Amber

Traffic & Transportation Direction

Moree BESS

Moree Special Activation Precinct

Traffic Impact Assessment

September 2025

Reference: 1044 rep02 250819 draft

Moree BESS

Moree Special Activation Precinct

Traffic Impact Assessment

Prepared for: NGH Consulting Pty Ltd (NGH)

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Date: 12 September 2025

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Contact

Website: www.amberorg.com.au E: info@amberorg.com.au Phone: 1800 022 363

Executive Summary

Amber Organisation Pty Ltd has been engaged by NGH Consulting Pty Ltd (NGH) on behalf of Avenis Energy ('the Proponent') to prepare a Traffic Impact Assessment of the proposed Moree Battery Energy Storage System (BESS).

The project will comprise a BESS with a storage capacity of 120MW (up to four hours storage) and associated ancillary and electrical infrastructure. The Project Area is located within the Moree Special Activation Precinct (SAP), on the southern fringe of Moree on the eastern side Bulluss Drive. Main access to the site is proposed via a new crossover to Bulluss Drive with secondary access to the Trangrid substation and connection works via Campion Close.

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential is during construction which generates trips associated with the workforce accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate up to 8 vehicle trips per day associated with 1-2 maintenance personnel accessing the Project Area. Decommissioning is anticipated to generate a similar level of traffic to the construction stage.

The construction period is expected to commence in 2026 and take approximately 12 months, with the peak construction period expected to take 6 months. A construction workforce of up to 75 full time personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

It is anticipated that during peak construction of the BESS the Project could generate up to 80 light and 78 heavy vehicle trips per day. Construction of the BESS is expected to generate approximately 52 vehicle trips per hour in the morning and evening peak hours during the peak construction period, which would reduce to 30 vehicle trips per hour during the average construction periods.

In the unlikely event that Transgrid works were to coincide with the peak construction of the BESS, this could increase to 96 light and 98 heavy vehicle trips per day. Combined works could generate approximately 62 vehicle trips per hour in the morning and evening peak hours, which would reduce to 38 vehicle trips per hour during the average construction periods.

In order to determine the traffic impact generated during construction of the Project, an assessment of the operation of the Newell Highway / Bulluss Drive intersection was carried out. The assessment also included review of the cumulative traffic on the road network generated by other major projects in the surrounding area. Overall, the construction traffic is expected to have a minimal impact on the operation of the road network. Accordingly, it is concluded that the road network is able to accommodate the traffic generated by the development during the construction period.

Port Botany has been identified as the port where majority of BESS plant will be imported. The access route utilises roads that are designated for B-Double vehicles as outlined within the National Heavy Vehicle Regulator (NHVR) Restricted Access Vehicle Map. General construction materials and equipment will generally be sourced from the surrounding area where practicable.

Two access routes for oversize/overmass vehicles have been assessed from the Port of Newcastle and Glen Waverley in Victoria. Each route assessment confirms that oversize/overmass vehicles are able to suitably access the Project Area with suitable traffic management measures. The Route Assessments are provided within Appendix A of this document.

In order to mitigate the impacts of the Project during construction a Traffic Management Plan would be prepared which outlines a range of traffic management measures in order to ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road

network. The Traffic Management Plan would be prepared post-approval and prior to the construction of the Project.

Based on the assessment, it is concluded that the road network is able to accommodate the expected vehicle types and traffic volumes during the construction, operation, and decommissioning phases of the Project subject to the proposed road upgrades and traffic management measures. Further, the site access location has been suitably designed to allow vehicles to safely enter and exit the Project Area.

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Definitions

Term	Definition
Project	A Battery Energy Storage System as described within the EIS to which this Application applies.
Project Area	Boundary shown on Figure 1 to which the Application applies (unless otherwise stipulated).
Proponent	Avenis Energy

1. Background

1.1 Introduction

Amber Organisation Pty Ltd has been engaged by NGH Consulting Pty Ltd (NGH) on behalf of Avenis Energy ('the Proponent') to prepare a Traffic Impact Assessment (TIA) of the proposed Moree BESS.

The Project includes the construction, operation and decommissioning of a Battery Energy Storage System (BESS) and associated infrastructure with a targeted storage capacity of 120MW (up to four hours capacity) by the Proponent.

In addition, Transgrid would be responsible for the construction of a new 132kV bay or preparation of an existing bay, secondary high-voltage equipment and civil works within the existing substation on Campion Close

The Project Area is located within the Moree Special Activation Precinct (SAP), located on the southern fringe of the township of Moree. The BESS Project Area is located within Lot 144 (DP751780) and Lot 82 (DP 751780) with the Transgrid substation located in Lot 1 (DP999486) Bulluss Drive Moree, and is approximately 4.06 hectares in size. Figure 1 shows the proposed layout of the site in relation to the road network, access location and existing infrastructure. The main access to the site is proposed via Bulluss Drive with a secondary access for Transgrid works via Campion Close.

The construction period for the BESS is expected to commence in 2026 and take approximately 18 months, with the peak construction period expected to take 6 months. The construction period for the Transgrid works is 7 months with a peak construction period of 2 months. Commencement dates of the Transgrid works are currently unknown.

A construction workforce of up to 75 personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

Most specialist plant is expected to be delivered from Port Botany. General construction materials and equipment will be sourced from the surrounding area where practicable. High risk OSOM vehicles will deliver Project components from the Port of Newcastle or Glen Waverley in Victoria.

The impacts and proposed mitigation for traffic generated by the proposed construction, operation and decommissioning phases of the Project are addressed in this report in accordance with relevant regulatory requirements and guidelines.

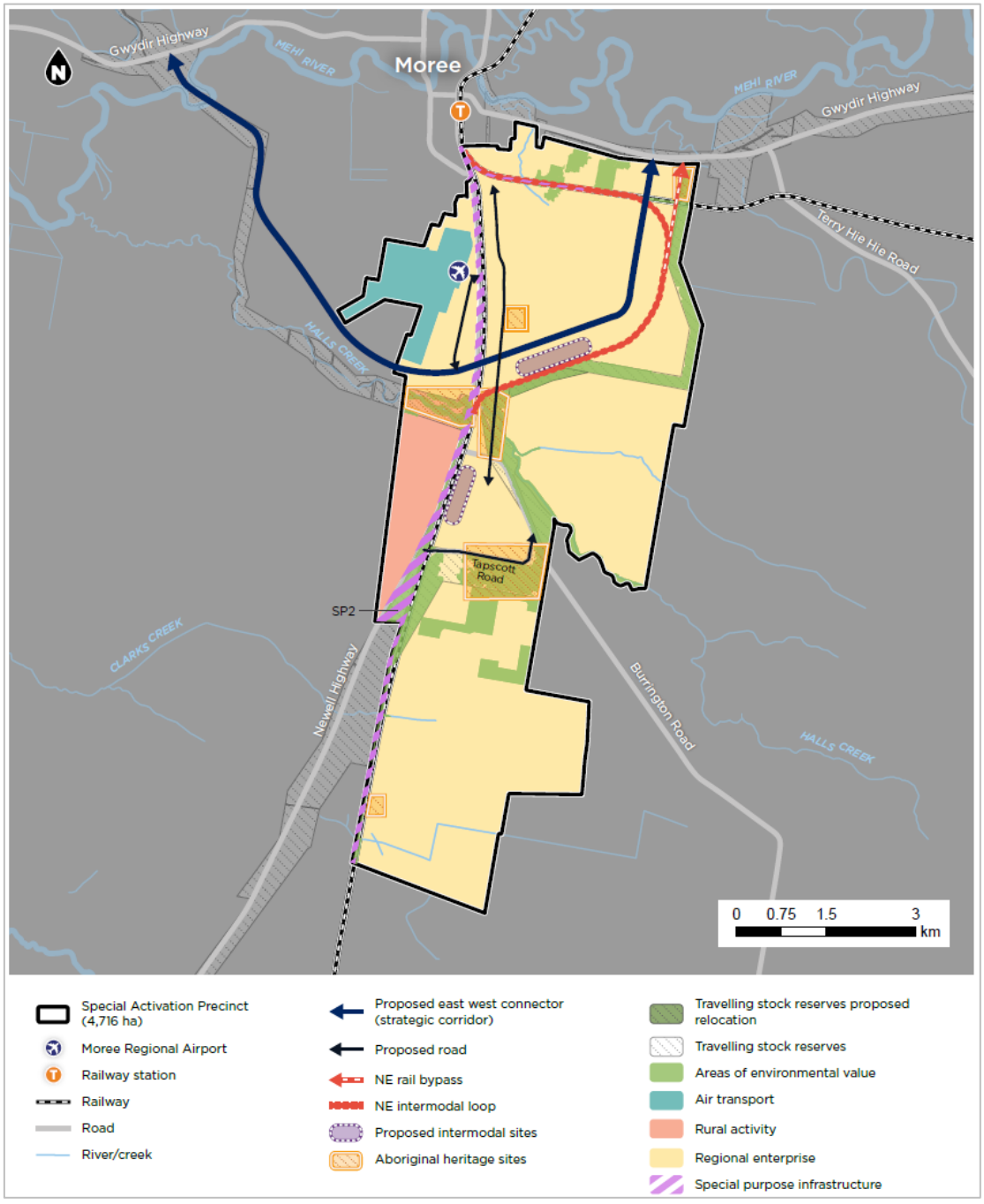
Figure 1: Project Layout

Source: NGH

1.2 Moree Special Activation Precinct

The Moree SAP is an area of 4,716 hectares aiming to leverage the existing strengths in agriculture with additional processing function and primary produce of the region. The strategic location takes advantage of the junction of Newell Highway, Gwydir Highway and Carnarvon Highway as well as having a direct interface with the Inland Rail and rail links to Newcastle, Port Botany, regional centres in south-east Queensland and NSW. The structure plan for the SAP can be seen in Figure 2.

Figure 2: Moree Special Activation Precinct Structure Plan



Source: Moree Special Activation Precinct Master Plan, 2022

A Transport and Traffic Plan focused on the traffic and transport component of the Moree Special Activation Master Plan (2021) was undertaken to assess the appropriateness of the land use structure plan and make recommendations on road upgrades to meet future demands. It recommended a range of upgrades to intersections and widening of roads be undertaken to commence during enabling works and ongoing through the 40-year vision for the development of the precinct.

1.3 Environmental Assessment Requirements

This report will support a Development Application to be submitted to the Planning Secretary of NSW. The proposed development must also be consistent with the Moree SAP Master Plan and the Moree SAP Delivery Plan to be issued an Activation Precinct Certificate (APC). The APC requirement is provisioned under the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation).

1.4 Road/Rail Authority Consultation

This Traffic Impact Assessment has been undertaken in consultation with TfNSW, Moree Plains Shire Council and ARTC with a summary provided in Table 1.

