



QuantumTraffic

Traffic Impact Assessment Report

75-81 Murradoc Road, Drysdale

Proposed Service Station Development

14/08/2026

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Executive Summary

This report assesses the Proposed Service Station Development at 75-81 Murradoc Road, Drysdale. The following provides an executive summary of the report.

Proposed Development

The proposal is for development of the subject site as a service station including 10 fuel fill points, 240m² convenience shop and 93m² convenience restaurant and a 4 bay car wash. Vehicle access is proposed via an accessway along the western boundary of the site to a new access point to Murradoc Road.

Car Parking

The statutory car parking requirement as specified under Clause 52.06-5 of the Greater Geelong Planning Scheme is 9 car parking spaces plus a provision of parking for the service station component to the satisfaction of the Responsible Authority.

The Car Parking Demand Assessment indicates that the proposed provision of car parking is supported based on the following:

- a) The convenience shop component is principally targeted at attracting additional sales when drivers pay for fuel sales. On this basis, the patrons of the convenience shop are expected to be predominately associated with fuel sales (10 bowser spaces). Additional parking demands could be expected for a staff member (2 spaces) and potential standalone trips (2 spaces).
- b) The car wash component doesn't explicitly generate car parking demands, as the drivers stay with their vehicle during the wash/vacuum process (given the self-service nature of the offering). On this basis, vehicles are accommodated at the 4 x wash bays and 4 x vacuum bays.
- c) The convenience restaurant is expected to generate car parking demands in line with the Clause 52.06 statutory requirement of 9 spaces.
- d) Overall, the proposed development is expected to generate peak parking demands of 31 spaces, which is accommodated by the proposed on-site provision of 32 spaces.

An accessible car space is provided for the development as required by the NCC.

The car parking design and vehicle access arrangements are satisfactory and generally in accordance with Clause 52.06-9/AS2890.1:2004.

Bicycle Parking

The proposed development generates a bicycle parking requirement for 3 staff spaces and 2 visitor spaces under Clause 52.34 of the Planning Scheme (associated with the convenience restaurant component). The proposal includes the provision of 8 bicycle parking spaces, satisfying the statutory requirement.

Vehicle Access

The proposed development is assessed as generating approximately 185 vehicle movements during the AM peak and 182 vehicle movements during the PM peak. Our assessment has included an allowance for potential future development at the rear of the site, with 35 vehicle movements estimated during each peak period (nominal future commercial development).

An assessment of the external vehicle access to Murradoc Road has identified the following:

- a) **Turn Treatments:** The proposed access warrants AUL(s) and CHR turn treatments under the Austroads GTM Part 6. The existing configuration of Murradoc Road incorporates a right turn treatment with the south kerbside lane subject to full time 'No Stopping' restrictions. The proposed design incorporates a minor lengthening to the kerbside lane on the south side of the road and an AUL(s) treatment in accordance with the Austroads Guide to Road Design Part 4A.
- b) **Design:** The proposed access incorporates a mountable central island to accommodate heavy vehicle access. The existing electricity pole in the vicinity of the proposed access is to be relocated as part of the proposed development. The proposal allows for all movements in and out of the site.
- c) **Capacity:** Modelling utilising SIDRA intersection indicates that the proposed vehicle access will operate under excellent conditions during both the AM and PM commuter peak periods.

Service Vehicles

Loading is expected to occur as follows:

- a) **Service Station:** Fuel deliveries will occur via 19m semi-trailers with loading and waste collection likely to occur via 8.8m MRV vehicles. Swept path diagrams demonstrate access and circulation for these vehicles.
- b) **Potential Future Development (Rear of Site):** The access to Murradoc Road accommodates 12.5m HRV vehicles, which will be sufficient for a wide range of potential future commercial developments.

Vehicle Queueing

The on-site layout allows for queue storage of up to 17 vehicles for the car wash and 30 vehicles for the fuel sales. Queueing for service station and car wash uses generally exhibit self-regulating queueing characteristics due to their discretionary nature. Customers are typically unwilling to wait in extended queues and will instead seek alternative facilities if delays are evident.

Quantitative analysis of predicted queue storage has been undertaken utilising the methods outlined in the Austroads Guide to Traffic Management for the fuel sales component. This analysis predicts a 95th percentile queue length of 10.8 vehicles and a 98th percentile queue length of 14.4 vehicles. On this basis, the proposed queue storage of 30 vehicles at the fuel bowers can comfortably cater for the predicted queueing.

Summary of Opinions

Having undertaken all tasks necessary to adequately assess the traffic engineering impacts of the Proposed Service Station Development at 75-81 Murradoc Road, Drysdale, we are satisfied that the proposed development is satisfactory.

There are no reasons why a permit for the proposed development should not be issued from a traffic engineering perspective, subject to appropriate conditions.

Table of Contents

Executive Summary	iii
1 Introduction	3
1.1 TIA Revision E Summary	3
2 Proposal	5
3 Existing Conditions	6
3.1 Subject Site	6
3.2 Road Network	8
3.3 Public Transport	8
3.4 Existing Traffic Volumes	9
4 Car Parking Assessment	10
4.1 Statutory Car Parking	10
4.2 Car Parking Demand Assessment	10
4.2.1 Fuel Sales / Convenience Shop	10
4.2.2 Car Wash	11
4.2.3 Convenience Restaurant	11
4.2.4 Summary	11
4.3 Accessible Car Parking	12
5 Bicycle Parking Assessment	13
6 Internal Car Parking Layout & Access Arrangements	13
7 Traffic Volumes	16
7.1 Traffic Generation	16
7.1.1 Service Station	16
7.1.2 Potential Future Development	16
7.1.3 Summary	17
7.2 Traffic Distribution	17
7.3 Peak Hour Traffic Volumes	18
8 External Access Arrangements	19
8.1 Sight Lines	19
8.2 Turn Treatments	19
8.3 Layout / Design	21
8.4 Capacity Analysis	21
9 Internal Layout Considerations	22
9.1 Service Station Fuel Deliveries	22
9.2 Service Station Loading & Waste Collection	23
9.3 Potential Future Development – Rear of Site	23
9.4 On-Site Queueing	23
10 Conclusions	26

Appendices

Appendix A: Development Plans

Appendix B: Dimensioned Layout Plan

Appendix C: Murradoc Road Access – Concept Plan & Swept Path Diagrams

Appendix D: SIDRA Modelling Outputs

Figures

Figure 1: Aerial Photograph (source: Nearmap).....	7
Figure 2: Location Map (Source: www.melway.com.au)	7
Figure 3: Murradoc Road (view west)	8
Figure 4: Murradoc Road (view east).....	8
Figure 5: Public Transport Map (Source: PTV).....	9
Figure 6: Adopted Traffic Distribution (Source: Nearmap).....	17
Figure 7: AM Peak Hour Traffic Volumes	18
Figure 8: PM Peak Hour Traffic Volumes	18
Figure 9: Proposed Site Access – Sight Line West.....	19
Figure 10: Proposed Site Access – Sight Line East.....	19
Figure 11: AGTM Part 6 – Turn Treatment Assessment – Left Turn	20
Figure 12: AGTM Part 6 – Turn Treatment Assessment – Right Turn.....	20
Figure 13: Available On-Site Queue Storage.....	24

Tables

Table 1: Council RFI Comments – Reference Summary.....	3
Table 2: Existing Features of Subject Site.....	6
Table 3: Statutory Car Parking Assessment	10
Table 4: Car Parking Demand Assessment Summary	11
Table 5: Clause 52.06 – Car Parking Demand Assessment Factors	12
Table 6: Statutory Bicycle Parking Assessment.....	13
Table 7: Review of Proposal Against Clause 52.06-9	14
Table 8: Traffic Generation Summary	17
Table 9: Post Development SIDRA Summary – Murradoc Road Access	22
Table 10: Fuel Bowser – Queue Analysis.....	24

1 Introduction

The following Traffic Impact Assessment Report, reviews the critical matters pertaining to traffic engineering associated with the Proposed Service Station Development at 75-81 Murradoc Road, Drysdale.

1.1 TIA Revision E Summary

This revision of the report (Rev E) seeks to address a number of comments made by Council in relation to the proposed development. Table 1 below provides a summary of our responses and identifies the relevant sections of this document which address each of the provided comments.

Table 1: Council RFI Comments – Reference Summary

Council RFI Comment		Summary / Reference
Traffic and Access		
1	<i>The proposal includes a service station, convenience store, convenience restaurant, and car wash, with access from Murradoc Road via a channelised arrangement incorporating separate entry and exit lanes. DTP has issued a Section 55 response with conditions, and the following requirements must be incorporated into the plans:</i> • <i>Installation of a right-turn lane into the site;</i> • <i>Provision of a left deceleration lane;</i> • <i>Widening of the eastbound carriageway along the full site frontage;</i> • <i>Installation of street lighting, linemarking, signage, and associated road infrastructure to DTP standards; and</i> • <i>Right-turn exit movements onto Murradoc Road are not permitted</i> <i>The access arrangement and internal circulation must be updated to reflect the above requirements and demonstrate safe and functional operation.</i> <i>Provide written confirmation from DTP that the proposed right-turn exit movements are acceptable.</i>	Following the Section 55 response received, Quantum Traffic and the applicant undertook direct consultation with DTP regarding their requirements for the Murradoc Road access (online meeting held on Friday 1st May 2026). Following the meeting, a revised concept plan (Version D) for the vehicle access to Murradoc Road was prepared to include the following agreed changes: • Minor lengthening of the kerbside lane on the south side of Murradoc Road to the west of the proposed site access. The termination has been tied into the existing property access for #72 Murradoc Road. • Inclusion of a note to retain the existing drainage channel along the site frontage and to shape / tidy the verge as part of the works. It was agreed with DTP that no kerb or widening of the eastbound traffic lane is required as part of this project. DTP provided a revised Section 55 response on 9th June 2026, that specifically referenced the works proposed on the Quantum Traffic drawing (25-0220091, Revision D). Since these discussions with DTP, Powercor have advised that the existing power pole located at the site access must be relocated as part of the proposed development. On this basis a revised plan has been prepared (Version F) which retains the key component agreed to with DTP, but with modifications to suit the relocation of the power pole. This configuration has allowed the introduction of right turn movements out of the subject site (given the constraint of the existing power pole on the design is no longer an issue).

Council RFI Comment		Summary / Reference
		A summary of the proposed design is provided in Section 8.3, whilst a copy of the current concept plan (Version F) is provided in Appendix C. DTP provided an updated referral dated 14/08/2026 which confirms the acceptance of right in / right out movements (i.e. previous access restriction conditions removed). DTP has also required a new condition, limiting fuel deliveries between 9:00am and 5:30pm.
2	<i>The swept path assessment demonstrates that the 12.5 m HRV can access the site in a forward direction; however, the 19 m semi-trailer fuel tanker relies on mountable areas and full access width. The final design must clearly identify all mountable areas and demonstrate safe operation without conflict. Confirm the asset owner of the power pole (Powercor) that the proposed setback to the power pole is acceptable.</i>	The current concept plan (Version F) is provided in Appendix C and clearly highlights the proposed mountable islands / aprons in a 'light pink' colour. The current proposal includes relocation of the existing power pole, following consultation with Powercor. The proposed fuel tanker access represents an 'occasional' truck movement. In this setting it is appropriate for this movement to utilise the whole site access for entry movements. We are satisfied that these movements will be safe and efficient, noting that DTP has now included a condition limiting fuel deliveries to off-peak times between 9:00am and 5:30pm. This approach is commonplace for fuel tanker deliveries throughout metropolitan Melbourne. We note that the DTP referral dated 14/08/2026 indicates 'no objections' to the proposed access arrangements to Murradoc Road.
3	<i>The loading bay and servicing arrangements must be further clarified to demonstrate that loading, waste collection, and fuel deliveries can occur without conflict with customer parking or internal circulation.</i>	Loading and waste collection will occur via the on-site loading bay to the south of the convenience shop. Swept path diagrams in Appendix C demonstrate circulation for an 8.8m MRV vehicle. These swept paths include the storage areas behind the fuel fill points and confirm that queueing will not impact on vehicle circulation through the site. Fuel deliveries will occur via the fill points located adjacent to the southern fuel bowers. The fuel tanker will prop in this area while fuel delivery occurs. During this period, movements to/from the car parking spaces or fuel fill points will occur to/from the north access to the service station. As outlined above, fuel deliveries are scheduled outside of peak times and only occur occasionally. This is the typical approach to fuel deliveries at service stations and is suitable for the proposed development.
Internal Circulation		
4	<i>The Traffic Impact Assessment states that on-site queue storage is available for the fuel bowser and car wash areas; however, this has not been clearly demonstrated. Engineering requires:</i>	Section 9.4 of this report has been updated to provide additional analysis in relation to predicted on-site queueing.

Council RFI Comment		Summary / Reference
	<i>A queueing assessment for both fuel and car wash components;</i> <i>The number of vehicles that can be accommodated on-site without impacting circulation;</i> <i>Confirmation that queueing will not obstruct access to parking, loading, or servicing areas; and</i> <i>Dimensioned plans clearly identifying queue storage areas.</i> The statement that these uses are “self-regulating” is noted; however, this does not replace the need to demonstrate adequate queue storage and site operation.	Diagrams have been prepared to show the following level of queue storage for each component: • Car Wash – 17 vehicles (4 within the wash bays and 13 along the approach lanes). • Service Station – 30 vehicles (10 spaces at the fill points and 20 spaces behind the fill points). Queue analysis has been undertaken for the fuel bower component, with predicted 95th percentile queue of 10.8 vehicles and predicted 98th percentile queue length of 14.4 vehicles. On this basis the provision of 30 space queue storage can comfortably accommodate the proposed queueing.
Car Parking		
5	<i>The statutory parking assessment are acceptable in principle. However:</i> • <i>The parking layout must be confirmed as compliant with AS 2890.1;</i> • <i>Wheel stoppers must be provided for spaces adjoining pedestrian paths to prevent vehicle overhang; and</i> • <i>Dimensioned plans must be provided showing all car spaces and aisle widths. The car parking space close to the vacuum bay is not dimensioned.</i>	The proposed parking layout has been assessed in Section 6 of this report. This includes an assessment against the Design Standards of Clause 52.06-8. A layout plan with key dimensions of the proposed car parking spaces is provided in Appendix B. The provision of wheel stops can be included as a condition of the issued permit.

2 Proposal

The proposal is for development of a service station on the site at 75-81 Murradoc Road, Drysdale, including the following components:

- 10 x fill point/fuel bowers,
- 240m² convenience shop,
- 93m² convenience restaurant (capacity for approximately 30 patrons), and
- 4 x bay car wash (3 x manual bays and 1 x automatic bays) with 4 x vacuum bays.

Car parking is proposed on-site as follows:

- 10 spaces at the proposed fuel bowers
- 14 spaces (11 x conventional spaces, 1 x disabled, 1 x staff parking space and 1 x air/water space)
- 4 x car wash bays
- 4 x vacuum bays
- **TOTAL – 32 spaces**

Vehicle access is proposed via a new access to Murradoc Road at the western boundary of the site, incorporating an AUL(s) left turn treatment and minor lengthening of the existing kerbside lane on the south side of the road (to facilitate passing of right turning vehicles). All vehicle movements in/out are proposed to be accommodated at the site access.

Loading and waste collection is proposed to occur via a dedicated loading bay on the southern side of the convenience shop. Fuel deliveries are proposed to occur in the anticlockwise direction with fuel fill points located adjacent to the southern fuel bowsers.

Development application plans prepared by JR Design Australia Pty Ltd are attached at Appendix A.

3 Existing Conditions

3.1 Subject Site

The proposed development site is located at 75-81 Murradoc Road, Drysdale, on the north side of the road between Sproat Street and Drysdale Bypass. Table 2 outlines the key existing features of the development site.

Table 2: Existing Features of Subject Site

Site Feature	Detail
Municipality	
Municipality	City of Greater Geelong
Zoning & Overlays	
Zoning	Commercial Zone (C2Z)
Overlays	Design and Development Overlay (DDO32)
Critical Dimensions	
Total Site Area	10,402m ²
Site Frontage (approx.)	Murradoc Road – 60m
Existing Use	
75-81 Murradoc Road	Vacant
Vehicle Access	
75-81 Murradoc Road	No existing vehicle access
On-Street Car Parking	
Murradoc Road	No on-street parking ('No Stopping' on south side and no provision on north side).

