TRAFFIC IMPACT ASSESSMENT

PROPOSED SERVICE STATION

140 HIGH STREET, MANSFIELD

20 NOVEMBER 2025

140 HIGH STREET, MANSFIELD

CLIENT: Gianginis Investments Pty Ltd

OBT JOB NUMBER: 28449

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VERSION	DATE	ISSUE	PREPARED BY	REVIEWED BY
21064Report	22 January 2021	Final	Philip Roper	Terry Hardingham
28449Rep	27 October 2025	Final	Matthew Lam Philip Roper	Emma Donnelly
28449Rep2	20 November 2025	Final	Matthew Lam Philip Roper	Matt Harridge

CONTENTS

1 INTRODUCTION

O'Brien Traffic has been engaged by DCA Design to undertake a traffic impact assessment of proposed amendments to the previously approved service station use located at 140 High Street, Mansfield.

In the course of preparing this report:

- Plans prepared by DCA Design dated August 2025 have been examined (See Appendix A)
- The previous traffic impact report prepared by OBT dated 22 January 2021 has been reviewed
- Truck swept paths and access arrangements have been analysed
- The traffic and parking implications of the amended proposal have been assessed.

2 APPROVED LAND USE

A service station comprising a convenience store of 318 m^2 and nine fuel pumps (eight for cars and one for trucks) has been approved for the subject site. The approved development includes a total of 13 parking spaces including two accessible spaces and two electric vehicle charging spaces. Vehicle access is provided via two crossovers to High Street – one 'Entry Only' at the eastern boundary and one 'Exit Only' towards the western side of the site.

The approved proposal will cater for customer vehicles including B-double trucks up to 26m long.

As part of the development, a channelised right-turn lane will be constructed along High Street with a length of approximately 50 m to facilitate access into the site.

3 THE AMENDED PROPOSAL

It is now proposed to amend the approved development to include an additional building containing a shop of 140 m^2 and a drive-thru car wash of 44 m^2 near the southern boundary of the site.

The amended development will provide 6 additional car parking spaces in front of the new proposed retail building, resulting in a total of 19 spaces including 3 accessible spaces within the site. The following modifications to the approved layout are made to accommodate the proposed development:

- a reduction in the number of fuel pumps from nine to six, including removal of the dedicated truck fuel pump
- an additional loading bay (9.2 m x 4 m) adjacent to car space 13
- reconfiguration of the site elements including the bin area, loading bay and the parking layout, to accommodate the new retail building.

4 LOCATION

The subject site is located on the south side of Main Street (Maroondah Highway), approximately 50 m west of Station Street and a short distance west of the Mansfield town centre. A recent aerial photograph is shown in **Figure 1**.

FIGURE 1: AERIAL PHOTO OF SUBJECT SITE

The site, which is zoned Commercial 1, is square in shape with a frontage of 60.5 m to High, comprising an area of approximately 3,950 m^2. The site is currently vacant.

5 CAR PARKING

5.1 PLANNING SCHEME CAR PARKING REQUIREMENT

Parking policy and requirements applicable to the proposed development are specified in Clause 52.06 of the Planning Scheme.

The purpose of Clause 52.06 is:

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

- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

A Service Station is not a specified land use in Table 1 of Clause 52.06-5, in which case the supply of parking must be to the satisfaction of the responsible authority. Neither is there a parking requirement specified in Clause 52.12 (Service Station).

A Car Wash is a nested land use under '*Industry*' as defined in Clause 73.04 of the Planning Scheme. The Planning Scheme parking requirements for the proposed Shop and Car Wash components are summarised in **Table 1**.

USE	SIZE	PLANNING SCHEME PARKING RATE	CAR PARKING REQUIREMENT
Shop	140 m^2	4 to each 100 m^2 of leasable floor area	5
Industry other than listed in this table (car wash)	44 m^2	2.9 to each 100 m^2 of net floor area	1
		TOTAL	**6 SPACES**

TABLE 1: PLANNING SCHEME CAR PARKING REQUIREMENT

On this basis, the proposed car wash and retail building has a Planning Scheme car parking requirement of 6 spaces, in addition to the requirement to provide car parking for the service station use to the satisfaction of the Responsible Authority.

The six parking spaces, including one accessible space, proposed in front of the new retail building comply with the Planning Scheme requirements.

Justification for the proposed supply of car parking for the proposed service station is provided as follows.

5.2 ADEQUACY OF CAR PARKING SUPPLY

Whilst not strictly applicable, Clause 52.06-5 Table 1 indicates that the parking requirement for a Convenience Shop (floor area greater than 80 m^2) is 10 car spaces. For service stations that only have a small shop component, typically one or two car parking spaces are provided for staff as virtually all customers will be parking at the fuel pumps.

It is submitted that for a Service Station such as the amended proposal, that the provision of 13 spaces will be more than adequate to cater for peak parking demands.

6 CAR PARK LAYOUT

Vehicle access is proposed via two previously approved 7.5-metre crossovers to High Street (one 'Entry Only' at the eastern boundary and one 'Exit Only' towards the western side of the site). A passing area of at least 6.1 m width and 7 m length is

provided at the site's entrance, complying with Design Standard 1 of Clause 52.09-9 of the Planning Scheme.

The proposed car parking spaces have minimum dimensions of 4.9 m x 2.6 m in accordance with Clause 52.06 of the Planning Scheme.

The dimensions of the accessible car spaces comply with both Clause 52.06 and AS/NZS 2890.6:2022, with 2.4 m of width between them for the required 'Shared Area' (which also provides pedestrian access into the convenience shop).

Behind each fuel pump there is queuing space for at least one car without blocking the entryway along the eastern side of the site, and additional cars can queue in the entryway if needed. However, it is envisaged this will rarely occur.

7 BICYCLE FACILITIES

Bicycle parking requirements for new developments are specified in Clause 52.34 of the Planning Scheme. However, a Service Station is not a listed use in Table 1 to Clause 52.34-3 and hence there is no Planning Scheme requirement for bicycle facilities.

The applicable bicycle parking requirements for the proposed Shop and Car Wash components are summarised in Table 2.