Table 1: Road Authority Consultation

Road Authority	Method	Correspondence
Transport for NSW	Email to Renewable Developments Team	Advised to utilise growth rate of 1.5% per annum for traffic forecasts. Recommendations for the route assessment from Port Botany for High Risk OSOMs (provided in Appendix C).
	Email to Special Permits Unit (SPU) team	A submission was made for a bridge and culvert assessment as a result of the TfNSW request for further information (refer Section 1.4.1). At the time of writing, no response has been received from the SPU team.
ARTC/Inland Rail	Email	Information on construction activities, timeline, impacts to HV permits around the SAP have been requested 10/02/2025 and 20/02/2025. ARTC were contacted for feedback on the Bulluss Drive Level crossing and advised that the crossing experiences, on average, approximately eight crossings per weekday.
Moree Plains Shire Council	Email	Council initially could not give detailed feedback on projected traffic volumes however advised that the road network has capacity for project traffic (provided in Appendix F). A virtual meeting was held with Council on 22 August 2025 and it was confirmed that vehicles entering the site via the Transgrid access were able to utilise Campian Close. Further discussion was held regarding an increase of 20% to the surveyed traffic volumes to allow for the harvest period when more vehicles were on the road. This allowance has been provided for within the assessment and the approach was confirmed as suitable by Council in an email dated 10 September 2025 (provided in Appendix F).

Road Authority	Method	Correspondence
Regional Growth NSW Development Corporation (RGDC)	Email	Feedback was sought on the status of any traffic surveys or planned road upgrades in the SAP area. RGDC advised that traffic surveys had been undertaken on Bulluss Drive but the results were not available, and that no changes were proposed to the Bulluss Drive road geometry adjacent to the proposed BESS lot or the proposed access route to site, aside from potential resurfacing works (provided in Appendix F).

1.4.1 TfNSW Response to Statement of Environmental Effects (SEE)

TfNSW outlined further information requirements in a letter (TfNSW reference: REN25/00119/001, SF2025/086805). The additional information required for the TIA, response and reference location is shown in Table 2. The TfNSW letter is attached to this TIA for reference in Appendix G

Table 2: TfNSW Response to SEE Comments and Response

Matter	TfNSW Comments	Response	Reference Location
High risk OSOM Route assessments	The Oversize/ overmass (OSOM) route assessments from Port Botany and Glen Waverly does not provided enough detail to properly assess the impact to the State road network. Strategic concept designs are required to be submitted where upgrade works are required. Location noted when reviewing the route assessment include: a) Erskine Street (Newell Hwy) and Darling Street , Dubbo - The swept path drawing (1044 Glen Waverley RA01C-page 26) indicates that temporary hardstand and mountable kerb to be provided. b) John Street (Newell Hwy) and Dalgarno, Coonabaraban - The swept path drawing (1044 Glen Waverley RA01C-page 29) indicates that mountable kerbing is to be provided. c) Newell Highway and Kimailaroi Highway, Narrabri - The swept path drawing (1044 Glen Waverley RA01C-page 31) indicates that temporary hardstand and mountable kerbing is to be provided. d) Botany Road and Bunnerong Road, Matraville - The swept path drawing (1044 Port Botany RA01D-page 03) indicates that temporary hardstand and mountable kerbing is to be provided. e) Kamilaroi Highway and Oxley Highway, Gunnedah - The swept path drawing (1044 Port Botany RA01D-page 14) indicates that temporary hardstand is to be provided.	After consideration of the impacts of the High-Risk OSOM vehicle combination buy the Project Team, the proposed combination has been reviewed and the route from Port Botany changed to Port of Newcastle. The revised assessments show that the site can be accessed with suitable traffic control measures without civil works or upgrades.	Section 6

Matter	TfNSW Comments	Response	Reference Location
	An NHVR The high-risk OSOM laden loads, class and vehicle configuration must include the following information regarding the dimensions, weight and length: a) NHVR route ID, b) Overall dimensions (width, height and length) of the laden load (laden load is the vehicle combination and the load to be transported), c) Total weight of laden load, d) GSM, e) Payload, f) deck height, g) axle configuration, h) axle spacing, including from the prime mover, and i) axle masses (including split axle and group axle masses)	An NHVR Route ID has been included for the two routes being considered for High-Risk OSOM in this report, along with the anticipated specifications and dimensions of the combination. More detailed information including axel loads and the like was provided to TfNSW's Development Renewables and SPU teams via email for the purposes of the bridge and culvert Assessment, included for reference in Appendix H.	**Section 6**
	No bridge assessment has been provided. This is required as the loads fall into high-risk category. This is required to be assessed and included in the response.	A submission was made for a bridge and culvert assessment via email in August 2025. At the time of writing no response has been received.	**N/A**
Traffic Impacts	Consideration is required regarding the seasonal harvest heavy vehicle movements near the locality of the site. The revised TIA is to identify mitigation measures that are needed to ensure that the road network can support the through and additional project construction traffic during the harvest season.	To approximate harvest seasonal peaks, an increase of 20% has been applied to the surveyed traffic volumes.	**Section 4.2.6**
	The impact of the increase in traffic movements near at the intersection of Newell Highway/Bulluss Drive, and the rail level crossing on Bulluss Drive need to be considered within the revised TIA.	The rail corridor has been included as part of a revised SIDRA assessment as part of a network model which shows that the intersection would continue to operate at Level of Service A and 95th percentile queuing can be fully accommodated in the available turn lanes.	**Section 4.2.6**

1.5 Purpose of Document

This Traffic Impact Assessment has been prepared to assess the construction, operational and decommissioning traffic impacts, and the access arrangements of the Project. The assessment details how road impacts of the Project traffic, particularly from heavy vehicle use and oversize and overmass vehicles, would be avoided or managed using road-use management strategies.

More specifically, the report addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes.
- An assessment of the potential traffic impacts of the Project on road network function and safety.
- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the Project.
- Details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control dust generated by traffic volumes.
- Details of access roads and how these connect to the existing road network and ongoing operational maintenance.

The traffic assessment has been undertaken in accordance with the *TfNSW Guide to Traffic Generating Developments* and relevant Austroads Guidelines.

2. Existing Conditions

2.1 Site Location

The Project Area is located within the Moree Special Activation Precinct (SAP), on the southern fringe of the town of Moree. The proposed BESS facility is located within a property on Bulluss Drive (Lot 1/DP999486, Lot 144/DP751780, and Lot 82/DP 751780). Figure 3 shows the location of the site in relation to the surrounding transport network.

Figure 3: Site Location

Source: OpenStreetMap

The figure shows the site is well connected with the surrounding State Road network with Newell Highway providing access to Moree and other towns to the north and south such as Narrabri and Goondiwindi, and Gwydir Highway allowing access to towns to the east and west. Carnarvon Highway is also accessible from the north side of Moree to access towns in south central Queensland.

The site and surrounding areas of the SAP are currently zoned REZ – *Regional Enterprise Zone.* The land east of the SAP is predominately zone RU1 – *Primary Production* and to the south a small zone RU4 – *Primary Production Small Lots* exists. The site is vegetated land which is currently unused by any agricultural activity.

Figure 4 provides an aerial photograph of the site and the surrounding area.

Figure 4: Aerial Photograph of Site and Surrounding Area

Source: Nearmap

2.2 Road Network

Newell Highway is a State Road that runs in a general north-south alignment between Tocumwal on the border of NSW and Victoria and Goondiwindi on the border of NSW and Queensland. Within the vicinity of the site, it has a speed limit of 60km/hr and a carriageway width of approximately 12.0 metres accommodating one lane of traffic in each direction and 2.5 metre shoulders. The road widens at the intersection with Bulluss Drive for channelised left and right turn treatments as well as a channelised left turn lane for northbound vehicles turning into Frome Street.

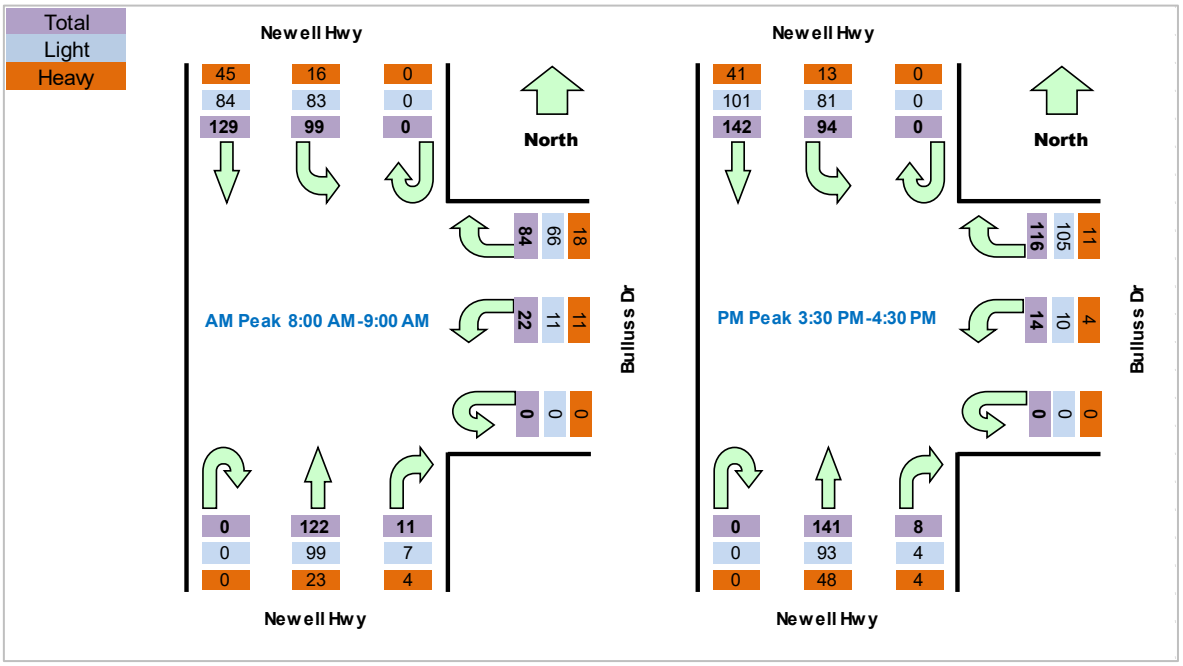
Bulluss Drive is a Municipal Road that runs in a general north-south alignment between Newell Highway and Burrington Road. The north section of the road is sealed with a carriageway width of approximately 7.0 metres accommodating one lane of traffic in each direction. Approximately one kilometre south of the site the road is unsealed through to Burrington Road. Bulluss Drive has a posted speed limit of 50km/hr.

Campion Close is a Municipal Road that runs in a general east-west alignment between Bulluss Drive and its termination after approximately 250 metres. The road is generally unsealed with a trafficable width in the order of 5 to 8 metres. The intersection and the approach to the connection with Bulluss Drive is sealed. The intersection is controlled by way of a Give Way sign and line marking.

2.3 Traffic Volumes

Amber commissioned a turning movement count survey at the intersection of Newell Highway and Bulluss Drive to determine the existing traffic conditions. The survey was undertaken on Thursday 6 February 2025. A summary of the results are presented in Figure 5 with the full survey data provided within Appendix B.

Figure 5: Peak Hour Survey Results – Newell Highway / Bulluss Drive



The survey data indicates that the intersection currently experiences a moderate level of traffic with the highest volumes being through movements on the Newell Highway, which would be expected. In the order of 200 vehicles were recoded turning to and from Bulluss Drive in each of the peak hours, with the majority of traffic generated to/from the north (i.e. Moree).

A further review of the results shown that approximately 25% and 23% heavy vehicles use this intersection in the morning and afternoon peak hours, respectively.