An aerial photograph and location map are provided at to Figure 1 and Figure 2.



Figure 1: Aerial Photograph (source: Nearmap)

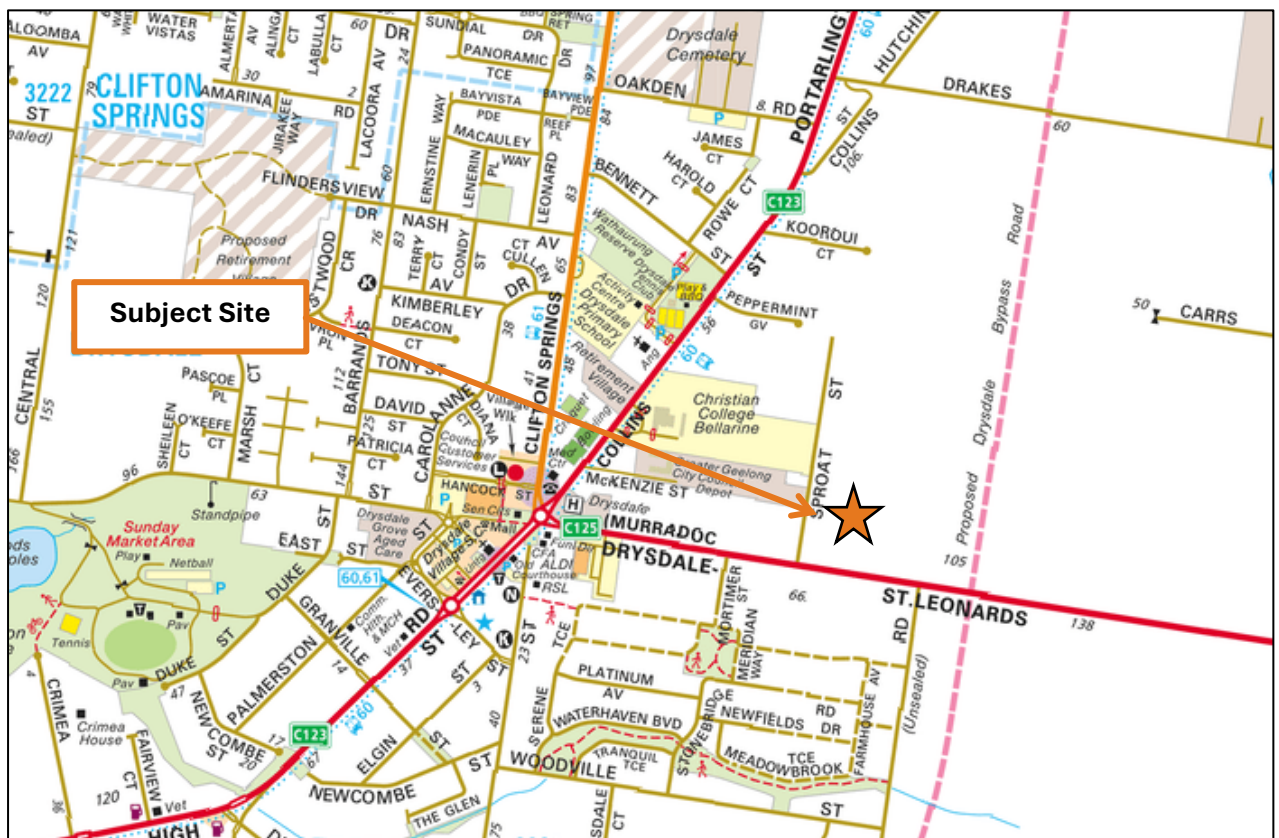


Figure 2: Location Map (Source: www.melway.com.au)

3.2 Road Network

Murradoc Road

Murradoc Road is an arterial road managed by the Department of Transport and Planning (DTP) extending from Clifton Springs Road in the west and The Esplanade, St Leonards Road in the east.

In the vicinity of the subject site, Murradoc Road includes a single traffic lane with asphalt shoulder on the north side of the road and a traffic lane and separate passing lane with kerb on the south side of the road.

Murradoc Road has historically allowed for potential road widening / service road provision in the future, with developments on the north side of the road set-back 12m from the existing property boundary (as outlined in Design and Development Overlay – Schedule 33).

In the vicinity of the subject site, Murradoc Road is subject to a 60km/h posted speed limit.

Photographs of Murradoc Road in the vicinity of the subject site are shown in Figure 3 and Figure 4 below.



Figure 3: Murradoc Road (view west)



Figure 4: Murradoc Road (view east)

3.3 Public Transport

The subject site has limited access to existing public transport services, with the closest services operating along Portarlington Road approximately 920m west of the subject site.

Two public bus routes operate along Portarlington Road as follows:

- Route 60 – Geelong Station to St Leonards via Portarlington.
- Route 61 – Geelong Station to Drysdale via Clifton Springs.

A map outlining the nearby public transport services is provided in Figure 5 below.

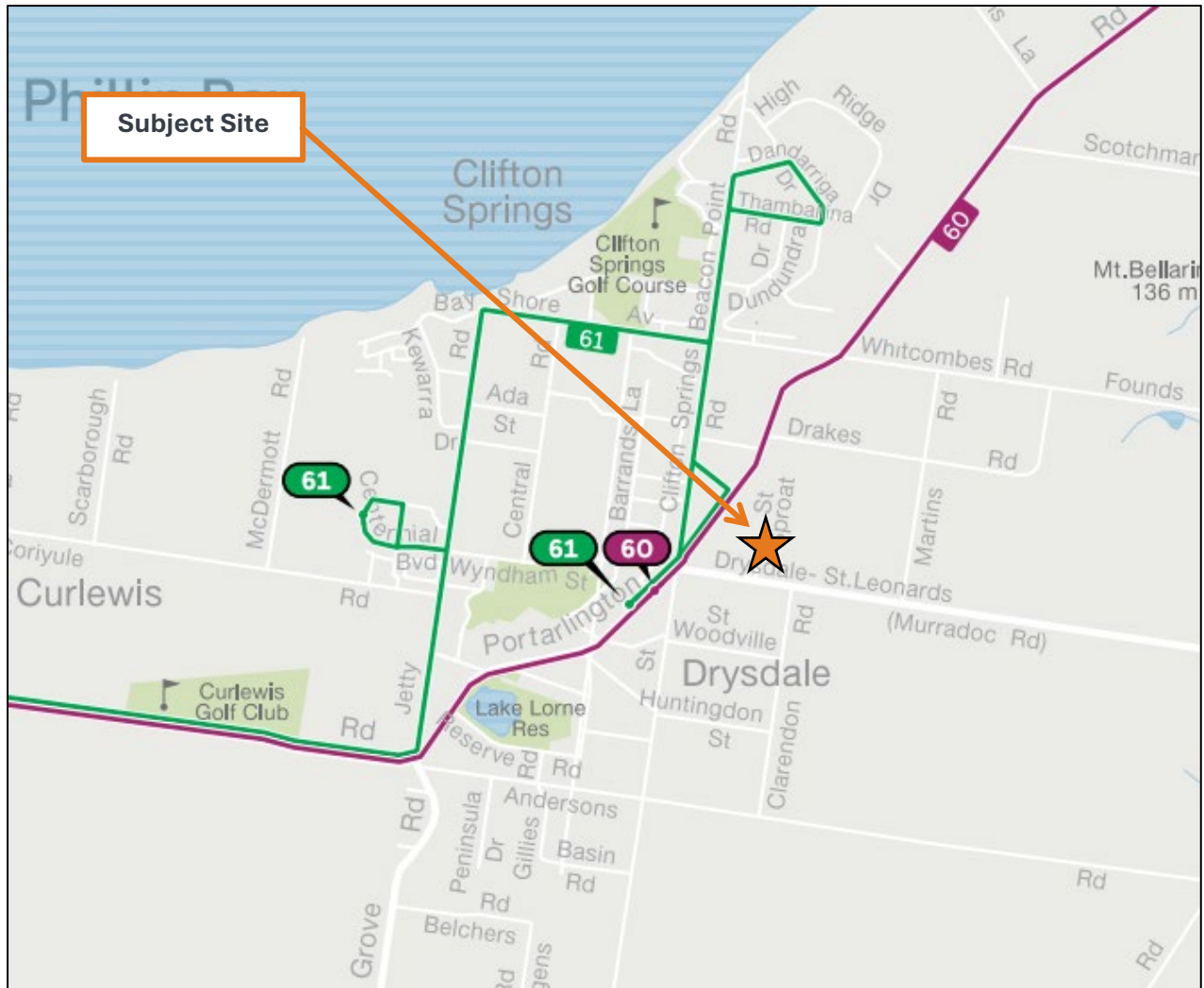


Figure 5: Public Transport Map (Source: PTV)

3.4 Existing Traffic Volumes

Department of Transport and Planning (DTP) publishes traffic volumes for the arterial road network through the Victorian Government Open Data Portal. The following daily traffic volumes is published for Murradoc Road:

- Murradoc Road (Btw Clarendon Road and Collins Street)
 - Westbound - 5,092 AADT
 - Eastbound - 5,162 AADT

In view of the above, Murradoc Road carries in the order of 10,000 vehicles per day in the section adjacent to the subject site.

Peak hour traffic volumes have been estimated as 10% of the daily traffic volume, resulting in approximately 509 vehicles/hour in the westbound direction and 516 vehicles/hour in the eastbound direction.

4 Car Parking Assessment

4.1 Statutory Car Parking

Clause 52.06-5 of the Planning Scheme prescribes the number of car spaces to be provided for new developments and changes of use. Under Clause 73.03 the proposed land uses are best defined as 'Service Station' and 'Convenience Restaurant'. It is noted that the convenience shop and car wash components are included within the service station use, given the service station definition as follows:

"Land used to sell motor vehicle fuel from bowzers or charge electric vehicles. It may include the:

- a) selling of motor vehicle lubricants, accessories or parts;*
- b) selling of food, drinks and other convenience goods;*
- c) hiring of trailers;*
- d) servicing or washing of motor vehicles; and*
- e) installing of motor vehicle accessories or parts."*

No Parking Overlay applies to the subject site and the site is located within the Category 1 area of the Car Parking Requirement Maps.

The land use term 'Service Station' is not listed in Table 1 of Clause 52.06-5, therefore as outlined in Clause 52.06-6 the provision of parking for this component is *"to the satisfaction of the Responsible Authority"*.

Table 2 assesses the car parking provision against the statutory requirement prescribed under Clause 52.06-5 of the Planning Scheme.

Table 3: Statutory Car Parking Assessment

Use	Size/No.	Statutory Car Parking Rate (Category 1 – Minimum Requirement)	Requirement	Provision
Service Station	10 Bowzers	<i>to the satisfaction of the Responsible Authority</i>		32 spaces
Convenience Restaurant	30 patrons	0.3 spaces to each patron permitted	9 spaces	
TOTAL	-	-	9 spaces	32 spaces

Based on the above, the statutory requirement for the proposed development is 9 car parking spaces plus a provision of parking for the service station component to the satisfaction of the Responsible Authority.

A review of the adequacy of this parking provision provided in the following sections.

4.2 Car Parking Demand Assessment

4.2.1 Fuel Sales / Convenience Shop

The core function of the proposed service station development will include the sale of fuel via 10 bowzers, with the sale of food, drink and convenience goods via the convenience shop.

The convenience shop component is principally targeted at attracting additional sales when drivers pay for fuel sales. On this basis, the patrons of the convenience shop are expected to be predominately associated with fuel sales. Only a minor level of 'standalone' trips would be expected, where a customer purchases from the convenience shop but does not buy fuel. For the purposes of this assessment, we have adopted a likely peak demand of 2 spaces for standalone trips. The convenience shop is also likely to generate 2 space demand for staff members to operate the shop.

On this basis, the parking generation for the fuel sales / convenience shop components is estimated at 14 spaces (10 spaces at the bowser, 2 standalone trips for the convenience shop and 2 staff space).

4.2.2 Car Wash

The car wash component doesn't explicitly generate car parking demands, as the drivers stay with their vehicle during the wash/vacuum process given the self-service nature of the offering. On this basis, vehicles are accommodated at the 4 x wash bays and 4 x vacuum bays.

4.2.3 Convenience Restaurant

We expect the convenience restaurant to generate car parking demands in line with the Clause 52.06 Statutory requirement of 9 spaces.

4.2.4 Summary

A summary of the car parking demand assessment for the proposed service station and convenience restaurant development is provided in Table 4 below.

Table 4: Car Parking Demand Assessment Summary

Use	Size/No.	Car Parking Demand	Provision
Fuel Sales	10 Bowsers	10 spaces	10 spaces (at bowsers)
Convenience Shop	240m ²	4 spaces	14 spaces
Convenience Restaurant	30 patrons	9 spaces	
Car Wash	4 Wash Bays / 4 Vacuum Bays	8 spaces	8 spaces (4 x wash bays & 4 x vacuum bays)
TOTAL	-	31 spaces	32 spaces

The car parking demand assessment indicates an overall car parking demand of 31 spaces for the proposed development. Given the provision of 32 on-site car parking spaces, the proposed development can accommodate all parking demands on-site.

Table 5 provides a summary of the proposal against the car parking demand assessment factors identified in Clause 52.06 of the Planning Scheme.

Table 5: Clause 52.06 – Car Parking Demand Assessment Factors

Factor	Commentary
<i>The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.</i>	There is a high likelihood of multi-purpose trips with the proposed uses on-site. In particular, the proposed convenience shop is targeted at generating additional sales from customers purchasing fuel. On this basis, the customers purchasing fuel will be the predominant customers of the convenience shop. In addition, the proposed convenience restaurant and car wash components are likely to source a portion of their patrons from the service station / convenience shop components. Overall, the proposed development is expected to generate smaller parking demands when compared to other standalone developments.
<i>The variation of car parking demand likely to be generated by the proposed use over time.</i>	Peak parking demands for the service station / convenience restaurant are expected to occur during traditional commuter peak periods, when traffic volumes are highest on the adjacent road network (i.e. passing trade). We expect peak demands for the convenience restaurant to occur during peak meal times including lunch and dinner periods.
<i>The short-stay and long-stay car parking demand likely to be generated by the proposed use.</i>	The majority of parking demands will be short term, associated with customers of the service station or convenience restaurant components. A small portion of the parking demands will be long term, associated with staff.
<i>The availability of public transport in the locality of the land.</i>	The site has access to limited public transport services. Given the location of the site within Drysdale, we would only expect a minor number of trips associated with public transport.
<i>The convenience of pedestrian and cyclist access to the land.</i>	Murradoc Road does not include existing footpath facilities in the vicinity for the subject site. On this basis, we would expect walking to represent a small number of trips to/from the subject site.
<i>The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.</i>	Cycling is not expected to represent a significant portion of trips.
<i>The anticipated car ownership rates of likely or proposed visitors to or occupants (residents or employees) of the land.</i>	The parking demands associated with the proposed development of the subject site will be met on-site through the provision of 32 parking spaces (10 spaces at the fuel bowser, 14 spaces and 8 car wash / vacuum bays).
<i>Any empirical assessment or case study.</i>	An empirical assessment is provided above this table, which outlines why the likely demand of the proposed development.

In view of the above, we are satisfied that an adequate level of car parking is proposed for the service station development.

4.3 Accessible Car Parking

Accessible car parking requirements are assessed under the National Construction Code (NCC). The NCC requires the following level of car parking:

- Convenience Restaurant & Convenience Shop (Class 6) - 1 space to every 50 parking spaces or part thereof

In view of the above, the provision of 32 on-site car parking spaces results in a requirement for 1 accessible space.

The provision of 1 accessible parking space on-site satisfies the NCC requirements.

5 Bicycle Parking Assessment

Clause 52.34 prescribes the number of bicycle parking spaces required for the proposed development.

The land use term 'service station' is not listed in Table 1 of Clause 52.34 and therefore there is no statutory requirement for this component.

The land use 'Convenience Restaurant' is assessed based on 'floor area available to the public'. We have estimated the floor area available to the public as 70% of the total floor area (i.e. 70% of 93m² = 65m²).

An assessment of the statutory bicycle parking requirements is provided in Table 6 below.