USE	SIZE	PLANNING SCHEME BICYCLE PARKING RATE		BICYCLE PARKING REQUIREMENT	
		EMPLOYEE / RESIDENT	CUSTOMER / VISITOR	EMPLOYEE / RESIDENT	CUSTOMER / VISITOR
Shop	140 m^2	1 to each 600 m^2 of leasable floor area if the leasable floor area exceeds 1000 m^2	1 to each 500 m^2 of leasable floor area if the leasable floor area exceeds 1000 m^2	0 spaces	0 spaces
Service Industry (Car Wash)	44 m^2	1 to each 800 m^2 of net floor area	None	0 spaces	0 spaces
			TOTAL	0 SPACES	0 SPACES

TABLE 2: PLANNING SCHEME BICYCLE PARKING REQUIREMENT

On this basis, the proposed shop and car wash also do not trigger any statutory bicycle parking requirement under Clause 52.34 of the Planning Scheme.

8 LOADING

Clause 65.01 of the Planning Scheme states that before deciding on an application, the authority responsible must consider the adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.

Fuel delivery vehicles are anticipated to arrive during the day and park along the eastern side of the site, clear of the vehicle access. It is anticipated that most fuel delivery vehicles will be either semi-trailers up to 20 m long, or B-doubles up to 19 m long. Swept path analysis undertaken using AutoTURN demonstrates that B-doubles up to 26 m long can satisfactorily access the site. Accordingly, the site should accommodate any expected fuel delivery vehicles. Swept path diagrams are shown in **Appendix B**.

Delivery vehicles for the shop will be able to utilise the loading bay for waste and service vehicles near the southern end of the building. There is sufficient space for vans and small-to-medium sized trucks to reverse into this area.

In relation to the car wash, deliveries and waste collection requirements are expected to be minor. Deliveries (potentially of cleaning products) are expected to occur by vehicles no larger than a small rigid truck (most likely vans). Private waste collection vehicles will be able to park in the loading bay at the western end of the proposed retail shop building.

9 TRAFFIC GENERATION, DISTRIBUTION & IMPACT

9.1 TRAFFIC GENERATION

Service Station

Peak traffic generation at fuel stations typically occurs during the afternoon on weekdays and weekends, with other periods being significantly quieter in comparison.

Surveys undertaken by traffic engineers at *Cardno*, of Service Stations in Dromana (Caltex), Drysdale and Ballarat (both Woolworths Petrol) found peak hour traffic generation of 75, 67 and 112 trips respectively (total including trips to/from each site).

A survey by O'Brien Traffic in 2012 at a BP Service Station in Tooradin found a peak of 53 hourly vehicle trips (noting this was during the morning peak commuter period in the Melbourne-bound direction).

For the proposed Service Station, an absolute peak of 120 hourly vehicle trips has been conservatively adopted.

Retail Building & Car Wash

The exact end users of the proposed retail building are currently unknown; however, it is anticipated that the premises would accommodate either a shop or a take-away food premises, operating in conjunction with the proposed drive-thru car wash.

The Transport for NSW (TfNSW) Guide to Transport Impact Assessment (Version 1.1) suggests traffic generation rates for a range of land uses, including car washes with on-site café areas. Surveys undertaken in 2019 across 15 car wash sites with associated cafés recorded peak hour traffic generation rates of approximately 2–3 vehicle trips per 100 m^2 of site area. Despite the surveyed car wash and café sites differing slightly from the current proposal, this dataset is considered appropriate for this assessment as both involve short-stay, customer-serving activities that generate similar levels and patterns of vehicle trips.

Applying this rate to the subject site area of approximately 3,867 m^2 would equate to approximately 80–120 vehicle trips per peak hour.

The TfNSW surveys represent standalone car wash and café sites, whereas the subject site will operate as a combined service station, car wash, and retail development. To account for this integrated operation, a reduction factor of 0.5 would be applied to the above estimate. On this basis, the combined car wash and retail building are expected to generate approximately 40–60 vehicle trips per peak hour (around 20–30 inbound and 20–30 outbound).

Further to this, it is anticipated that around 50% of these trips will be shared with the service station as many customers are likely to refuel while also visiting the retail building or car wash. The addition in external vehicle trips attributable solely to the car wash and retail component is therefore expected to be no more than 30 vehicle trips during the peak hour (i.e. 15 inbound and 15 outbound).

Overall Traffic Generation

Based on the above, and conservatively assuming that peak hour traffic generation from both uses occurs concurrently, the combined peak hour traffic generation could be up to 150 vehicle trips (up to 75 trips into and 75 out of the site).

9.2 TRAFFIC DISTRIBUTION

The likely distribution of vehicle movements entering and exiting the proposed development, based on the existing development in the locality, the surrounding road network and existing traffic patterns would be as follows:

- 75% of trips to/from the east
- 25% of trips to/from the west

Adopting a 50/50 hourly split between entry and exit movements, the anticipated peak hour traffic distribution is as shown in **Figure 2**.

