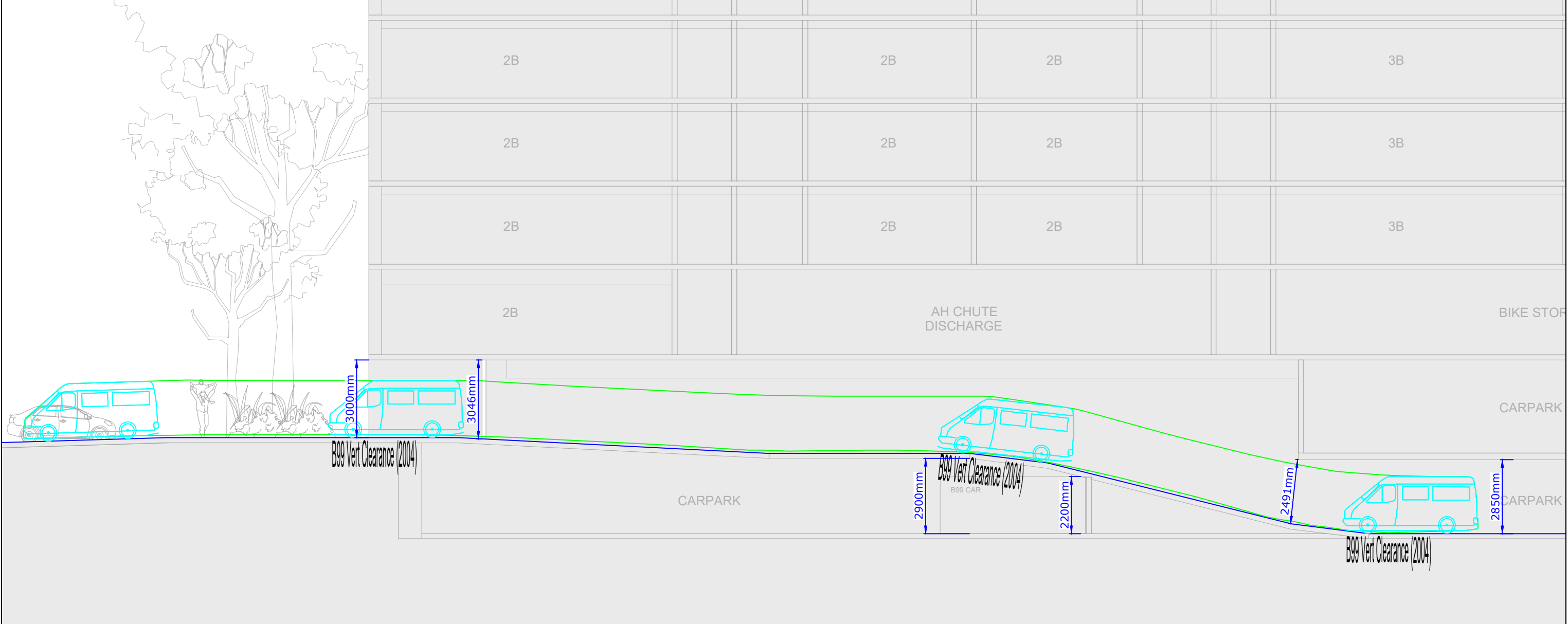
VEHICLE EXITING

NOTES:
 ENSURE THE FOLLOWING MINIMUM HEADROOM CLEARANCES ARE PROVIDED TO ANY STRUCTURE, SERVICES, SIGNAGE, ETC. IN ACCORDANCE WITH AS2890.1, AND AS2890.6:

- ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m
- ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m

NOTES:

- PLEASE PROVIDE RL'S, LENGTH AND GRADIENTS ALONG THE FULL LENGTH OF THE LONG SECTION PLAN.
- PLEASE INDICATE PROPERTY LINE ON THE PLAN.
- THE DESIGN VEHICLE USED FOR GROUND CLEARANCE IS 5.2M B99 VEHICLE BASED ON AS2890.1:2004.



DRAWING PLANS USED:

- BASE - DRAWING "10.001" - "SECTION A-A " PLAN, REVISION [1], DATED 22/09/25

KEY:

- Vertical Clearance
- Driveway / Ramp Profile

B99 Vert Clearance (2004)	
Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	2200mm
Min Body Ground Clearance	120mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	DL	23/09/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: VERTICAL CLEARANCE ASSESSMENT: AS2890.1:2004 B99 VEHICLE

DWG No.	25087CAD016	
	FIGURE (14)	
DATE STAMP	23 SEPTEMBER 2025	
PROJECT No.	SCALE	REV.
25087	1:150 @A3	A

Filename: 25087CAD016_250923_Caringbah Design_Review

Appendix C

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: [101 AM] Hinkler Avenue/Kingsway 2025 AM (S0 2025 AM)

Network: [1] S0 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%				veh	m				
South: Hinkler Avenue (S)															
1	L2	All MCs	22	0.0	22	0.0	0.023	6.2	LOS A	0.0	0.3	0.40	0.56	0.40	39.5
Approach			22	0.0	22	0.0	0.023	6.2	LOS A	0.0	0.3	0.40	0.56	0.40	39.5
East: Kingsway (E)															
4	L2	All MCs	19	5.6	19	5.6	0.206	5.2	LOS A	0.0	0.0	0.00	0.03	0.00	52.9
5	T1	All MCs	1141	4.6	1141	4.6	0.206	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.0
Approach			1160	4.6	1160	4.6	0.206	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.6
West: Kingsway (W)															
11	T1	All MCs	1496	3.9	1496	3.9	0.302	0.9	LOS A	2.1	15.0	0.08	0.08	0.08	34.3
12	R2	All MCs	41	2.6	41	2.6	0.302	13.9	LOS A	2.1	15.0	0.34	0.36	0.34	39.5
Approach			1537	3.8	1537	3.8	0.302	1.3	NA	2.1	15.0	0.09	0.09	0.09	35.5
All Vehicles			2719	4.1	2719	4.1	0.302	0.8	NA	2.1	15.0	0.05	0.06	0.05	48.0