Table 6: Statutory Bicycle Parking Assessment

Use	Size/No.	Statutory Bicycle Parking Rate	Requirement
Long Term Bicycle Parking (Staff)			
Convenience Restaurant	65m ² Floor Area available to the public	1 to each 25m ² of floor area available to the public	3 spaces
Service Station & Convenience Shop	-	No Statutory Requirement – Land Uses Not Listed	-
TOTAL			3 spaces
Short Term Bicycle Parking (Customers)			
Convenience Restaurant	65m ² Floor Area available to the public	2 spaces	2 spaces
Service Station & Convenience Shop	-	No Statutory Requirement – Land Uses Not Listed	-
TOTAL			2 spaces

In view of the above, the statutory bicycle parking requirement is 3 long term spaces for staff and 2 short term spaces for customers.

The currently development plans show a total of 8 bicycle parking spaces as follows:

- 4 secure spaces in the service yard adjacent to the convenience restaurant.
- 2 secure spaces in the service yard adjacent to the to the convenience store.
- 2 public spaces on the footpath adjacent to the convenience restaurant.

In view of the above, the proposed bicycle parking satisfies the statutory requirements.

6 Internal Car Parking Layout & Access Arrangements

The following table reviews the proposal against the design standards as specified under Clause 52.06-9 of the Greater Geelong Planning Scheme.

Traffic Impact Assessment Report

75-81 Murradoc Road, Drysdale - Proposed Service Station Development

Table 7: Review of Proposal Against Clause 52.06-9

Design Standard	Compliant	Comments
Design Standard 1 - Accessways		
<i>Be at least 3 metres wide</i>	Compliant	The internal accessways vary between 5.8m-10.45m wide, comfortably exceeding the 3m minimum required.
<i>Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.</i>	Compliant	All accessways are wider than 4.2m wide.
<i>Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre</i>	Not Applicable	No dead end accessways proposed.
<i>Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres</i>	Compliant	The proposed canopy over the fuel bowsers comfortably exceeds 2.1m headroom clearance.
<i>If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or 3, the accessway must be designed so that cars can exit the site in a forward direction</i>	Compliant	All cars can enter and exit the site in a forward direction.
<i>Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or 3.</i>	Compliant	The proposed internal accessway along the western boundary of the site is 8.75m wide at the property boundary, comfortably providing for a 6.1m wide x 7m long passing area.
<i>Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road.</i>	Not Applicable	There is no existing footpath along Murradoc Road and therefore the sight line triangle requirement does not apply. In any event, the proposed design allows for pedestrian sight line triangles for exiting vehicles.
<i>If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or 3, the access to the car spaces must be at least 6 metres from the road carriageway</i>	Compliant	The proposed car parking spaces are setback greater than 6m from the Murradoc Road carriageway.
<i>If entry to the car space is from a road, the width of the accessway may include the road</i>	Not Applicable	All car spaces are accessed internally.
Design Standard 2 – Car Parking Spaces		
<i>Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2.</i>	Compliant	All car spaces are provided with dimensions in accordance with Table 1. Specifically, the conventional car parking spaces are proposed at 2.6m wide x 5.4m long with a minimum aisle width of 6.4m.

Traffic Impact Assessment Report

75-81 Murradoc Road, Drysdale - Proposed Service Station Development

Design Standard	Compliant	Comments
		The proposed vacuum bays are 3m wide x 5.4m long, with a 5.8m wide access aisle. These dimensions exceed the minimum dimensions of Design Standard 2 (Table 1).
<i>A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1, other than:</i> <i>A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1.</i> <i>A structure, which may project into the space if it is at least 2.1 metres above the space.</i>	Compliant	The proposed car parking spaces are clear of adjacent obstructions in accordance with Diagram 1 of Clause 52.06-9.
<i>Car spaces in garages or carports must be at least 6 metres long and 3.5 metres wide for a single space and 5.5 metres wide for a double space measured inside the garage or carport.</i>	Not Applicable	No garages are proposed.
<i>Where parking spaces are provided in tandem (one space behind the other) an additional 500 mm in length must be provided between each space</i>	Not Applicable	No tandem spaces are proposed.
<i>Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover</i>	Not Applicable	Commercial spaces not resident spaces.
<i>Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 500mm</i>	Compliant	The proposed layout includes a single disabled car parking space with dimensions of 2.4m wide x 5.4m long and an adjacent shared area at 2.4m wide x 5.4m long.
Design Standard 3 – Gradients		
Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	Compliant	Minor grades for drainage only.
<i>Ramps (except within 5 metres of the frontage) must have the maximum grades</i>	Compliant	Minor grades for drainage only.

Design Standard	Compliant	Comments
<i>as outlined in Table 3 and be designed for vehicles travelling in a forward direction.</i>		
<i>Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.</i>	Compliant	Minor grades for drainage only.
<i>Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.</i>	Compliant	The proposed grades are satisfactory.

Based on the above, the proposed layout of the on-site car parking areas and the vehicle access arrangements from Murradoc Road are satisfactory.

7 Traffic Volumes

7.1 Traffic Generation

7.1.1 Service Station

The RMS *Guide to Transport Impact Assessment* (2024) provides extensive empirical traffic generation rates for service stations, based on empirical surveys of sites throughout NSW in 2013. The sample surveyed included site with convenience shops, convenience restaurants and car washes and therefore the rates are expected to be reflective of the overall current proposal.

The critical traffic generation rates for the AM and PM weekday commuter peak are based on the number of service channels 'N' and the overall site area 'X'. A summary of the key traffic generation equations are as follows:

- AM Commuter Peak – $0.2815(N)^2 + 14.047N + 16.715$
- PM Commuter Peak – $0.0205(S) + 88.52$

Given the short duration nature of trips to a service station, the trips have been evenly divided into 'In' and 'Out' trips.

Trips to service station development are predominantly 'passing trade' whereby trips to the service station occur by vehicles already passing the subject site.

7.1.2 Potential Future Development

For the purposes of this assessment, we have included an allowance for indicative traffic volumes for potential future development at the rear of the subject site.

There is no current development proposal and therefore the future land uses are not known.

For the purposes of this assessment, an allowance of 35 trips has been adopted for the potential future development at the rear of the subject site. The volumes have a minor bias 'in' during the AM peak and 'out' during the PM peak.

7.1.3 Summary

Table 8 below outlines the anticipated peak hour traffic generation of the overall proposed service station development and an allowance for potential future development at the rear of the site.

Table 8: Traffic Generation Summary

Use	Component	IN	OUT	TOTAL
AM Road Network Peak Hour				
	Service Station	93	93	185
	Allowance for Potential Future Development	19	16	35
TOTAL		111	109	220
PM Road Network Peak Hour				
	Service Station	91	91	182
	Allowance for Potential Future Development	16	19	35
TOTAL		108	110	217

Based on the above, the overall site (including an allowance for potential future development) is likely to generate approximately 220 trips in the AM peak hour and 217 trips in the PM peak hour.

7.2 Traffic Distribution

The subject site is located between the main Drysdale township and the Drysdale bypass. On this basis, we would expect a relatively even distribution of trips to the east and west. A summary of the adopted traffic distribution is shown in Figure 6 below.



Figure 6: Adopted Traffic Distribution (Source: Nearmap)

7.3 Peak Hour Traffic Volumes

A summary of the predicted peak hour traffic volumes are presented in Figure 7 and Figure 8 below. For the service station component, allowance has been made for passing trade (i.e. through trips on Murradoc Road reduced to reflect the diversion of trips to the service station).

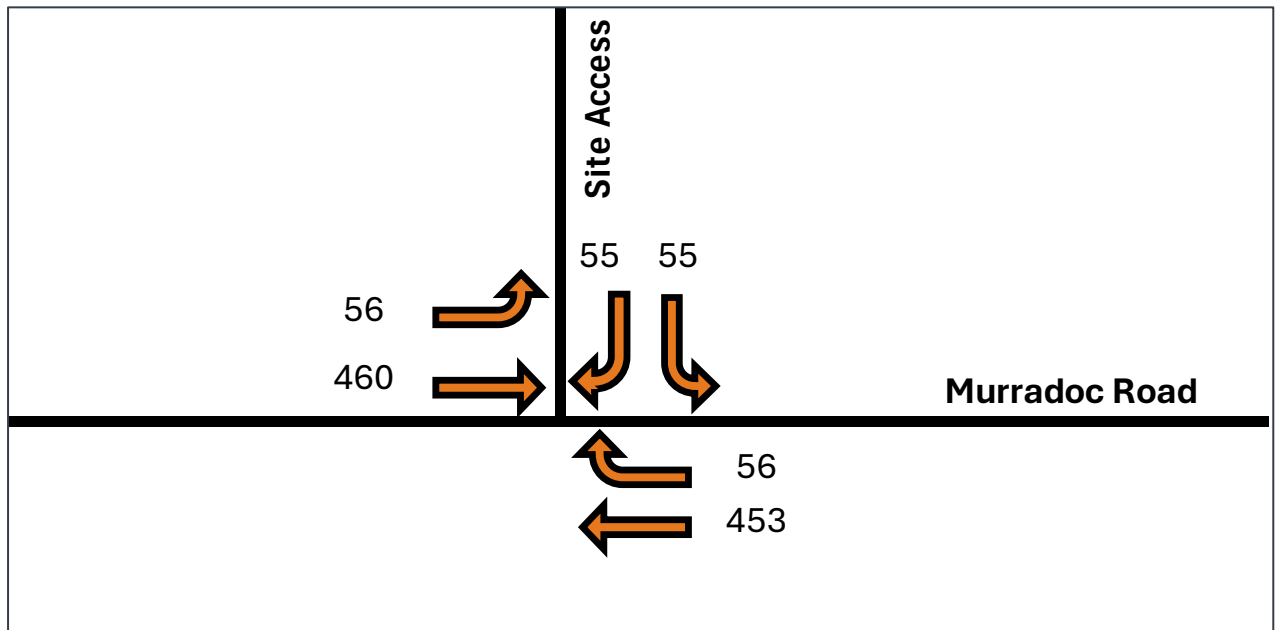


Figure 7: AM Peak Hour Traffic Volumes

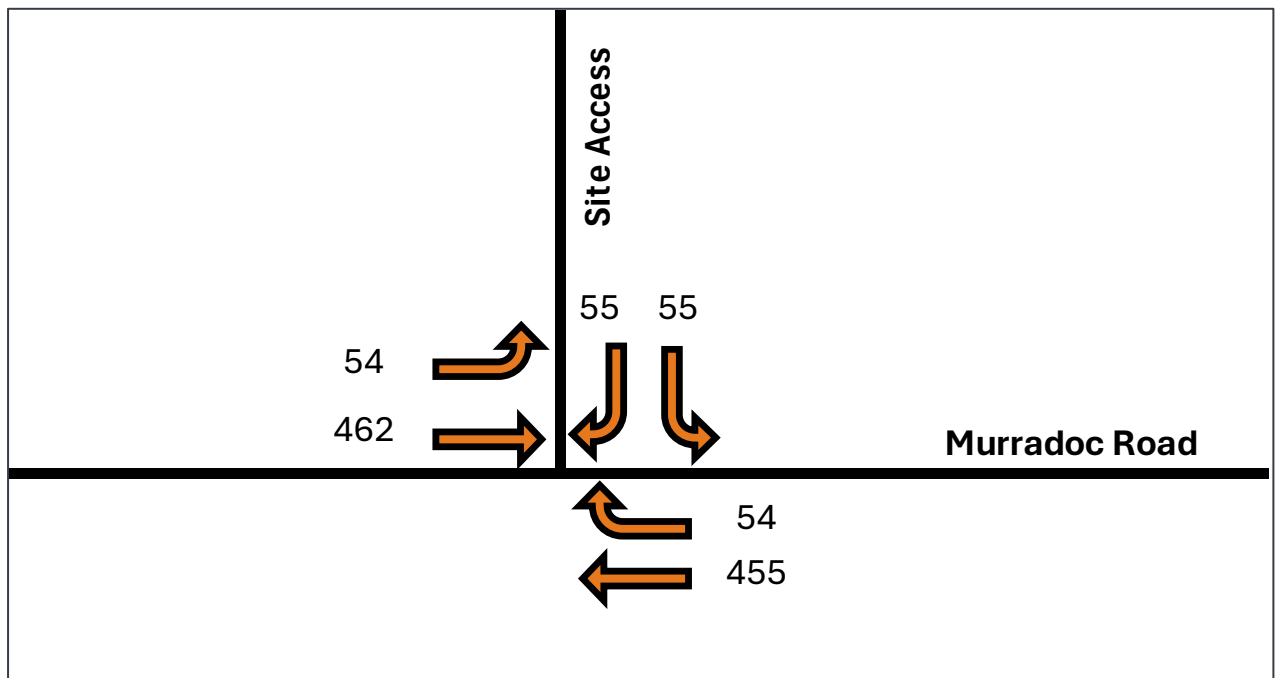


Figure 8: PM Peak Hour Traffic Volumes

8 External Access Arrangements

8.1 Sight Lines

The horizontal alignment of Murradoc Road is generally straight and the vertical alignment is generally flat, with minimal grades/fall in the vicinity of the subject site. Additionally, no significant vegetation is located in the vicinity of the subject site which results in no visual obstructions to sight lines.

The Austroads Guide to Road Design Part 4A indicates that sight lines for property access points should desirably achieve the sight distance requirements for intersections including approach sight distance (ASD), safe intersection sight distance (SISD) and minimum gap sight distance (MGSD). A summary of the sight distance thresholds for the existing 60km/h speed zoning on Murradoc Road are as follows:

- ASD – 73m
- SISD – 123m
- MGSD – 83m

Sight line assessments have been undertaken for the proposed access point to Murradoc Road. These assessments confirm that all of the above sight lines are achieved in both directions.

Photographs of the general sight lines available along the Murradoc Road frontage are provided in Figure 9 and Figure 10 below.



Figure 9: Proposed Site Access – Sight Line West



Figure 10: Proposed Site Access – Sight Line East

8.2 Turn Treatments

An assessment of the proposed access point to Murradoc Road has been undertaken with regard for the turn treatment warrants outlined in the Austroads Guide to Traffic Management Part 6.

The traffic volumes utilised are the post development volumes outlined previously in Section 7.3.

The assessment for the left turn is provided in Figure 11 below, whilst the assessment for the right turn is presented in Figure 12 below.