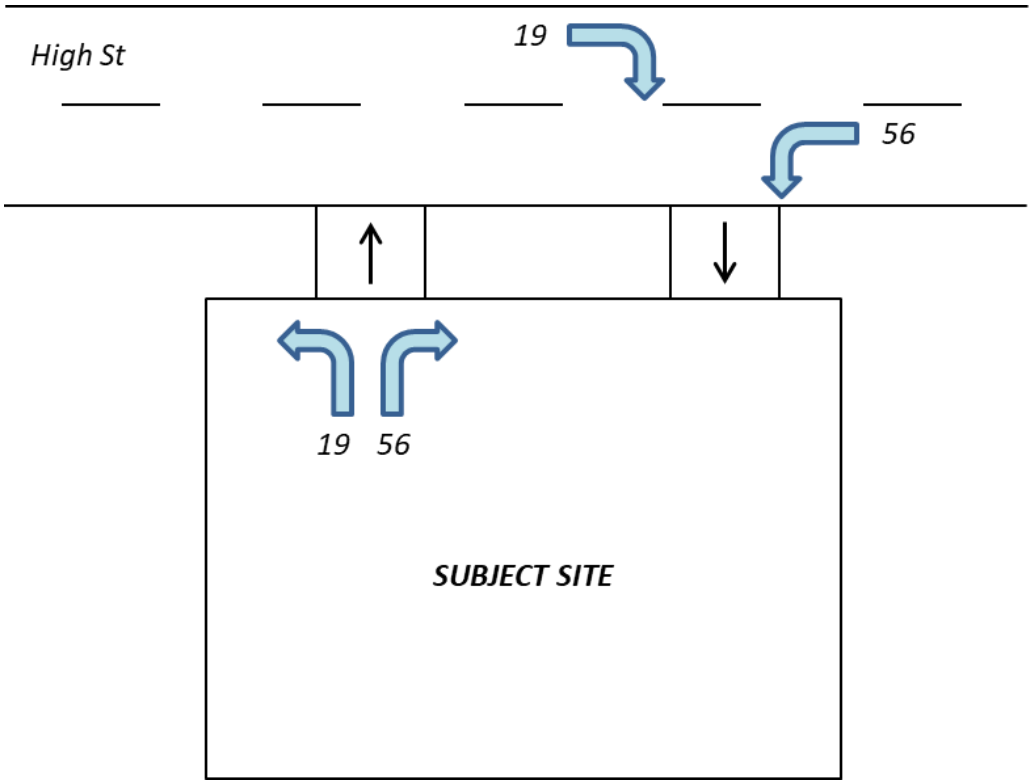


FIGURE 2: ESTIMATED PEAK HOUR TRAFFIC DISTRIBUTION

9.3 TRAFFIC IMPACT

The proposed development is expected to generate, on average, approximately one vehicle turning right from High Street into the site every three minutes during peak periods. Left-turn movements into the site are also anticipated to be low, averaging around one vehicle per minute during peak periods. Such volumes are not considered significant in traffic engineering terms.

High Street is classified as an arterial road with an Annual Average Daily Traffic (AADT) volume of approximately 4,400 vehicles per day (around 2,200 vehicles per direction), based on Transport Victoria's 2019 Historical AADT dataset. This traffic volume is relatively low for an arterial road, providing ample opportunities for safe right-turn manoeuvres into and out of the site.

In addition, the proposed channelised right-turn lane will provide dedicated storage for vehicles waiting to turn right, minimising potential disruption to through traffic. Given the low expected right-turn volumes, the likelihood of queuing extending into the through traffic lane is very low.

Overall, the traffic generated by the proposed development is not expected to result in any significant adverse impact on the safety or operation of High Street.

9.3.1 Car wash queueing

While traffic generation for the car wash, retail space and service station have been taken from TfNSW data (see Section 9.1), it is important to note that the data in the TfNSW survey represent non-automated car wash facilities. These differ from the proposed site in that they involve customers handing their cars to attendants, who then wash the cars by hand while the customers wait in the café that usually forms part

of the development. The proposed facility is an automated car wash, designed for use by drivers who remain in their car for the duration of the wash cycle and then leave the site.

The proposed automated car wash would occupy the rear corner of the site, directly in line with the entrance driveway. The distance from the car wash entrance to the site boundary at the access is approximately 32 m, which provides queuing space for up to four vehicles. The car wash is expected to take between three and seven minutes to complete a wash cycle, equating to a capacity of between eight and 20 vehicles per hour. A sustained arrival flow of greater than eight vehicles per hour would therefore have the potential to create a queue. The queue would only exceed four vehicles if the arrival rate of vehicles exceeded 36 vehicles per hour. At any lower arrival rate, the queue of vehicles would be contained within the four car-lengths available within the site.

An arrival flow of 40-60 vehicles per hour has been assumed for the combined car wash and retail shop section of the site, including vehicles that also use the service station facility. It is considered reasonable to assume that no more than half of the vehicles would be destined for the car wash. This gives an arrival rate of between 20 and 30 vehicles per hour for the car wash. Therefore, at the maximum likely wash duration, it is not considered likely that the queue of vehicles at the car wash would ever extend past the boundary of the site. Faster car wash operation would reduce the likelihood of queueing.

The available queuing space is therefore considered to be appropriate for the car wash.

10 CONCLUSION

Based on the investigations undertaken as part of this study, it is concluded that:

- The proposed supply of 19 on-site car spaces will be more than adequate to meet the likely peak parking demands generated by the amended proposal;
- The vehicle access arrangements for the amended proposal are based on the previously approved layout and feature separate entry and exit driveways. The refined functional layout plan is attached in Appendix C;
- The car park access and layout arrangements meet the design standards of Clause 52.06 of the Planning Scheme and relevant Australian Standard requirements;
- The car wash facility is unlikely to generate a queue of arriving vehicles in excess of the queueing capacity of the site;
- No statutory bicycle parking requirement is triggered for the proposal;
- The internal site layout accommodates the movements of large fuel delivery vehicles up to 26-metre B-doubles;
- Delivery vehicles will be adequately accommodated on the site; and
- The level of additional traffic movements generated by the amended development will have negligible adverse impact on the safety and operation of the surrounding road network.

We therefore see no parking or traffic related grounds to prevent the amended Service Station development from receiving an amended planning permit.

APPENDIX A

PROPOSED DEVELOPMENT PLAN

Lighting Legend:

PROPOSED FLOODLIGHTS ON 4.8M HIGH POLES
FACING DIRECTION SHOWN
LIGHTS TO BE 250W

NOTE
ALL LIGHTS TO BE FITTED WITH BAFFLES OR SIMILAR DEVICE TO ENSURE LIGHT DOES NOT SPILL INTO NEIGHBOURING PROPERTIES

Landscape Legend:

EXISTING TREES TO BE RETAINED

PROPOSED LANDSCAPING TO FUTURE DETAIL BY LANDSCAPE DESIGNER

PROPOSED PERMEABLE GRASS SURFACE AREA

PROPOSED PERMEABLE GRAVEL LANDSCAPING

Site Analysis

SITE AREA	:3867m²	
PETROL STATION CONVENIENCE STORE	:316m²	(8.2% of site)
SHOP	:193m²	(5% of site)
CONCRETE PAVING	:2492m²	(64.4% of site)
PERMEABLE SURFACE	:866m²	(22.4% of site)