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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\TimZhang\OneDrive - TTPP\25087 Belmore, Punchbowl, Coffs Harbour and Caringbah (Homes NSW)\07 Modelling Files \Model\Caringbah\25087-V01-SIDRA model-250430.sipx

MOVEMENT SUMMARY

 Site: [0547 AM] Taren Pt Rd/Kingsway 2025 AM (S0 2025 AM)

Network: [1] S0 2025 AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance															
Mov ID	Turn Class	Mov	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue [Veh. veh]	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h	
			[Total HV]	%	[Total HV]	%	v/c	sec							
South: Taren Point Road (S)															
1	L2	All MCs	11	30.0	11	30.0	0.143	60.2	LOS E	0.8	6.4	0.95	0.70	0.95	11.3
2	T1	All MCs	13	8.3	13	8.3	0.143	54.9	LOS D	0.8	6.4	0.95	0.70	0.95	28.4
3	R2	All MCs	34	0.0	34	0.0	*0.189	59.8	LOS E	1.1	8.0	0.95	0.72	0.95	20.2
Approach			57	7.4	57	7.4	0.189	58.8	LOS E	1.1	8.0	0.95	0.71	0.95	21.0
East: Kingsway (E)															
4	L2	All MCs	19	0.0	19	0.0	0.740	12.0	LOS A	21.8	157.0	0.77	1.01	0.77	26.7
5	T1	All MCs	848	3.6	848	3.6	0.740	17.9	LOS B	21.8	157.0	0.77	1.01	0.77	21.4
6	R2	All MCs	663	2.1	663	2.1	*0.943	79.3	LOS F	14.7	104.7	1.00	1.08	1.38	25.4
Approach			1531	2.9	1531	2.9	0.943	44.5	LOS D	21.8	157.0	0.87	1.04	1.04	24.0
North: Taren Point Road (N)															
7	L2	All MCs	318	4.0	318	4.0	0.185	5.9	LOS A	0.8	5.7	0.08	0.55	0.08	52.0
8	T1	All MCs	12	0.0	12	0.0	*0.626	54.4	LOS D	5.8	42.7	0.99	0.81	0.99	27.1
9	R2	All MCs	320	6.2	320	6.2	0.626	58.8	LOS E	5.8	42.7	0.99	0.81	0.99	23.4
Approach			649	5.0	649	5.0	0.626	32.8	LOS C	5.8	42.7	0.54	0.69	0.55	34.8
West: Kingsway (W)															
10	L2	All MCs	512	3.5	512	3.5	0.391	5.4	LOS A	0.8	6.0	0.00	0.52	0.00	56.1
11	T1	All MCs	980	4.1	980	4.1	*0.725	35.8	LOS C	11.0	80.0	0.93	0.82	0.93	25.0
Approach			1492	3.9	1492	3.9	0.725	25.4	LOS B	11.0	80.0	0.61	0.72	0.61	33.7
All Vehicles			3728	3.7	3728	3.7	0.943	35.0	LOS C	21.8	157.0	0.71	0.85	0.78	28.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped ped]		Prop. Queued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec			m			sec	m	m/sec
South: Taren Point Road (S)											

P1 Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
East: Kingsway (E)										
P2 Full	12	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
North: Taren Point Road (N)										
P3 Full	35	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
P3B Slip/ Bypass	46	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
West: Kingsway (W)										
P4 Full	9	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
All Pedestrians	145	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: C:\Users\TimZhang\OneDrive - TTPP\25087 Belmore, Punchbowl, Coffs Harbour and Caringbah (Homes NSW)\07 Modelling Files \Model\Caringbah\25087-V01-SIDRA model-250430.sipx

MOVEMENT SUMMARY

Site: [101 PM] Hinkler Avenue/Kingsway 2025 PM (S0 2025 PM)

Network: [2] S0 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue [Veh. veh]	Prop. Queued [Dist]	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec						km/h	
			veh/h	%	veh/h	%									
South: Hinkler Avenue (S)															
1	L2	All MCs	32	0.0	32	0.0	0.036	6.8	LOS A	0.1	0.4	0.47	0.60	0.47	38.7
Approach			32	0.0	32	0.0	0.036	6.8	LOS A	0.1	0.4	0.47	0.60	0.47	38.7
East: Kingsway (E)															
4	L2	All MCs	35	0.0	35	0.0	0.270	5.2	LOS A	0.0	0.0	0.00	0.04	0.00	53.3
5	T1	All MCs	1507	2.1	1507	2.1	0.270	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.6
Approach			1542	2.0	1542	2.0	0.270	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.1
West: Kingsway (W)															
11	T1	All MCs	1426	2.1	1426	2.1	0.287	1.4	LOS A	2.1	15.0	0.08	0.08	0.08	29.2
12	R2	All MCs	27	3.8	27	3.8	0.287	20.4	LOS B	2.1	15.0	0.34	0.36	0.34	36.7
Approach			1454	2.1	1453	2.1	0.287	1.7	NA	2.1	15.0	0.08	0.09	0.08	30.5
All Vehicles			3027	2.1	3027	2.1	0.287	1.0	NA	2.1	15.0	0.04	0.05	0.04	47.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [0547 PM] Taren Pt Rd/Kingsway 2025 PM (S0 2025 PM)