2.4 Public Transport Services

Moree has an "On Demand" bus service operated by Cavanagh Bus and Coach Pty Ltd. The On Demand service can pick up and drop off passengers where they wish within Moree. The service must be pre-booked up to four weeks in advance and is available every day between the hours of 7:00am and 7:00pm. The Moree SAP is within the boundary of where the On Demand service is provided.

There are a number of TfNSW train and coach services offered from Moree. Daily train services depart from the Moree Station at 8:05am to Werris Creek, which then continues onto Sydney. The return train trip arrives at the station at 6:00pm every day. Bus routes 141 and 142 operate between Moree and Grafton. The 142 service leaves from the Moree Town Coach Stop, located on Auburn Street, at 10:55am and from Moree Station at 11:00am every Monday, Wednesday and Friday. The 141 service returns from Grafton every Tuesday, Thursday and Saturday arriving at the Moree Station at 4:05pm and the Coach Stop at 4:10pm. The coach services do not use roads directly impacted by the Project construction activity.

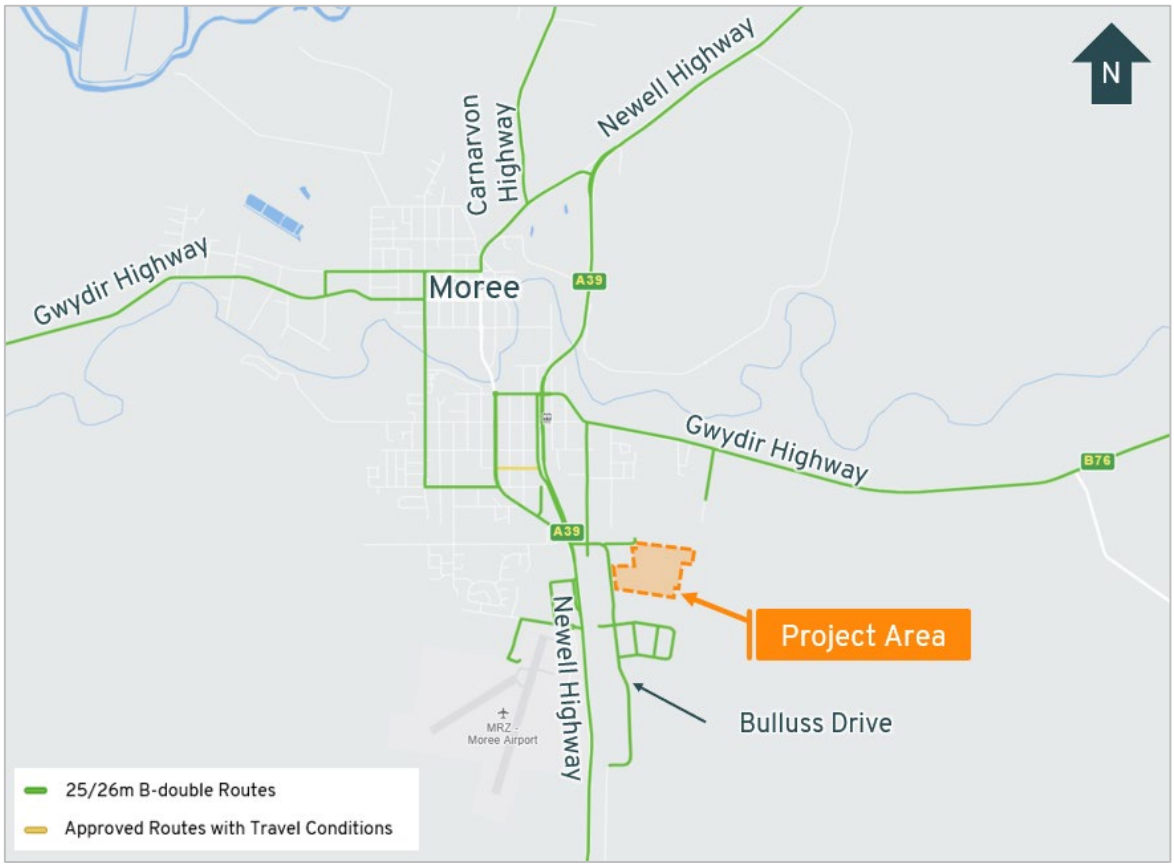
One TfNSW school bus service has been identified which operates around Moree and may interface with Project related traffic. Route S631, Moree School to Tyrone Road, operates along Newell Highway, driving past the intersection with Bulluss Drive. This service operates in a northbound direction from Moree Airport at approximately 8:15am and southbound from Frome Street at approximately 3:30pm on school days only. There is no bus service on Bulluss Drive.

2.5 Restricted Vehicle Access

2.5.1 B-Doubles

The TfNSW Restricted Access Vehicle Map for the surrounding area is provided within Figure 6. The green lines indicate approved B-Double routes while the orange lines represent approved routes with travel conditions. The figure shows that Bulluss Drive and the surrounding State Road network are B-Double approved routes. Accordingly, the site has access to the B-Double approved road network via Bulluss Drive and Newell Highway.

Figure 6: TfNSW 26m B-Double Network Approved Roads



Source: NHVR Restricted Access Vehicle Map

2.5.2 Class 1 OSOM Vehicles

The TfNSW Oversize Overmass (OSOM) Load Carrying Vehicles Network map for the surrounding area is provided within Figure 7. The map shows approved routes for eligible vehicles operating under the Multi-State Class 1 Load Carrying Vehicles Mass and Mass Exemption Notices. A summary of the allowances under each exemption within New South Wales is provided below:

- Dimension: up to 5.0m wide, 5.0m high, 30.0m long and 7.5m rear overhang on approved (state owned) routes in NSW.
- Mass: up to 115.0 tonnes for rows of 8 tyres low loaders and up to 77.5 tonnes for rows of 4 tyres low loader combinations.

Vehicles operating in the daytime and not exceeding 3.5m wide or 26m long generally do not require a pilot vehicle.

The green lines indicate approved Class 1 OSOM Vehicle routes. Accordingly, Bulluss Drive is currently an unrated road and Newell Highway is only approved for Class 1 OSOM vehicles with travel conditions.

Figure 7: TfNSW Class 1 Oversize Overmass Load Carrying Vehicles Network Approved Roads

Source: NHVR Restricted Access Vehicle Map

The travel conditions on Newell Highway are imposed from Blueberry Road, Moree, to Killarney Gap Road, Narrabri. As per the National Heavy Vehicle Regulator, the conditions on the road state:

> *To ensure safe and efficient passage for vehicles over 3.8m wide, the following steps must take place:*
>
> - *Vehicles over 3.8 metres in width are to email cnc.west@transport.nsw.gov.au five working days prior to travel and advise date/time of travel along with a contact number for driver.*
> - *Vehicles over 3.8 metres in width are to follow the signage and utilise the wide load pull over bays provided. Once in the bays follow the instructions on the signs.*

The railway level crossing with travel conditions identified in Moree is across Gwydir Highway, east of Newell Highway. The following conditions are in place for the crossing:

Vehicle must approach and traverse the designated level crossings at a speed not less than 35km/h. If the vehicle can not comply with this condition, the operator must contact Rail Infrastructure Manager. Rail Infrastructure Manager contact details available at: Oversize and/or overmass (OSOM) vehicles & loads.

The rail line is owned by ARTC and also forms part of the Inland Rail corridor.

2.5.3 Special Purpose Vehicles (SPVs)

Vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig are defined as Special Purpose Vehicles (SPVs).

The NSW Special Purpose Vehicle Network map provides details of the approved roads as well as conditions of access and travel restrictions for eligible SPVs operating under the:

- National Class 1 Special Purpose Vehicle Notice;
- NSW Class 1 4-Axle & 5-Axle All Terrain Mobile Crane Mass and Dimension Exemption Notice; or
- NSW Class 1 All Terrain Mobile Crane and Dolly Combination Mass and Dimension Exemption Notice.

Roads that are not approved on the map require an access permit from the National Heavy Vehicle Regulator or the relevant road manager. There are six SPV access networks for cranes travelling on approved State Roads in NSW:

- SPV Level 1: Cranes and SPVs up to 40 tonnes that comply with the Bridge Formula.
- SPV Level 2: Crane and dolly combinations up to 70 tonnes that comply with the Bridge Formula.
- SPV Level 3: 3-axle All Terrain Cranes up to 36 tonnes and 4-axle All Terrain Cranes up to 43 tonnes.
- SPV Level 4: 4-axle All Terrain Cranes up to 45.8 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 4 / 12t per axle: 4-axle All Terrain Cranes up to 48 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 6: 5-axle All Terrain Cranes up to 60 tonnes.

As shown in Section 2.5.1 and 2.5.2, the site has good access to heavy vehicle road network through Bulluss Drive and Newell Highway. Key roads and assets have been assessed against the NHVR Special Purpose Vehicle Network Map. Travel conditions have been found at some locations for different SPV classifications. The current conditions are presented in Table 3.

Table 3: Travel Conditions for SPV on Key Roads and Assets

SPV Classification	Bulluss Drive	Newell Highway (north of Bulluss Drive)	Newell Highway (south of Bulluss Drive)	Bulluss Drive Railway Level Crossing
Level 1	Conditions: No access to any laneways; Any roads that are signposted as having a load limit below the total mass of the crane are restricted. The only exception to this condition is when the crane is undertaking work on a load limited road as per the Local Government Act 1993.	Approved to Greg Jones Bridge, Moree	Condition: Vehicles exceeding 2.5 metres wide or 22 metres long are not permitted to travel between sunrise and sunset during public holiday periods (including 23 December in one year to 3 January of the following year inclusive).	Condition: Never stop on or within three metres of the railway tracks. Cranes travelling under notice can cross ARTC level crossings with caution. If a vehicle breaks down and is fouling, near to, or damages a crossing or other ARTC infrastructure, phone 000 advising the location. Emergency services will advise on next steps. If a vehicle damages a crossing or other ARTC infrastructure and it is not an emergency, report it to local police on 131 444.
Level 2	Unrated			
Level 3	Conditions: No access to any laneways; Any roads that are signposted as having a load limit below the total mass of the crane are restricted. The only exception to this condition is when the crane is undertaking work on a load limited road as per the Local Government Act 1993.			
Level 4	Unrated			
Level 4 & 12t axle				
Level 6				

The NHVR Special Purpose Vehicle Network Map should be consulted when project SPVs are known to ensure only approved routes are used or all travel conditions are met.

2.6 Crash History

Amber has conducted a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all recorded casualty crashes within the surrounding area of the Project. The crash database provides the location and severity of all injury and fatal crashes for the five-year period from 2019 to 2023. The search area included Newell Highway, 400 metres north and south of the intersection with Bulluss Drive, and Bulluss Drive, from Newell Highway to 400 metres south of the Project Area, as well as all associated intersections.

The results of the crash search are summarised in Table 4.