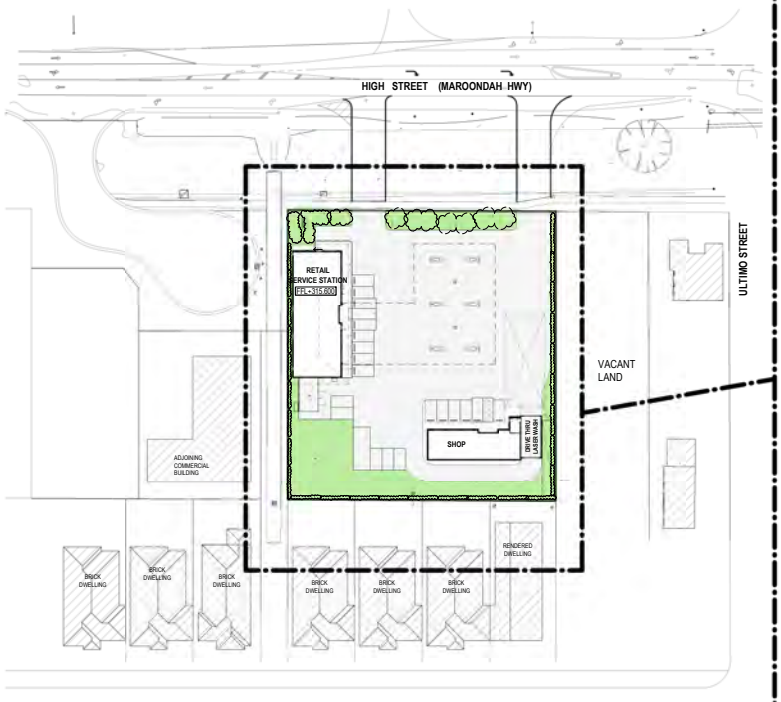
C

Parking

PETROL STATION PARKING :13

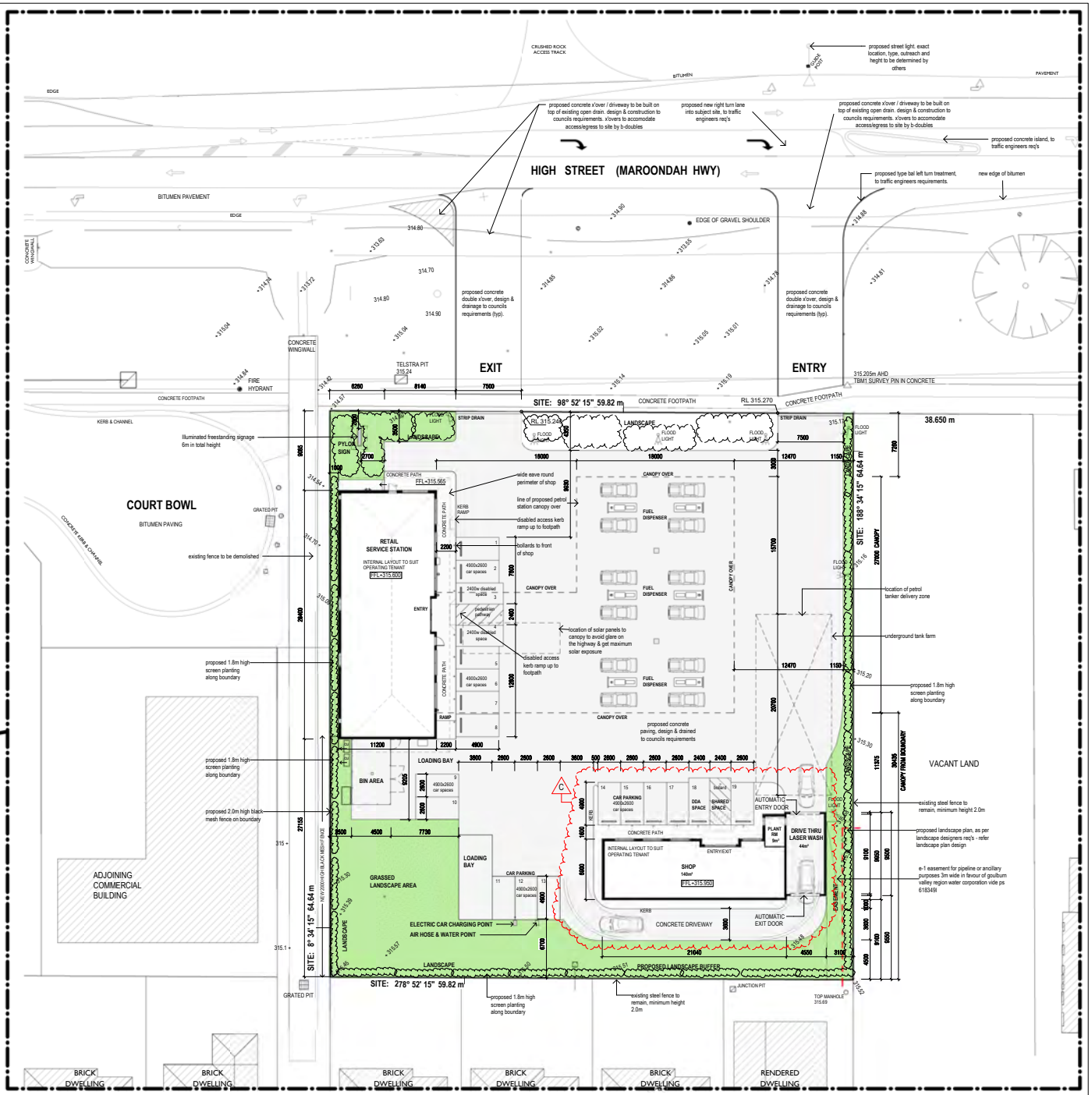
SHOP PARKING :6

C



Location Plan

1 : 500



SITE PLAN

1 : 200

ISSUE: TOWN PLANNING

DCA Design authorize the use of this drawing only for the purpose described by the status stamp shown above. This drawing should be read in conjunction with all relevant contracts, specifications, reports & drawings. DCA Design ©

No.	Revision Description	Drawn	Approved	Date
A	Town Planning amendment	CM		7.10.24
B	Town Planning RFI	CM		13.01.25
C	Additional Shop Building	CM		29.09.25