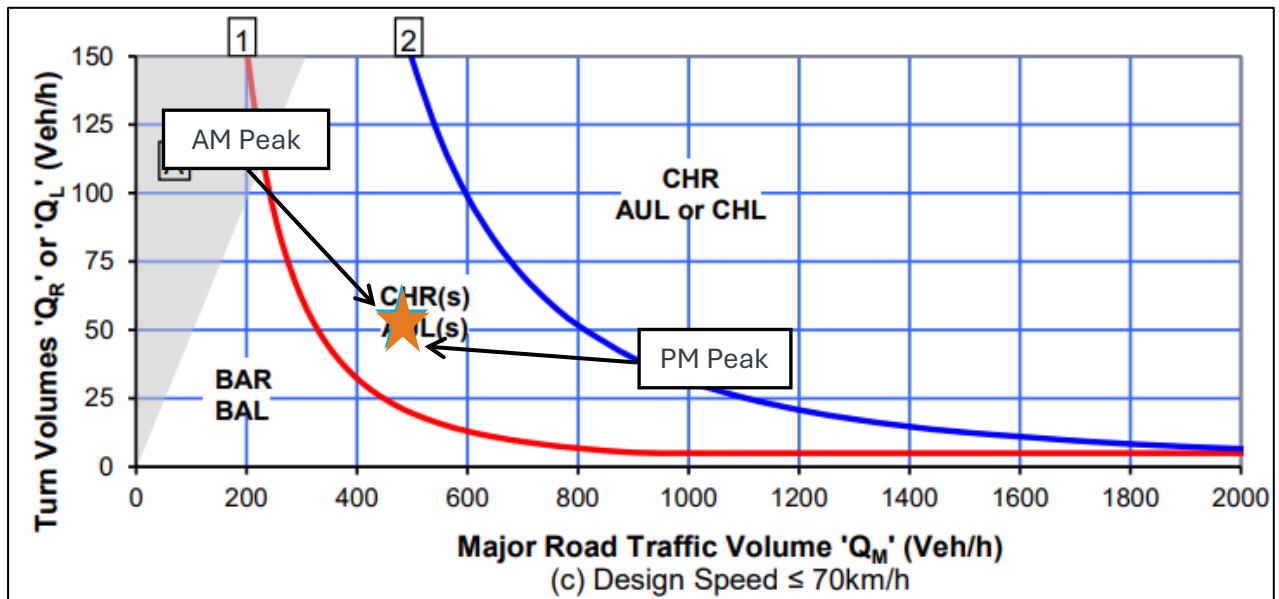


Figure 11: AGTM Part 6 – Turn Treatment Assessment – Left Turn

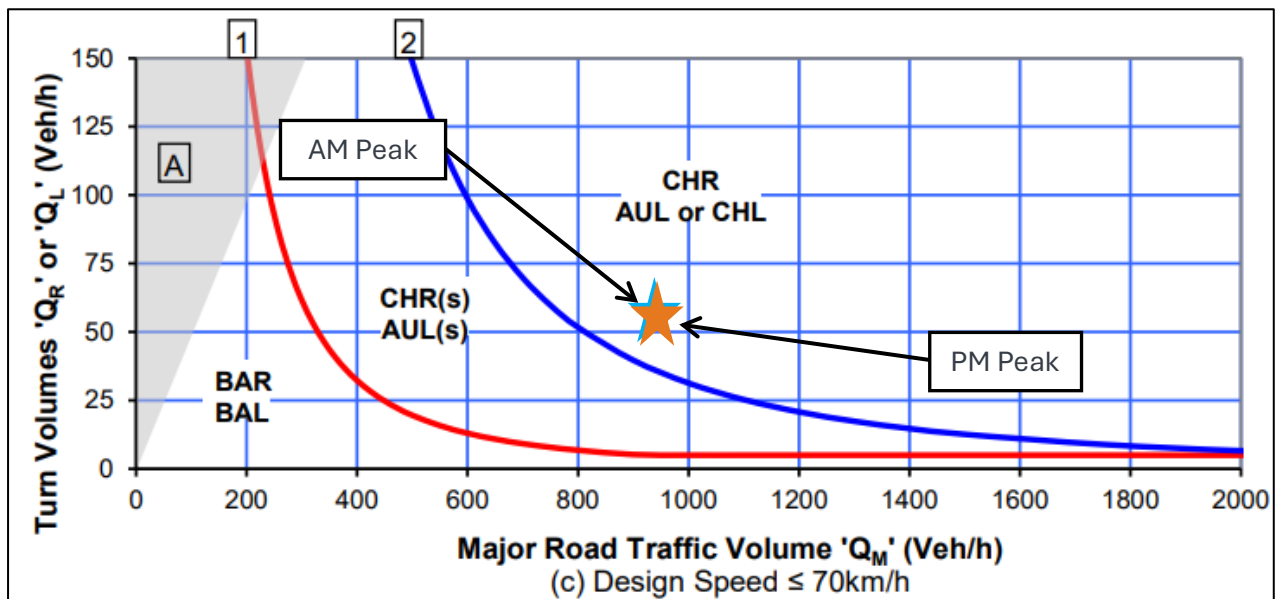


Figure 12: AGTM Part 6 – Turn Treatment Assessment – Right Turn

The above assessments indicate that the left turn warrants a short channelised turn treatment, whilst the right turn warrants a channelised turn treatment.

A discussion regarding the provision of turn treatments for the proposed site access is provided as follows:

- **Left Turn** – The proposed site access includes the construction of an AUL(s) left turn treatment in accordance with the Austroads Guide to Road Design Part 4A.
- **Right Turn** – The existing layout of Murradoc Road in the vicinity of the subject site includes a through traffic lane, with a separate kerbside lane subject to full time 'No Stopping' restrictions. This configuration allows for through vehicles to pass stationary vehicles waiting to turn right from inner lane. Following consultation with DTP, it is proposed to construct a minor lengthening of the kerbside lane to the existing crossover for #72 Murradoc Road.

8.3 Layout / Design

The proposed access to Murradoc Road has been designed to accommodate the following key design vehicles:

- Service Station - Fuel Tanker 19m Semi-Trailer (occasional service)
- Service Station – Loading / Waste Collection 8.8m MRV (regular service)
- Potential Future Development (Rear of Site) - 12.5m HRV (regular service)

AS2890.2:2018 defines roads into two categories as follows:

- Minor Road – *“Cul-de-sac or road carrying local traffic”*
- Major Road – *“Road carrying predominantly through traffic, generally either a two-way roadway of generally more than 12m between kerbs, or a divided road”*

Based on the above, Murradoc Road would be best classified as a ‘Major Road’ given its arterial classification and role in carrying through traffic.

The design of vehicle access points for ‘Regular Service’ truck access to a ‘Major Road’ has the following guidance under AS2890.2:2018:

- *“Both entry and exit at the property boundary shall be in the forwards direction”*
- *“On a major public road, the design shall not force turning vehicles to cross the centre-line or median of the public roadway to the extent that there is any interaction with the opposing direction of travel”*

The proposed access design has been developed to accommodate the 12.5m HRV as the design vehicle, in accordance with the above guidance from AS2890.2:2018. The design includes separate entry and exit lanes, separated by a traffic island to facilitate the swept paths.

The design accommodates the 19m semi-trailer, utilising the mountable island and utilising the whole accessway on entry. This approach is appropriate for the occasional movements expected for the 19m semi-trailer fuel tanker, with AS2890.3 specifically outlining the following for occasional service movements:

“The full width of the access driveway may be used for both entering and leaving the site”

Following discussions with DTP, it was agreed that fuel deliveries should be limited to off-peak times, with a fuel delivery window of 9:00am-5:30pm agreed with DTP.

The left turn lane has been designed in accordance with the Austroads Guide to Road Design Part 4A, including the following key component:

- Lane width – 3.5m
- Diverge / Deceleration Length – 25m (AGRD-4A Table 8.2 for 60km/h)
- Taper – 20m (AGRD-4A Table 8.2 for 60km/h)

A copy of the proposed access design to Murradoc Road including swept path diagrams are provided in Appendix B.

8.4 Capacity Analysis

A SIDRA capacity model has been prepared to review the capacity impacts of the proposed vehicle access to Murradoc Road.

SIDRA presents output results based on the following key metrics:

- **Degree of Saturation** – A ratio of demand (volume) on capacity.
- **Average Delay** – The average delay of all vehicles for a particular movement or lane.
- **95th Percentile Queue Length** – The length the 95% of queues are at or below for a particular movement or lane.
- **Level of Service (LOS)** – Measured LOS A through LOS E a ‘rating’ of the operation based on average delay.

For unsignalised intersections, the threshold for acceptable operation is typically a DOS of less than 0.8-0.85 and LOS D or better.

A summary of the SIDRA results for the Murradoc Road intersection are provided in Table 9 below.

Table 9: Post Development SIDRA Summary – Murradoc Road Access

Peak Hour	AM Peak Hour			PM Peak Hour		
	DOS	Delay (LOS)	95 th %ile Queue	DOS	Delay (LOS)	95 th %ile Queue
Murradoc Road Site Access						
E: Murradoc Road	0.16	8s (A)	4m	0.16	8s (A)	4m
N: Site Access	0.29	22s (C)	8m	0.29	22s (C)	9m
W: Murradoc Road	0.29	6s (A)	0m	0.29	6s (A)	0m
Total	0.29	22s (C)	-	0.29	22s (C)	-

The above modelling results indicate the proposed site access will operate well in the post development conditions with spare capacity, low delays and queue lengths.

Detailed SIDRA outputs are provided in Appendix C.

9 Internal Layout Considerations

9.1 Service Station Fuel Deliveries

The service station will require fuel deliveries that occur via 19m semi-trailer vehicles.

The tankers will enter the service site accessing the fuel fill point adjacent to the southern fuel bowser. To exit, the tanker will circulate anticlockwise through the internal accessways and exit via the proposed accessway along the western boundary of the site.

During deliveries, the fuel tanker will prop in the area adjacent to the southern fuel bowser area (at the fuel fill points). During this period, movements to/from the car parking spaces or fuel fill points will occur to/from the north access adjacent. As outlined above, fuel deliveries will be limited to outside of peak times (9:00am-5:30pm) and only occur occasionally. This is the typical approach to fuel deliveries at service stations and is suitable for the proposed development.

Swept path diagrams showing the site access and circulation of the 19m semi-trailer fuel tanker are provided in Appendix C.

9.2 Service Station Loading & Waste Collection

A dedicated loading bay is proposed for the service station and convenience restaurant components at the southern end of the convenience shop building.

Access to the loading bay is proposed to occur with entry at northern end of the forecourt with clockwise circulation through the on-site accessway to the loading bay. Access to the loading bay can occur via a standard reverse movement. Exit occurs in a forwards direction via the southern end of the forecourt area.

Queueing at the proposed fuel bowser is shown on the swept path diagrams prepared, demonstrating that car and loading / waste vehicle access can comfortably occur.

Swept path diagrams of access to the loading bay for an 8.8m MRV are provided in Appendix C.

9.3 Potential Future Development – Rear of Site

While there is no current proposal, there is the potential for future develop on the rear portion of the subject site. On this basis, the exact type and configuration of future development is not known.

The proposed site access accommodates 12.5m HRV vehicles, which will be sufficient for a wide range of potential commercial developments.

9.4 On-Site Queueing

The fuel sales and car wash components include parking at the service point (fuel bowser and car wash bays), with the provision of queue storage behind the service points. On this basis, the proposed design includes a substantial level of on-site queue storage to accommodate potential queueing. A summary of the available queueing without impact on the shared accessway along the western boundary of the site is as follows:

- Car Wash:
 - Within Car Wash Bays – 4 vehicles
 - Northern Queue Lane – 5 vehicles
 - Southern Queue Lane – 8 vehicles
 - **TOTAL – 17 vehicles**
- Service Station:
 - At Fuel Fill Points – 10 vehicles (1 vehicle at each fill point)
 - Behind Fill Points – 20 vehicles (2 vehicles behind each fill point)
 - **TOTAL – 30 vehicles**

A summary of the available queueing for the car wash and service station is provided in Figure 13 below (utilising B99 vehicles).

In addition, access to the service station and car wash is via a long vehicle access along the western boundary of the site, which provides additional queuing opportunities, without impacting on the operation of the external road network (Murradoc Road).



Figure 13: Available On-Site Queue Storage

It is noted that service station and car wash uses generally exhibit self-regulating queuing characteristics due to their discretionary nature. Customers are typically unwilling to wait in extended queues and will instead seek alternative facilities if delays are evident.

For the purposes of this assessment, we have prepared a quantitative queue storage analysis for the fuel bowser in accordance with the queueing principles commentary provided by Austroads Guide to Traffic Management. A summary of the queue analysis is shown in Table 10 below.

Table 10: Fuel Bowser – Queue Analysis

Measure	Source		Value
Total Arrival Rate	r	Peak hour inflow (AM Peak) outlined previously in Table 8.	93 veh/hr
Lane Based Service Rate	-	Assumes 5 minutes to service a vehicle (fill fuel, pay and depart)	12 veh/hr/lane
Service Lanes	-	10 fuel fill points	10 lanes
Total Service Rate	s	-	120 veh/hr
Utilisation	ρ	From Section 6.1.2 of AGTM03-20	0.78
Mean Queue Length	n_q		3.44 veh

Measure	Source		Value
Variance of the Mean Queue Length	$\sigma^2(n)$		15.31 veh ⁻¹
Mean Service Time	W_m		133s
Mean Delay	-	-	103s
Probability of 95 th Percentile Queue Length	($>n_{95\%}$)	From Section 6.1.2 of AGTM03-20	5.00%
95 th Percentile Queue Length	$n_{95\%}$	Iterated until $P(>n_{95\%}) = 5.00\%$	10.8 veh
Probability of 98 th Percentile Queue Length	($>n_{98\%}$)	From Section 6.1.2 of AGTM03-20	2.00%
98 th Percentile Queue Length	$n_{98\%}$	Iterated until $P(>n_{98\%}) = 2.00\%$	14.4 veh
Available Storage Capacity	n	As demonstrated in the plans in Appendix C.	30 veh
Probability of Storage Length Being Exceeded	$P(>n)$	From Section 6.1.2 of AGTM03-20	0.04%

In view of the above, the predicted 95th percentile queue length is 10.8 vehicles and the predicted 95th percentile queue length is 14.4 vehicles. Given the available storage of 30 vehicles for the fuel bowers, the available queueing will comfortably accommodate the expected queueing.

The queue storage at the service station pumps has been shown on the critical internal swept path assessment for loading vehicles circulating through the site (Appendix B). This assessment demonstrates that vehicles are comfortably able to circulate through the site whilst vehicle queueing occurs at the fuel bowers.

10 Conclusions

Having visited the site and undertaken a detailed traffic engineering assessment the following conclusions are reached in relation to the proposed service station development at 75-81 Murradoc Road, Drysdale:

1. The statutory car parking requirement as specified under Clause 52.06-5 of the Greater Geelong Planning Scheme is 9 car parking spaces plus a provision of parking for the service station component to the satisfaction of the Responsible Authority.
2. The Car Parking Demand Assessment indicates that the proposed provision of car parking is supported based on the following:
 - e) The convenience shop component is principally targeted at attracting additional sales when drivers pay for fuel sales. On this basis, the patrons of the convenience shop are expected to be predominately associated with fuel sales (10 bowser spaces). Additional parking demands could be expected for 2 staff members (2 spaces) and potential standalone trips (2 spaces).
 - f) The car wash component doesn't explicitly generate car parking demands, as the drivers stay with their vehicle during the wash/vacuum process given the self-service nature of the offering. On this basis, vehicles are accommodated at the 4 x wash bays and 4 x vacuum bays.
 - g) The convenience restaurant is expected to generate car parking demands in line with the Clause 52.06 Statutory requirement of 9 spaces.
 - h) Overall, the proposed development is expected to generate peak parking demands of 31 spaces, which is accommodated by the proposed on-site provision of 32 spaces.
3. An accessible car space is provided for the development as required by the NCC.
4. The car parking design and vehicle access arrangements are satisfactory and generally in accordance with Clause 52.06-9/AS2890.1:2004.
5. The proposed development generates a bicycle parking requirement for 3 staff spaces and 2 visitor spaces under Clause 52.34 of the Planning Scheme (associated with the convenience restaurant component). The proposal includes the provision of 8 bicycle parking spaces, satisfying the statutory requirement.
6. The proposed development is assessed as generating approximately 185 vehicle movements during the AM peak and 182 vehicle movements during the PM peak. Our assessment has included an allowance for potential future development at the rear of the site, with 35 vehicle movements estimated during each peak period (nominal future commercial development).
7. An assessment of the external vehicle access to Murradoc Road has identified the following:
 - a) **Turn Treatments:** The proposed access warrants AUL(s) and CHR turn treatments under the Austroads GTM Part 6. The existing configuration of Murradoc Road incorporates a right turn treatment with the south kerbside lane subject to full time No Stopping restrictions. The proposed design incorporates a minor lengthening to the kerbside lane on the south side of the road and an AUL(s) treatment in accordance with the Austroads Guide to Road Design Part 4A.
 - b) **Design:** The proposed access incorporates a mountable central island to accommodate heavy vehicle access. The existing electricity pole in the vicinity of the proposed access is to be relocated as part of the proposed development. The proposal allows for all movements in and out of the site.

