



310 Moama Street, Hay South – Unmanned Refuelling Facility Traffic Impact Assessment

Prepared for:

IOR Petroleum Pty Ltd

20 December 2024

The Transport Planning Partnership

310 Moama Street, Hay South – Unmanned Refuelling Facility Traffic Impact Assessment

Client: IOR Petroleum Pty Ltd

Version: V02

Date: 20 December 2024

TPP Reference: 23249

Quality Record


Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	13/12/2024	Sokan Chhoun	Wayne Johnson	Wayne Johnson	DRAFT
V02	20/12/2024	Sokan Chhoun	Wayne Johnson	Wayne Johnson	

Table of Contents

1	Introduction	1
1.1	Background.....	1
1.2	Structure of the Report.....	1
2	Existing Conditions	2
2.1	Site Description	2
2.2	Surrounding Road Network	3
2.3	Pedestrian and Cycling Infrastructure	4
2.4	Crash History	4
2.5	Existing Traffic Volume.....	5
3	Proposed Development.....	7
3.1	Overview of the Proposal	7
3.2	Proposed Vehicle Access Arrangement	8
4	Parking Assessment.....	9
5	Traffic Assessment	10
6	Sight Distance Assessment.....	11
7	Intersection Treatment Assessment	12
8	Conclusion	15

Tables

Table 2.1: Traffic Volume Along Moama Street (Site Frontage)	6
Table 4.1: Car Parking Assessment.....	9
Table 7.1: Calculation of Q_M	13

Figures

Figure 2.1: Land Zoning Map	2
Figure 2.2: NHVR 36.5m B-Triple Approved Travel Route	3
Figure 2.3: Crash History within Vicinity of Subject Site	4
Figure 2.4: 2021 Average Daily Traffic Volume – Sturt Highway	5
Figure 2.5: Turning Movement Count at the Moama Street/ University Road Intersection	6
Figure 3.1: Proposed Site Layout	7

Figure 3.2: Swept Path Analysis and Access Arrangements	8
Figure 6.1: Available Sight Distance at the University Road/ Moama Street Intersection	11
Figure 7.1: Calculation of the Major Road Traffic Volume Parameter Q_M	12
Figure 7.2: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections	13
Figure 7.3: Rural Basic Left Turn (BAL) Intersection Layout	14
Figure 7.4: Rural Basic Right Turn (BAR) Intersection Layout	14
Figure 7.5: Proposed Moama Street/ University Road Intersection Upgrade	14

APPENDICES

- A. PROPOSED SITE LAYOUT
- B. SWEPT PATH ANALYSIS
- C. PROPOSED INTERSECTION UPGRADE LAYOUT

1 Introduction

1.1 Background

A Development Application (DA) is to be submitted to Hay Shire Council (Council) for the proposed development of an unmanned refuelling facility located at 310 Moama Street, Hay South.

The proposed unmanned refuelling facility comprises two refuelling pumps, which allow two heavy vehicles to refuel at the same time. The refuelling facility will operate 24 hours per day, seven days per week. It is proposed that the facility will be accessed off University Road.

The Transport Planning Partnership has prepared this Traffic Impact Assessment (TIA) report to accompany the DA and assess the traffic and parking implications of the proposed development on the surrounding road network for submission to Council.

1.2 Structure of the Report

The layout of the report is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the site.
- Chapter 3 provides a brief description of the proposed development.
- Chapter 4 assesses the parking requirements and its implications.
- Chapter 5 assesses the traffic generation and its implications.
- Chapter 6 assesses the sight distance in the vicinity of the site.
- Chapter 7 discusses the intersection treatment required for the proposed development.
- Chapter 8 presents the conclusion of the assessment.

2 Existing Conditions

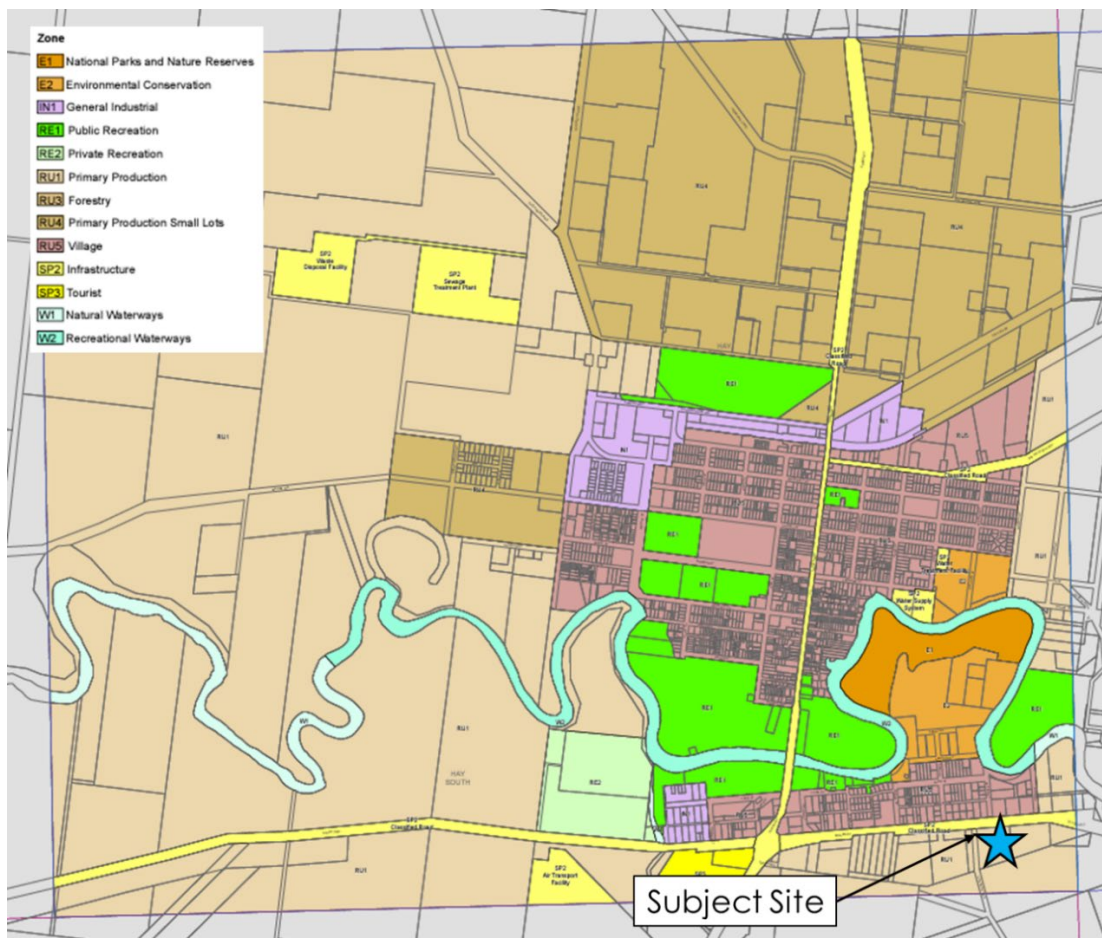
2.1 Site Description

The subject site is located at 310 Moama Street, Hay South (Lot 2 DP1212081), which falls within the Hay Shire local government area (LGA). The subject site is mostly flat in nature and currently sits on an unoccupied vegetated land, which is zoned RU1 – Primary Production. Figure 2.1 shows the land zoning map of the site and the surrounding areas.

The subject site is bounded by Sturt Highway/ Moama Street to the north, University Road to the west, unoccupied vegetated land to the south and east.

In the immediate vicinity of the site, the site is surrounded by a number of low-density residential dwellings and local businesses, which are located along the northern side of Moama Street and form part of the Hay South town centre. In a broader context, Hay South town centre is predominantly surrounded by vegetated agricultural land.

Figure 2.1: Land Zoning Map



Source: Hay Local Environmental Plan 2011 – Land Zoning Map

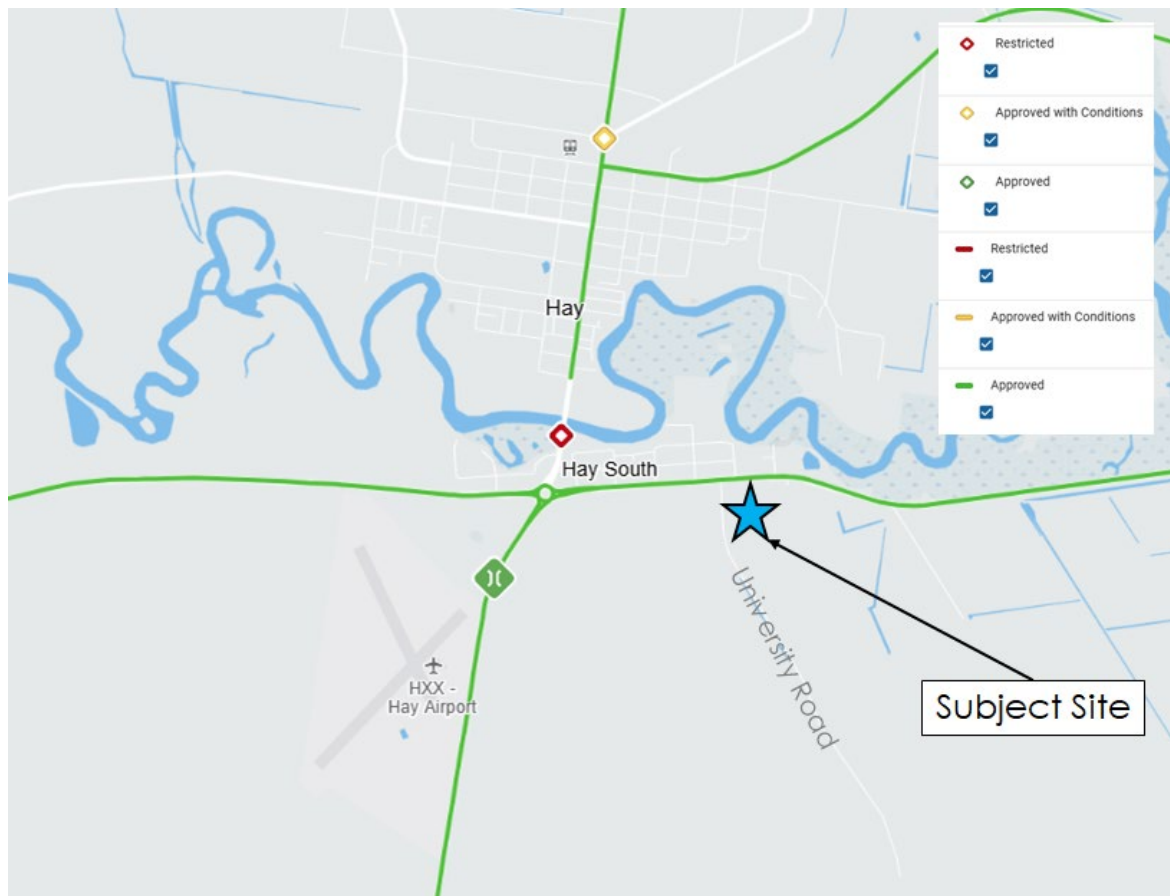
2.2 Surrounding Road Network

Moama Street (Sturt Highway) is a two-lane, two-way classified (State) road, which is generally aligned in an east-west direction in the vicinity of the site. It connects with Cobb Highway to the west of the site via a roundabout. Within Hay South town centre, Sturt Highway is referred to as Moama Street, which has a posted speed limit of 60km/h. No designated on-street parking spaces are available on Moama Street, although informal parking is possible along either side of the road.

University Road is a two-lane, two-way sealed rural road in the vicinity of the site and is generally aligned in a north-south direction. It connects with Moama Street to the north via a priority-controlled intersection and provides local access to a number of agricultural lots to the south. It has a posted speed limit of 50km/h. No designated on-street parking spaces are available on University Road, although informal parking is possible along either side of the road.

Figure 2.2 shows the National Heavy Vehicle Regulator (NHVR) 36.5m B-Triple approved routes within the vicinity of the site. The figure shows that Moama Street is an approved road for vehicles up to 36.5m B-Triple.