Network: [2] S0 2025 PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h		
			veh/h	%	veh/h	%		veh	m					
South: Taren Point Road (S)														
1	L2	All MCs	22 0.0	22 0.0	0.244	61.3	LOS E	1.4	10.1	0.97	0.73	0.97	11.0	
2	T1	All MCs	37 0.0	37 0.0	*0.244	56.3	LOS D	1.4	10.1	0.97	0.73	0.97	27.9	
3	R2	All MCs	24 0.0	24 0.0	0.244	61.0	LOS E	1.4	10.0	0.97	0.73	0.97	20.4	
Approach			83 0.0	83 0.0	0.244	59.0	LOS E	1.4	10.1	0.97	0.73	0.97	22.2	
East: Kingsway (E)														
4	L2	All MCs	16 0.0	16 0.0	0.838	22.7	LOS B	25.3	180.5	0.94	1.03	0.97	22.8	
5	T1	All MCs	771 2.3	771 2.3	0.838	31.5	LOS C	25.3	180.5	0.94	1.03	0.97	17.6	
6	R2	All MCs	422 1.5	422 1.5	*0.916	77.3	LOS F	8.9	63.2	1.00	1.04	1.39	25.8	
Approach			1208 2.0	1208 2.0	0.916	47.4	LOS D	25.3	180.5	0.96	1.03	1.12	21.8	
North: Taren Point Road (N)														
7	L2	All MCs	802 1.2	802 1.2	0.451	5.8	LOS A	2.2	15.7	0.09	0.55	0.09	52.4	
8	T1	All MCs	16 6.7	16 6.7	*0.756	45.7	LOS D	13.0	92.7	0.98	0.88	1.01	29.3	
9	R2	All MCs	749 1.7	749 1.7	0.756	50.1	LOS D	13.0	92.7	0.98	0.88	1.01	25.7	
Approach			1567 1.5	1567 1.5	0.756	27.4	LOS B	13.0	92.7	0.52	0.71	0.54	37.5	
West: Kingsway (W)														
10	L2	All MCs	377 2.0	377 2.0	0.281	5.3	LOS A	0.5	3.7	0.00	0.52	0.00	56.2	
11	T1	All MCs	1046 2.1	1046 2.1	*0.913	58.4	LOS E	11.2	80.0	1.00	1.09	1.22	18.3	
Approach			1423 2.1	1423 2.1	0.913	44.4	LOS D	11.2	80.0	0.74	0.94	0.90	24.5	
All Vehicles			4282 1.8	4282 1.8	0.916	39.3	LOS C	25.3	180.5	0.73	0.88	0.83	28.1	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist]			sec	m	m/sec
South: Taren Point Road (S)											

P1 Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
East: Kingsway (E)										
P2 Full	6	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
North: Taren Point Road (N)										
P3 Full	17	51.4	LOS E	0.1	0.1	0.93	0.93	218.0	200.0	0.92
P3B Slip/ Bypass	23	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
West: Kingsway (W)										
P4 Full	11	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
All Pedestrians	100	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: [101 AM (2)] Hinkler Avenue/Kingsway 2035 + Adj AM
 (S1 2035 + Adj AM)

Network: [3] S1 2035 + Adj AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h		
			veh/h	%	veh/h	%			m					
South: Hinkler Avenue (S)														
1	L2	All MCs	56 0.0	56 0.0	0.058	6.3	LOS A	0.1	0.7	0.41	0.58	0.41	39.5	
Approach			56 0.0	56 0.0	0.058	6.3	LOS A	0.1	0.7	0.41	0.58	0.41	39.5	
East: Kingsway (E)														
4	L2	All MCs	19 5.6	19 5.6	0.209	5.2	LOS A	0.0	0.0	0.00	0.03	0.00	52.9	
5	T1	All MCs	1141 4.6	1141 4.6	0.209	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.0	
Approach			1160 4.6	1160 4.6	0.209	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.6	
West: Kingsway (W)														
11	T1	All MCs	1536 3.8	1535 3.8	0.332	1.1	LOS A	2.1	15.0	0.09	0.10	0.09	31.9	
12	R2	All MCs	65 1.6	65 1.6	0.332	13.7	LOS A	2.1	15.0	0.52	0.55	0.52	36.2	
Approach			1601 3.7	1600 3.7	0.332	1.6	NA	2.1	15.0	0.11	0.12	0.11	33.3	
All Vehicles			2817 4.0	2816 4.0	0.332	1.1	NA	2.1	15.0	0.07	0.08	0.07	45.4	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [0547 A] Taren Pt Rd/Kingsway 2035 + Adj AM (S1 2035 + Adj AM)