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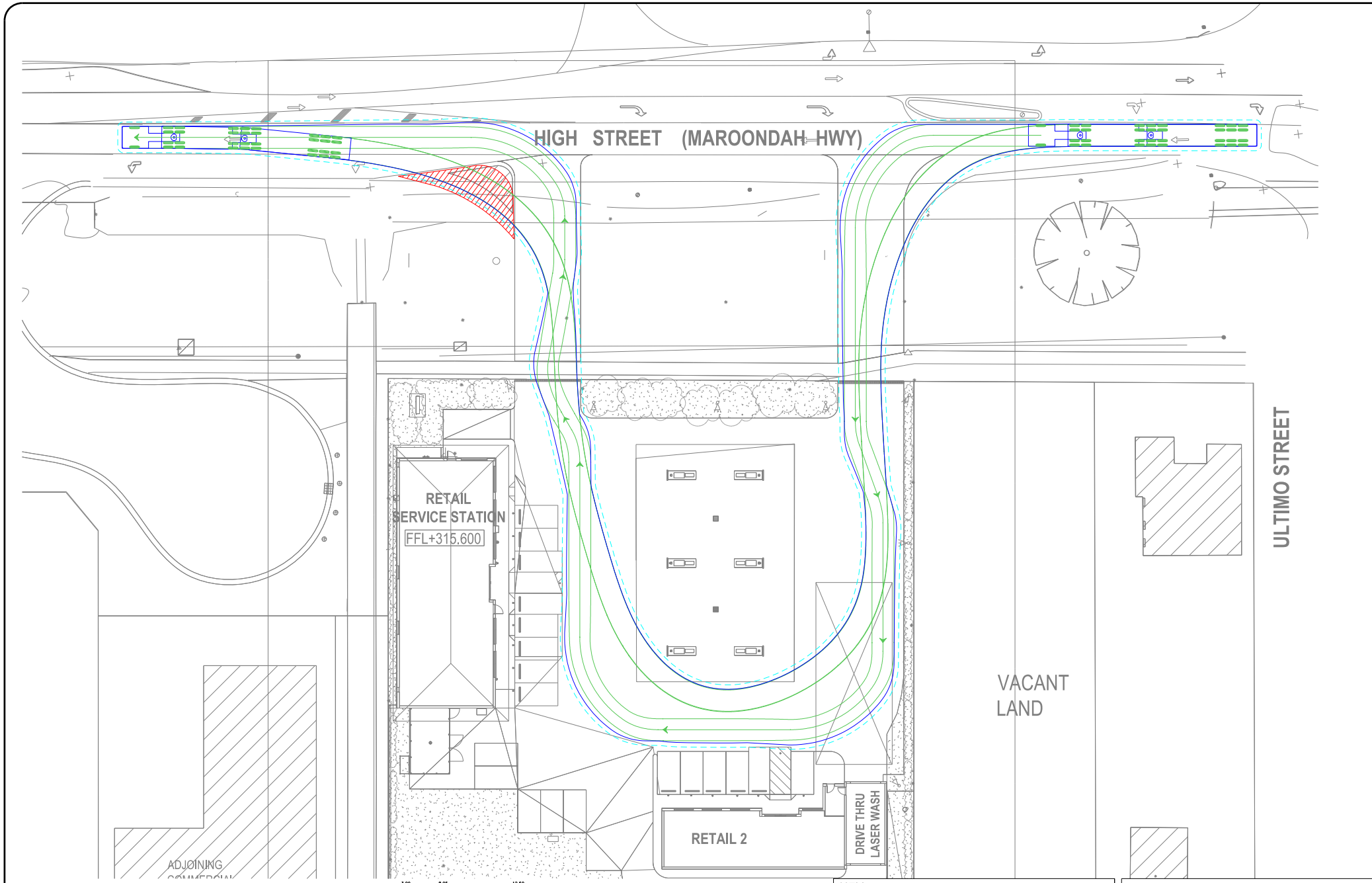
0 4 8 16m
1:200

PROJECT:	PROPOSED RETAIL STORE & PETROL FILLING STATION JOB NO.: 5021
ADDRESS:	140 HIGH STREET, MANSFIELD
CLIENT:	140 HIGH ST MANSFIELD PTY LTD.
SHEET TITLE:	SITE PLAN
DRAWN:	CM SCALE As indicated @ B1 PAPER SIZE DWG NO.: TP02
DATE:	OCTOBER 2024 REV: C

19/11/2025 12:01:50 PM

APPENDIX B

TRUCK SWEPT PATH DIAGRAMS



N

B-DOUBLE 26M

meters

Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	23.4
Tractor Track	2.50	Articulating Angle	70.0
Trailer Track	2.50		

NOT FOR CONSTRUCTION

26m B-Double ENTRY/EXIT

140 High Street Mansfield
1:400 @ A3 24/10/25
DWG NO: 28449001

KEY

- CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
- VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)

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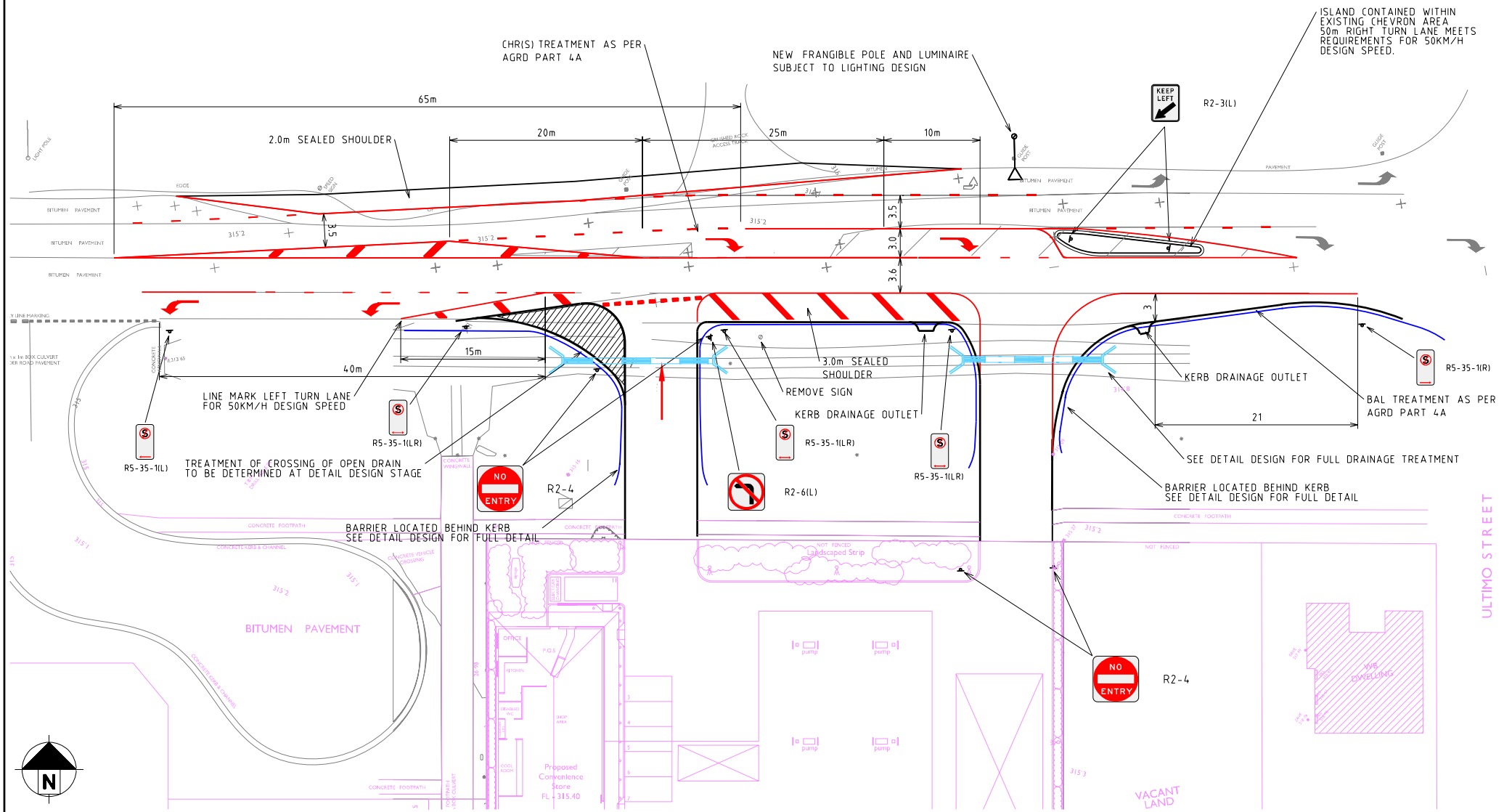
APPENDIX C