Table 4: Crash Search Results

Road	Location	Severity	Crash Type	Date and Time	Light and Weather Conditions
Newell Hwy	300m North of Blueberry Rd	Fatal	Off road to the right, hitting object	February 2023 (06:00 - 07:59)	Daylight (Fine)
Newell Hwy	Intersection with Bulluss Dr	Moderate Injury	Off road to the left, hitting object	May 2021 (22:00 - Midnight)	Darkness (Fine)
Bulluss Dr	Intersection with Industrial Dr	Moderate Injury	Off road to the left on right bend	April 2022 (00:01 - 01:59)	Darkness (Fine)

The crash search indicates that there are no discernible crash trends. One fatal crash was recorded on a straight section of road between Bulluss Drive and Blueberry Road. The crash involved one car only, leaving the road and hitting a roadside object. Given the circumstances and the isolated nature of this crash, it does not appear to be a result of road conditions or representative of a road safety issue.

Given the large search area, the associated traffic volumes on the roads, and the road classifications, it is concluded that the road network is currently operating in a relatively safe manner.

3. Project Description

3.1 Proposed Works

The Project involves the construction, operation and decommissioning of a Battery Energy Storage System (BESS) and associated infrastructure within the Moree Special Activation Precinct (SAP). The Project would consist of the following components:

- 140 MW BESS with up to four hours lithium-ion battery storage capacity;
- Inverter and transformer units;
- Switchgear;
- Maintenance workshop;
- New access road off Bulluss Drive;
- On-site water storage;
- Parking, site office and amenities;
- Earthworks and Stormwater management;
- Lay down areas and internal access tracks; and
- Security fencing.

The project is to be constructed on privately owned land adjacent to the Moree Zone Substation.

3.1.1 Connection Works

The works also involve a short underground transmission cable would connect the proposed development to the adjacent Moree Bulk Supply Point Substation. The connection type will be subject to Transgrid's requirements and involve termination at either an existing 132kV bay or a newly constructed 132kV bay on the 132kV Transgrid busbar.

As part of this connection, Transgrid would be responsible for the following works within their land:

- Construction of either an 132kV bay or preparation of an existing 132kV bay to facilitate the integration of the BESS within the substation infrastructure.
- Installation of associated secondary high-voltage equipment required for the selected connection option, ensuring compliance with Transgrid's technical and operational standards.
- Execution of any necessary civil works to support the bay construction or modification, including foundation works, trenching, upgrade of access and any additional internal tracks, and structural reinforcements as required.

The final design and scope of these works will be determined in coordination with Transgrid's technical and regulatory requirements.

3.2 Construction Information

The physical construction of the BESS is expected to commence in 2026 and take up to approximately 12 months, with the peak construction period expected to take 6 months. The construction period for the Transgrid works is 7 months with a peak construction period of 2 months. Commencement dates of the Transgrid works are currently unknown.

Construction activities would be undertaken during standard daytime construction hours, as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 7am – 1pm
- No work on Sundays or public holidays.

Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities and consultation with impacted road users. A construction workforce of up to 75 personnel would be on-site during the peak construction phase and would primarily be drawn from Moree and Narrabri.

A Traffic Management Plan (TMP) would be prepared prior to construction commencing as outlined in Section 8.

4. Traffic Assessment

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential is during construction which generates trips associated with the workforce accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate a lower amount of traffic associated with up to 1-2 full time maintenance personnel accessing the Project Area each day. Decommissioning is anticipated to generate a similar level of traffic to the construction stage.

The following provides an assessment of the potential traffic impacts of the Project on the road network function for each of the three stages.

4.1 Definitions

The following terminology is referenced throughout this section and within the remainder of the report.

Table 5: Traffic Assessment Definitions

Terminology	Definition
Vehicle Trip	A trip is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to and from the site is counted as two trips.
Vehicle Trips per Day (vpd)	The volume of traffic (number of trips) occurring within a 24-hour period. For traffic volumes associated with the Project, this value is generally an even number to reflect the arrival and departure of each vehicle.
Vehicle Trips per Hour (vph)	The volume of traffic (number of trips) occurring within a one hour period.
Heavy Vehicle	A vehicle with a Gross Vehicle Mass (GVM) or Aggregate Trailer Mass (ATM) of more than 4.5 tonnes as defined in the Heavy Vehicle National Law (HVNL).
General Access Vehicle (GAV)	General Access Vehicles (GAV) don't require a permit or notice to access road networks; these vehicles have as-of-right access to the network unless signposted otherwise (e.g. a bridge tonnage restriction).
Restricted Access Vehicle (RAV)	Restricted Access Vehicles (RAV) include Class 1, 2 or 3 vehicles that operate under a notice or permit and vehicles operating under higher mass limits (HML) that have restrictions on the parts of the road network they can access.
High Risk Oversize/Overmass Vehicle (requiring escort)	OSOM vehicles exceeding certain criteria for length, height, rear overhang, forward projection, width or total combination weight. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that these movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure. These vehicles also typically require a pilot vehicle/escort.

4.2 Construction Phase

4.2.1 Construction Traffic Generation

Construction traffic generated by the Project on a day-to-day basis can be broadly separated into the following categories as outlined in Table 6.

Table 6: Standard Construction Traffic

Terminology	Definition
Light Vehicles	The use of light vehicles will be associated with transporting the workforce to/from the Project Area. A vehicle occupancy of 1.5 people per car has been adopted to calculate the light vehicle traffic generation.
Heavy Vehicles	
Shuttle Buses	The Applicant has advised that shuttle buses will be utilised to transport the majority of the workforce to/from Moree.
Rigid Trucks	Rigid Trucks will be used to deliver raw materials and smaller plant and have a typical length between 8 and 13 metres.
Truck and Dog	Truck and Dog vehicles consist of a rigid truck towing either a dog trailer or a pig trailer and are not more than 19 metres in length. A dog trailer is a trailer with axles at either end of the trailer, a pig trailer has the axles centred on the trailer. These vehicles will be utilised to transport the majority of quarry materials to/from the site.
Semitrailers	Semitrailers will be used to transport larger equipment and materials. These vehicles consist of a truck and a single trailer with a total length of 19 metres.
B-Doubles	B-Doubles will also be used to transport larger plant. B-Doubles consist of a truck with two trailers and have a maximum length of 26 metres.
Non High Risk OSOM (not requiring escort)	Class 1 OSOM vehicles which can operate on the approved network outlined in Section 2.5.2 subject to travel conditions, as well as vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig which are defined as Special Purpose Vehicles (SPVs) and can also operate on the relevant approved networks subject to travel conditions.

The peak hour for construction traffic will occur at the start and end of the day when workers are transported to/from the Project Area. Most workers will typically arrive on-site between 6:00am and 7:00am and depart between 5:00pm and 7:00pm. Workers generally have staggered finish times which results in the evening peak hour being less pronounced, however for the purposes of this assessment it is conservatively assumed that the evening peak hour Project traffic is the same as the morning peak, and the evening peak hour occurs from 5:00pm to 6:00pm.

The construction traffic volumes for the Project have been provided by the Proponent and Transgrid representatives.

Table 7 and Table 8 summarise the forecast traffic volumes expected to be generated during the construction period of the Project for the BESS and Transgrid works, respectively. Table 9 shows the total expected traffic generation of the project during construction.

Overall, as shown in Table 9 it is anticipated that during peak construction the Project could generate up to 96 light and 98 heavy vehicle trips per day if the BESS and Transgrid peak construction were to coincide.

Table 7: Traffic Generation During Construction Period – BESS Construction

Vehicle Type		Average Construction Periods		Peak Construction Period	
		Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)	Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)
Light Vehicles		35	20	80	30
Heavy Vehicles	Shuttle Bus	4	2	4	2
	Rigid Trucks	8	2	12	4
	Truck and Dog	22	4	48	12
	Semitrailers	8	2	8	4
	B-Doubles	2	0	6	0
	Special Purpose Vehicle	0	0	0	0
	Other OSOM Vehicle	2	0	4	0
	HV Subtotal	46	10	82	22
Total		**81**	**30**	**162**	**52**

Table 8: Traffic Generation During Construction Period – Transgrid Construction

Vehicle Type		Average Construction Periods		Peak Construction Period	
		Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)	Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)
Light Vehicles		12	6	16	8
Heavy Vehicles	Shuttle Bus	0	0	0	0
	Rigid Trucks	2	1	4	1
	Truck and Dog	2	1	4	1
	Semitrailers	0	0	2	0
	B-Doubles	0	0	0	0
	Special Purpose Vehicle	0	0	2	0
	Other OSOM Vehicle	2	0	4	0
	HV Subtotal	6	2	16	2
Total		**18**	**8**	**32**	**10**

Table 9: Traffic Generation During Construction Period – BESS and Transgrid Construction

Vehicle Type		Average Construction Periods		Peak Construction Period	
		Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)	Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)
Light Vehicles		48	26	96	38
Heavy Vehicles	Shuttle Bus	4	2	4	2
	Rigid Trucks	10	3	16	5
	Truck and Dog	24	5	52	13
	Semitrailers	8	2	10	4
	B-Doubles	2	0	6	0
	Special Purpose Vehicle	0	0	2	0
	Other OSOM Vehicle	4	0	8	0
	HV Subtotal	52	12	98	24
Total		**100**	**38**	**194**	**62**

If the BESS and Transgrid construction were to coincide., the Project is expected to generate up to 62 vehicle trips per hour (vph) in the morning and evening peak hours during the peak construction period, which would reduce to 38 vph during the average construction periods.

4.2.2 Non High Risk OSOM Vehicles

There is a requirement for control buildings and switchroom to be delivered to the Project Area. The vehicle and load would be classified as Non High Risk OSOM. It is anticipated that the vehicle would comply as a Class 1 OSOM vehicle and would be able to operate on the approved Class 1 OSOM road network. The vehicle would access the site via Bulluss Drive which is rated to accommodate complying vehicles.

4.2.3 High Risk OSOM Vehicles

In addition to the traffic volumes outlined in Table 9, High Risk OSOM vehicles will also be required for the delivery of large plant and equipment. These vehicles would exceed the Class 1 mass and/or dimension requirements and are subject to separate permit applications and regulations, including use of a pilot vehicle escort.

High Risk OSOM vehicles will contribute the smallest percentage of vehicles accessing the Project Area during the construction period and are subject to the development of Transport Management Plans to manage each vehicle trip in a safe manner. The movement and impact of these vehicles, and the subsequent mitigation measures required, are discussed within Section 6. The following assessment focuses on the impacts of the light and heavy vehicles outlined in Table 9 which generate the bulk of the traffic and represent the typical traffic impacts of the Project on a day-to-day basis.

4.2.4 Traffic Distribution

It is understood that all traffic would access the Project Area via Bulluss Road or Campion Close. The workforce for the construction of the Project would be located in Moree and Narrabri. Materials and equipment will generally be sourced from the surrounding area where practicable, with all larger plant expected to be delivered from Port Botany.