Network: [3] S1 2035 + Adj AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
South: Taren Point Road (S)													
1	L2	All MCs	11 30.0	11 30.0	0.392	62.1	LOS E	2.4	18.0	0.98	0.75	0.98	11.4
2	T1	All MCs	63 1.7	63 1.7	*0.392	56.8	LOS E	2.5	18.0	0.98	0.75	0.98	28.3
3	R2	All MCs	66 0.0	66 0.0	0.392	61.4	LOS E	2.5	17.2	0.98	0.76	0.98	20.0
Approach			140 3.0	140 3.0	0.392	59.3	LOS E	2.5	18.0	0.98	0.76	0.98	23.5
East: Kingsway (E)													
4	L2	All MCs	43 0.0	43 0.0	0.760	12.3	LOS A	22.8	164.6	0.79	1.02	0.79	26.4
5	T1	All MCs	848 3.6	848 3.6	0.760	18.6	LOS B	22.8	164.6	0.79	1.02	0.79	21.2
6	R2	All MCs	663 2.1	663 2.1	*0.943	79.3	LOS F	14.7	104.7	1.00	1.08	1.38	25.4
Approach			1555 2.8	1555 2.8	0.943	44.3	LOS D	22.8	164.6	0.88	1.05	1.04	23.9
North: Taren Point Road (N)													
7	L2	All MCs	329 3.8	329 3.8	0.192	5.9	LOS A	0.8	6.0	0.08	0.55	0.08	52.0
8	T1	All MCs	48 0.0	48 0.0	*0.710	56.3	LOS D	6.9	50.3	1.00	0.86	1.06	26.8
9	R2	All MCs	332 6.0	332 6.0	0.710	60.8	LOS E	6.9	50.3	1.00	0.86	1.06	23.0
Approach			709 4.6	709 4.6	0.710	35.0	LOS C	6.9	50.3	0.57	0.72	0.61	34.0
West: Kingsway (W)													
10	L2	All MCs	534 3.4	533 3.4	0.407	5.4	LOS A	0.9	6.4	0.00	0.52	0.00	56.1
11	T1	All MCs	1021 3.9	1021 3.9	*0.755	36.6	LOS C	11.1	80.0	0.94	0.84	0.95	24.7
Approach			1555 3.7	1554 3.7	0.755	25.9	LOS B	11.1	80.0	0.62	0.73	0.62	33.4
All Vehicles			3959 3.5	3958 3.5	0.943	36.0	LOS C	22.8	164.6	0.73	0.85	0.80	28.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					ped	m					

South: Taren Point Road (S)											
P1	Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
East: Kingsway (E)											
P2	Full	12	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
North: Taren Point Road (N)											
P3	Full	35	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
P3B	Slip/ Bypass	46	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
West: Kingsway (W)											
P4	Full	9	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
All Pedestrians		145	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: [101 PM (2)] Hinkler Avenue/Kingsway 2035 + Adj PM
(S1 2035 + Adj PM)

Network: [4] S1 2035 + Adj PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway

Site Category: Base Year

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h		
			veh/h	%	veh/h	%		m						
South: Hinkler Avenue (S)														
1	L2	All MCs	56 0.0	56 0.0	0.066	7.1	LOS A	0.1	0.8	0.49	0.63	0.49	38.4	
Approach			56 0.0	56 0.0	0.066	7.1	LOS A	0.1	0.8	0.49	0.63	0.49	38.4	
East: Kingsway (E)														
4	L2	All MCs	35 0.0	35 0.0	0.285	5.2	LOS A	0.0	0.0	0.00	0.04	0.00	53.3	
5	T1	All MCs	1589 2.0	1589 2.0	0.285	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.7	
Approach			1624 1.9	1624 1.9	0.285	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.2	
West: Kingsway (W)														
11	T1	All MCs	1477 2.0	1476 2.0	0.345	1.9	LOS A	2.1	15.0	0.08	0.08	0.09	25.9	
12	R2	All MCs	59 1.8	59 1.8	0.345	24.8	LOS B	2.1	15.0	0.75	0.80	0.91	26.3	
Approach			1536 2.0	1535 2.0	0.345	2.8	NA	2.1	15.0	0.10	0.11	0.12	26.1	
All Vehicles			3216 1.9	3215 1.9	0.345	1.5	NA	2.1	15.0	0.06	0.07	0.07	43.2	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [0547 P] Taren Pt Rd/Kingsway 2035 + Adj PM (S1 2035 + Adj PM)

Network: [4] S1 2035 + Adj PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h		
			veh/h	%	veh/h	%		m						
South: Taren Point Road (S)														
1	L2	All MCs	22 0.0	22 0.0	0.415	62.7	LOS E	2.5	17.7	0.99	0.76	0.99	11.0	
2	T1	All MCs	73 0.0	73 0.0	0.415	57.6	LOS E	2.5	17.7	0.99	0.76	0.99	27.8	
3	R2	All MCs	47 0.0	47 0.0	0.415	62.3	LOS E	2.5	17.4	0.99	0.76	0.99	20.1	
Approach			142 0.0	142 0.0	0.415	59.9	LOS E	2.5	17.7	0.99	0.76	0.99	23.2	
East: Kingsway (E)														
4	L2	All MCs	46 0.0	46 0.0	*0.863	23.7	LOS B	28.4	202.5	0.95	1.05	1.00	22.5	
5	T1	All MCs	807 2.2	807 2.2	0.863	32.7	LOS C	28.4	202.5	0.95	1.05	1.00	17.3	
6	R2	All MCs	442 1.4	442 1.4	0.959	87.5	LOS F	10.1	71.3	1.00	1.11	1.51	23.9	
Approach			1296 1.9	1296 1.9	0.959	51.1	LOS D	28.4	202.5	0.97	1.07	1.17	20.8	
North: Taren Point Road (N)														
7	L2	All MCs	814 1.2	814 1.2	0.458	5.8	LOS A	2.3	16.1	0.09	0.55	0.09	52.4	
8	T1	All MCs	62 1.7	62 1.7	*0.890	59.6	LOS E	16.6	117.7	1.00	1.01	1.21	25.9	
9	R2	All MCs	760 1.7	760 1.7	0.890	64.1	LOS E	16.6	117.7	1.00	1.00	1.21	22.2	
Approach			1636 1.4	1636 1.4	0.890	35.0	LOS C	16.6	117.7	0.55	0.78	0.65	34.1	
West: Kingsway (W)														
10	L2	All MCs	380 1.9	380 1.9	0.284	5.3	LOS A	0.5	3.8	0.00	0.52	0.00	56.2	
11	T1	All MCs	1055 2.1	1054 2.1	0.850	46.7	LOS D	11.2	80.0	1.00	0.97	1.10	21.3	
Approach			1435 2.1	1434 2.1	0.850	35.7	LOS C	11.2	80.0	0.74	0.85	0.81	27.7	
All Vehicles			4508 1.7	4508 1.7	0.959	40.6	LOS C	28.4	202.5	0.74	0.88	0.86	27.6	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					m						