Figure 2.2: NHVR 36.5m B-Triple Approved Travel Route



Source: NHVR Maps, last accessed on 11/12/2024

2.3 Pedestrian and Cycling Infrastructure

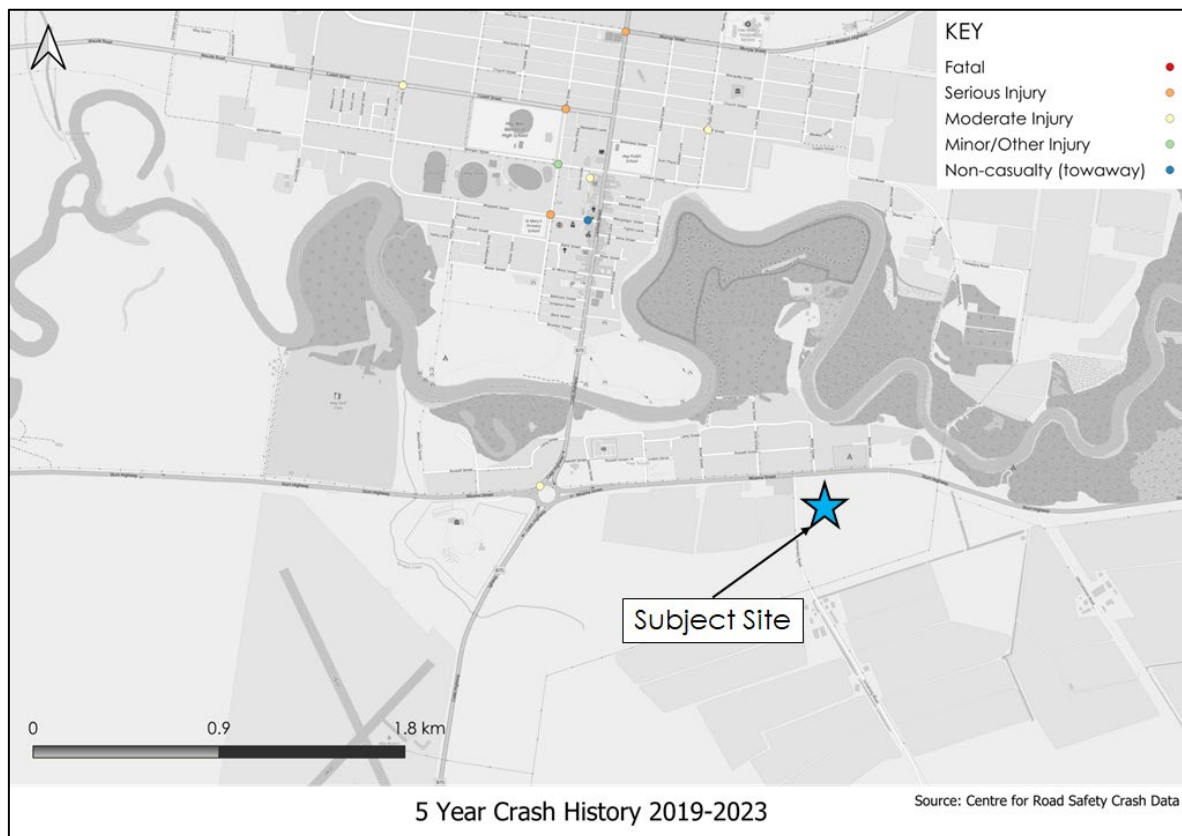
No pedestrian footpath nor cycling infrastructure is provided along Moama Street and University Road in the vicinity of the subject site.

2.4 Crash History

The latest crash history data for the most recent five-year period between 2019 and 2023 has been obtained within the vicinity of the subject site and is illustrated in Figure 2.3. The data indicates there has been no crashes recorded along Moama Street nor University Road, in the vicinity of the subject site. This indicates no safety issue at the immediate intersection and the site frontage road.

The nearest recorded crash occurred in 2020 at the Copp Highway/ Moama Street roundabout to the west of the subject site, which resulted in moderate injury. A number of crashes were also recorded within Hay town centre to the north of the site, none of which resulted in fatalities. The crash history data does not highlight an inherent safety issue within the vicinity of the site.

Figure 2.3: Crash History within Vicinity of Subject Site



Source: Centre for Road Safety Crash Data

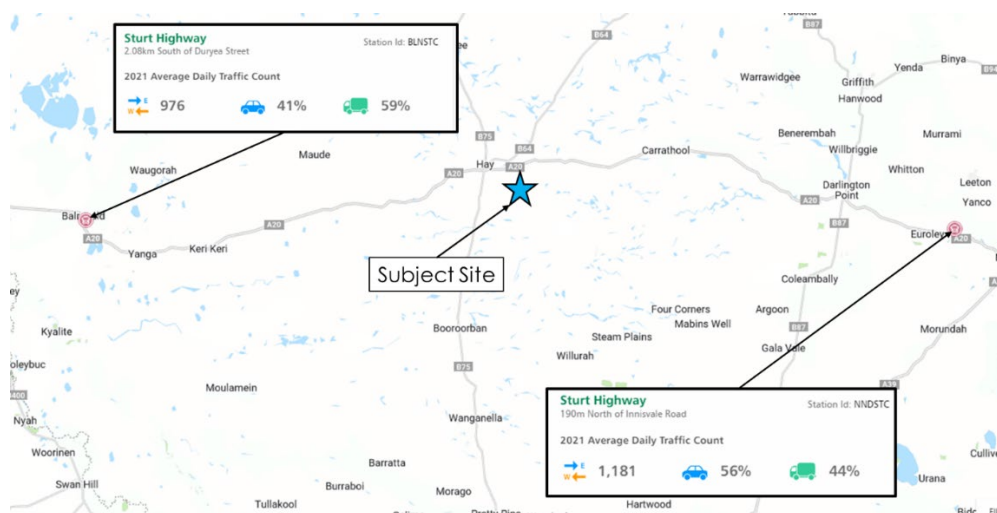
2.5 Existing Traffic Volume

TfNSW Traffic Volume Viewer portal provides an overview of traffic volume across different regions within New South Wales. There are no permanent TfNSW count stations in Hay nor the nearby regions during the year 2023 or 2024. The nearest count stations during these years are located in West Wyalong and Yarrowonga, both of which are located approximately 250km from the subject site.

There are two permanent count stations located near Hay which capture traffic volume in Year 2021. One permanent station is located near Narrandera, with another station located near Balranald.

The 2021 Average Annual Daily Traffic (AADT) volumes show that Sturt Highway near Balranald recorded an average of 976 vehicles per day whereas Sturt Highway near Narrandera recorded an average of 1,181 vehicles per day.

Figure 2.4: 2021 Average Daily Traffic Volume – Sturt Highway



Source: TfNSW Traffic Volume Viewer, last accessed on 20/05/2024

In addition to this, reference is made to the previous Traffic Impact Assessment (TIA) prepared by Spotto Consulting for the proposed unmanned refuelling facility at the subject site, which comprises a mid-block traffic count on Moama Street (east of Cobb Highway) and an intersection count at the intersection of Moama Street and University Road undertaken on 8 & 9 August 2023. This survey period falls within NSW school term dates which represents the typical traffic volume.

The daily and peak hour traffic volume on Moama Street from the mid-block traffic count data is outlined in Table 2.1.

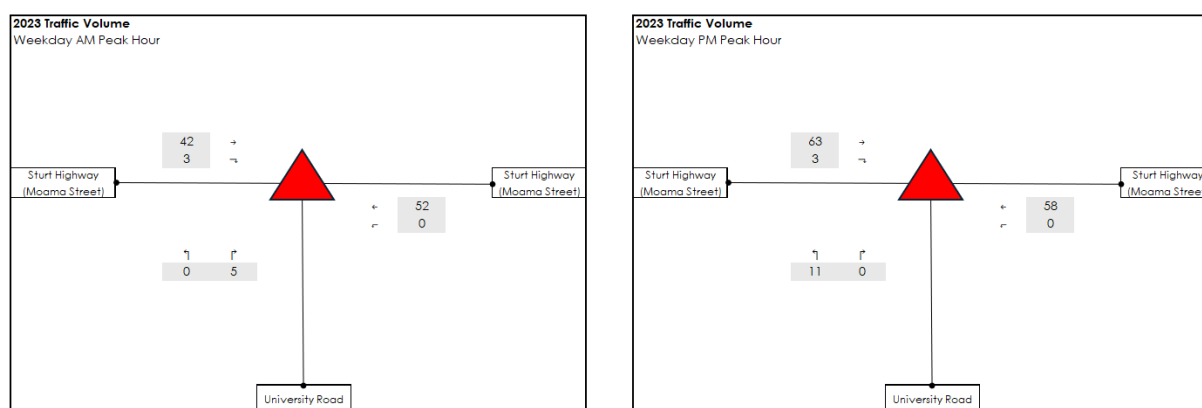
Table 2.1: Traffic Volume Along Moama Street (Site Frontage)

Moama Street (East of Cobb Highway)	Traffic Volume		
	Daily (veh)	Weekday AM Peak Hour (veh/h)	Weekday PM Peak Hour (veh/h)
Two-way	2,160	149	148
Eastbound	-	57	80
Westbound	-	92	68

Source: Traffic Impact Assessment, last accessed on 20/05/2024

The traffic volume at the Moama Street/ University Road intersection during the AM peak and PM peak hour is illustrated in Figure 2.5. The traffic volume passing through the intersection during both AM and PM peak hours is generally low.

Figure 2.5: Turning Movement Count at the Moama Street/ University Road Intersection



The TIA prepared by Spotto Consulting also includes traffic modelling of the Moama Street/ University Road intersection undertaken using SIDRA Intersection software. The traffic modelling results show that the Moama Street/ University Road intersection currently operates satisfactorily at LoS A during both the AM and PM peak hours.

3 Proposed Development

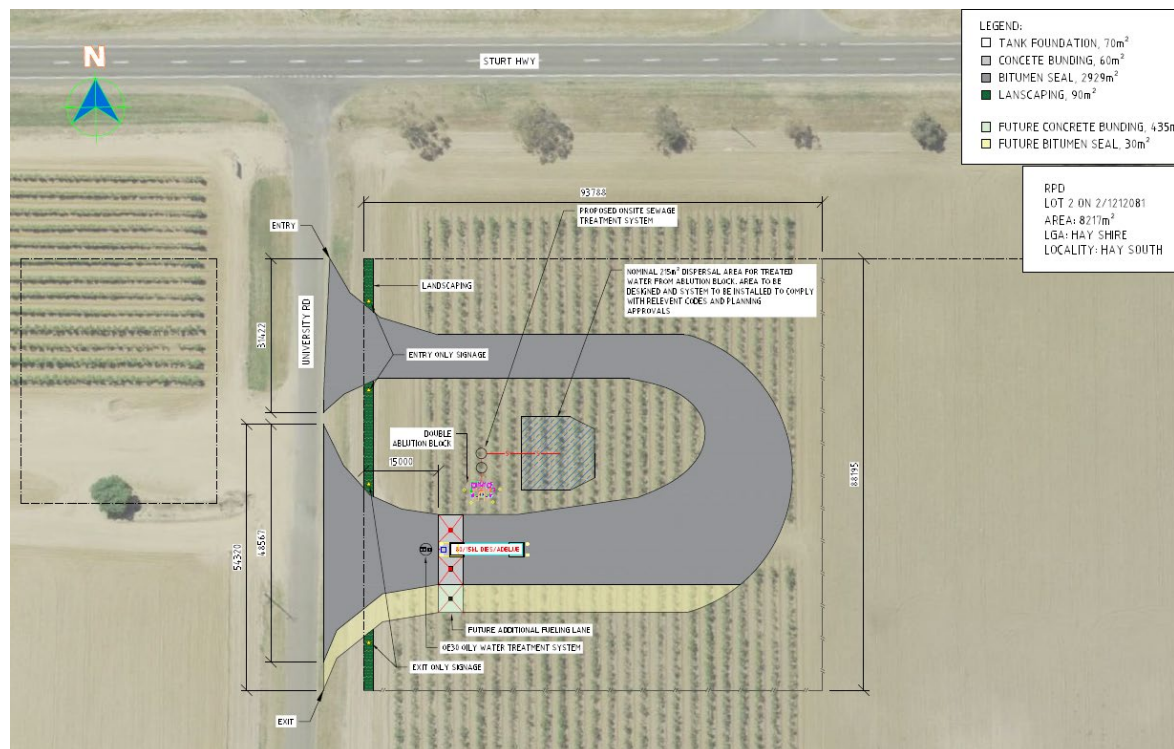
3.1 Overview of the Proposal

It is proposed to develop an unmanned truck refuelling facility at 310 Moama Street, Hay South. Components of the proposed development include:

- Installation of one T80/ 15kl Diesel/ Adblue tank for the storage of fuel
- Installation of a double ablution block
- Installation of a 215m² water dispersal area
- Installation of two fuel dispensers on a bunded area, allowing for two heavy vehicles to refuel at the same time (with additional area available for a third fuel dispenser and fuelling lane to be provided in the future)
- Construction of an access driveway and an egress driveway for refuelling vehicles to enter and exit the site.
- Landscaping works along University Road frontage.
- Installation of traffic control signage within the site.