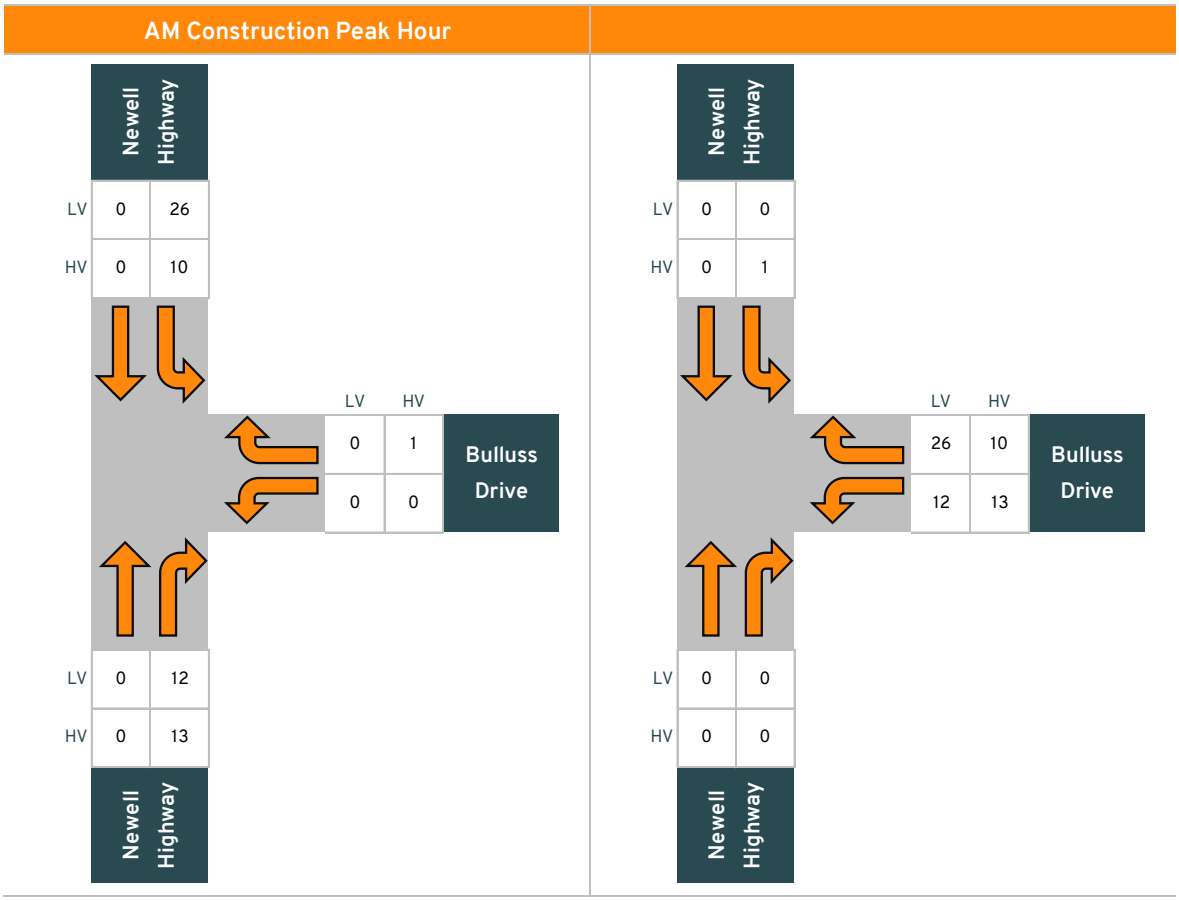
The vehicle distributions have been estimated based on the population of nearby towns, proximity to the Project Area and availability of materials within each town. The following provides a breakdown of the distributions for each of the vehicle classifications outlined within Table 9:

- **Light Vehicles:** Light vehicles would be associated with workers travelling to/from the site. It is anticipated that 75% would be located in Moree and would travel to Bulluss Drive/Campion Close along Newell Highway split 90% from the north and 10% from the south. The remaining workers would all approach Bulluss Drive/Campion Close from the south along Newell Highway.
- **Shuttle Buses:** It is expected that the bus will transport workers from the Moree town centre and approach the site from the north.
- **Rigid Truck and Truck and Dog:** These vehicles would transport quarry material from the local area, with 50% expected to travel to/from the north and 50% to/from the south.
- **Semitrailers, B-Doubles and Non High Risk OSOM:** Plant would be transported from the Port Botany to the site via Newell Highway with all vehicles expected to reach the Project Area from the south.

During the morning peak all vehicles would travel towards the Project Area and in the evening peak all vehicles would travel away from the Project Area. Heavy vehicles would be distributed throughout the day and the number of inbound and outbound vehicles would be split evenly.

The resulting peak hour volumes generated by the Project at the intersection of Newell Highway and Bulluss Drive are outlined in Figure 8.

Figure 8: Expected Project Traffic During Peak Construction at Newell Highway / Bulluss Drive



4.2.5 Cumulative Traffic Impacts

The primary traffic impact of the Project is generated during construction which is anticipated to commence in 2026 and take approximately 12 months. A summary of the major projects proposed in the surrounding area are provided in Table 10 with a description and assessment of potential cumulative impacts. The projects which are highlighted in the table have the potential to generate additional traffic along Newell Highway between Narrabri and Moree during the construction period.

Table 10: Assessment of Cumulative Impacts of Nearby Developments

Project	Description	Potential Vehicle Conflict
Inland Rail – Narrabri to North Star Phase 2 (Assessment)	Upgrade of approximately 15 km of the existing rail line track and track formation within the Narrabri to North Star corridor running from Moree north to beyond the Camurra Bypass, including the Mehi-Gwydir River crossings. The southern extent of this project commences approximately 2 kms north of the Project Area.	This section of Inland Rail plans to be operational by 2027 however a specific start date for construction has not been made public. There is potential for construction of both projects to overlap. The projects may both use Newell Highway. The traffic generated from both projects may also interact within Moree.

Project	Description	Potential Vehicle Conflict
Good Earth Green Hydrogen & Ammonia (Prepare EIS)	Construction and operation of a proposed green hydrogen and green ammonia production and storage facility, including: - 12 MW hydrogen electrolysis - 10-13t per day ammonia plant - 3t of hydrogen storage - 600t of ammonia storage. The project is located approximately 33km south-west of Moree.	Construction of the project is expected to commence in September 2025 and take approximately 8 mounts to complete. There is potential for construction of both projects to overlap if delays prevent commencement of construction. The traffic generated from both projects may interact within the town of Moree and negligible interactions on Newell Highway.
Narrabri Solar Farm (Prepare EIS)	A 140MW solar farm with a battery energy storage system 100MW/800Mwh. Located approximately 87km south of the Project Area near Narrabri.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.
Maules Creek Continuation Project (Prepare EIS)	Extension of existing mining area and mine life. Located approximately 122km south of the Project Area.	Extension works are planned to commence in 2028. There is potential for construction of both projects to overlap. Due to the distance between projects, traffic interactions would be expected to be negligible.
Stoney Creek Battery Energy Storage System (Prepare EIS)	Development of a 125 MW/1000MWh battery energy storage facility with associated infrastructure. Located approximately 92km south of the Project Area.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.
Silver Leaf Solar Farm (Approved)	Development of a 120 MW solar farm and associated infrastructure. Located approximately 88km south of the Project Area.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.

The above assessment indicates that a number of projects are expected to generate additional vehicle traffic within Moree. The vehicles would be distributed on the surrounding road network near the town and are expected to have a minimal cumulative impact on the operation of the road network.

The review also indicates that the following project has the potential to generate additional vehicle movements along Bulluss Drive in the vicinity of the site:

- Inland Rail – Narrabri to North Star Phase 2: A TIA has been reviewed and a percentage of the predicted project traffic has been applied to cumulative impacts to this Project.

Construction of other developments within the Moree SAP have potential to coincide with the construction of the BESS as well. Information on funded projects and their timelines have not been sighted to form part of the above assessment. It is expected that each of the SAP developments will undertake individual TIA to establish cumulative traffic impacts from EIS documents that will become available at a later date. At the time of writing this TIA no quantitative data was available from other SAP developments and have not contributed to an increase in background traffic around the Project Area.

Accordingly, any cumulative traffic impacts with surrounding projects are expected to be negligible based on the information available at the time of assessment.

4.2.6 Traffic Assessment

All traffic travelling to/from the Project Area would travel via Newell Highway and Bulluss Drive. In order to determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period, a traffic modelling exercise has been undertaken for the intersection of Newell Highway and Bulluss Drive using the SIDRA intersection modelling software.

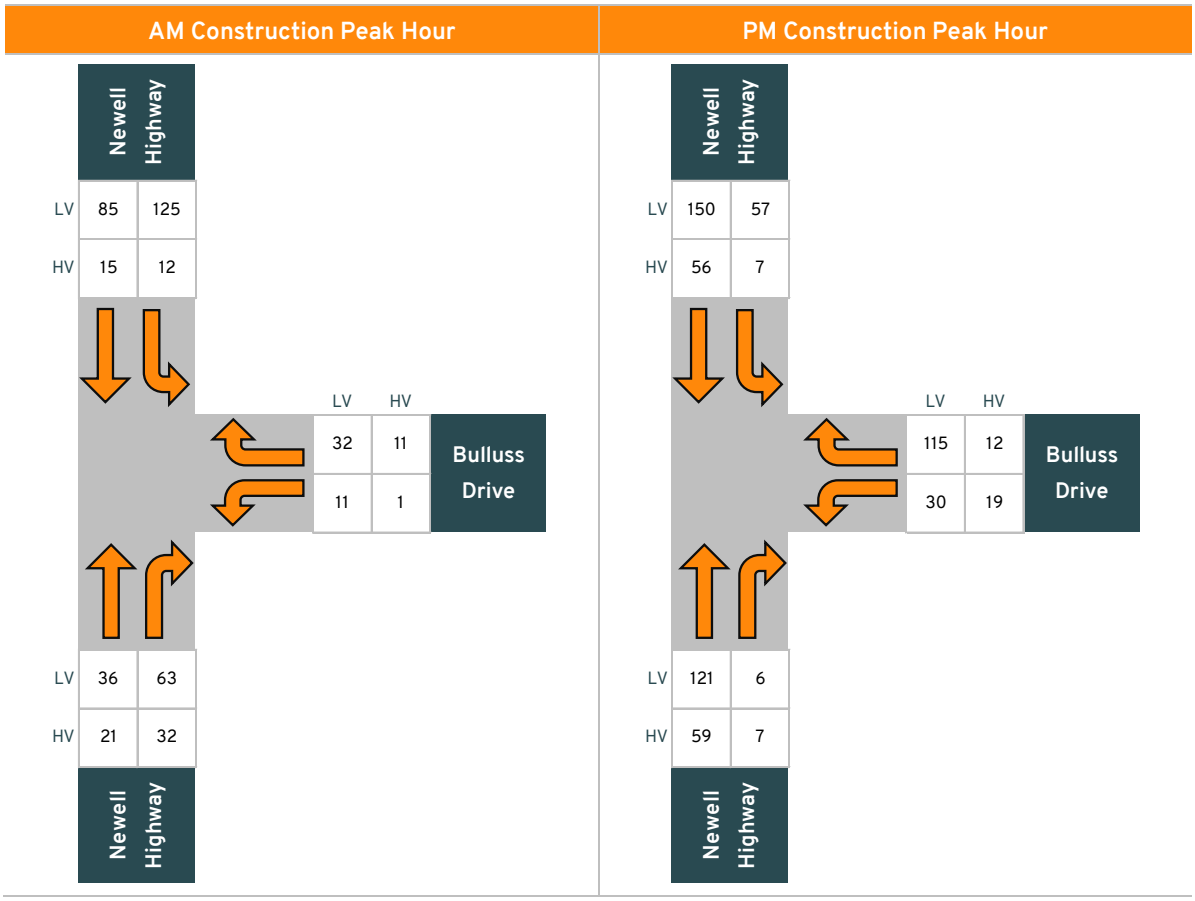
Level of Service (LOS) is a qualitative measure used to describe the operating conditions of a section of road or an intersection. LOS are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) and represent the perception of the road conditions by motorists including speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. The assessment of the level of service for sign-controlled intersections is based on the average delay (seconds/vehicle) of the critical movement.