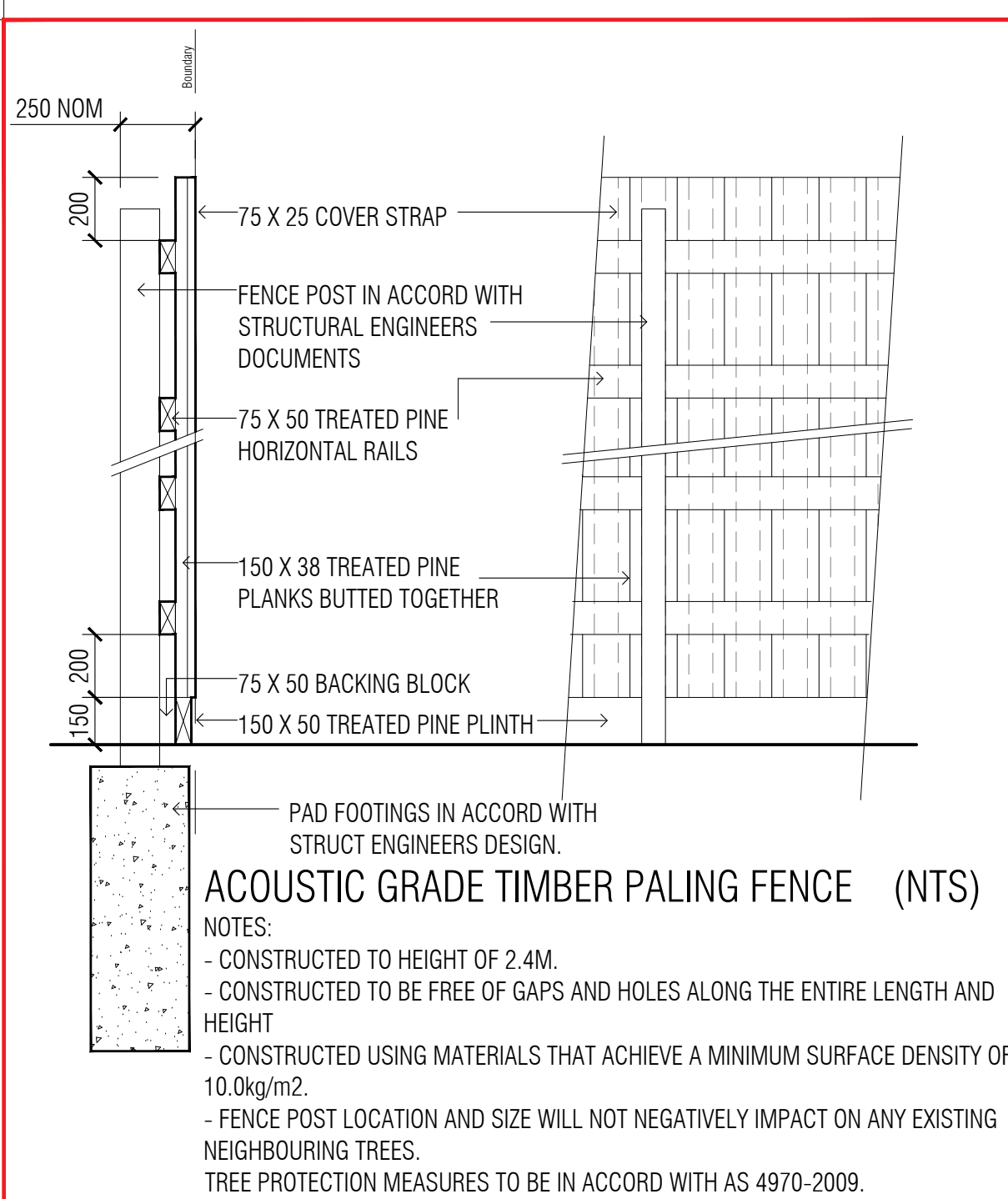
- c) **Capacity:** Modelling utilising SIDRA intersection indicates that the proposed vehicle access will operate under excellent conditions during both the AM and PM commuter peak periods.
- 8. Loading is expected to occur as follows:
 - a) Service Station: Fuel deliveries will occur via 19m semi-trailers with loading and waste collection likely to occur via 8.8m MRV vehicles. Swept path diagrams demonstrate access and circulation for these vehicles.
 - b) Potential Future Development (Rear of Site): The access to Murradoc Road accommodates 12.5m HRV vehicles, which will be sufficient for a wide range of future commercial developments.
- 9. The on-site layout allows for queue storage of up to 17 vehicles for the car wash and 30 vehicles for the fuel sales. Queueing for service station and car wash uses generally exhibit self-regulating queueing characteristics due to their discretionary nature. Customers are typically unwilling to wait in extended queues and will instead seek alternative facilities if delays are evident. Quantitative analysis of predicted queue storage has been undertaken utilising the methods outlined in the Austroads Guide to Traffic Management. This analysis predicts a 95th percentile queue length of 10.8 vehicles and a 98th percentile queue length of 14.4 vehicles. On this basis, the proposed queue storage of 30 vehicles at the fuel bowers, the proposed design can comfortably cater for the predicted queueing.

Having undertaken all tasks necessary to adequately assess the traffic engineering impacts of the Proposed Service Station Development at 75-81 Murradoc Road, Drysdale the proposed development is satisfactory.

There are no reasons why a permit for the proposed development should not be issued from a traffic engineering perspective, subject to appropriate conditions.

Appendix A

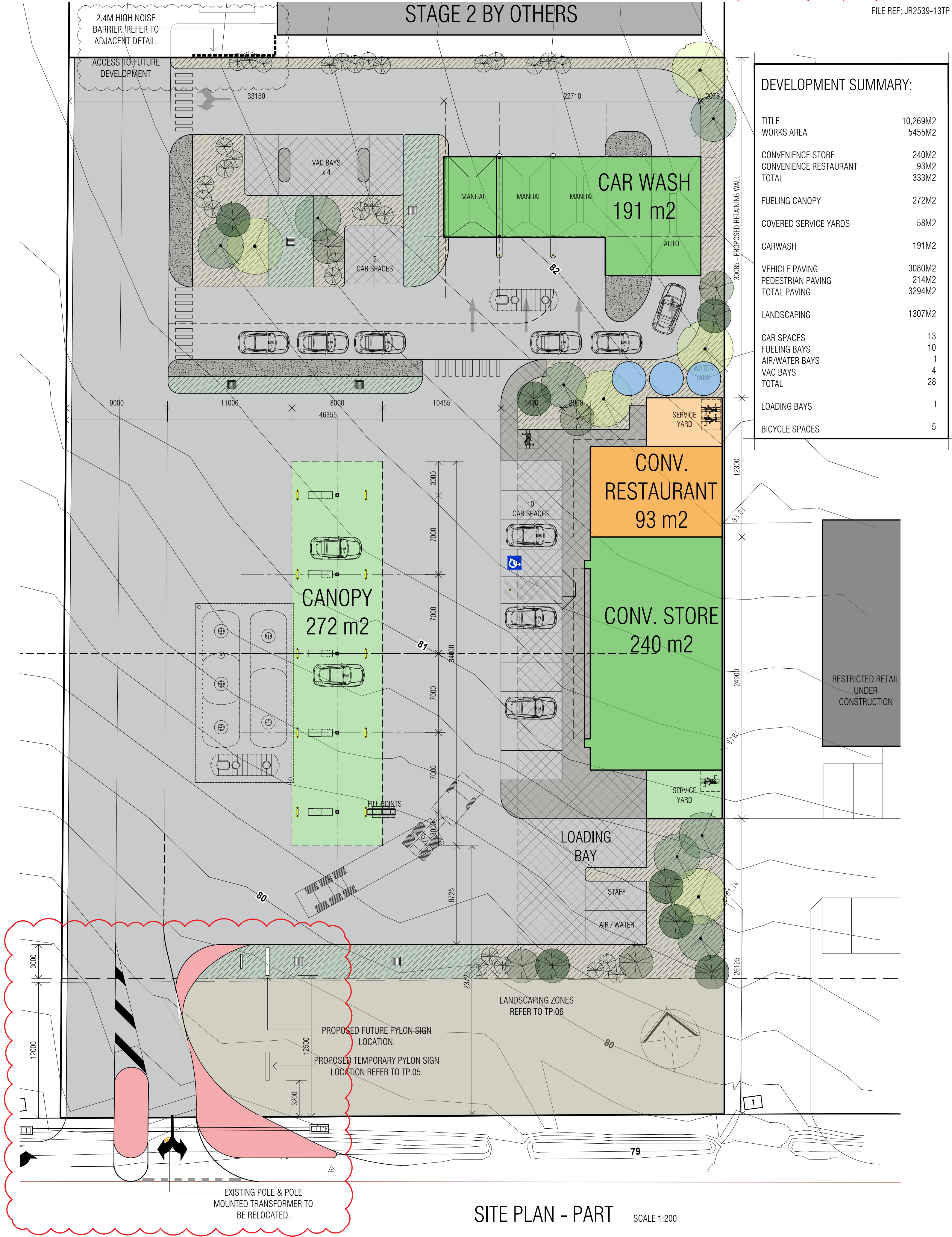
Development Plans



CONTEXT PLAN SCALE 1:750

PROPOSED MIXED USE DEVELOPMENT

75-81 MURRADOC ROAD, DRYSDALE 3222

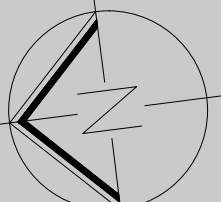


SITE PLAN - PART SCALE 1:200

J R DESIGN AUSTRALIA pty ltd

SITE & CONTEXT PLANS TP.01D 1:AS@A1 29.01.2026

REV D - UPDATED ACCESS DESIGN - 12.08.2026
REV C - PAVING TYPES & WINDOW AWNINGS INCL. - 29.07.2026
REV B - RESPONSE TO TOWN PLANNING RFI - 19.06.2026
REV A - ISSUED FOR TOWN PLANNING - 05.03.2026



75-81 MURRADOC ROAD, DRYSDALE 3222

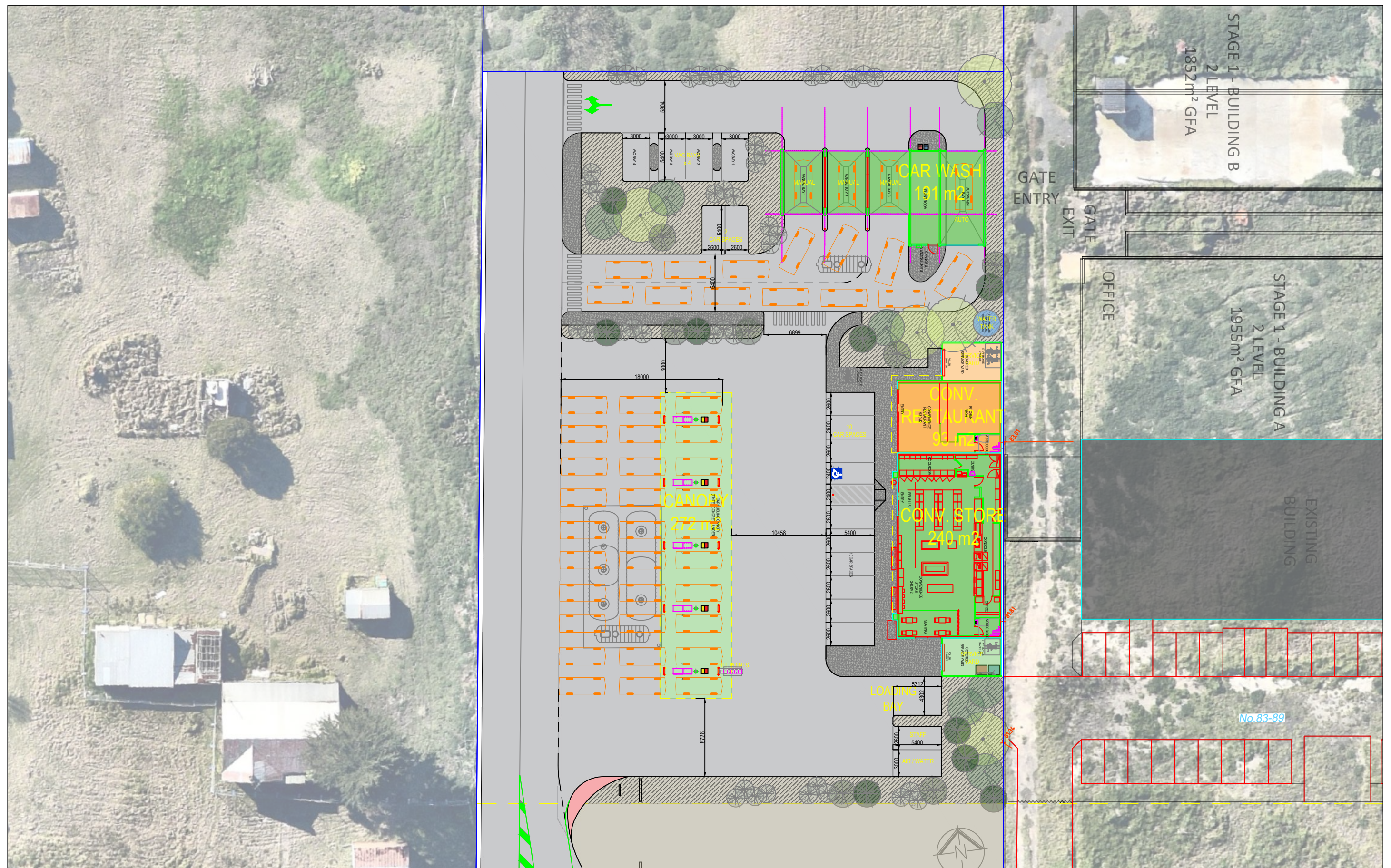
REV B - RESPONSE TO TOWN PLANNING RFI - 19.06.2026

FLOOR PLAN

29.01.2026

Appendix B

Dimensioned Layout Plan



Address: 75-81 Murradoc Road, Drysdale
Development Type: Commercial
Assessment: External Vehicle Access

NOTES:

- BASE INFORMATION FROM FEATURE SURVEY: SMITH LAND SURVEYORS 2024-0233
- MURRADOC ROAD - SPEED ZONE 60KM/H

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
C	04/03/26	UPDATED SERVICE STATION
D	04/05/26	WORKS ON SOUTH SIDE ADDED
E	16/06/26	ELECTRICITY POLE RELOCATED

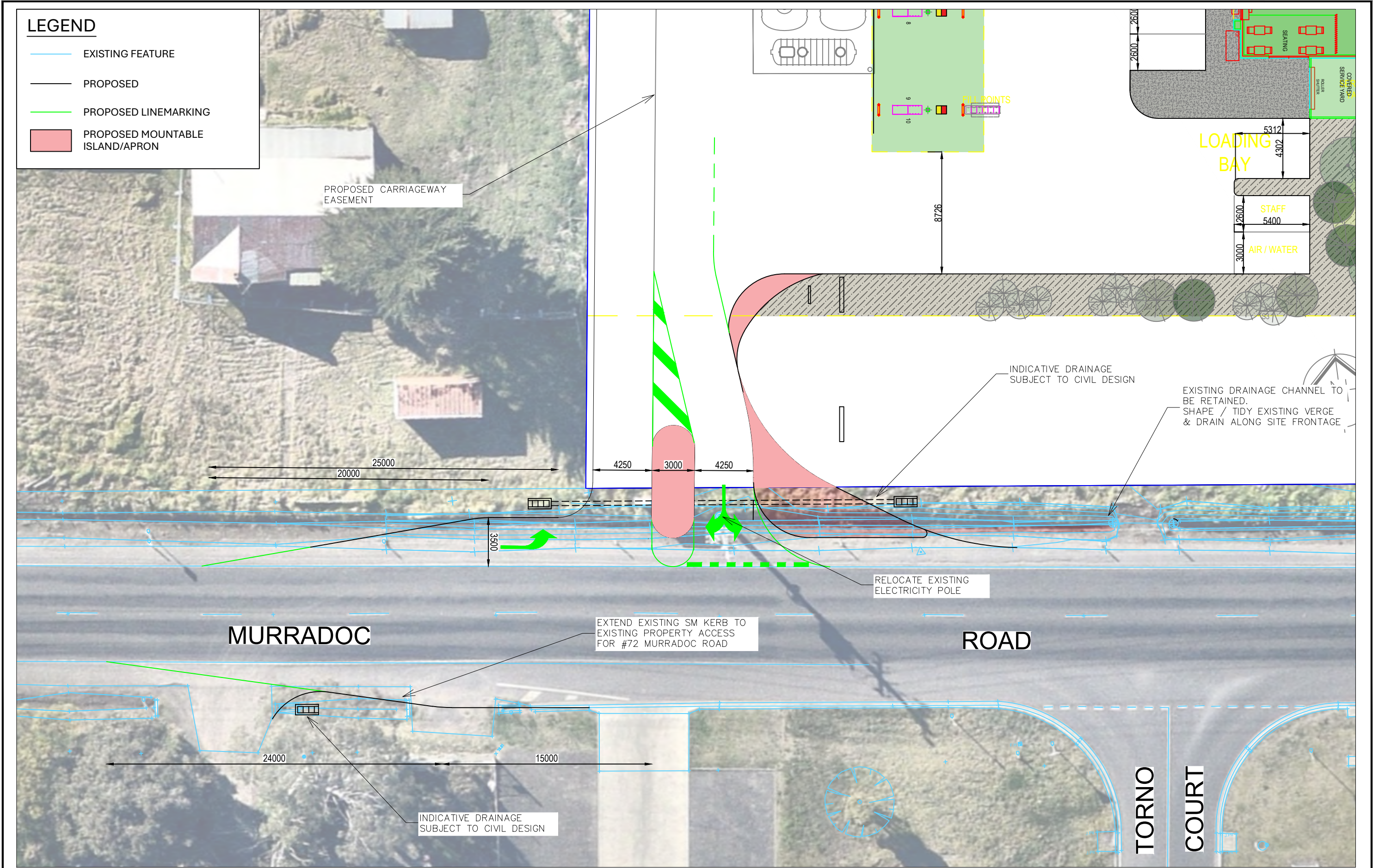
PROPOSED VEHICLE ACCEESS ARRANGEMENTS
79-81 MURRADOC ROAD, DRYSDALE
INTERNAL CAR PARKING DIMENSIONS