Figure 3.1 shows the layout of the proposed refuelling facility, with the detailed site layout provided in Appendix A.

Figure 3.1: Proposed Site Layout



Source: IOR - Proposed Site Layout, Drawing No. 2023HA-002 Rev D, dated 19/12/2024

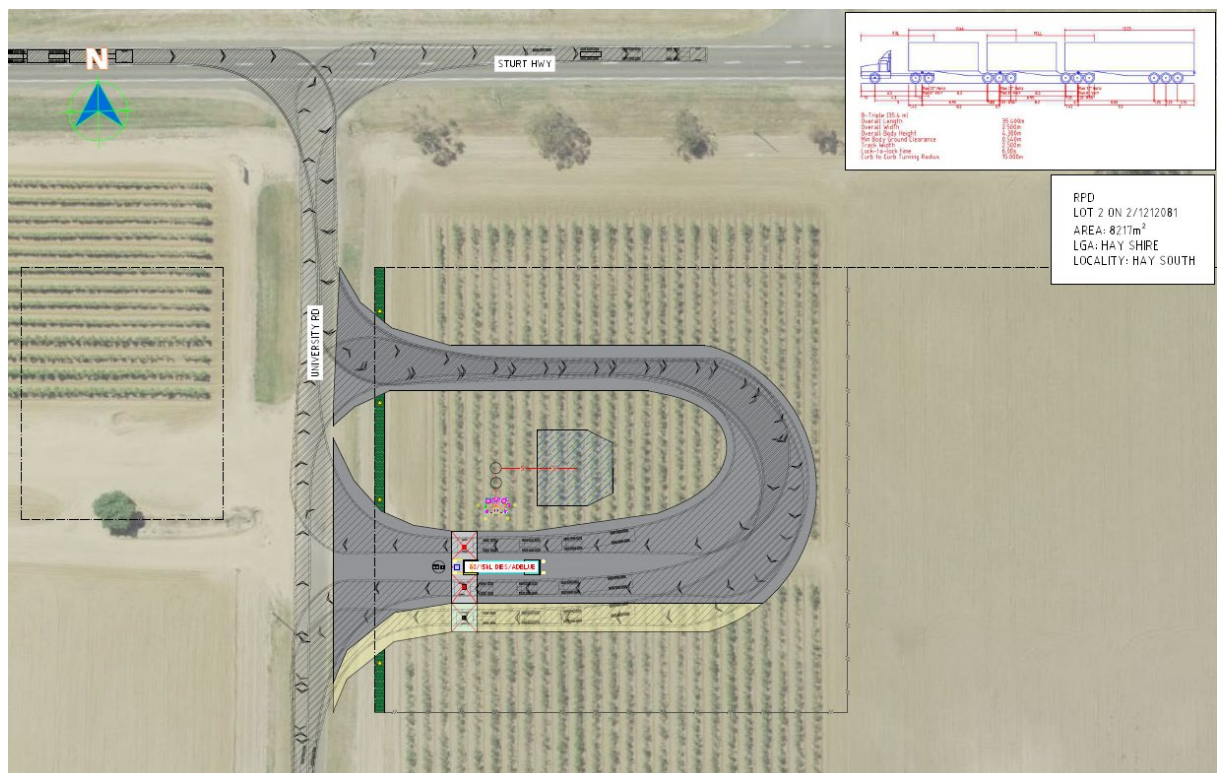
3.2 Proposed Vehicle Access Arrangement

The proposed access arrangement of the subject site will be facilitated by two one-way driveways located off University Road. The northern driveway will be used for ingress only while the southern driveway will be used for egress only.

Both ingress and egress driveways will be signposted to prevent any conflicting movements. When arriving at the refuelling area, up to two B-Triple vehicles can refuel concurrently side by side.

Figure 3.2 shows the swept path analysis of a 36.5m B-Triple vehicle (the largest vehicle to refuel at the facility) entering and exiting the subject site in a forward direction, with the full set of swept path analysis provided in Appendix B.

Figure 3.2: Swept Path Analysis and Access Arrangements



Source: IOR – Proposed Swept Path, Drawing No. 2023HA-003 Rev D, dated 19/12/2024

4 Parking Assessment

The Hay Local Environmental Plan (HLEP) 2011 does not stipulate any parking requirements for service stations or unmanned refuelling facilities.

Reference is made to the TfNSW Guide To Transport Impact Assessment (TGIA), which stipulates the parking requirements for different land uses. The parking requirement for service station has been adopted and assessed for the proposed development, and is outlined in Table 4.1.

Table 4.1: Car Parking Assessment

Land Use	Yield	Minimum Car Parking Rate	Parking Requirement
Unmanned Refuelling Facility (Service Station)	2 refuelling pumps No work bay No convenience store No restaurants	6 spaces per work bay 5 spaces per 100m ² GFA of convenience store The greater of 15 spaces per 100m ² GFA of restaurant or 1 space per 3 seats	0

The proposed unmanned refuelling facility does not provide any work bays, a convenience store, or restaurants within the site. Therefore, no car parking spaces are required for the proposed development in accordance with the TfNSW parking rates.

The refuelling facility will be unmanned with no additional services provided. Hence, there is no requirement for car parking spaces. Notwithstanding this, it is noted that two car parking spaces are available at the refuelling pumps.

5 Traffic Assessment

The proposed development is expected to generate an average of 4 vehicles (8 one-way vehicle trips) per hour. This traffic generation is considered minimal and is not expected to have any adverse impacts on the surrounding road network.

In addition, the majority of the refuelling facility or service station usage stems from passing trade. While TfNSW has not published any statistics relating to the percentage of passing trade for service stations, reference can be made to the widely recognised Institute of Traffic Engineers (ITE) Manual which suggests 56% of service station trips are passing trade. Therefore, the proposed development is unlikely to generate any significant new trips.

It is estimated that a high proportion of traffic would access the proposed development from the east (Darlington Point) given there is a Shell and an Ampol service station located at north-western corner of the Sturt Highway/ Cobb Highway intersection. These service stations are located to the west of the subject site and is likely to cater for eastbound traffic. Based on this, TTPP assume that approximately 80% of refuelling vehicles would access the site from the east and 20% from the west.

Given the existing low traffic volume on University Road and Moama Street and the satisfactory LoS A performance at the existing Moama Street/ University Road intersection, the traffic generation associated with the proposed development is unlikely to cause any adverse impacts on the surrounding road network and the Moama Street/ University Road intersection.

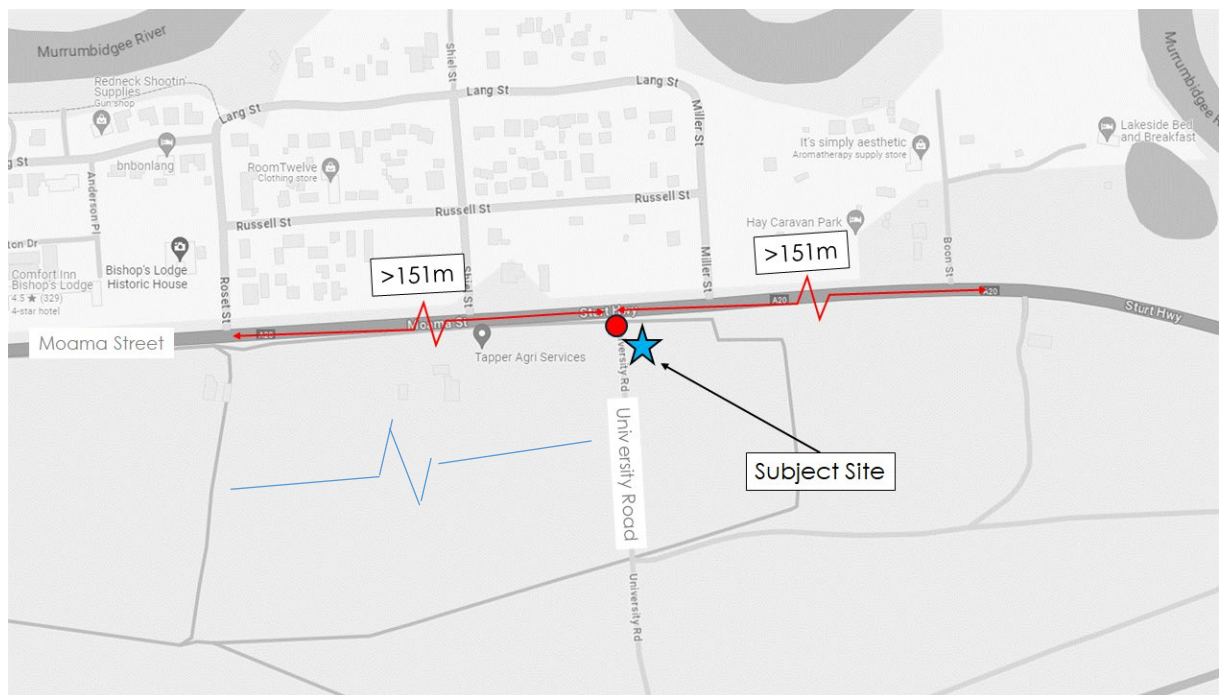
6 Sight Distance Assessment

A sight distance review has been undertaken in accordance with Austroad Guide to Road Design Part 4A: Unsignalised and Signalised Intersection at the Moama Street/ University Road intersection.

Based on the design speed of 70km/h (60km/h posted speed limit) on Moama Street, a minimum Safe Intersection Stopping Distance (SISD) of 151m is required.

It is noted that the terrain in the immediate vicinity of the subject site is relatively flat. Given the predominantly straight alignment of Moama Street, sufficient sight distance is available for vehicles on the minor road (University Road) to observe vehicles on the major road (Moama Street), as shown in Figure 6.1. No major obstacles are present in the direct line of sight between vehicle movements on Moama Street and traffic exiting University Road.

Figure 6.1: Available Sight Distance at the University Road/ Moama Street Intersection



Basemap Source: Nearmap, last accessed on 21/05/2024

7 Intersection Treatment Assessment

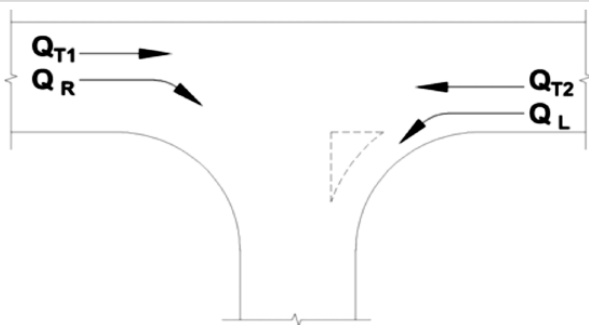
The proposed development would be accessed off University Road, which is a local rural road. Vehicles would turn into/ from University Road off Sturt Highway/ Moama Street.

An assessment of the turn treatments required for the University Road/ Moama Street intersection to facilitate the proposed unmanned refuelling facility has been undertaken in accordance with Austroads Guide to Traffic Management (AGTM) Part 6 (2020). The turn treatment warrants are based on the major road traffic volumes on Moama Street, ' Q_M ', and the volume of turning movements generated by the development, ' Q_R ' and ' Q_L '.

As discussed above, 80% of refuelling vehicles are expected to come from the east and 20% of refuelling vehicles from the west of Moama Street. Based on the estimated traffic generation of 4 vehicles per hour, the value for Q_R associated with the development traffic would be approximately 1 vehicle whereas the value for Q_L would be approximately 3 vehicles. These values will be added to the existing turning traffic at the intersection.

Value Q_M can be calculated based on the existing through volume on the major road. According to the count at the intersection of Moama Street and University Road, the peak hourly traffic on Moama Street (Q_{T1} and Q_{T2}) during the AM peak hour is approximately 42 vehicles in the eastbound direction and 52 vehicles in the westbound direction. During the PM peak hour, the peak hourly traffic on Moama Street (Q_{T1} and Q_{T2}) is approximately 63 vehicles in the eastbound direction and 58 vehicles in the westbound direction. The Q_M calculation is shown in Table 7.1.