PROPOSED ACCESS TREATMENT



ISSUE	DATE	AMENDMENTS	BY
A	30/07/25	INITIAL ISSUE	BV

NOT FOR CONSTRUCTION

NOTES:
1. DESIGN SPEED - 80KM./H EASTBOUND, 50KM/H WESTBOUND

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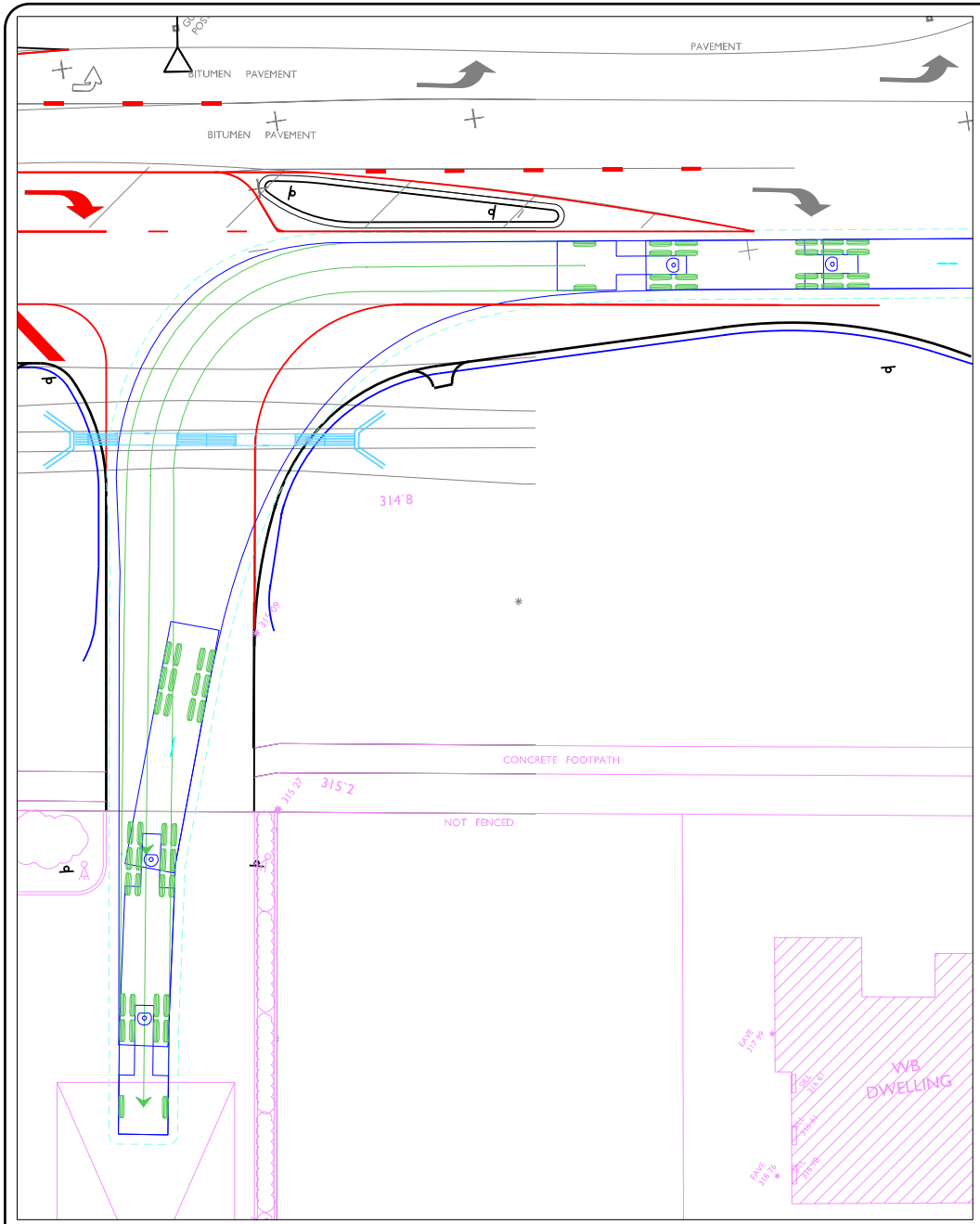
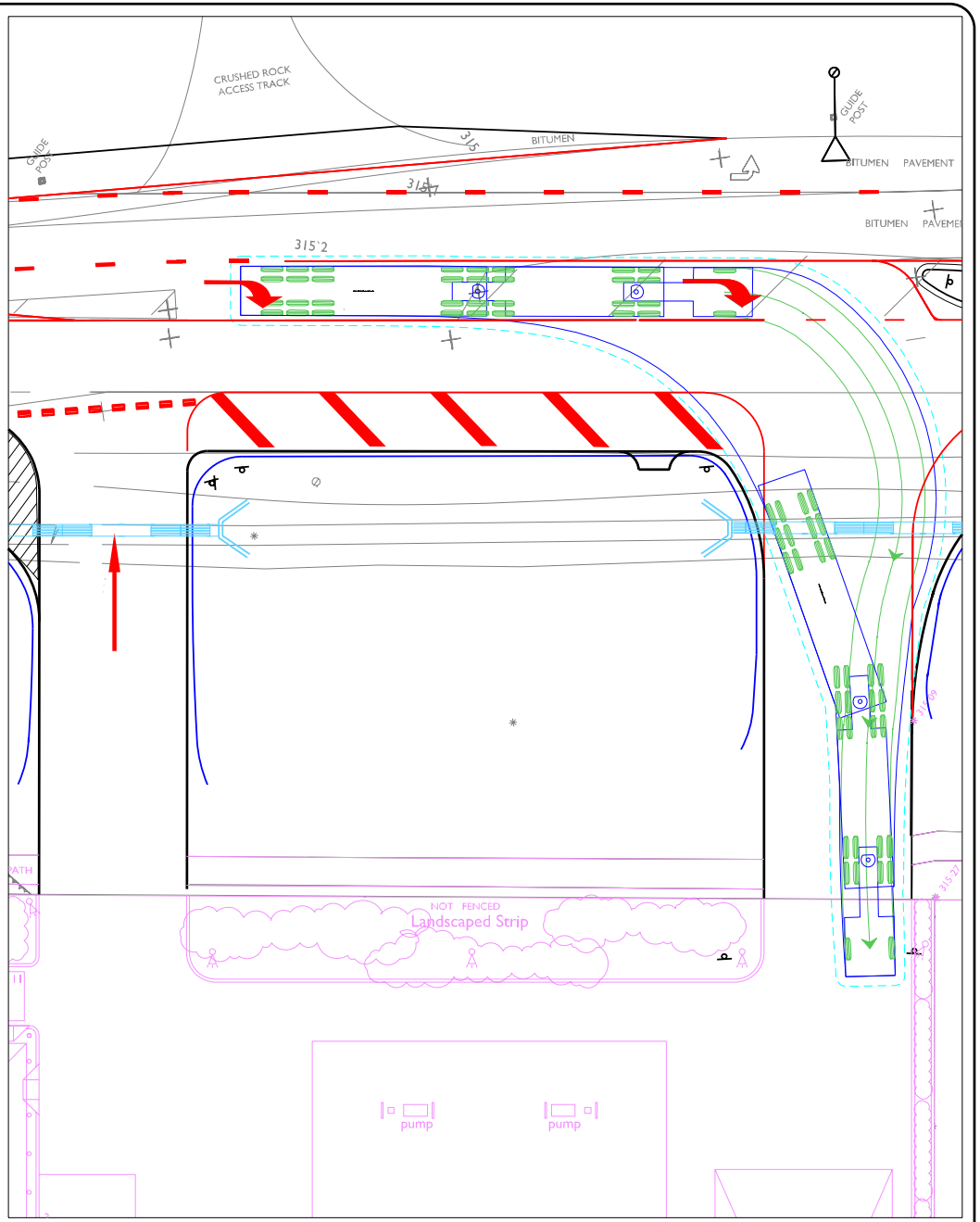
ENGINEER:	M.HARRDIGE
DRAWING NO:	28100-FLP-01A
DESIGNED BY:	B.VANDERWERF
SHEET NO:	1 OF 3
DATE:	30/07/2025
JOB NO:	28100
SCALE:	1:400
Hor. Scale Ver.	0 4 8
ORIGINAL:	A3
ISSUE:	A