South: Taren Point Road (S)											
P1 Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	
East: Kingsway (E)											
P2 Full	6	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92	
North: Taren Point Road (N)											
P3 Full	17	51.4	LOS E	0.1	0.1	0.93	0.93	218.0	200.0	0.92	
P3B Slip/ Bypass	23	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	
West: Kingsway (W)											
P4 Full	11	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92	
All Pedestrians	100	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.


Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 Site: [101 AM (3)] Hinkler Avenue/Kingsway 2035 + Adj + Dev
 AM (S2 2035 + Adj + Dev AM)
 Network: [5] S2 2035 + Adj + Dev AM (Folder1)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway
 Site Category: Base Year
 Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%				veh	m				
South: Hinkler Avenue (S)															
1	L2	All MCs	67	0.0	67	0.0	0.071	6.3	LOS A	0.1	0.8	0.42	0.59	0.42	39.4
Approach			67	0.0	67	0.0	0.071	6.3	LOS A	0.1	0.8	0.42	0.59	0.42	39.4
East: Kingsway (E)															
4	L2	All MCs	19	5.6	19	5.6	0.209	5.2	LOS A	0.0	0.0	0.00	0.03	0.00	52.9
5	T1	All MCs	1141	4.6	1141	4.6	0.209	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.0
Approach			1160	4.6	1160	4.6	0.209	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.6
West: Kingsway (W)															
11	T1	All MCs	1536	3.8	1535	3.8	0.335	1.2	LOS A	2.1	15.0	0.09	0.10	0.09	31.6
12	R2	All MCs	68	1.5	68	1.5	0.335	13.8	LOS A	2.1	15.0	0.54	0.58	0.55	35.8
Approach			1604	3.7	1604	3.7	0.335	1.7	NA	2.1	15.0	0.11	0.12	0.11	33.0
All Vehicles			2832	4.0	2831	4.0	0.335	1.1	NA	2.1	15.0	0.07	0.08	0.07	44.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [0547 A (2)] Taren Pt Rd/Kingsway 2035 + Adj + Dev AM
 (S2 2035 + Adj + Dev AM)

Network: [5] S2 2035 + Adj + Dev AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
South: Taren Point Road (S)													
1	L2	All MCs	11 30.0	11 30.0	0.467	62.6	LOS E	3.0	21.6	0.99	0.77	0.99	11.3
2	T1	All MCs	79 1.3	79 1.3	*0.467	57.3	LOS E	3.0	21.6	0.99	0.77	0.99	28.2
3	R2	All MCs	78 0.0	78 0.0	0.467	61.9	LOS E	2.9	20.7	0.99	0.77	0.99	19.9
Approach			167 2.5	167 2.5	0.467	59.8	LOS E	3.0	21.6	0.99	0.77	0.99	23.6
East: Kingsway (E)													
4	L2	All MCs	45 0.0	45 0.0	0.762	12.3	LOS A	22.9	165.3	0.79	1.02	0.79	26.4
5	T1	All MCs	848 3.6	848 3.6	0.762	18.6	LOS B	22.9	165.3	0.79	1.02	0.79	21.2
6	R2	All MCs	663 2.1	663 2.1	*0.943	79.3	LOS F	14.7	104.7	1.00	1.08	1.38	25.4
Approach			1557 2.8	1557 2.8	0.943	44.3	LOS D	22.9	165.3	0.88	1.05	1.04	23.9
North: Taren Point Road (N)													
7	L2	All MCs	329 3.8	329 3.8	0.192	5.9	LOS A	0.8	6.0	0.08	0.55	0.08	52.0
8	T1	All MCs	53 0.0	53 0.0	*0.718	56.5	LOS D	7.0	51.0	1.00	0.87	1.07	26.8
9	R2	All MCs	332 6.0	332 6.0	0.718	61.0	LOS E	7.0	51.0	1.00	0.86	1.07	23.0
Approach			714 4.6	714 4.6	0.718	35.2	LOS C	7.0	51.0	0.57	0.72	0.61	33.9
West: Kingsway (W)													
10	L2	All MCs	534 3.4	533 3.4	0.407	5.4	LOS A	0.9	6.4	0.00	0.52	0.00	56.1
11	T1	All MCs	1021 3.9	1021 3.9	*0.755	36.6	LOS C	11.1	80.0	0.94	0.84	0.95	24.7
Approach			1555 3.7	1554 3.7	0.755	25.9	LOS B	11.1	80.0	0.62	0.73	0.62	33.4
All Vehicles			3993 3.5	3992 3.5	0.943	36.2	LOS C	22.9	165.3	0.73	0.85	0.80	28.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					ped	m					

South: Taren Point Road (S)											
P1	Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
East: Kingsway (E)											
P2	Full	12	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
North: Taren Point Road (N)											
P3	Full	35	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
P3B	Slip/ Bypass	46	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92
West: Kingsway (W)											
P4	Full	9	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92
All Pedestrians		145	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.


Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: [101 PM (3)] Hinkler Avenue/Kingsway 2035 + Adj + Dev**
PM (S2 2035 + Adj + Dev PM)
Network: [6] S2 2035 + Adj + Dev PM (Folder1)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hinkler Avenue/Kingsway
 Site Category: Base Year
 Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h		
			veh/h	%	veh/h	%		m						
South: Hinkler Avenue (S)														
1	L2	All MCs	58 0.0	58 0.0	0.069	7.1	LOS A	0.1	0.8	0.49	0.63	0.49	38.3	
Approach			58 0.0	58 0.0	0.069	7.1	LOS A	0.1	0.8	0.49	0.63	0.49	38.3	
East: Kingsway (E)														
4	L2	All MCs	35 0.0	35 0.0	0.285	5.2	LOS A	0.0	0.0	0.00	0.04	0.00	53.3	
5	T1	All MCs	1589 2.0	1589 2.0	0.285	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.7	
Approach			1624 1.9	1624 1.9	0.285	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.2	
West: Kingsway (W)														
11	T1	All MCs	1477 2.0	1476 2.0	0.354	1.6	LOS A	2.1	15.0	0.06	0.07	0.08	28.1	
12	R2	All MCs	67 1.6	67 1.6	0.354	25.9	LOS B	2.1	15.0	0.81	0.87	1.03	25.0	
Approach			1544 2.0	1544 2.0	0.354	2.7	NA	2.1	15.0	0.09	0.10	0.12	26.9	
All Vehicles			3226 1.9	3226 1.9	0.354	1.5	NA	2.1	15.0	0.05	0.07	0.07	43.4	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [0547 P (2)] Taren Pt Rd/Kingsway 2035 + Adj + Dev PM
(S2 2035 + Adj + Dev PM)

Network: [6] S2 2035 + Adj + Dev PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Taren Pt Rd/Kingsway

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h		
			veh/h	%	veh/h	%		m						
South: Taren Point Road (S)														
1	L2	All MCs	22 0.0	22 0.0	0.430	62.8	LOS E	2.6	18.4	0.99	0.76	0.99	11.0	
2	T1	All MCs	76 0.0	76 0.0	0.430	57.7	LOS E	2.6	18.4	0.99	0.76	0.99	27.8	
3	R2	All MCs	49 0.0	49 0.0	0.430	62.4	LOS E	2.6	18.1	0.99	0.76	0.99	20.0	
Approach			147 0.0	147 0.0	0.430	60.0	LOS E	2.6	18.4	0.99	0.76	0.99	23.3	
East: Kingsway (E)														
4	L2	All MCs	55 0.0	55 0.0	*0.872	24.8	LOS B	29.3	208.4	0.96	1.05	1.02	22.2	
5	T1	All MCs	807 2.2	807 2.2	0.872	34.0	LOS C	29.3	208.4	0.96	1.05	1.02	17.0	
6	R2	All MCs	442 1.4	442 1.4	0.959	87.5	LOS F	10.1	71.3	1.00	1.11	1.51	23.9	
Approach			1304 1.9	1304 1.9	0.959	51.8	LOS D	29.3	208.4	0.97	1.07	1.18	20.6	
North: Taren Point Road (N)														
7	L2	All MCs	814 1.2	814 1.2	0.458	5.8	LOS A	2.3	16.1	0.09	0.55	0.09	52.4	
8	T1	All MCs	75 1.4	75 1.4	*0.903	61.8	LOS E	17.2	122.1	1.00	1.03	1.24	25.5	
9	R2	All MCs	760 1.7	760 1.7	0.903	66.3	LOS E	17.2	122.1	1.00	1.02	1.24	21.8	
Approach			1648 1.4	1648 1.4	0.903	36.3	LOS C	17.2	122.1	0.55	0.79	0.67	33.6	
West: Kingsway (W)														
10	L2	All MCs	380 1.9	380 1.9	0.284	5.3	LOS A	0.5	3.8	0.00	0.52	0.00	56.2	
11	T1	All MCs	1055 2.1	1054 2.1	0.850	46.7	LOS D	11.2	80.0	1.00	0.97	1.10	21.3	
Approach			1435 2.1	1434 2.1	0.850	35.7	LOS C	11.2	80.0	0.74	0.85	0.81	27.7	
All Vehicles			4535 1.7	4534 1.7	0.959	41.3	LOS C	29.3	208.4	0.74	0.89	0.87	27.4	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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 Green.