Figure 7.1: Calculation of the Major Road Traffic Volume Parameter Q_M



Road type	Turn type	Splitter island	Q_M (veh/h)
Two-lane two-way	Right	No	$= Q_{T1} + Q_{T2} + Q_L$
		Yes	$= Q_{T1} + Q_{T2}$
	Left	Yes or no	$= Q_{T2}$
Four-lane two-way	Right	No	$= 50\% \times Q_{T1} + Q_{T2} + Q_L$
		Yes	$= 50\% \times Q_{T1} + Q_{T2}$
	Left	Yes or no	$= 50\% \times Q_{T2}$
Six-lane two-way	Right	No	$= 33\% \times Q_{T1} + Q_{T2} + Q_L$
		Yes	$= 33\% \times Q_{T1} + Q_{T2}$
	Left	Yes or no	$= 33\% \times Q_{T2}$

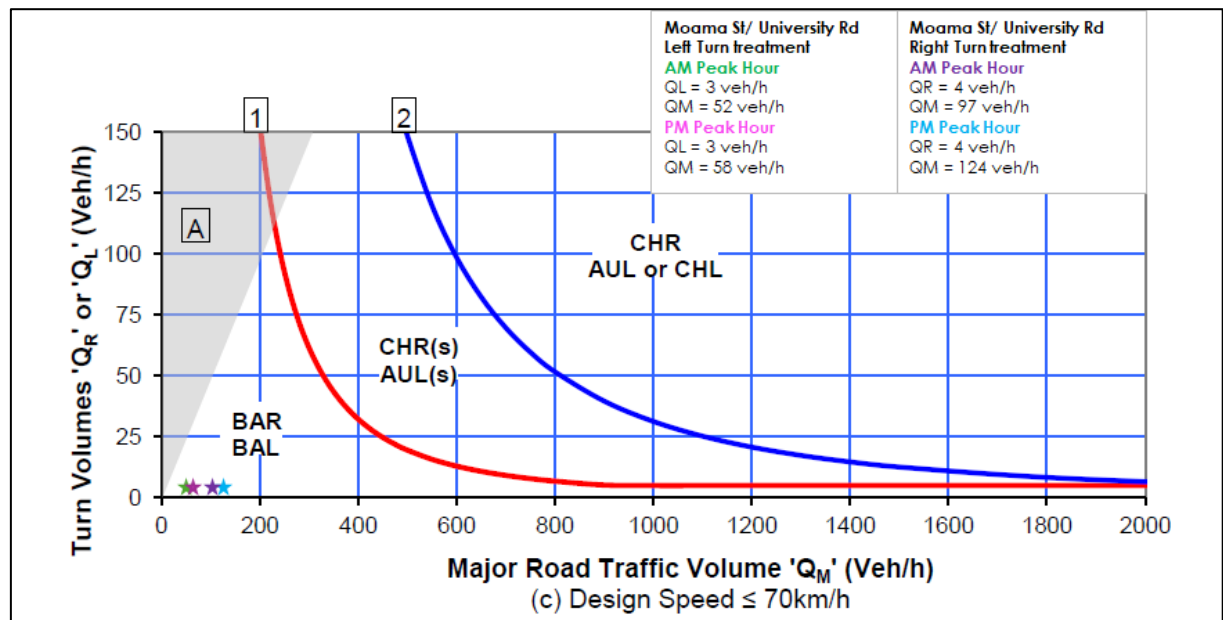
Source: Austroads Guide to Traffic Management Part 6, 2020

Table 7.1: Calculation of Q_M

Road Type	Peak Period	Turn Type	Splitter Island	Q_M (vph)	
Two-Lane Two-Way	AM	Right (Q_R) = 4	No	$Q_M = Q_{T1} + Q_{T2} + Q_L$	97 vph
		Left (Q_L) = 3	No	$Q_M = Q_{T2}$	52 vph
	PM	Right (Q_R) = 4	No	$Q_M = Q_{T1} + Q_{T2} + Q_L$	124 vph
		Left (Q_L) = 3	No	$Q_M = Q_{T2}$	58 vph

The turn treatment warrant assessment also considers the design speed of a road, which is typically taken as the posted speed limit plus 10 km/h; namely, the design speed for Moama Street is 70km/h. Figure 7.2 shows an extract from AGTM Part 6 of the turn treatment warrants on major roads at unsignalised intersections with a design speed 70km/h or less, which is applicable to Moama Street.

Figure 7.2: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections

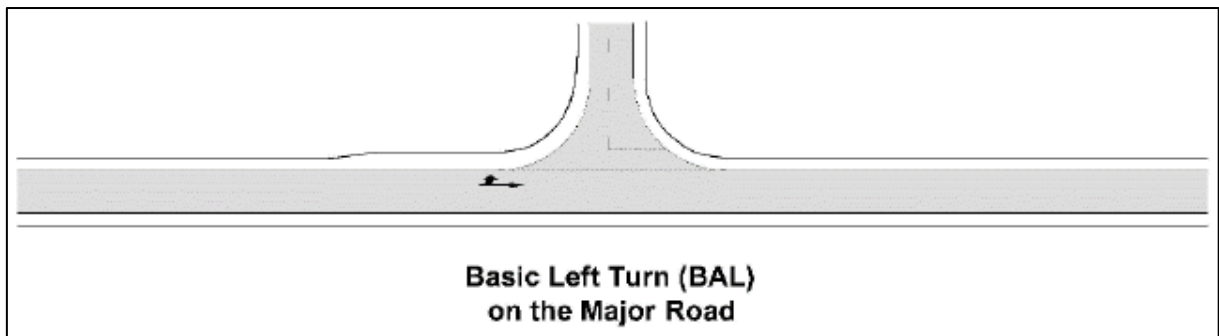


Source: Austroads Guide to Traffic Management Part 6, 2020

Based on values for Q_M , Q_L and Q_R in Table 7.1 and warrants for turn treatments in Figure 7.2, the turn treatments required at the intersection of Moama Street/ University Road intersection include a basic left-turn (BAL) and a basic right-turn (BAR).

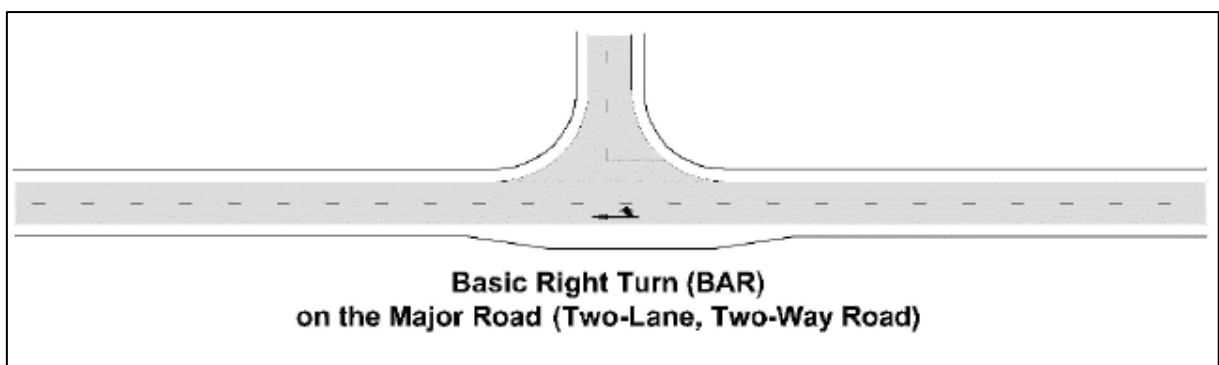
The intersection layouts for BAL and BAR treatments are illustrated in Figure 7.3 and Figure 7.4, respectively.

Figure 7.3: Rural Basic Left Turn (BAL) Intersection Layout



Source: Austroads Guide to Traffic Management Part 6, 2020

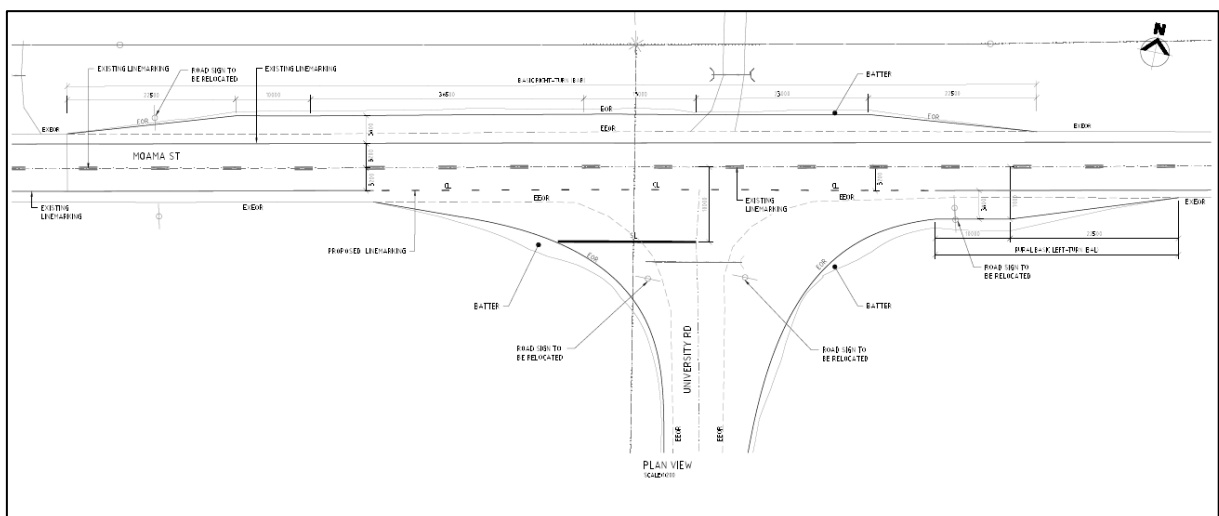
Figure 7.4: Rural Basic Right Turn (BAR) Intersection Layout



Source: Austroads Guide to Traffic Management Part 6, 2020

It is proposed to provide a BAL and BAR treatment for the Moama Street/ University Road intersection as shown in Figure 7.5, which complies with the requirement. The civil design intersection upgrade layout is contained in Appendix C.

Figure 7.5: Proposed Moama Street/ University Road Intersection Upgrade



Source: IOR – Road Expansion Line Marking, Drawing No. 19297-HAY-SK02 Rev B, dated 25/09/2024

8 Conclusion

Based on the analysis and discussion presented within this report, the following conclusion can be made:



- A Development Application is to be lodged with the Hay Shire Council for a proposed unmanned refuelling facility at 310 Moama Street, Hay South.
- The proposed refuelling facility could accommodate two vehicles refuelling at any one time and will operate 24 hours a day, 7 days a week.
- Access to the refuelling facility will be provided off University Road via a dedicated one-way access driveway and a dedicated one-way egress driveway.
- There have been no crashes recorded in the most recent five years in the immediate vicinity of the site.
- No car parking spaces are proposed within the site due to the lack of a convenience store, work bay, or restaurant. Notwithstanding this, there are two parking spaces available at the refuelling pump area.
- The proposed refuelling facility is expected to generate an average of eight vehicle trips (four vehicles) per hour, which is minimal and is not anticipated to have any adverse impact on the surrounding road network.
- Sufficient Safe Intersection Sight Distance is available at the intersection of Moama Street/ University Road between vehicles exiting the site via University Road and vehicles traveling eastbound and westbound along Moama Street.
- It is proposed to provide a BAL and BAR treatment for the Moama Street/ University Road intersection, which complies with the Austroads requirements.