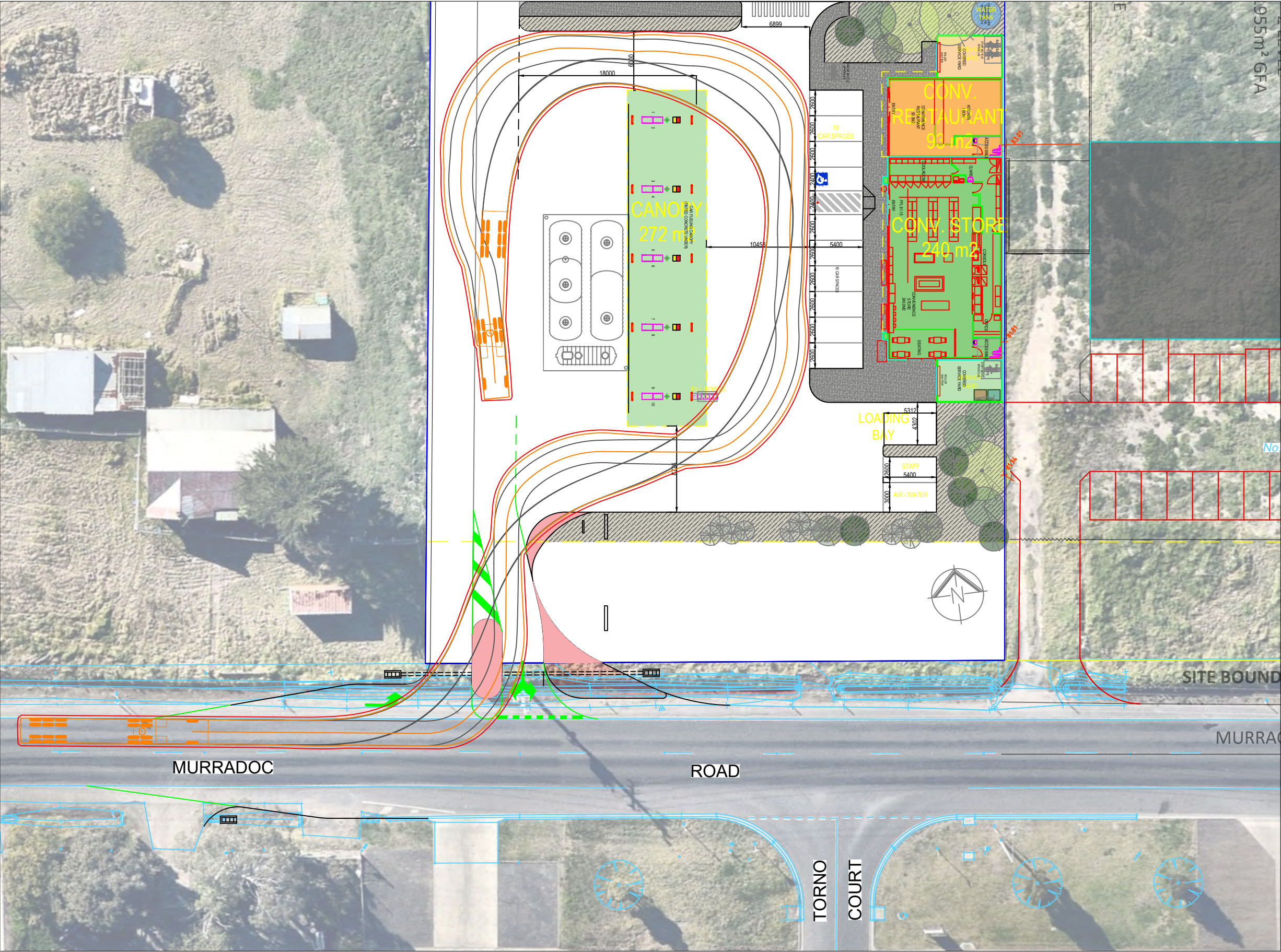


REFERENCE 25-0220-01	REVISION E	SHEET 8 of 8	SCALE 1:400 @ A3	0 2 4 6 8
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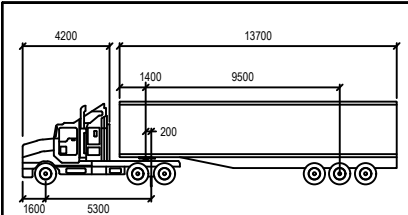
Appendix C

Murradoc Road Access – Concept Plan & Swept Paths





DESIGN VEHICLE USED
IN SIMULATION

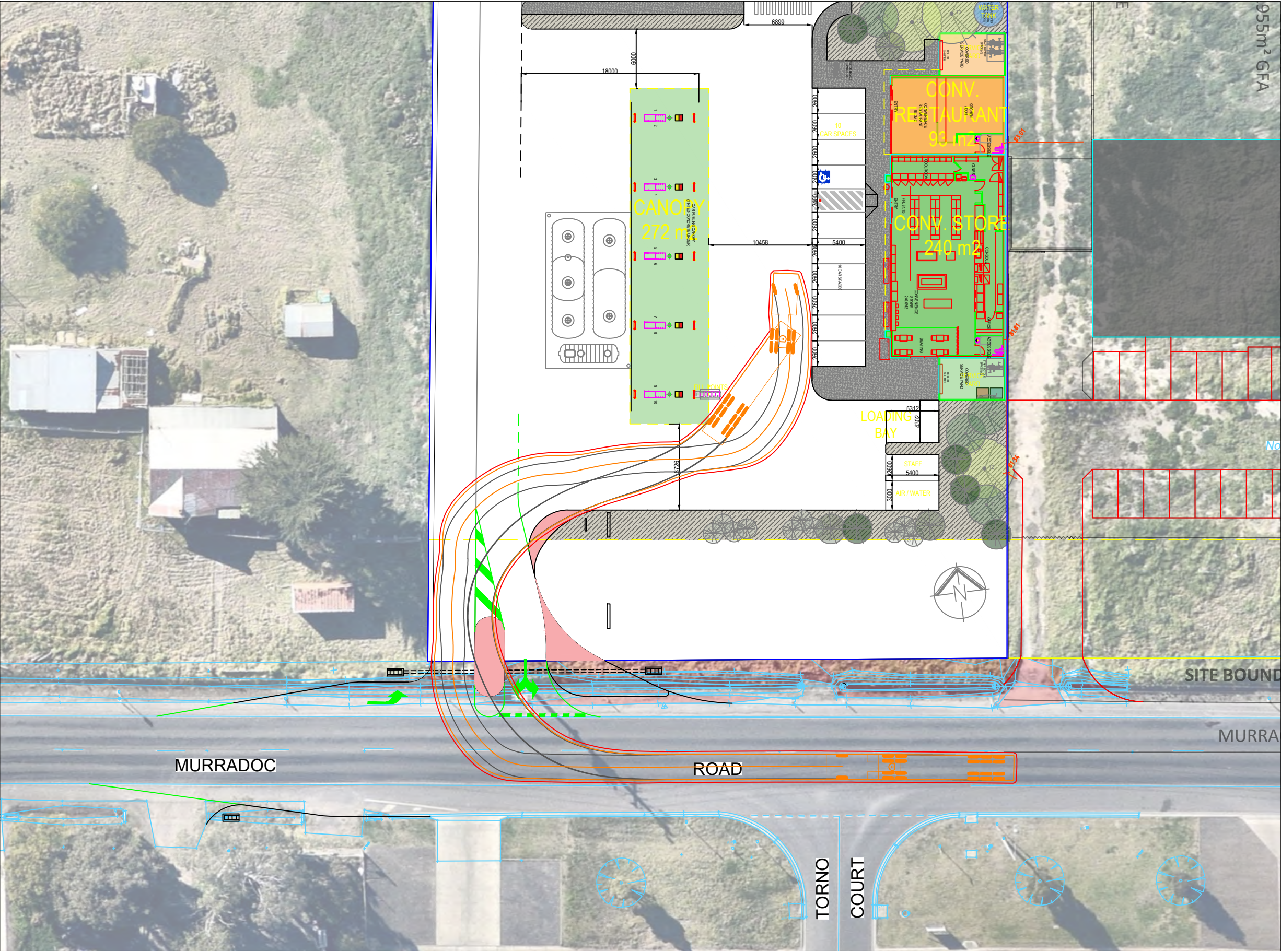


PM S 19M
mm
Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 27.8
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

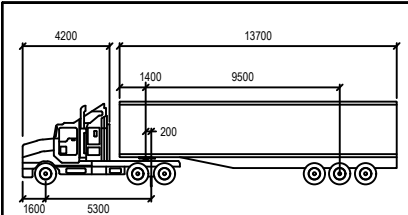
LEGEND

- Vehicle Body ———
- Wheel Tracks ———
- Clearance Lines (300mm) ———

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
C	04/03/26	UPDATED SERVICE STATION
D	04/05/26	WORKS ON SOUTH SIDE ADDED
E	16/06/26	ELECTRICITY POLE RELOCATED
F	04/08/26	SPLITTER ISLAND WIDENED



DESIGN VEHICLE USED
IN SIMULATION



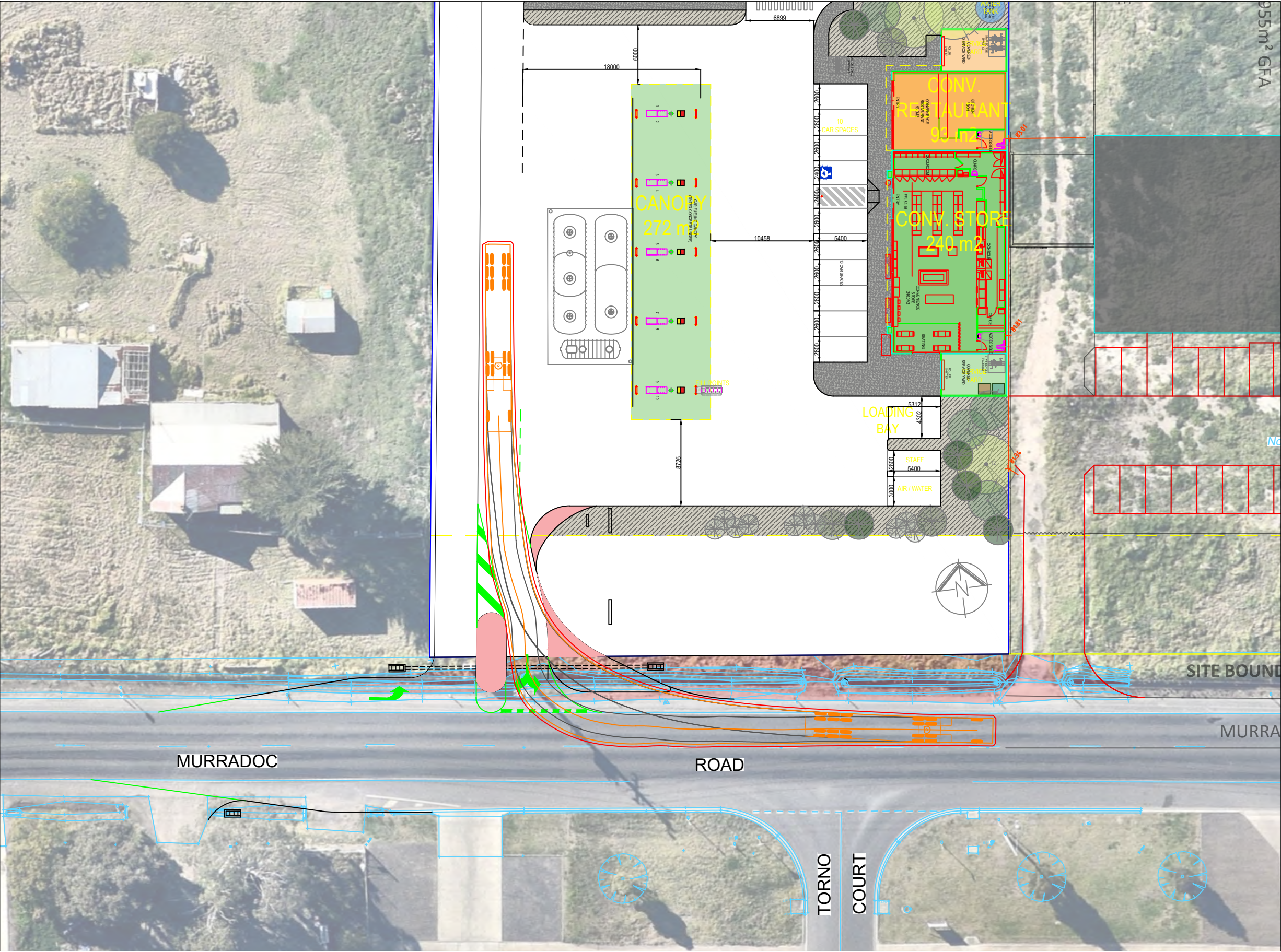
PM S 19M

Tractor Width : 2500	Lock to Lock Time : 6.0
Trailer Width : 2500	Steering Angle : 27.8
Tractor Track : 2500	Articulating Angle : 70.0
Trailer Track : 2500	

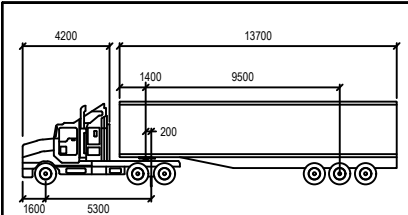
LEGEND

- Vehicle Body ————
- Wheel Tracks ————
- Clearance Lines (300mm) ————

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
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E	16/06/26	ELECTRICITY POLE RELOCATED
F	04/08/26	SPLITTER ISLAND WIDENED