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					

South: Taren Point Road (S)											
P1 Full	43	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	
East: Kingsway (E)											
P2 Full	6	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92	
North: Taren Point Road (N)											
P3 Full	17	51.4	LOS E	0.1	0.1	0.93	0.93	218.0	200.0	0.92	
P3B Slip/ Bypass	23	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	
West: Kingsway (W)											
P4 Full	11	51.4	LOS E	0.0	0.0	0.93	0.93	218.0	200.0	0.92	
All Pedestrians	100	51.4	LOS E	0.1	0.1	0.93	0.93	218.1	200.0	0.92	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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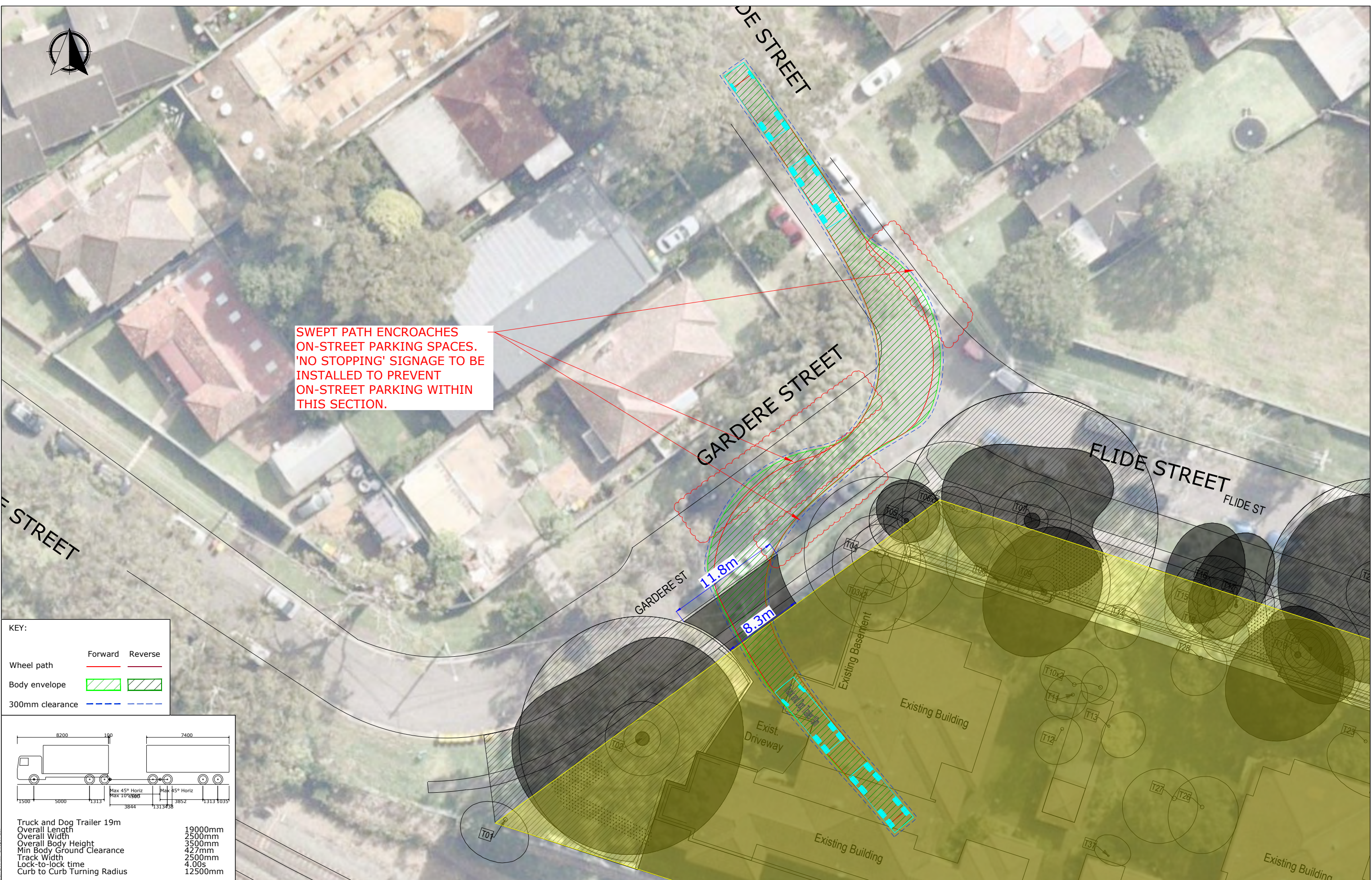
Project: C:\Users\TimZhang\OneDrive - TTPP\25087 Belmore, Punchbowl, Coffs Harbour and Caringbah (Homes NSW)\07 Modelling Files \Model\Caringbah\25087-V01-SIDRA model-250430.sipx

Appendix D

Swept Path Assessment (Construction)

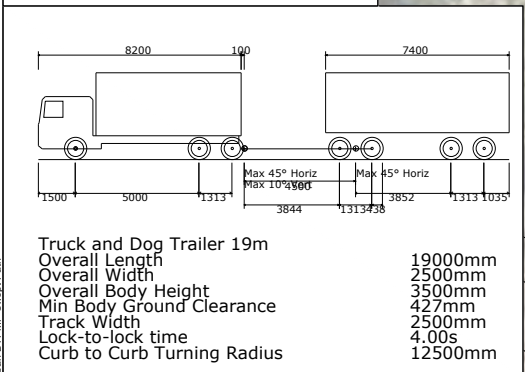


SWEPT PATH ENCLOSES ON-STREET PARKING SPACES. 'NO STOPPING' SIGNAGE TO BE INSTALLED TO PREVENT ON-STREET PARKING WITHIN THIS SECTION.



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25

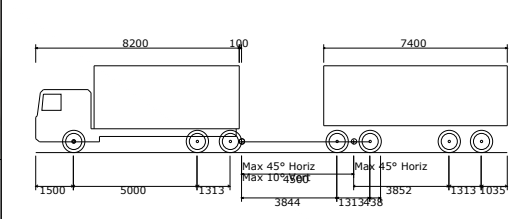


PROJECT
2 FLIDE STREET, CARINGBAH

TITLE
**SWEPT PATH ANALYSIS - SITE ACCESS
19m TRUCK & DOG TRAILER - VEHICLE EXITS SITE**

DWG No.	25087CAD003		
	FIGURE 2		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:350 @A3	A	

Filename: 25087CAD003-25087-Caringbah-ETP-APP-Swept Path



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

Truck and Dog Trailer 19m	
Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	3500mm
Min Body Ground Clearance	427mm
Track Width	2500mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25