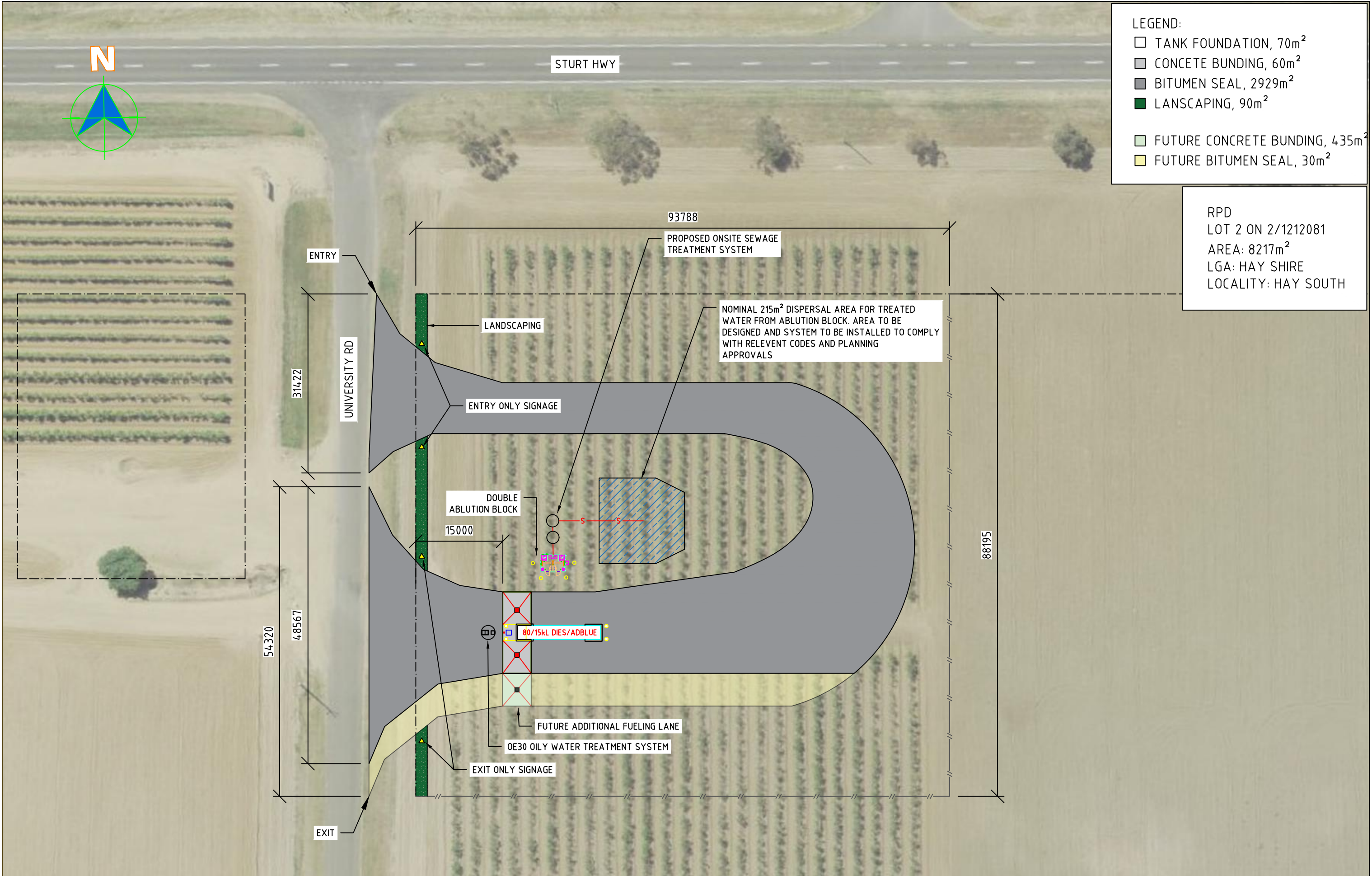
Overall, it can be concluded that the proposed development can be satisfactorily accommodated without any adverse impacts on the surrounding road network.



Appendix A

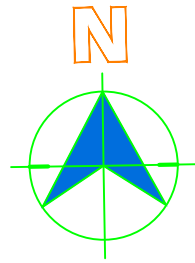
Proposed Site Layout



	SCALE BAR	DESCRIPTION	DRAWING TITLE	STATUS			
	 1:4000			DA ISSUE			
				DRAWN LD	DATE CREATED 19.12.2024	DRAWING NO. 2023HA-001	REV D
	A1 SCALE 1:250			A3 SCALE 1:500	SHEET		
		IOR UNMANNED DIESEL STOP	LOCALITY				
		310 MOAMA STREET HAY SOUTH NSW 2711 AUSTRALIA					



	SCALE BAR	DESCRIPTION	DRAWING TITLE	STATUS			
				DA ISSUE			
	1:600			DRAWN LD	DATE CREATED 19.12.2024	DRAWING NO. 2023HA-002	REV D
				A1 SCALE 1:250		A3 SCALE 1:500	SHEET
		IOR UNMANNED DIESEL STOP 310 MOAMA STREET HAY SOUTH NSW 2711 AUSTRALIA	PROPOSED SITE LAYOUT				



RPD
LOT 2 ON 2/1212081
AREA: 8217m²
LGA: HAY SHIRE
LOCALITY: HAY SOUTH

CONCRETE BUNDING

FALL
FALL
FALL
FALL

TANK PLINTH

OE30 OILY WATER SYSTEM

TANK PLINTH

80/15kL DIES/ADBLUE

FALL
FALL
FALL
FALL

FUTURE CONCRETE BUNDING

FALL
FALL
FALL
FALL

IOR

SCALE BAR

0 1 2 3 4 5m
1:100

DESCRIPTION

IOR UNMANNED DIESEL STOP
310 MOAMA STREET
HAY SOUTH NSW 2711 AUSTRALIA

DRAWING TITLE

FUEL DISPENSING AREA

STATUS

DA ISSUE

DRAWN
LD

DATE CREATED
19.12.2024

DRAWING NO.
2023HA-004

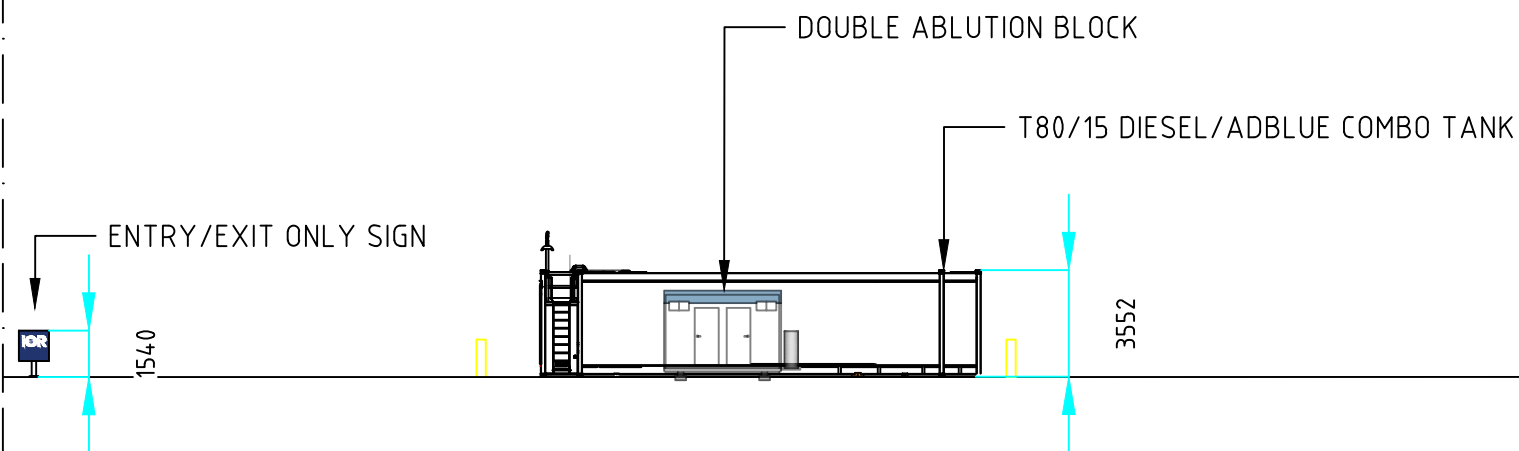
REV
D


A1 SCALE 1:250

A3 SCALE 1:500

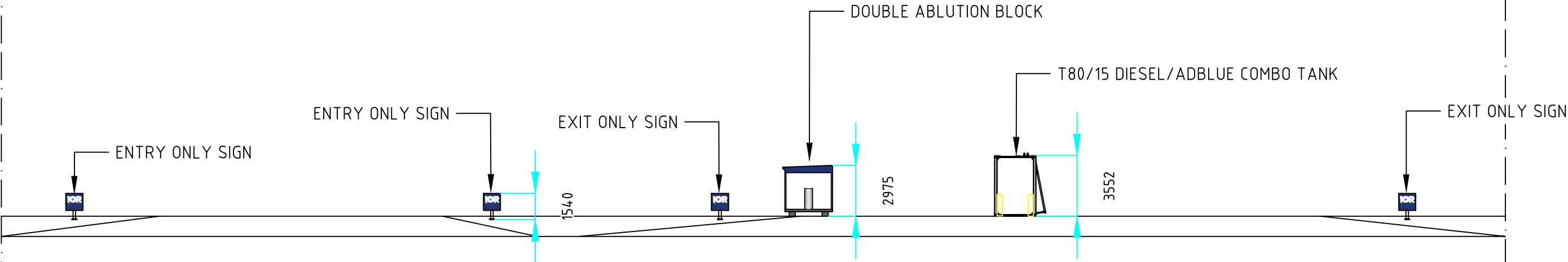
SHEET

RPD
LOT 2 ON 2/1212081
AREA: 8217m²
LGA: HAY SHIRE
LOCALITY: HAY SOUTH




	SCALE BAR	DESCRIPTION IOR UNMANNED DIESEL STOP 310 MOAMA STREET HAY SOUTH NSW 2711 AUSTRALIA	DRAWING TITLE ELEVATION SOUTH TO NORTH	STATUS DA ISSUE			
				DRAWN LD	DATE CREATED 19.12.2024	DRAWING NO. 2023HA-005	REV D
				A1 SCALE 1:250		A3 SCALE 1:500	SHEET

RPD
LOT 2 ON 2/1212081
AREA: 8217m²
LGA: HAY SHIRE
LOCALITY: HAY SOUTH

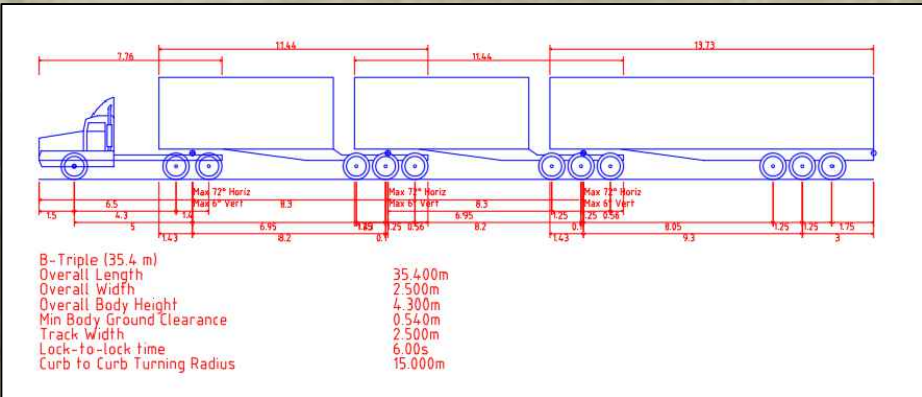
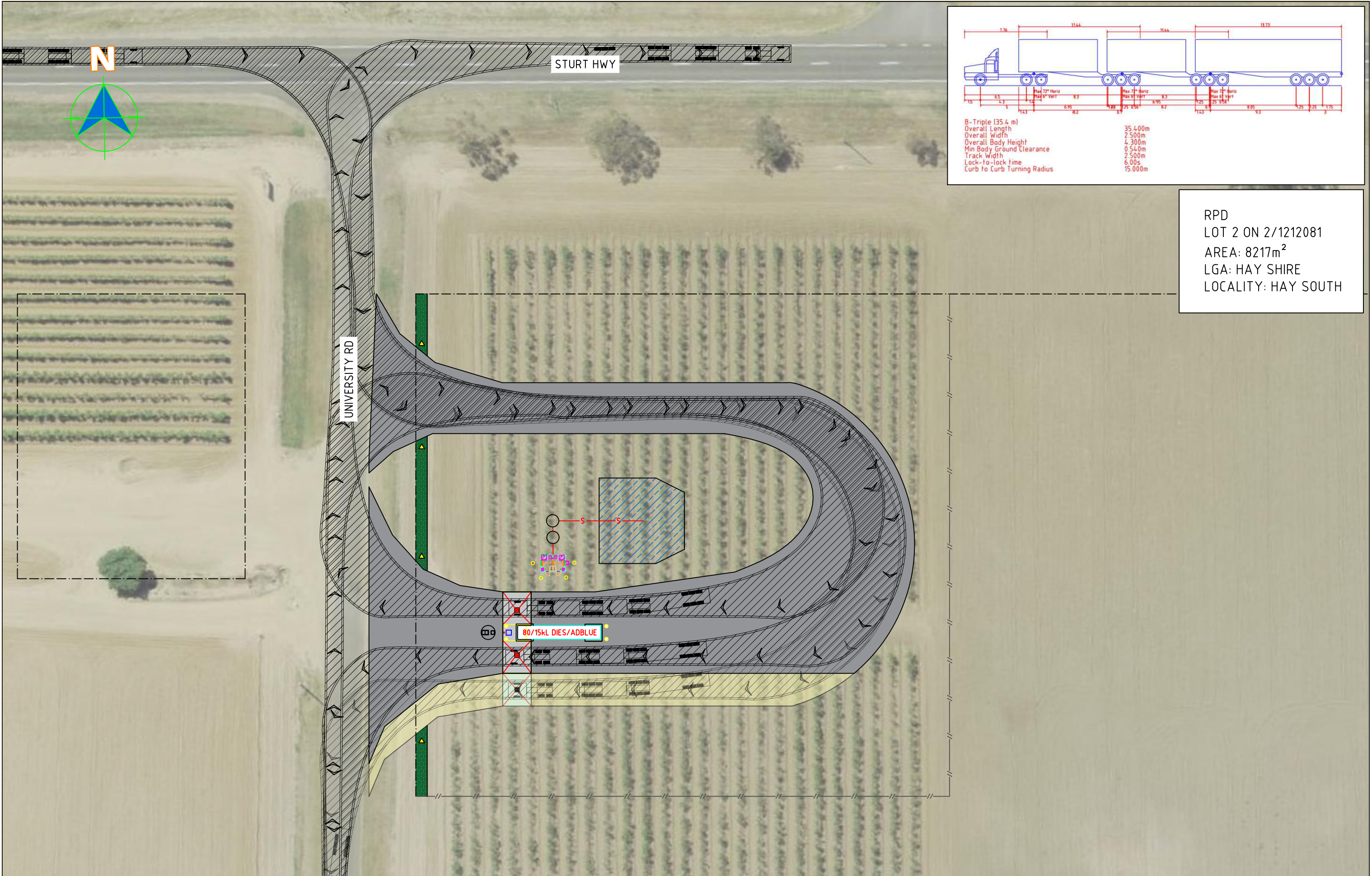