DESIGN VEHICLE USED
IN SIMULATION

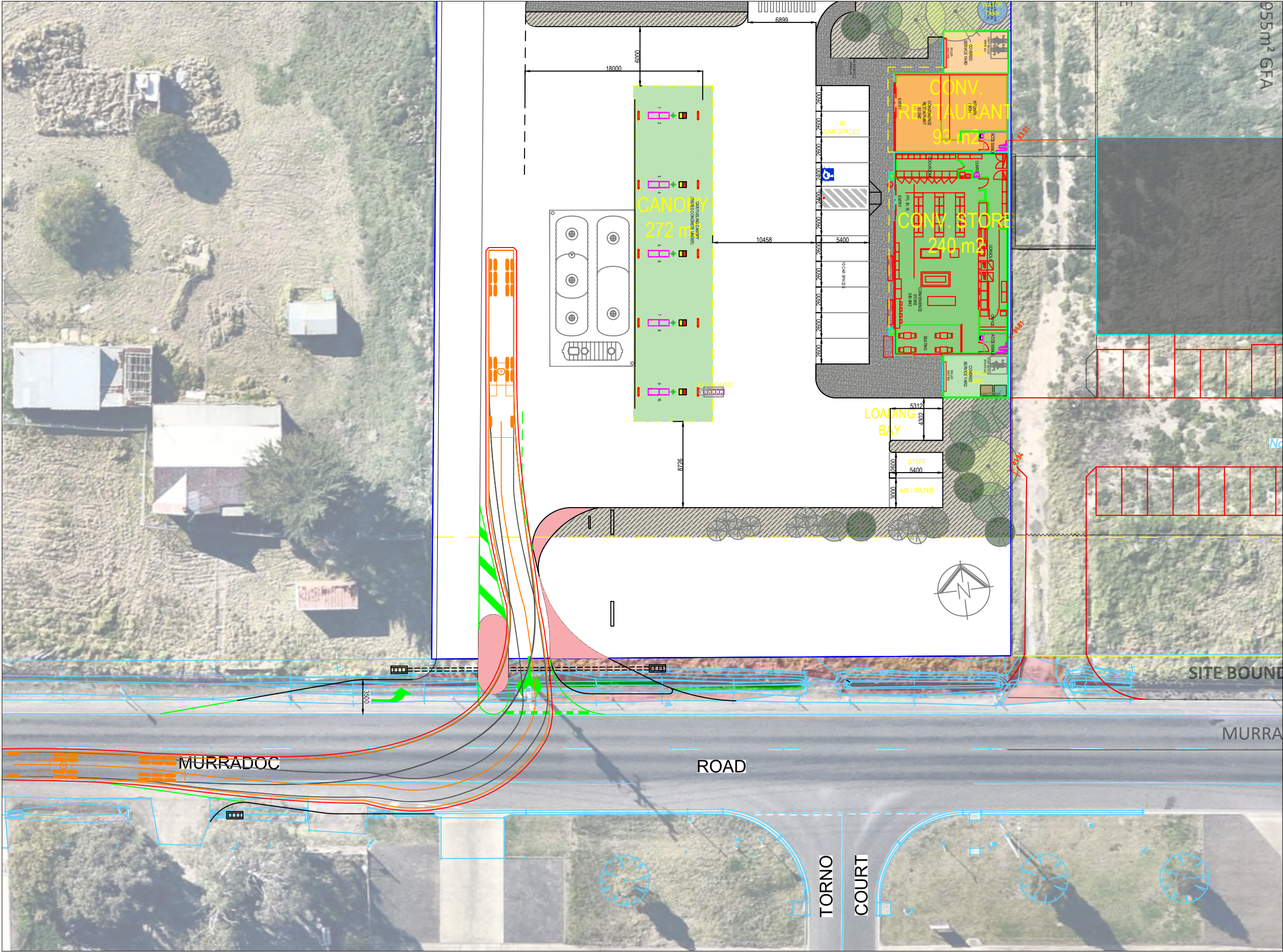


PM S 19M
mm
Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 27.8
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

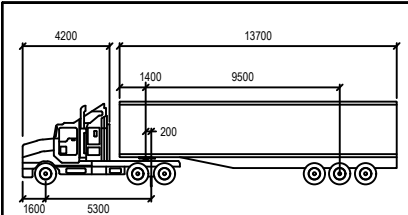
LEGEND

- Vehicle Body ————
Wheel Tracks ————
Clearance Lines (300mm) ————

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
C	04/03/26	UPDATED SERVICE STATION
D	04/05/26	WORKS ON SOUTH SIDE ADDED
E	16/06/26	ELECTRICITY POLE RELOCATED
F	04/08/26	SPLITTER ISLAND WIDENED



DESIGN VEHICLE USED
IN SIMULATION

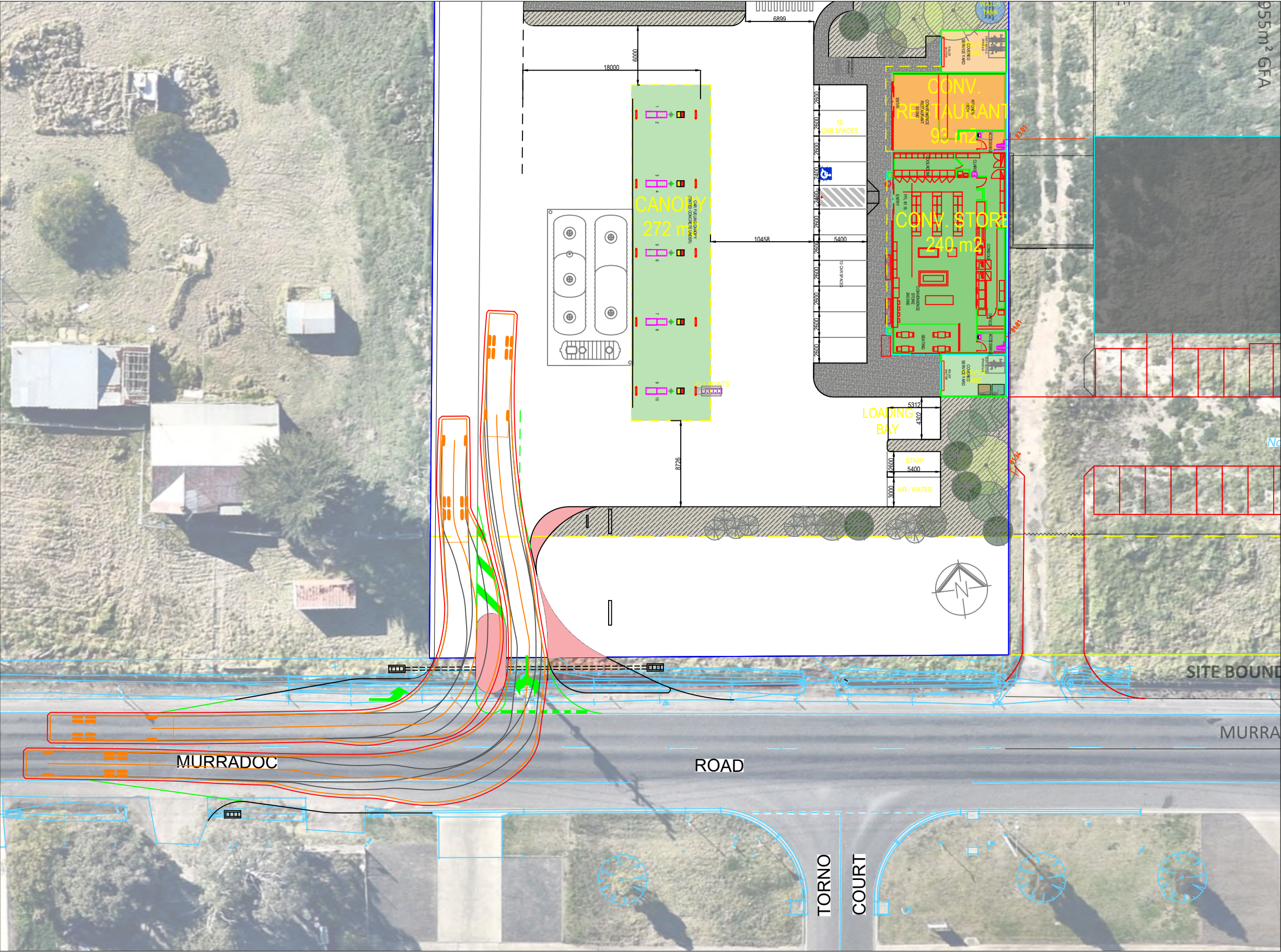


PM S 19M
mm
Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 27.8
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

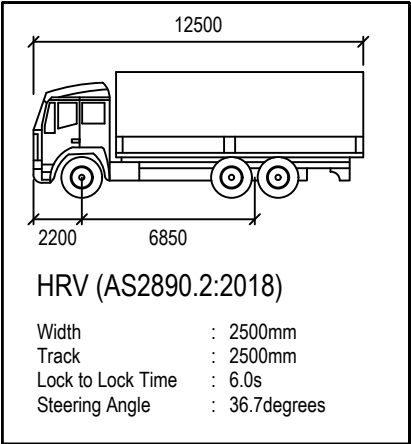
LEGEND

- Vehicle Body ———
- Wheel Tracks ———
- Clearance Lines (300mm) ———

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
C	04/03/26	UPDATED SERVICE STATION
D	04/05/26	WORKS ON SOUTH SIDE ADDED
E	16/06/26	ELECTRICITY POLE RELOCATED
F	04/08/26	SPLITTER ISLAND WIDENED



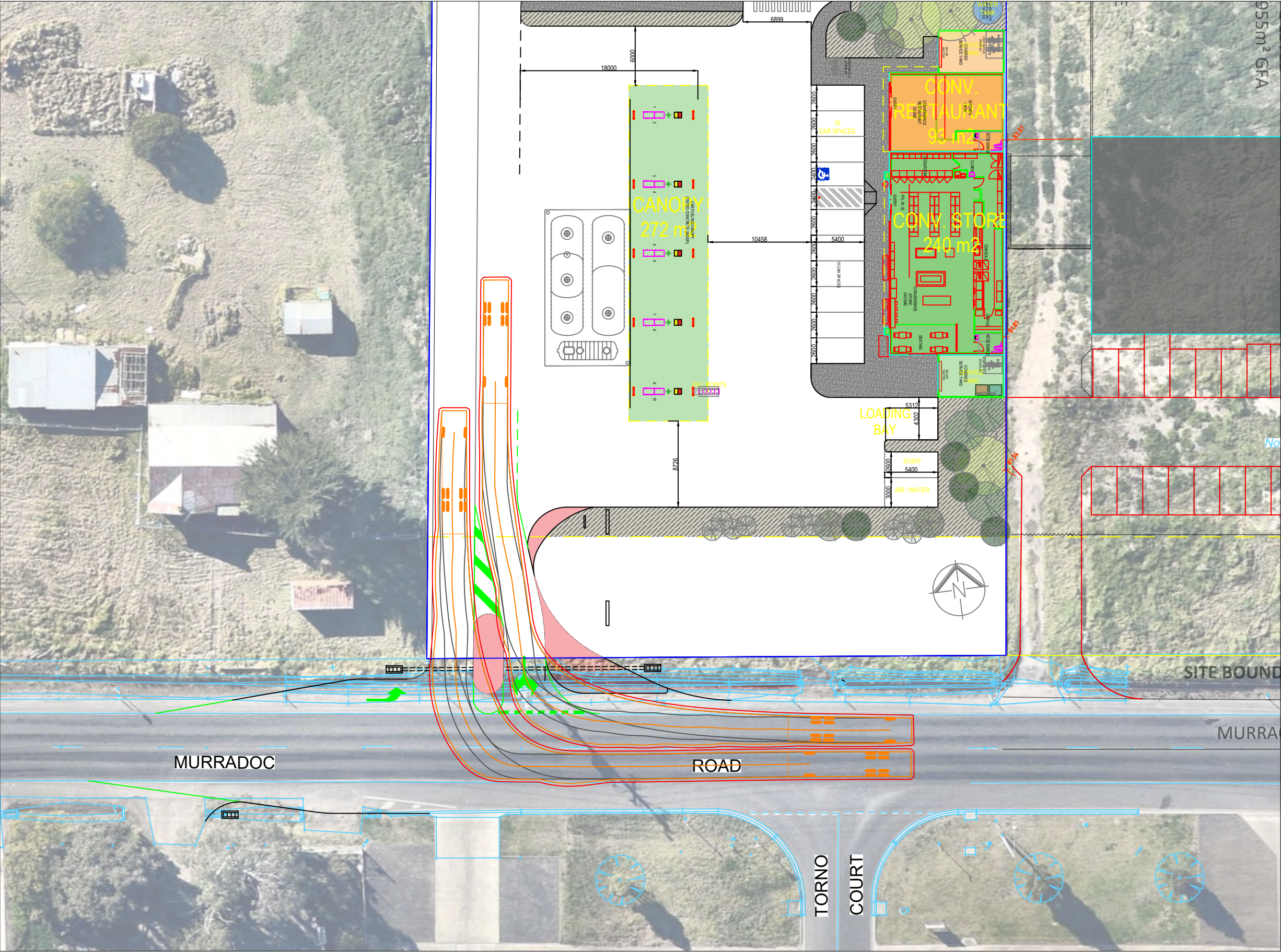
DESIGN VEHICLE USED
IN SIMULATION



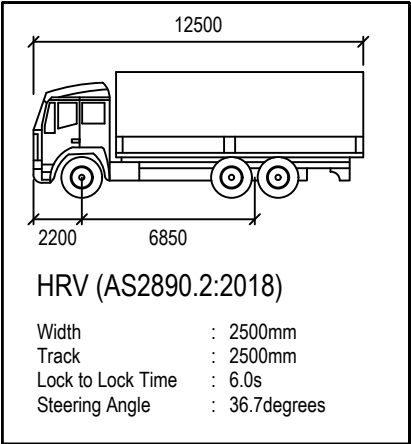
LEGEND

- Vehicle Body (orange line)
- Wheel Tracks (black line)
- Clearance Lines (300mm) (red line)

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
C	04/03/26	UPDATED SERVICE STATION
D	04/05/26	WORKS ON SOUTH SIDE ADDED
E	16/06/26	ELECTRICITY POLE RELOCATED
F	04/08/26	SPLITTER ISLAND WIDENED



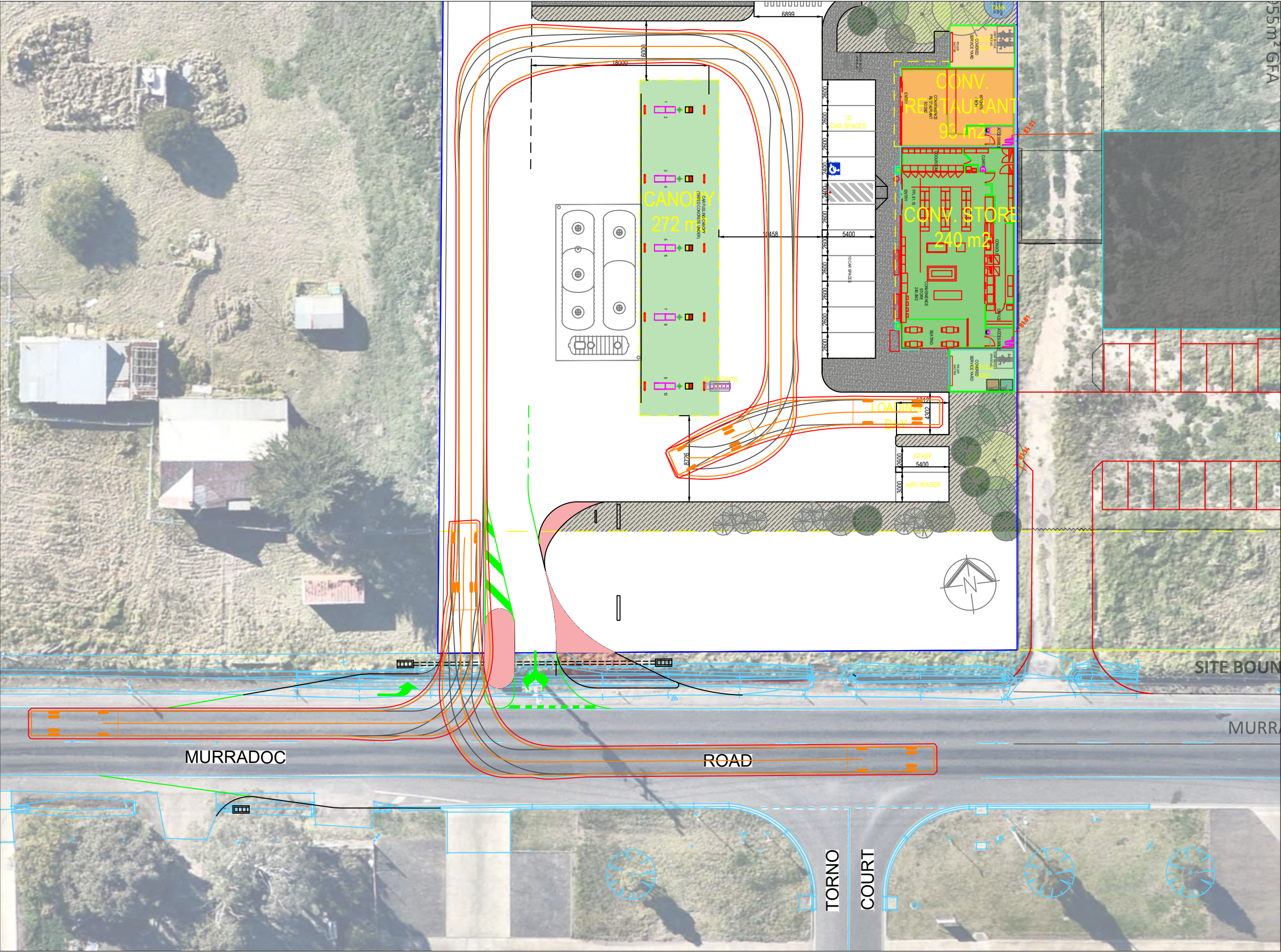
DESIGN VEHICLE USED
IN SIMULATION



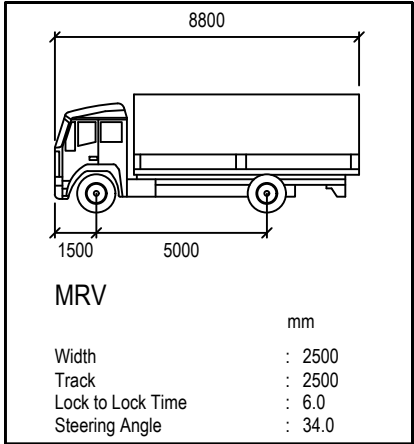
LEGEND

- Vehicle Body
- Wheel Tracks
- Clearance Lines (300mm)