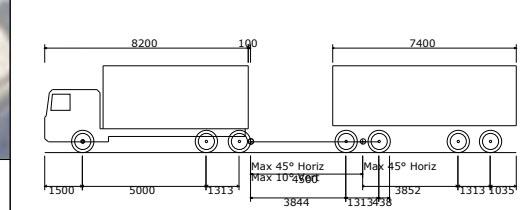


PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS - TAREN POINT ROAD / GADERE STREET
19m TRUCK & DOG TRAILER

DWG No.	25087CAD003	
	FIGURE 3	
DATE STAMP	10 June 2025	
PROJECT No.	SCALE	REV.
25087	1:300 @A3	A

Filename: 25087CAD003-25087-Caringbah-TPMAP-Swept-Path



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		

Truck and Dog Trailer 19m	
Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	3500mm
Min Body Ground Clearance	427mm
Track Width	2500mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS - TAREN POINT ROAD / FLIDE STREET
19m TRUCK & DOG TRAILER

DWG No.	25087CAD003		
	FIGURE 4		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:300 @A3	A	

Filename: 25087CAD003-25087-Caringbah-DTPMAP-SweptPath

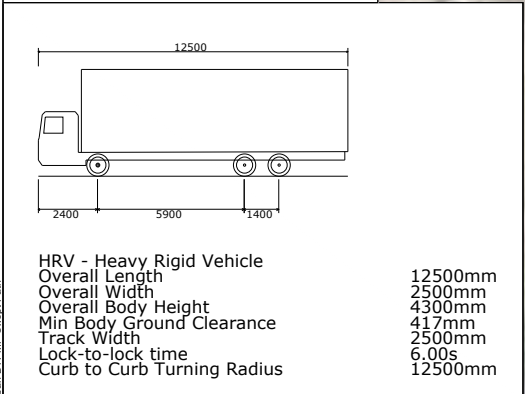


SWEPT PATH ENCROACHES ON-STREET PARKING SPACES. 'NO STOPPING' SIGNAGE TO BE INSTALLED TO PREVENT ON-STREET PARKING WITHIN THIS SECTION.

SUGGEST PROVIDING NO PARKING SIGNS ALONG THE CURVED CORNER.

KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS - SITE ACCESS
12.5m HEAVY RIGID VEHICLE - VEHICLE REVERSES INTO SITE

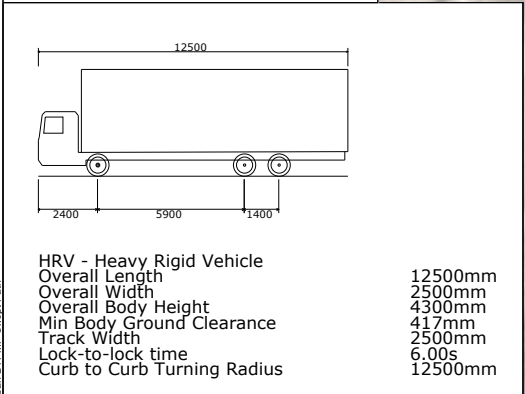
DWG No.	25087CAD003		
	FIGURE 5		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:350 @A3	A	

Filename: 25087CAD003-25087-Caringbah-TPMAP-SweptPath



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25

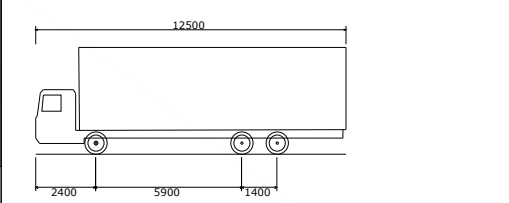


PROJECT
2 FLIDE STREET, CARINGBAH

TITLE
**SWEPT PATH ANALYSIS - SITE ACCESS
 12.5m HEAVY RIGID VEHICLE - VEHICLE EXITS SITE**

DWG No.	25087CAD003		
	FIGURE 6		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:350 @A3	A	

Filename: 25087CAD003-25087-Caringbah-TPMAP-SweptPath



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		

HRV - Heavy Rigid Vehicle	
Overall Length	12500mm
Overall Width	2500mm
Overall Body Height	4300mm
Min Body Ground Clearance	417mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25

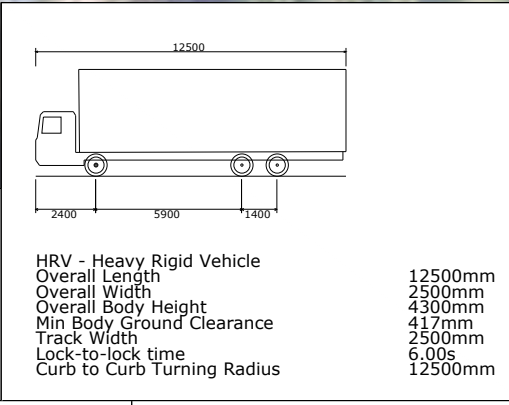


PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEEP PATH ANALYSIS - TAREN POINT ROAD / GADERE STREET
12.5m HEAVY RIGID VEHICLE

DWG No.	25087CAD003		
	FIGURE 7		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:300 @A3	A	

Filename: 25087CAD003-25087-Caringbah-DTPMP-SweepPath



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	10/06/25



PROJECT: 2 FLIDE STREET, CARINGBAH

TITLE: SWEPT PATH ANALYSIS - TAREN POINT ROAD / FLIDE STREET
12.5m HEAVY RIGID VEHICLE

DWG No.	25087CAD003		
	FIGURE 8		
DATE STAMP	10 June 2025		
PROJECT No.	SCALE	REV.	
25087	1:300 @A3	A	

Filename: 25087CAD003-25087-Caringbah-DTPMAP-SweptPath

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