A
ELEVATION WEST TO EAST
1:250



	SCALE BAR	DESCRIPTION IOR UNMANNED DIESEL STOP 310 MOAMA STREET HAY SOUTH NSW 2711 AUSTRALIA	DRAWING TITLE ELEVATION WEST TO EAST	STATUS DA ISSUE			
				DRAWN LD	DATE CREATED 19.12.2024	DRAWING NO. 2023HA-006	REV D
				A1 SCALE 1:250		A3 SCALE 1:500	SHEET

Appendix B

Swept Path Analysis

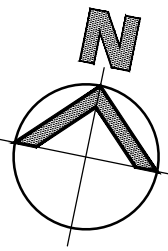
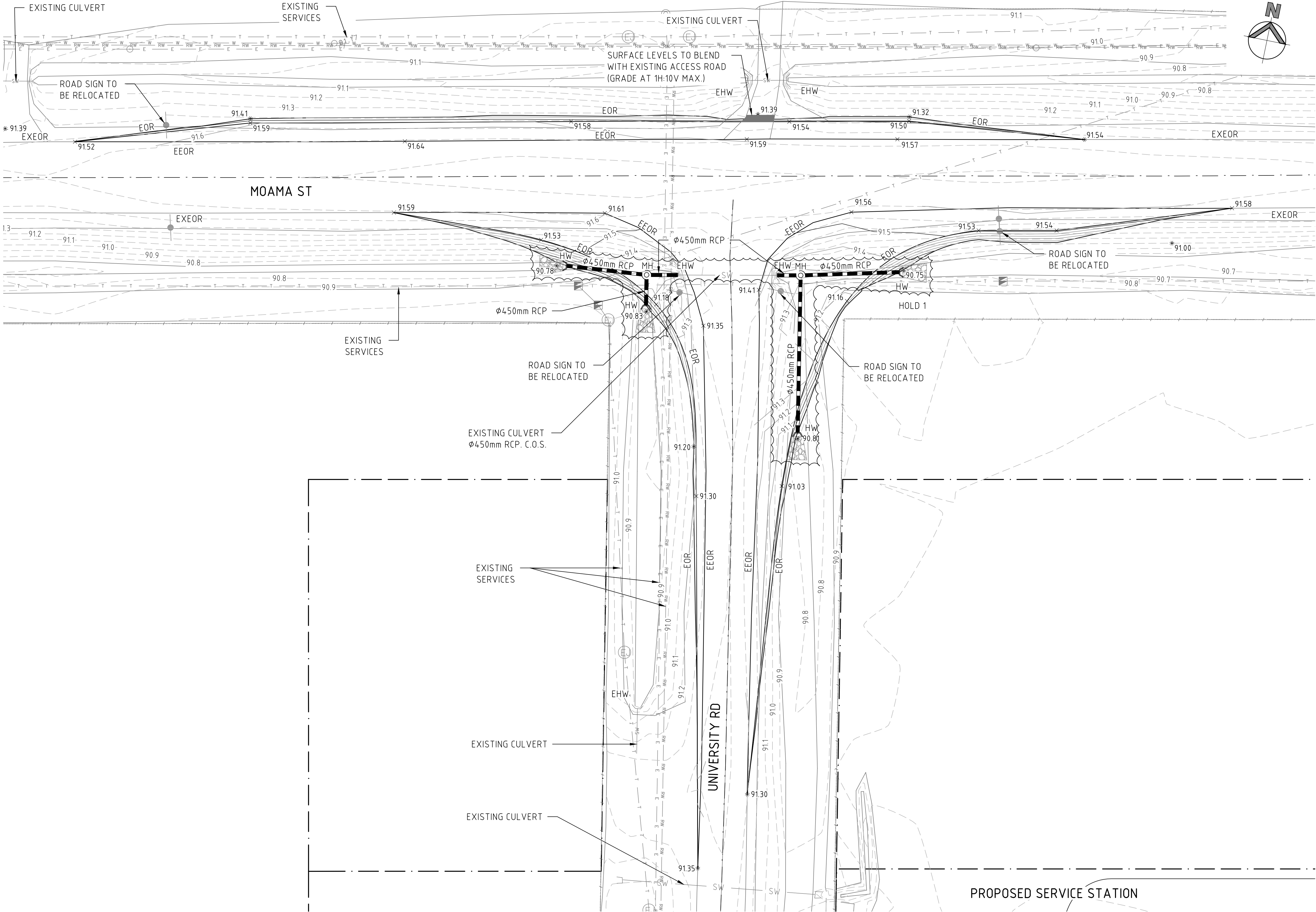


RPD
LOT 2 ON 2/1212081
AREA: 8217m²
LGA: HAY SHIRE
LOCALITY: HAY SOUTH

	SCALE BAR	DESCRIPTION	DRAWING TITLE	STATUS			
				DA ISSUE			
				DRAWN LD	DATE CREATED	DRAWING NO.	REV D
					19.12.2024	2023HA-003	
				A1 SCALE 1:250		A3 SCALE 1:500	SHEET

Appendix C

Proposed Intersection Upgrade Layout



LEGEND:

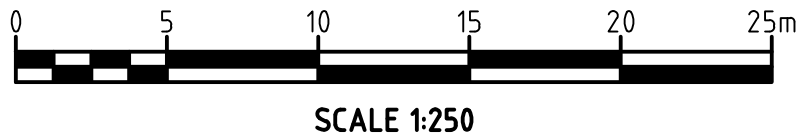
- PROPERTY BOUNDARY
- EXISTING FENCE
- EXISTING CONTOURS (0.1m INTERVALS)
- EXISTING CONTOURS (0.1m INTERVALS)
- PROPOSED STORMWATER PIPE
- ROAD CENTRE LINE
- EXISTING STORMWATER LINE
- EXISTING WATER SERVICES
- EXISTING RAW WATER SERVICES
- EXISTING ELECTRICAL SERVICES
- EXISTING COMMUNICATION SERVICES
- PROPOSED HEAD WALL
- PROPOSED STORMWATER MANHOLE
- PROPOSED EDGE OF ROAD
- EXISTING HEAD WALL
- EXISTING EDGE OF ROAD TO BE MODIFIED
- EXISTING EDGE OF ROAD TO REMAIN
- PROPOSED SURFACE LEVEL
- EXISTING SURFACE LEVEL
- EXISTING ROAD SIGN

NOTES:

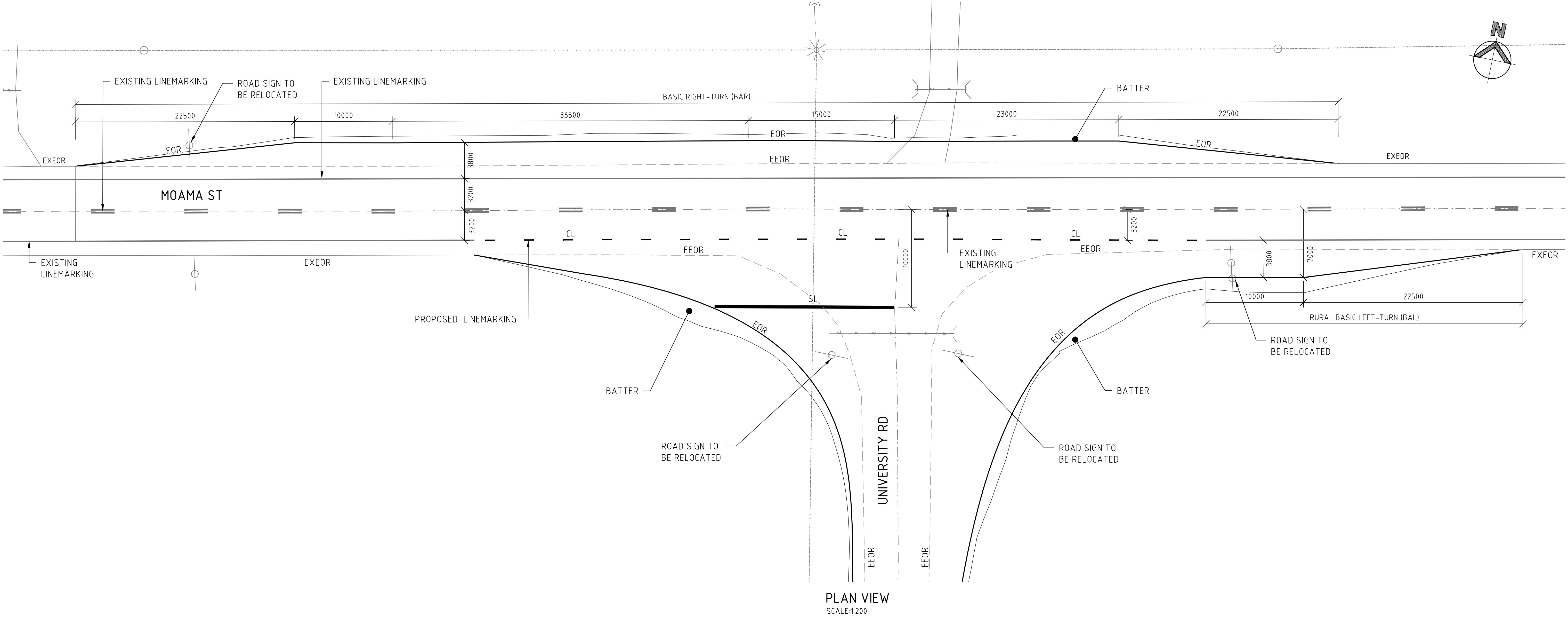
- CONTRACTOR TO ASSESS AND CONFIRM THE CONDITION OF EXISTING CULVERT AND HEADWALL TO BE REUSED.

HOLDS:

- INVERT LEVELS OF CULVERTS AND TABLE DRAIN TO BE CONFIRMED AT DETAILED DESIGN STAGE.