The traffic modelling exercise has been undertaken for the morning peak hour (6:00-7:00am) and evening peak hour (5:00pm-6:00pm) during the peak construction period. The traffic volumes utilised for the assessment are the total volumes for the following:

- Existing surveyed traffic volumes along Newell Highway adjusted by a 1.5% compounded annual growth rate to reflect the end of the construction period in 2027;
- Application of a 20% increase to the 2027 existing volumes to reflect seasonal harvest peaks;
- Cumulative traffic impacts as outlined within Section 4.2.5; and
- Construction traffic volumes outlined within Figure 8.

The resulting total traffic volumes used for the assessment are provided in Figure 9.

Figure 9: Total Peak Hour Volumes During Peak Construction



To assess the potential impacts of the proximity of the intersection to the rail crossing on Bulls Drive, the SIDRA model also includes the following parameters:

- A network model of the Newell Highway / Bulluss Drive and Bulluss Drive/railway crossing has been undertaken, with the two intersections placed 45 metres apart; and
- The model includes a provision of one train passing through the level crossing in the peak hours[1], with the crossing assumed to be closed for 3 minutes and 30 seconds.

The results of the SIDRA analysis for the morning and evening peak hour are provided within Appendix D and are summarised in Table 11 and Table 12. Queuing shown in **blue** indicates that the 95th percentile queue is expected to exceed the available storage capacity (approximately 45 metres) between the rail crossing and the Newell Highway.

[1] One train crossing per hour reflects feedback from ARTC which indicates that an average of approximately eight crossings occur per weekday at the crossing.

Table 11: SIDRA Analysis Results Summary – Newell Highway / Bulluss Drive

Approach / Movement		Morning Peak Hour				Evening Peak Hour			
		Average Delay (sec)	Average Queue (m)	95% Queue (m)	Level of Service	Average Delay (sec)	Average Queue (m)	95% Queue (m)	Level of Service
Newell Highway (South)	Through	0	0	0	A	0	0	0	A
	Right Turn	7.5	43	82.3	A	8.4	0.3	0.7	A
Bulluss Drive (East)	Left Turn	4.2	1.2	2.9	A	6.2	5.1	12.7	A
	Right Turn	7.7	1.2	2.9	A	10.7	5.1	12.7	A
Newell Highway (North)	Left Turn	5.6	51.7	100.6	A	5.7	0	0	A
	Through	0	0	0	A	0	0	0	A

Table 12: SIDRA Analysis Results Summary – Bulluss Drive / Rail Crossing

Approach / Movement		Morning Peak Hour				Evening Peak Hour			
		Average Delay (sec)	Average Queue (m)	95% Queue (m)	Level of Service	Average Delay (sec)	Average Queue (m)	95% Queue (m)	Level of Service
Bulluss Drive (West)	Through	7.6	45	227.9	A	6.8	41.5	67.8	A
Bulluss Drive (East)	Left Turn	6.8	30.1	49.1	A	7.3	100.8	164.5	A

The SIDRA analysis indicates the following:

- The intersection is expected to operate with a maximum LOS A, indicating minimal average delays.
- Queuing on Bulluss Drive (east approach to Newell Highway) is generally expected to be less than two vehicles during both peak hours.
- During the morning peak hour, there are expected to be 95th percentile queues of up to 82.3 metres in the right turn lane on Newell Highway and up to 100.6 metres in the left turn lane, while the rail crossing is in operation. These queues can be contained within the 120-metre storage capacity of the right lane and the 110-metre storage capacity of the left lane.
- The 95th percentile queues on Bulluss Drive (west approach to Rail Crossing) are expected to exceed the 45-metre storage capacity by 182.9 metres during the morning peak hour and by 22.8 metres in the evening peak hour. As noted above, there is sufficient capacity in the Newell Highway dedicated turn lanes to store this queue.
- Queuing on Bulluss Drive (east approach to Rail Crossing) can be contained within the available storage capacity.

Accordingly, the intersection is expected to continue to operate with a good level of service with minimal queuing and delays expected during the peak construction period. Moreover, during periods when the rail crossing is closed, there is sufficient capacity to fully accommodate the expected 95th percentile queues.

4.3 Operational Phase

During operation, the BESS is expected to generate a minimal level of traffic associated with maintenance and operation services. The BESS is expected to be operated by up to 1-2 maintenance personnel resulting in a traffic generation of up to 8 vehicle trips per day which would result in a negligible change to the traffic environment. There would also be occasional light commercial vehicles delivering parts to the site but only as required for maintenance.

4.4 Decommissioning Phase

At the end of the operational life of the Project all above ground infrastructure would be dismantled and removed from the Project Area.

Traffic generation during decommissioning would be similar to traffic generation during the average construction period. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities which would ensure adequate road safety and road network operations are maintained.

4.5 Summary

The Project is expected to generate the highest level of traffic during the peak construction period. The assessment presented above indicates that the road network is able to accommodate the project traffic during the peak construction period. The assessment also included a review of the cumulative traffic generated by other major Projects within the surrounding area.

During construction the vehicle trips throughout the middle of the day are expected to be predominantly associated with heavy vehicles with approximately 8 vehicle trips per hour. This increase in traffic would be within the daily variation of traffic volumes along Bulluss Drive and can be readily accommodated.

It is anticipated that High Risk OSOM vehicles would access the site during the construction phase. The vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site. The vehicles will travel under escort outside of the peak periods and would be able to be accommodated on the road network subject to the mitigation measures discussed in Section 6 which would be confirmed as part of specific permits that would be applied for prior to construction.

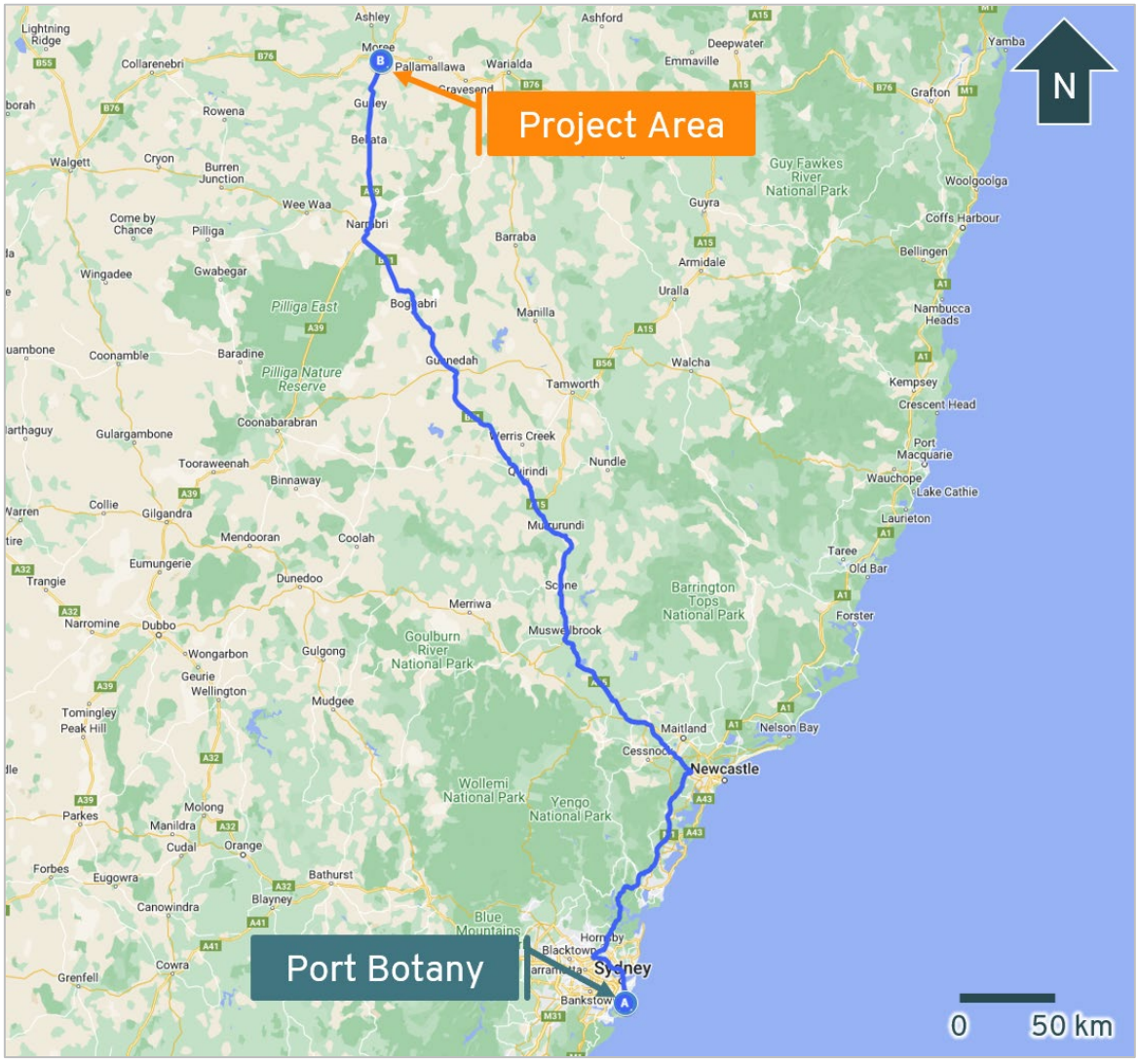
During operation the periodic increase in traffic of up to 8 vehicle trips per day associated with the 1-2 maintenance personnel would result in a negligible change to the traffic environment.

Accordingly, the road network is able to readily accommodate the traffic generated by the Project during the construction, operation, and decommissioning periods.

5. Heavy Vehicle Route Assessment

Most specialist plant is expected to be delivered from Port Botany. The following provides a review of the proposed access routes for heavy vehicles (excluding High Risk OSOM vehicles) travelling from the port. The proposed access route is outlined in Figure 10 with a summary of the relevant roads provided in Table 13. The access route measures approximately 643km and utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map.