140 HIGH STREET, MANSFIELD

PROPOSED ACCESS TREATMENT FUNCTIONAL LAYOUT





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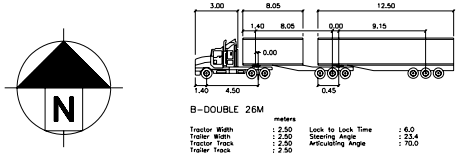

26m B-DOUBLE ENTRY/EXIT

140 HIGH STREET MANSFIELD
1:250 @ A3 30/07/25
DWG NO: 28100-FLP-01A

KEY

- CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
- VEHICLE CLEARANCE LINE

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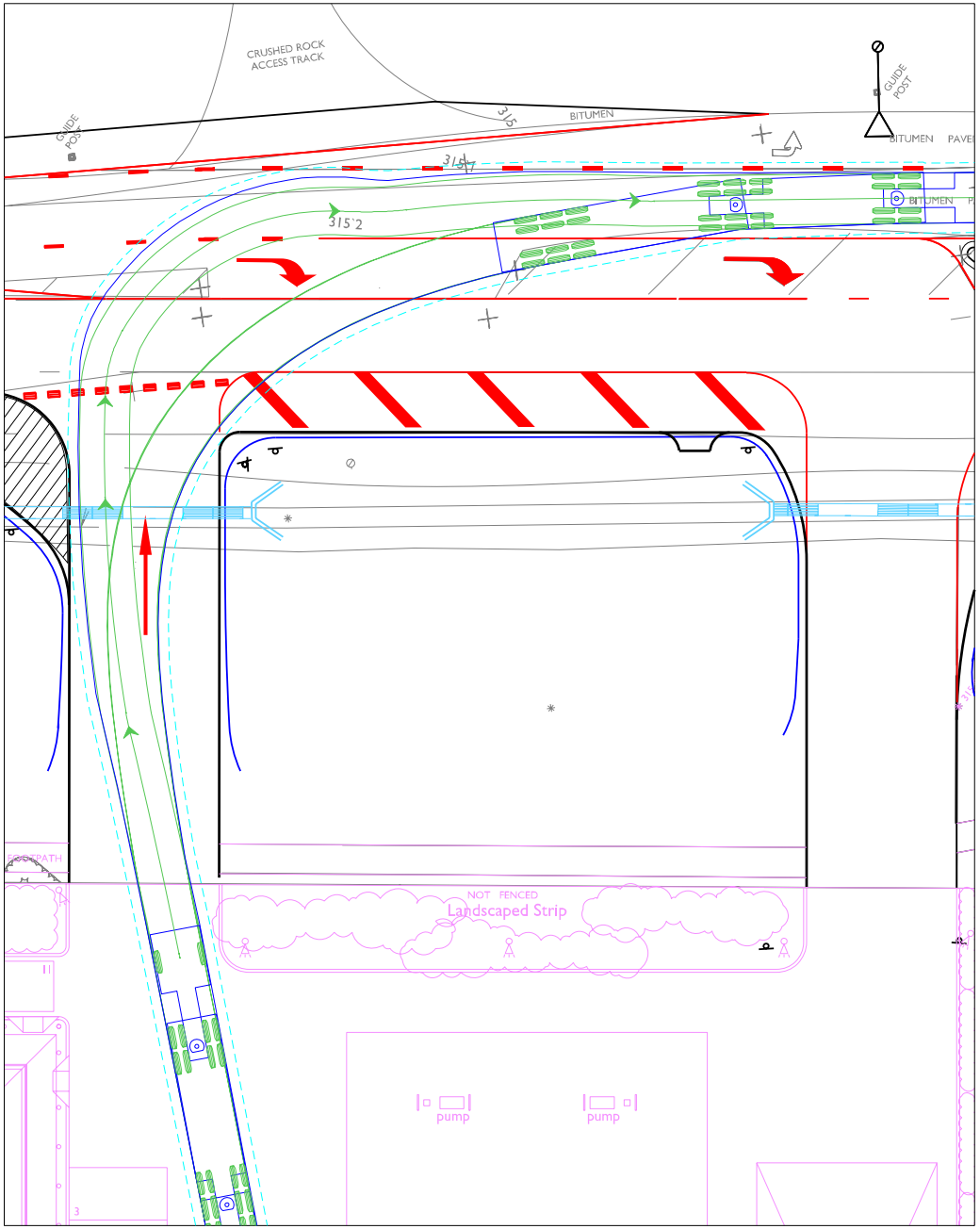

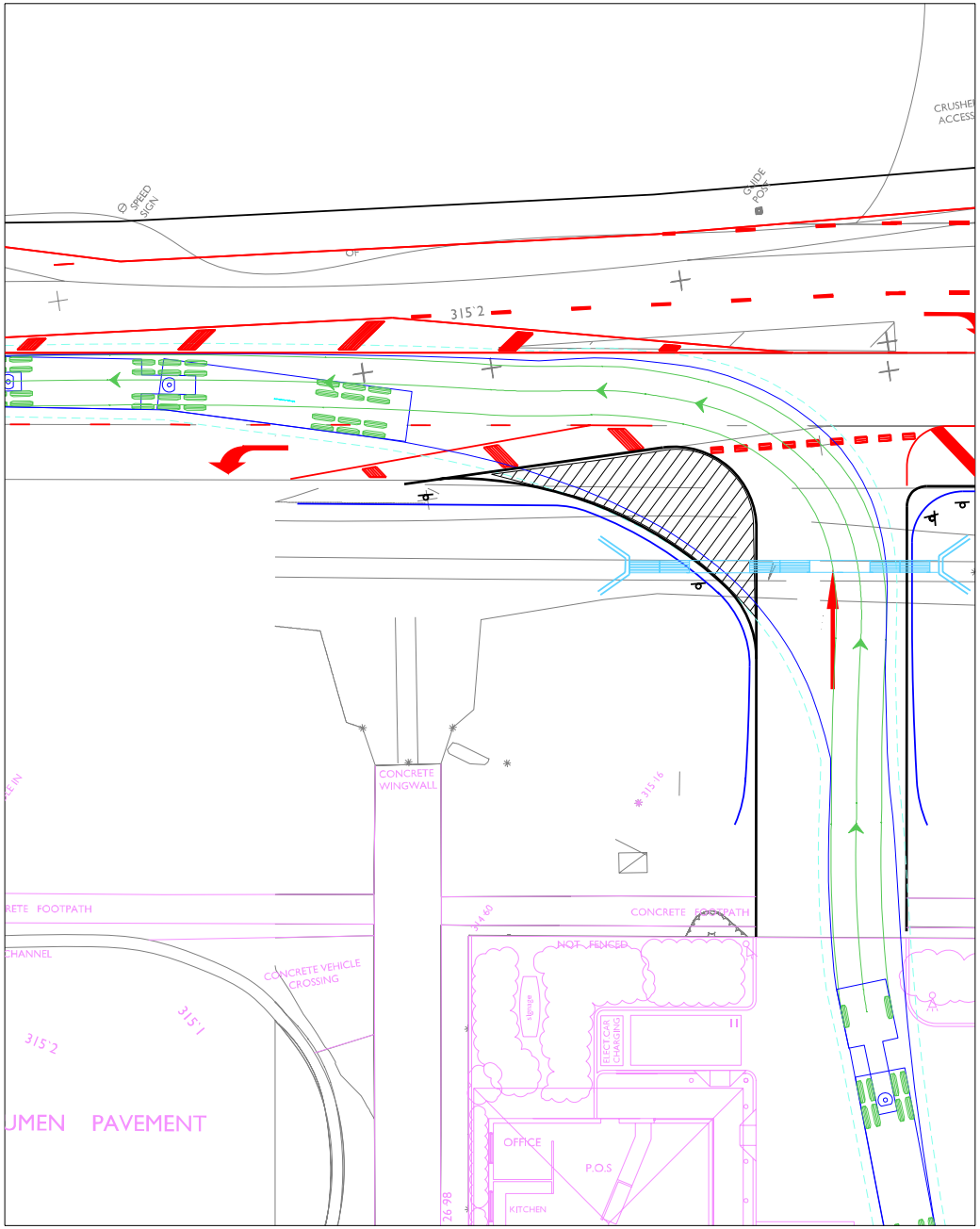

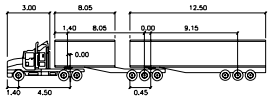

B-DOUBLE 26M

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

NOT FOR CONSTRUCTION

26m B-DOUBLE ENTRY/EXIT

140 HIGH STREET MANSFIELD
1:250 @ A3 30/07/25
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