PROJECT MANAGERS PLANNERS DESIGNERS ENGINEERS				DRAWING ISSUE APPROVAL		REV	DATE	BY	DESCRIPTION	CHK	APP	PROJECT DETAILS	DRAWING TITLE	STATUS		
<div><div>TFA</div><div>Project Group</div></div> <div>Copyright Tfa Group Pty Ltd This drawing including design & information is covered by Copyright and all rights are reserved. This document may not be copied, reproduced, retained or disclosed to any unauthorised person, either wholly or in part, without prior consent in writing from TFA Group Pty Ltd. A C N 6 1 2 1 3 2 2 3 3</div>				NAME:	DATE:	A	25.08.23	DS	ISSUED FOR REVIEW	JA	JA	IOR UNMANNED DIESEL STOP CNR OF MOAMA ST & UNIVERSITY ROAD, HAY, NSW	ROAD EXPANSION DRAINAGE & GRADING PLAN	PRELIMINARY		
				PROFESSIONAL QUALIFICATION:		B	25.10.23	DS	MANHOLES ADDED	JA	JA			DATE CREATED	ORIGINAL SCALE	SHEET
				SIGNATURE:		C	25.09.24	DS	INTERSECTION UPDATED	JA	JA			25.08.23	1:250	A1
				Head office - Brisbane Ph: 617 3854 2900 166 Knapp Street, Fortitude Valley QLD 4006 Australia Email: enquiry@tfa.com.au Aust Wide: 1300 794 300											DO NOT SCALE THIS DRAWING. CONFIRM ALL DIMENSIONS ON SITE.	
															DRAWING NO	
												19297-HAY-SK01		C		



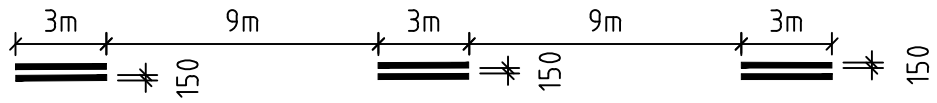
PLAN VIEW
SCALE:1:200

LONGITUDINAL LINE TYPES.

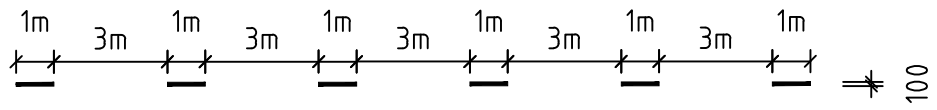
LONGITUDINAL LINES

WIDTH (mm)

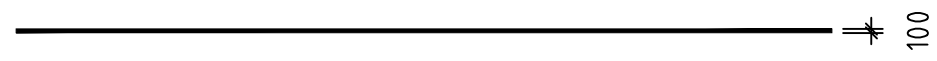
DOUBLE BROKEN DIVIDING LINE (DL)



CONTINUITY LINE (CL)



OUTLINE MARKING (OM)



STOP LINE (SL)



LEGEND:

- DL DOUBLE BROKEN DIVIDING LINE
- CL CONTINUITY LINE
- OM OUTLINE MARKING
- SL STOP LINE
- EOR PROPOSED EDGE OF ROAD
- EXEOR EXISTING EDGE OF ROAD TO REMAIN
- EEOR EXISTING EDGE OF ROAD TO BE MODIFIED
- ROAD CENTRE LINE
- EXISTING ROAD SIGN

PROJECT MANAGERS

PLANNERS

DESIGNERS

ENGINEERS

TFA

Project Group

Copyright TFA Group Pty Ltd
This drawing including design & information is covered by copyright and all rights are reserved. This document may not be copied, reproduced, retained or disclosed to any unauthorised person, either wholly or in part, without prior consent in writing from TFA Group Pty Ltd.
A C N 6 1 2 1 3 2 2 3 3

NAME:

DATE:

PROFESSIONAL QUALIFICATION:

SIGNATURE:

Head office - Brisbane

Ph: 61 7 3854 2900

166 Knapp Street, Fortitude Valley QLD 4006 Australia

Email: enquiry@tfa.com.au

Aust Wide: 1300 794 300

REV

DATE

BY

DESCRIPTION

CHK

APP

PROJECT DETAILS

DRAWING ISSUE APPROVAL

DRAWING TITLE

STATUS

19297-HAY-SK02

B

PRELIMINARY

DATE CREATED

25.08.23

ORIGINAL SCALE

1:200

SHEET

A1

DO NOT SCALE THIS DRAWING. CONFIRM ALL DIMENSIONS ON SITE.