Figure 10: B-Double Access Route from Port Botany to Site



Source: Google Maps - Link

Table 13: B-Double Vehicle Route - Access Roads

Road Name	Jurisdiction	B-Double Approved
Friendship Road	TfNSW	Approved
Bumborah Point Road		
Botany Road		
Beauchamp Road		
Denison Street		
Wentworth Avenue		
Bunnerong Road		
Gardeners Road		
Anzac Parade		
Eastern Distributor (M1 Toll Road)		Approved with Conditions
Cahill Expressway (M1)		
Sydney Harbour Tunnel (M1)		
Warringah Freeway (M1)		Approved
Gore Hill Freeway (M1)		
Lane Cove Tunnel (M2 Toll Road)		Approved with Conditions
Hills Motorway (M2 Toll Road)		
Cumberland Highway (A28)		
NorthConnex (M11)		
Pacific Motorway (M1)		Approved
Hunter Expressway (M15)		
New England Highway (M15) (A15)		
Kamilaroi Highway (B51)		
Boundary Road, Gunnedah	Gunnedah Shire Council TfNSW	
Bloomfield Street, Gunnedah		
Warrabungle Street, Gunnedah		
Kamilaroi Highway (B51)	TfNSW	
Newell Highway (A39)		
Bulluss Drive, Moree	Moree Plains Shire Council TfNSW	

The above route is only suitable for vehicles under 4.3 metres in height due to clearances in the tunnels. The conditions of travel for B-Double vehicles indicated above are for prohibited transport of dangerous goods in the tunnels. Additionally, travel through Sydney Harbour Tunnel is only permitted between 5:00am and 11:00pm.

5.1 Mitigation Measures

A TMP is to be developed which is recommended to include the following measures to minimise the impact of construction traffic:

- Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with the road authority. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.

Therefore, it is concluded that the road network is suitable to accommodate the light and heavy vehicle traffic volumes generated by the Project.

6. High Risk OSOM Vehicles

OSOM vehicles will be required to deliver larger plant to the site such as the transformer. These vehicles are expected to exceed the Class 1 mass and/or dimension requirements and would be classified as High Risk OSOM vehicles. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that vehicle movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure. High Risk OSOM vehicles also require pilot vehicle escort.

OSOM vehicles will be required to deliver a sub-station transformer to the site from one of two possible locations being Glen Waverley in Victoria or the Port of Newcastle. These vehicles are expected to exceed the Class 1 mass and/or dimension requirements and would be classified as high risk OSOM vehicles per relevant TfNSW definitions[2]. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that vehicle movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure on the route to site. High Risk OSOM vehicles will travel outside of the peak periods and would be subject to mitigation measures discussed in Section 9 which would be confirmed as part of specific permits that would be applied for prior to construction.

The Proponent has advised that three High Risk OSOM vehicles would be required to access the site during the construction period for the transportation of the transformer. The vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site to avoid classification as OSOM where possible. As a result, this assessment focuses on the path of travel to the site.

The Proponent has advised that these High Risk OSOM vehicles would be required to access the site during the construction period in the fourth quarter of 2026 (or later).

High Risk OSOM vehicles will travel outside of the peak periods and would be subject to the mitigation measures discussed throughout this section which would be confirmed as part of specific permits that would be applied for prior to construction. The following provides a review of the transformer transport vehicle configuration and proposed access routes.

6.1 Load and Vehicle Configuration

The largest component to be delivered to the site is expected to be the transformer. Exact dimensions of the vehicle and load are unknown until later stages of the project. The Proponent has therefore provided information regarding the expected specifications of the transformer and associated vehicle trailer as outlined in Table 14.

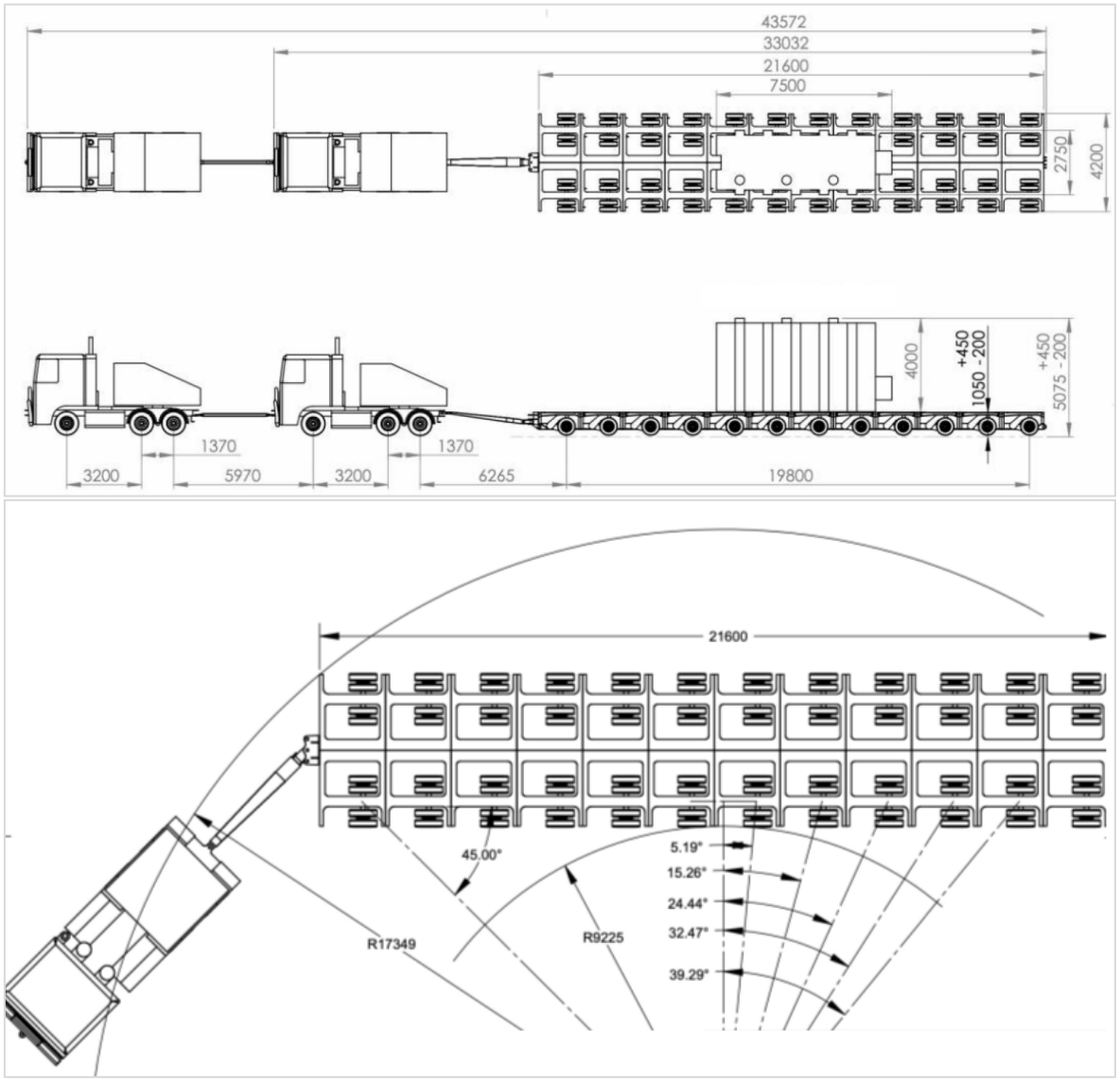
Table 14: Estimated Transformer Transport Specifications

Length (m)	Width (m)	Height (m)	Mass	Vehicle Configuration
9.0m	3.1m	3.8m	135 tonnes	12 x 8 axel Platform Trailer combination

[2] TfNSW *Oversize and/or overmass (OSOM) vehicles and loads* webpage, refer: *https://www.transport.nsw.gov.au/operations/roads-and-waterways/business-and-industry/heavy-vehicles/road-access/restricted-access-1*

An OSOM vehicle configuration has been identified for the expected transformer model. The vehicle used for the assessment is shown within Figure 11 and is based on feedback from a transport company which confirmed that the vehicle specification would be suitable for the weight and size of the transformer. Details of the vehicle and load are provided in .

Figure 11: OSOM Vehicle Specifications



Source: REX J Andrews Route Assessment

As shown in the figure, and additional push truck may be required to provide sufficient power to the combinations. The following route assessments have been undertaken using the dimensions of Figure 11 (one truck at the front) to approximate the total vehicle combination. This is an accurate representation as additional trucks at the front and rear of the combination will fall within the swept path of the larger beam, load and trailer components.

As part of the application for a bridge and culvert assessment with the Special Permits Unit at TfNSW, detailed dimensions and axel loads have been provided to support the technical assessment which are included for reference in Appendix H.

6.2 Access Route from Glen Waverley

The Proponent has advised that one of the possible delivery locations for the transformer will be from Wilson Transformer Company, located at 310-336 Springvale Road, Glen Waverley in Victoria.

The OSOM transformer route from Glen Waverly would utilise the following roads to access the site as outlined in Table 15 and shown in Figure 12. The majority of the roads are classified as State Roads, with the exception of three roads in Forbes and one road in Moree which are managed by local councils.

It should be noted that the route taken in metropolitan Melbourne is identical to that taken for the delivery of the transformers to the *Waratah Super Battery Energy Storage System* project[3], which is a larger transformer (and associated vehicle combination) than required for this project.

Table 15: Glen Waverley OSOM Route

Road Name	State	Jurisdiction
Springvale Road	Victoria	Victoria Department of Transport and Planning
Eastern Freeway (M3)		
Doncaster Road		
Williamsons Road		
Fitzsimons Lane		
Main Road		
Lower Plenty Road		
Greensborough Road		
Greensborough Highway		
Greensborough Bypass		
Metropolitan Ring Road (M80)		
Hume Freeway (M31)		
Goulburn Valley Freeway (M39)		
River Road (C391)		
Doyles Road (C391)		
Grahamvale Road (C391)		
Goulburn Valley Highway (A39)		
Murray Valley Highway (B400)		
Goulburn Valley Highway (A39)		
Newell Highway (A39)	NSW	TfNSW
Showground Road, West Wyalong		
Compton Road, West Wyalong		
Newell Highway (A39)		

[3] Waratah Super Battery Energy Storage System: Stage 2 TMP: https://www.planningportal.nsw.gov.au/major-projects/projects/waratah-super-battery-energy-storage-system

Road Name	State	Jurisdiction
Cross Street, Forbes		Forbes Shire Council
Lachlan Street, Forbes		
Dowling Street, Forbes		
Newell Highway (A39)		TfNSW
Parkes Bypass[4]		
Newell Highway (A39)		
Bulluss Drive		Moree Plains Shire Council

A diversion away from the State road network has been proposed in Forbes, utilising Cross Street, Lachlan Street and Dowling Street instead of remaining on Newell Highway. This diversion avoids impacts to traffic signal infrastructure at the intersection of Sherriff Street and Dowling Street were the OSOM vehicle to remain on the Newell Highway. Approval for this section of the route would be required by Forbes Shire Council.