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
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D	04/05/26	WORKS ON SOUTH SIDE ADDED
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F	04/08/26	SPLITTER ISLAND WIDENED



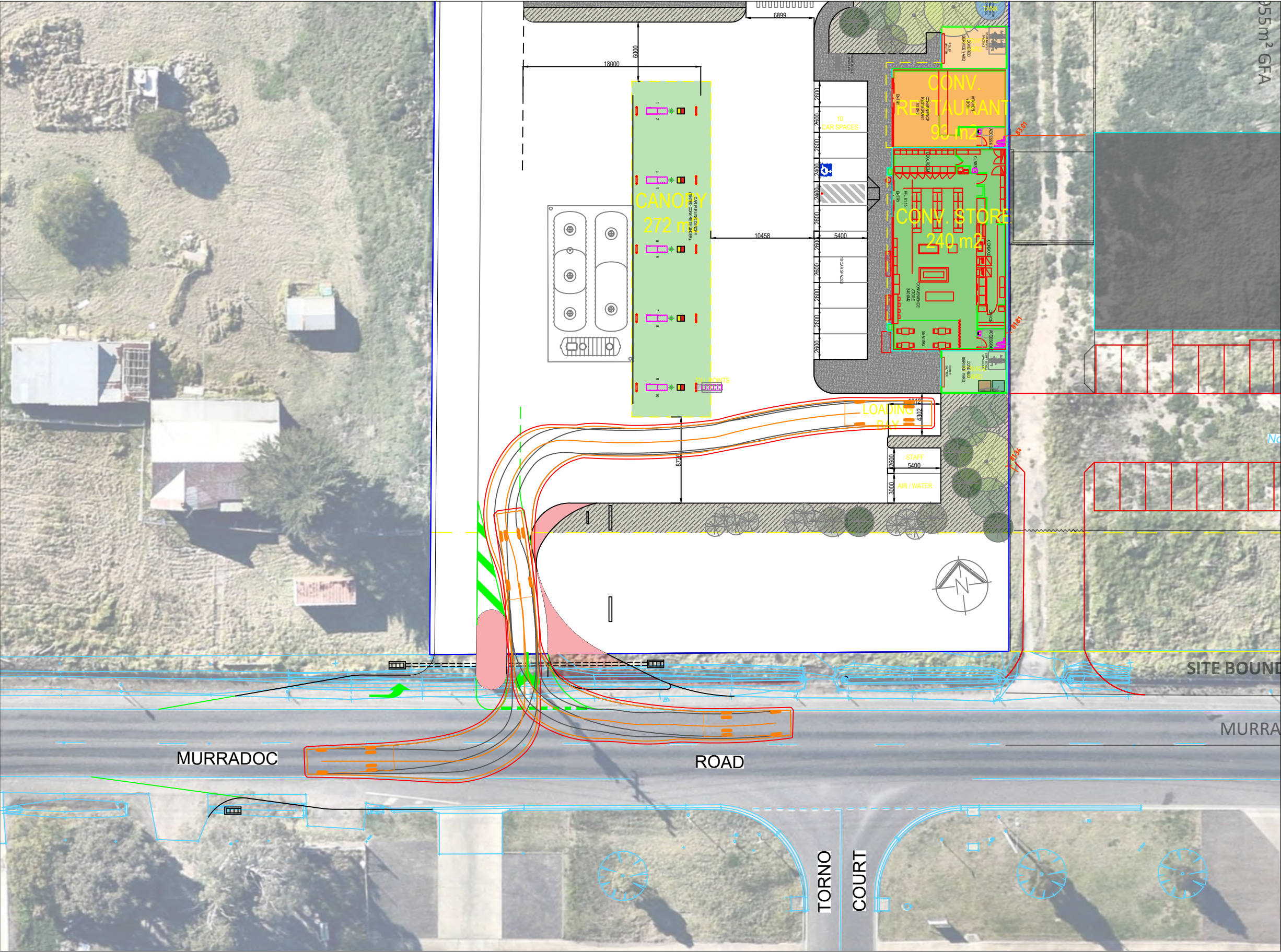
DESIGN VEHICLE USED
IN SIMULATION



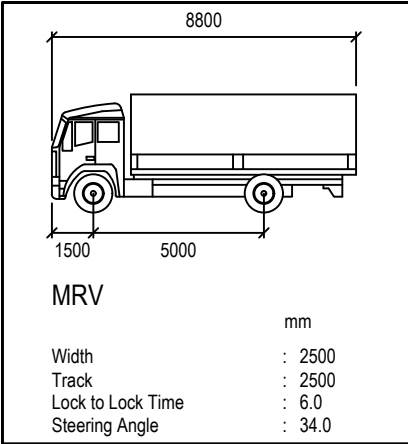
LEGEND

- Vehicle Body (Orange line)
- Wheel Tracks (Black line)
- Clearance Lines (300mm) (Red line)

REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
B	10/12/25	UPDATED SERVICE STATION
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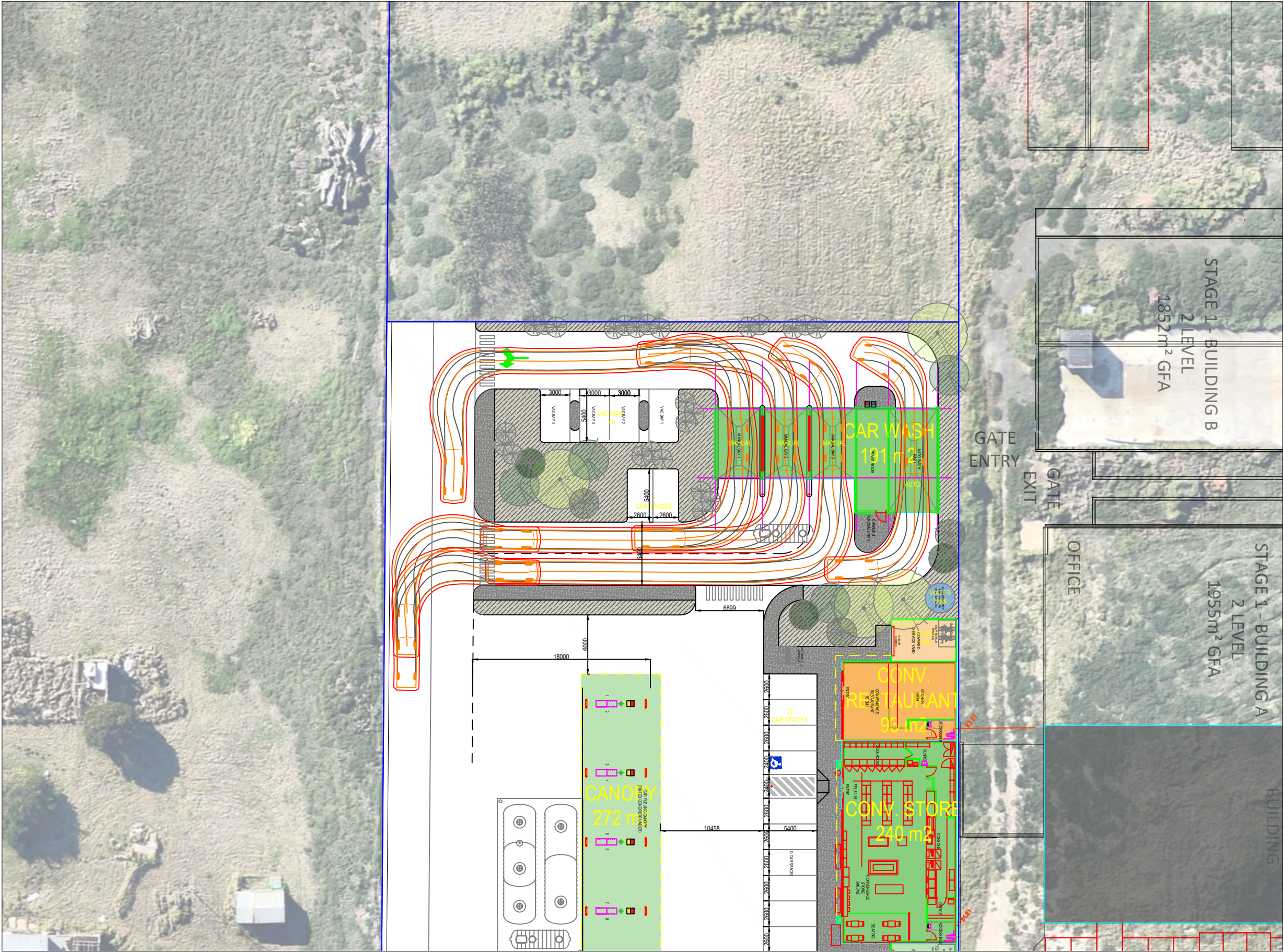


DESIGN VEHICLE USED
IN SIMULATION

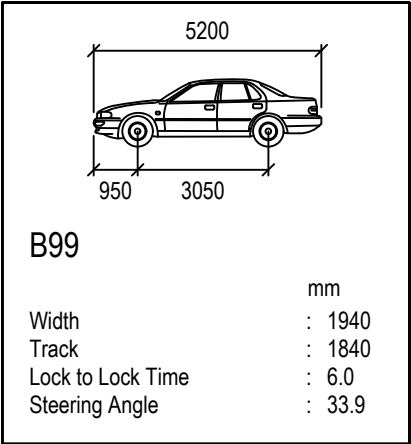


LEGEND

- Vehicle Body ————
- Wheel Tracks ————
- Clearance Lines (300mm) ————



DESIGN VEHICLE USED
IN SIMULATION



LEGEND



REVISION	DATE	DESCRIPTION
A	20/08/25	DRAFT FOR DISCUSSION
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Appendix D

SIDRA Modelling Outputs

SITE LAYOUT

▽ Site: [1] AM Peak (Folder1)

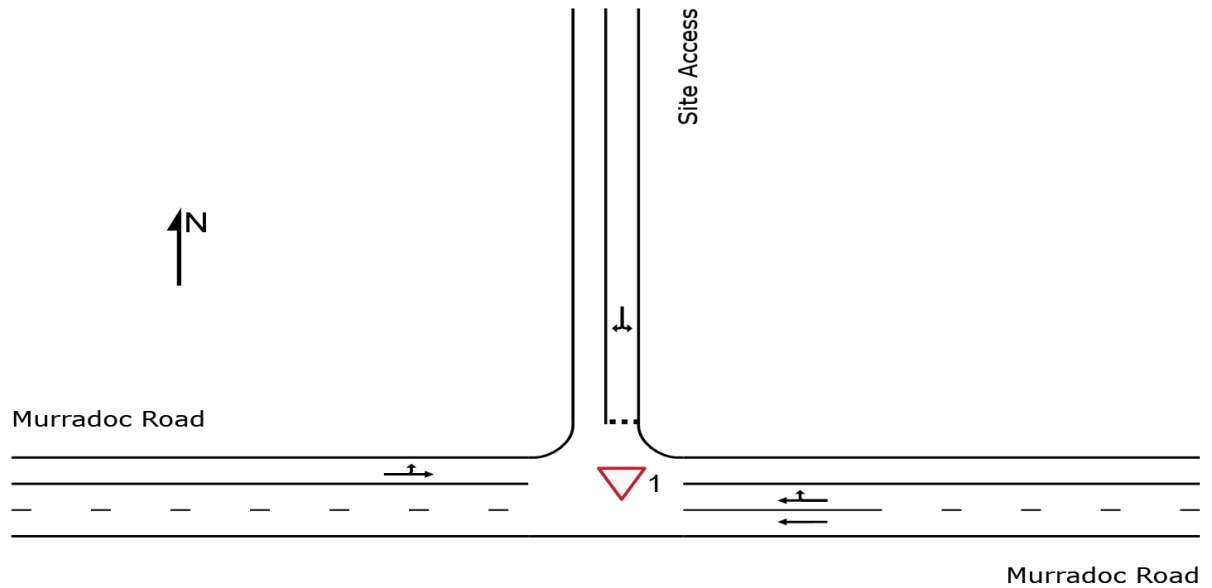
New Site

Site Category: (None)

Give-Way (Two-Way)

Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

 **Site: [1] AM Peak (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Give-Way (Two-Way)

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
East: Murradoc Road															
5	T1	All MCs	477	5.0	477	5.0	0.157	0.4	LOS A	0.6	4.1	0.12	0.14	0.12	58.9
6	R2	All MCs	59	5.0	59	5.0	0.157	8.2	LOS A	0.6	4.1	0.30	0.37	0.30	54.5
Approach			536	5.0	536	5.0	0.157	1.3	NA	0.6	4.1	0.14	0.17	0.14	58.4
North: Site Access															
7	L2	All MCs	58	5.0	58	5.0	0.291	8.7	LOS A	1.2	8.4	0.71	0.92	0.85	46.2
9	R2	All MCs	58	5.0	58	5.0	0.291	21.8	LOS C	1.2	8.4	0.71	0.92	0.85	46.0
Approach			116	5.0	116	5.0	0.291	15.3	LOS C	1.2	8.4	0.71	0.92	0.85	46.1
West: Murradoc Road															
10	L2	All MCs	59	5.0	59	5.0	0.289	5.7	LOS A	0.0	0.0	0.00	0.06	0.00	56.6
11	T1	All MCs	484	5.0	484	5.0	0.289	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.2
Approach			543	5.0	543	5.0	0.289	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.9
All Vehicles			1195	5.0	1195	5.0	0.291	2.4	NA	1.2	8.4	0.13	0.19	0.14	57.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: Z:\QUANTUM TRAFFIC\6-PROJECTS\ACTIVE\2025\Murradoc Road (75-81), Drysdale (25-0220)\SIDRA.sipx

MOVEMENT SUMMARY

 Site: [1 (2)] PM Peak (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Give-Way (Two-Way)

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				km/h
East: Murradoc Road															
5	T1	All MCs	479	5.0	479	5.0	0.156	0.4	LOS A	0.6	4.0	0.11	0.14	0.11	58.9
6	R2	All MCs	57	5.0	57	5.0	0.156	8.2	LOS A	0.6	4.0	0.29	0.36	0.29	54.6
Approach			536	5.0	536	5.0	0.156	1.2	NA	0.6	4.0	0.13	0.16	0.13	58.4
North: Site Access															
7	L2	All MCs	58	5.0	58	5.0	0.292	8.8	LOS A	1.2	8.5	0.71	0.93	0.85	46.2
9	R2	All MCs	58	5.0	58	5.0	0.292	21.9	LOS C	1.2	8.5	0.71	0.93	0.85	46.0
Approach			116	5.0	116	5.0	0.292	15.3	LOS C	1.2	8.5	0.71	0.93	0.85	46.1
West: Murradoc Road															
10	L2	All MCs	57	5.0	57	5.0	0.289	5.7	LOS A	0.0	0.0	0.00	0.06	0.00	56.6
11	T1	All MCs	486	5.0	486	5.0	0.289	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.3
Approach			543	5.0	543	5.0	0.289	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.0
All Vehicles			1195	5.0	1195	5.0	0.292	2.3	NA	1.2	8.5	0.13	0.19	0.14	57.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

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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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