DRAWING NO

REV

0

4

8

12

16

20m

SCALE 1:200

IOR

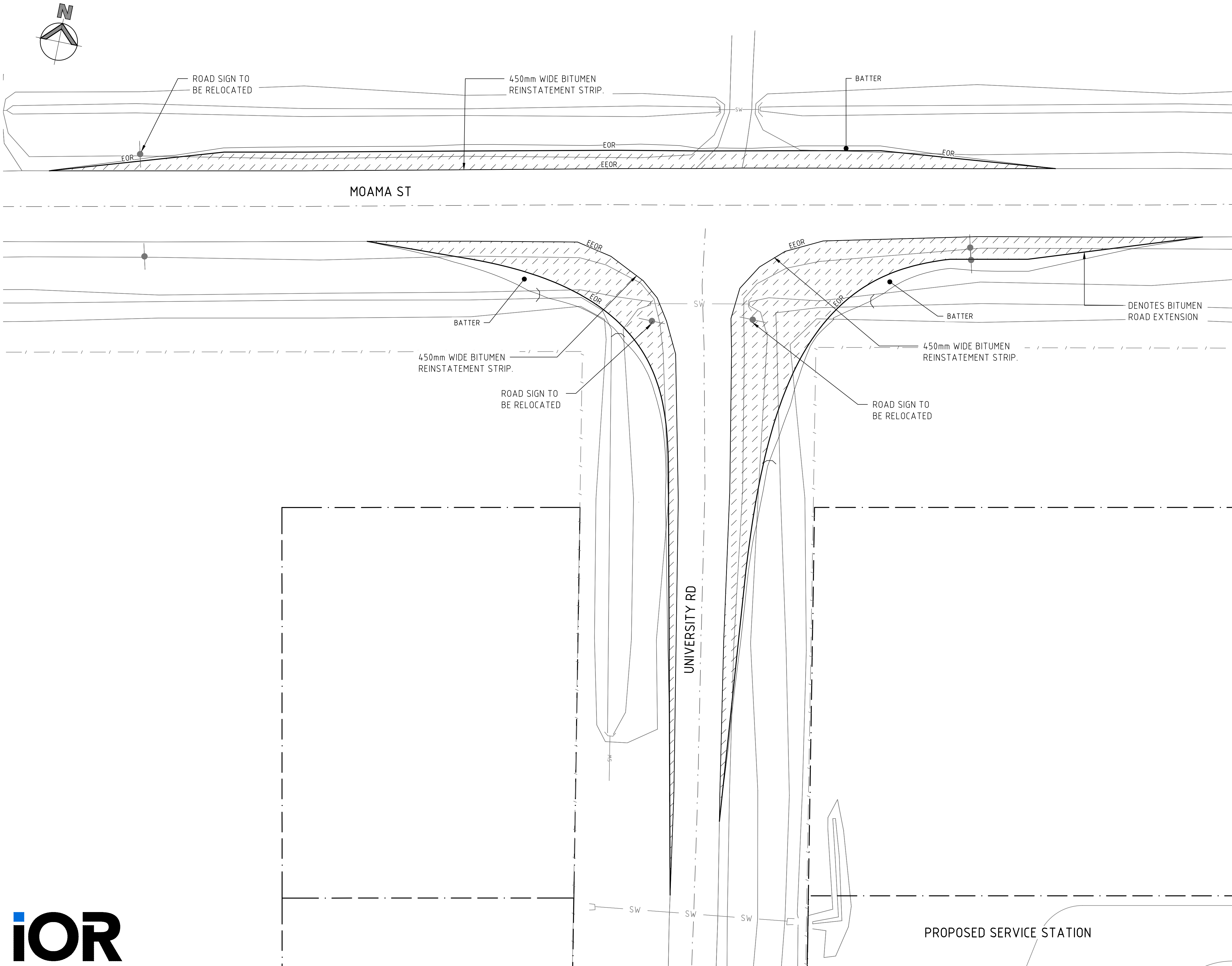
UNMANNED DIESEL STOP

CNR OF MOAMA ST & UNIVERSITY ROAD,

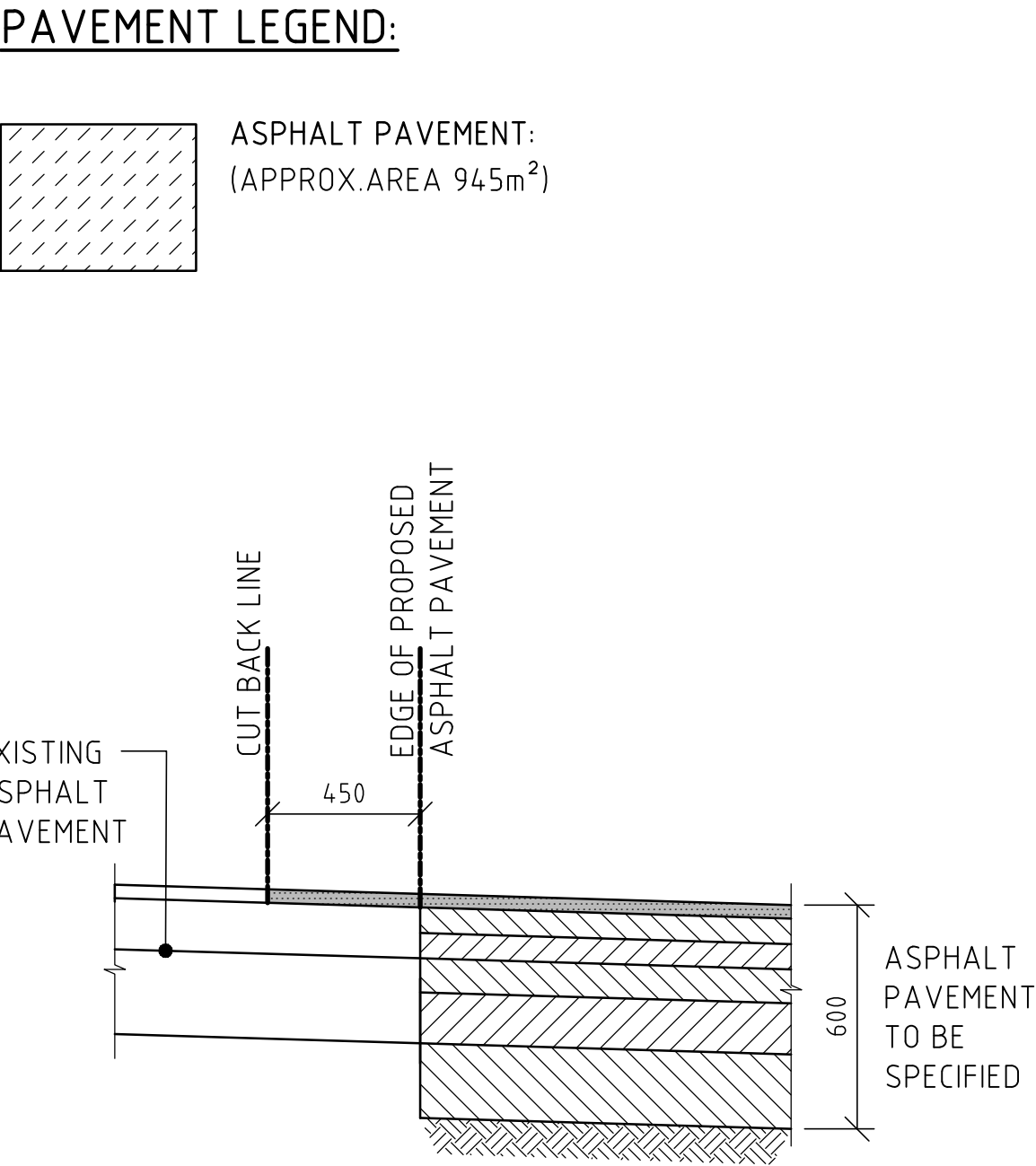
HAY, NSW


ROAD EXPANSION

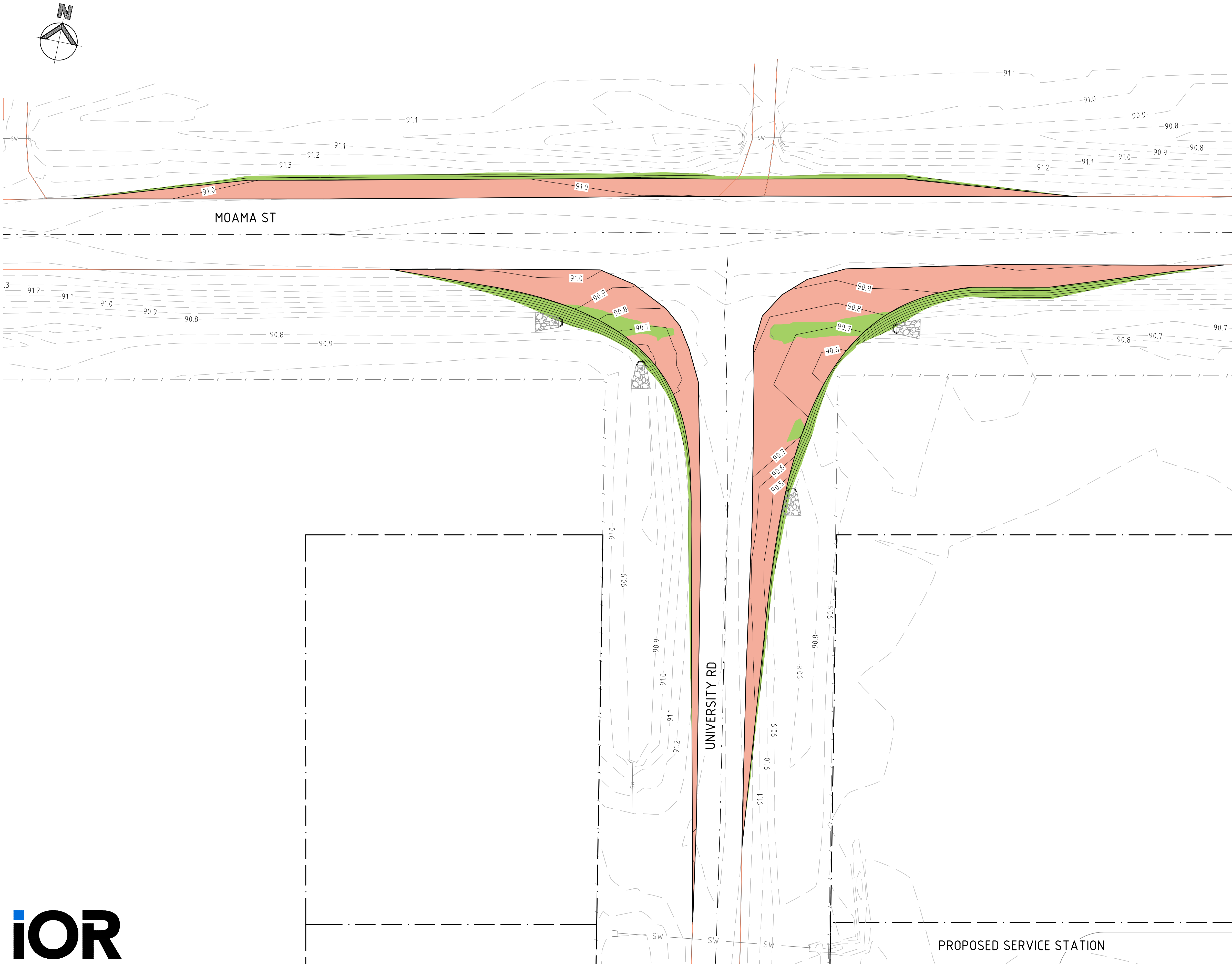
LINE MARKING



- LEGEND:**
- PROPERTY BOUNDARY
 - EXISTING FENCE
 - ROAD CENTRE LINE
 - EOR PROPOSED EDGE OF ROAD
 - EEOR EXISTING EDGE OF ROAD
 - ROAD CENTRE LINE



PROJECT MANAGERS PLANNERS DESIGNERS ENGINEERS				DRAWING ISSUE APPROVAL		REV	DATE	BY	DESCRIPTION	CHK	APP	PROJECT DETAILS	DRAWING TITLE	STATUS			
<div></div> <div>Copyright Tfa Group Pty Ltd This drawing including design & information is covered by Copyright and all rights are reserved. This document may not be copied, reproduced, retained or disclosed to any unauthorised person, either wholly or in part, without prior consent in writing from TFA Group Pty Ltd. A C N 6 1 2 1 3 2 2 3 3</div>				NAME:	DATE:	A	08.09.23	DS	ISSUED FOR REVIEW	JA	JA	IOR UNMANNED DIESEL STOP CNR OF MOAMA ST & UNIVERSITY ROAD, HAY, NSW	ROAD EXPANSION PAVEMENT PLAN	PRELIMINARY			
				PROFESSIONAL QUALIFICATION:		B	25.09.24	DS	INTERSECTION UPDATED	JA	JA			DATE CREATED	ORIGINAL SCALE	SHEET	
				SIGNATURE:										25.08.23	1:250	A1	
				Head office - Brisbane Ph: 61 7 3854 2900 166 Knapp Street, Fortitude Valley QLD 4006 Australia Email: enquiry@tfa.com.au Aust Wide: 1300 794 300										DO NOT SCALE THIS DRAWING. CONFIRM ALL DIMENSIONS ON SITE.			
												DRAWING NO				REV	
												19297-HAY-SK03				B	



LEGEND:

- PROPERTY BOUNDARY
- EXISTING FENCE
- PROPOSED EARTHWORKS LEVEL CONTOUR (0.1m INTERVALS)
- EXISTING LEVEL CONTOUR (0.1m INTERVALS)
- ESTIMATED CUT AREA
- ESTIMATED FILL AREA

BULK EARTHWORKS QUANTITIES	
BULK CUT	290m ³
BULK FILL	60m ³
NET CUT	230m ³
CLEARING	1165m ²



PROJECT MANAGERS | PLANNERS | DESIGNERS | ENGINEERS

Copyright Tfa Group Pty Ltd
This drawing including design & information is covered by copyright and all rights are reserved. This document may not be copied, reproduced, retained or disclosed to any unauthorised person, either wholly or in part, without prior consent in writing from Tfa Group Pty Ltd.
A C N 6 1 2 1 3 2 2 3 3

NAME: DATE:

PROFESSIONAL QUALIFICATION:

SIGNATURE:

Head office - Brisbane Ph: 61 7 3854 2900

166 Knapp Street, Fortitude Valley QLD 4006 Australia

Email: enquiry@tfa.com.au Aust Wide: 1300 794 300

REV	DATE	BY	DESCRIPTION	CHK	APP
A	08.09.23	DS	ISSUED FOR REVIEW	JA	JA
B	25.09.24	DS	INTERSECTION UPDATED	JA	JA

PROJECT DETAILS

IOR UNMANNED DIESEL STOP
CNR OF MOAMA ST & UNIVERSITY ROAD,
HAY, NSW

DRAWING TITLE

ROAD EXPANSION
BULK EATHWORKS PLAN

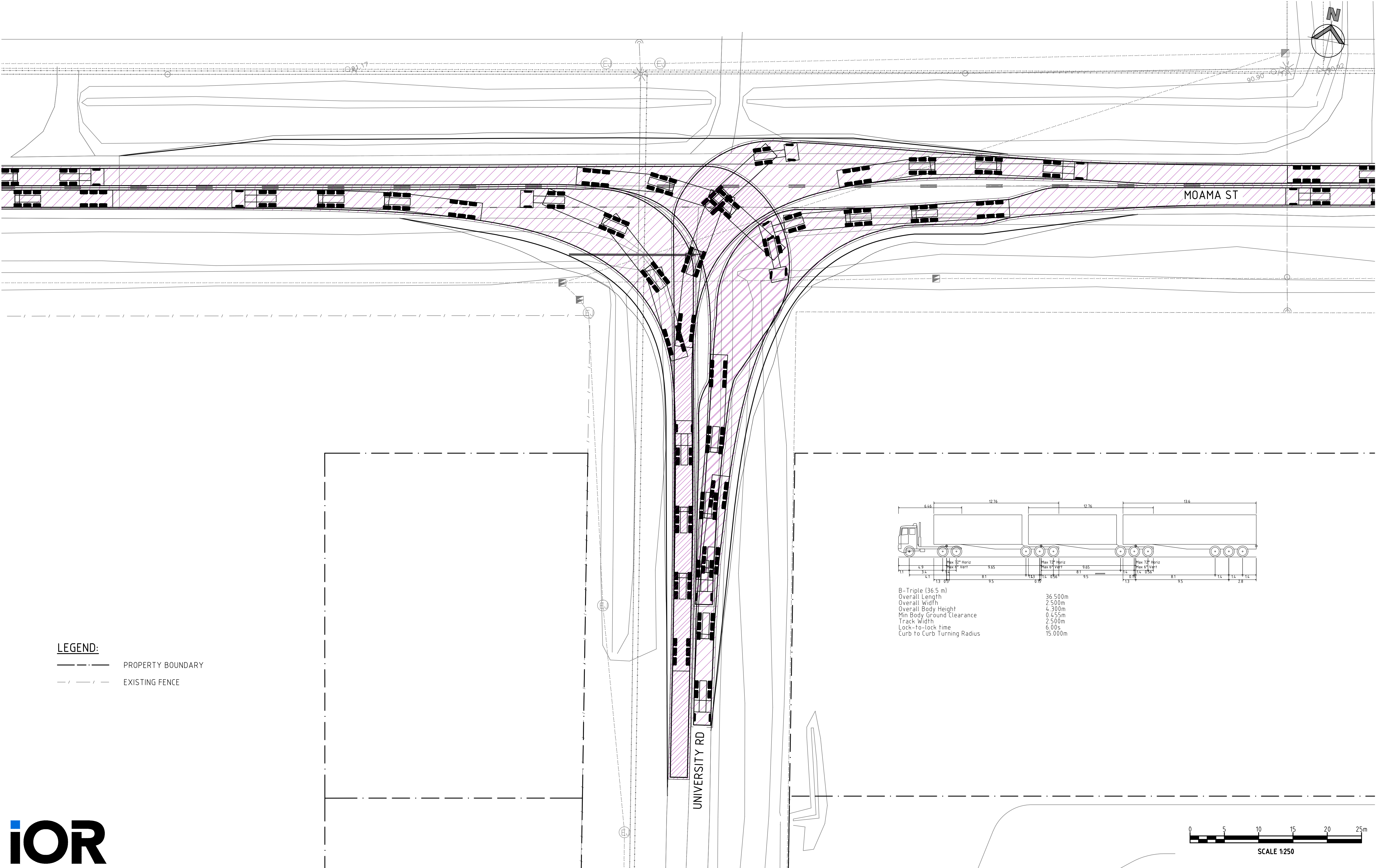
STATUS

PRELIMINARY

DATE CREATED	ORIGINAL SCALE	SHEET
25.08.23	1:250	A1

DO NOT SCALE THIS DRAWING. CONFIRM ALL DIMENSIONS ON SITE.

DRAWING NO	REV
19297-HAY-SK04	B



LEGEND:

- PROPERTY BOUNDARY
- EXISTING FENCE



PROJECT MANAGERS | PLANNERS | DESIGNERS | ENGINEERS

TFA Project Group

Copyright Tfa Group Pty Ltd
This drawing including design & information is covered by copyright and all rights are reserved. This document may not be copied, reproduced, retained or disclosed to any unauthorised person, either wholly or in part, without prior consent in writing from TFA Group Pty Ltd.
A C N 6 1 2 1 3 2 2 3 3

NAME:	DATE:
PROFESSIONAL QUALIFICATION:	
SIGNATURE:	
Head office - Brisbane	Ph: 617 3854 2900
166 Knapp Street, Fortitude Valley QLD 4006 Australia	
Email: enquiry@tfa.com.au	Aust Wide: 1300 794 300

REV	DATE	BY	DESCRIPTION	CHK	APP
A	26.09.24	DS	ISSUED FOR REVIEW	JA	JA

PROJECT DETAILS

IOR UNMANNED DIESEL STOP
CNR OF MOAMA ST & UNIVERSITY ROAD,
HAY, NSW

DRAWING TITLE

ROAD EXPANSION
TRUCK SWEPT PATH

STATUS		
PRELIMINARY		
DATE CREATED	ORIGINAL SCALE	SHEET
26.09.24	1:250	A1
DO NOT SCALE THIS DRAWING. CONFIRM ALL DIMENSIONS ON SITE.		
DRAWING NO	REV	
19297-HAY-SK05	A	

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@tpp.net.au

www.tpp.net.au