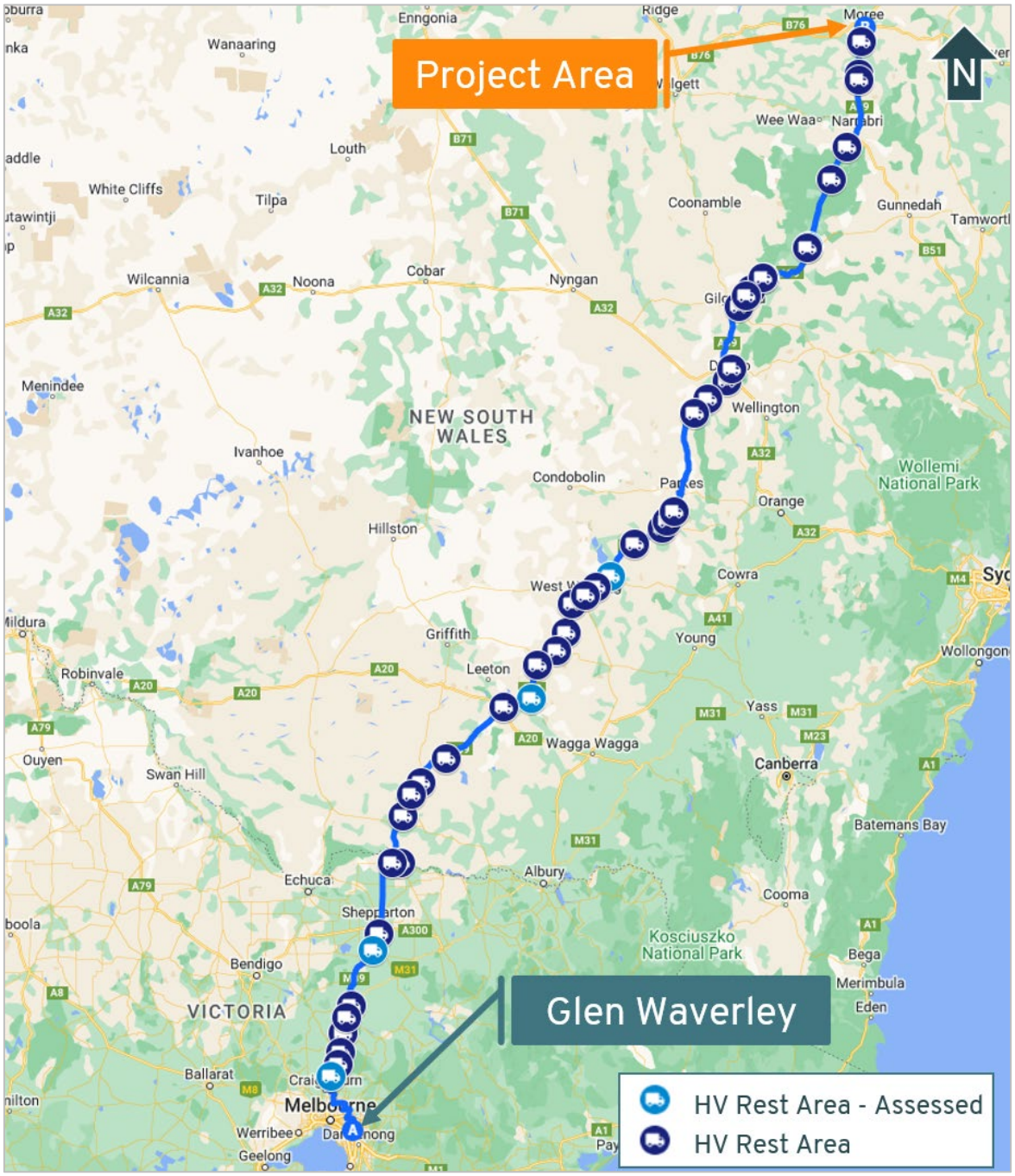
The Parkes Bypass[3] is anticipated to be in operation by the time of this OSOM vehicle movement. Utilising the bypass avoids the potential use of lower order and Council roads through the town of Parkes.

A total of 37 points of interest were identified as part of the assessment of the access route. The access route in Figure 12 along with 43 identified rest areas that may be utilised for fatigue management, emergency stopping or as otherwise required. These rest areas have varying capacity for Class 1 to Class 5 Heavy Vehicles. The route, points of interest and five of the rest areas have been assessed in further detail within the full assessment provided in Appendix A

It is noted that additional rest stop areas may also be available along the route. Operating protocol in relation to the use of rest stop areas would be outlined as part of the TMP to be prepared prior to construction in order to ensure appropriate access is maintained for general traffic. Further assessments of the rest areas would be conducted by a logistics contractor once the exact details of the OSOM vehicle and load combination are known as part of the overall strategy to manage driver fatigue.

[4] Parkes Bypass currently under construction and is expected to be fully complete prior to the load being moved to site: Parkes Bypass | Transport for NSW

Figure 12: Glen Waverley OSOM Route – NHVR Route ID 2NIYF-1



Source: Google Maps - Link, NHVR Route ID 2NIYF-1

The assessment of the access route identified that the vehicle is able to access the site with suitable traffic management measures. A summary of the key constraints along the route is provided below in Section 6.2.2 with an overview of the proposed treatments and/or management measures at each point of interest.

6.2.1 Bridge and Rail Infrastructure

A desktop assessment of bridge and rail infrastructure has been undertaken to determine interfacing locations with the proposed OSOM route.

6.2.1.1 Bridges and Overpasses

A detailed review of the load limits on all bridges and structures along the route will be undertaken as part of the permit process for the OSOM vehicles, however it is noted that the route predominantly utilises major highways between Melbourne and the project site. The State roads along the route have been utilised for other renewable energy projects in the area and no restricted structures have been identified based on the NHVR Route Maps, Victorian Department of Transport and Planning (DTP) and TfNSW Oversize Overmass Load Carrying Vehicles Network maps. Accordingly, it is expected that the vehicle loading will be within the allowable limit for all bridges, culverts and other structures on the State Road networks.

6.2.1.2 Underpasses

An assessment of the height clearances along the Glen Waverley OSOM route was undertaken to confirm the suitability of the proposed route for the proposed OSOM vehicle and load. The proposed platform arrangement allows for height adjustment of the transformer, therefore enabling the load to be lowered for passage under low clearance bridges. Taking this into consideration, the minimum load height would be approximately 4.8 metres.

The assessment showed that the lowest clearance height along the route is on the Eastern Freeway in Nunawading under a pedestrian overpass west of Springvale Road. The minimum clearance required at this location is approximately 4.8 metres, however it is noted using the centre lane of the freeway would provide additional clearance. Accordingly, the available height clearance along the proposed route is appropriate to accommodate the required OSOM vehicles.

6.2.1.3 Railway Level Crossings

A total of 9 active railway level crossings have been identified along the route as outlined in Table 16 which includes summarised advice from the relevant rail authority for each crossing.

Table 16: Glen Waverley Route Railway Level Crossing Assessment

Railway Crossing Location	Rail Authority	Authority Advice
Grahamvale Road, Greater Shepparton	V/Line	ODL Permit from DTP is required
Murray Valley Highway, Strathmerton	V/Line	
Newell Highway, Mirrool (LXM ID 227)	UGL Regional Linx	Rail Protection Officer likely required for crossing. TMP required with application for crossing permit.
Showground Road, West Wyalong (LXM ID 1193)	UGL Regional Linx	
Newell Highway, Forbes (LXM ID 1161)	ARTC	ARTC approval to be sought prior to travel.
Newell Highway, Tichborne (LXM ID 1164)	ARTC	

Railway Crossing Location	Rail Authority	Authority Advice
Newell Highway, Gilgandra (LXM ID 293)	UGL Regional Linx	Rail Protection Officer likely required for crossing. TMP required with application for crossing permit.
Newell Highway, Narrabri (LXM ID 745)	UGL Regional Linx	
Bulluss Drive, Moree (LXM ID 560)	ARTC	ARTC approval to be sought prior to travel.

Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. Accordingly, the OSOM traffic is expected to have no major impact on the operation or safety of the railway level crossings.

6.2.2 Route Assessment Summary

The Glen Waverley route assessment prepared for the High-Risk OSOM vehicle identifies that the combination is able to access the site with suitable management measures, with a summary provided in Table 17. Escorts and spotters will be required at all locations to control traffic and ensure the vehicle and load are clear of infrastructure.

Table 17: Glen Waverley Route Work Schedule

Pinch Point / Sheet	Location	Works Required
Melbourne Metropolitan Area		
01	Springvale Road / Eastern Freeway (on ramp) (Nunawading, Vic)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
02	Eastern Freeway (off ramp) / Doncaster Road (Balwyn North, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
03	Doncaster Road / Williamsons Road (Doncaster, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
04	Williamsons Road / Manningham Road (Doncaster, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
05	Fitzsimons Lane / Main Road (Eltham, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
06	Lower Plenty Road / Greensborough Road (Rosanna, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
Victorian Regional Area		

Pinch Point / Sheet	Location	Works Required
07	Goulburn Valley Highway / River Road (Kialla, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
08	Doyles Road / Midland Highway (Orrvale, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
09	Doyles Road / Old Dookie Road (Shepparton-Mooroopna, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
10	Doyles Road / Grahamvale Road / New Dookie Road (Grahamvale, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
11	Grahamvale Road / Rail Level Crossing (Greater Shepparton, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
12	Grahamvale Road / Goulburn Valley Highway (Congupna, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
13	Goulburn Valley Highway / Murray Valley Highway (Strathmerton, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
14	Goulburn Valley Highway / Murray Valley Highway (Yarroweyah, VIC)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
NSW Regional Area		
15	Newell Highway / Tuppal Road / Deniliquin Road (Tocumwal, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
16	Southey Street / Jerilderie Street (Newell Highway) (Jerilderie, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
17	Newell Highway / Sturt Highway (Gillenbah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
18	Newell Highway / Sturt Highway (Gillenbah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
19	Cadell Street / Whitton Street (Newell Highway) (Narrandera, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
20	Newell Highway / Showground Road (West Wyalong, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

Pinch Point / Sheet	Location	Works Required
21	Showground Road / Compton Road (West Wyalong, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
22	Compton Road / Newell Highway (Wyalong, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
23	Sheriff Street (Newell Highway) / Cross Street (Forbes, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
24	Cross Street / Lachlan Street (Forbes, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
25	Dowling Street / Newel Highway (Forbes, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
26	Newell Highway / Darling Street (Dubbo, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
27	Erskine Street / Bourke Street (Newell Highway) (Dubbo, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
28	Castlereagh Street / Castlereagh Highway (Newell Highway) (Gilgandra, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
29	Newell Highway / Dalgarno Street (Coonabarabran, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
30	Newell Highway / Oxley Highway (Coonabarabran, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
31	Newell Highway / Kamilaroi Highway (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
32	Newell Highway / Old Turrawan Road (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
33	Newell Highway / Tibbereena Street (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
34	Tibbereena Street / Killarney Street (Newell Highway) (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
35	Killarney Street / Barwan Street (Newell Highway) (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

Pinch Point / Sheet	Location	Works Required
36	Newell Highway / Bulluss Drive (Moree, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
37	Bulluss Drive / Site Access (Moree, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

6.3 Access Route from Port of Newcastle

The Proponent has advised that the other possible delivery location for the transformer is the Port of Newcastle. In order to determine whether any civil works are required to accommodate the OSOM vehicles on the road network a route assessment has been undertaken as presented below and as provided in Appendix A. It is noted that the vehicle trips would be carried out with escort and pilot vehicles in accordance with the relevant authority requirements.

The OSOM transformer route from Port of Newcastle would utilise the following roads to access the site as outlined in Table 18 and shown in Figure 13. The majority of the roads are classified as State Roads, with the exception of two roads in Newcastle, three roads in Muswellbrook and one road in Moree which are managed by local councils.

Table 18: Port of Newcastle OSOM Route

Road Name	Jurisdiction	Class 1 OSOM Approved
Selwyn Street	Newcastle City Council	Approved
George Street		
Industrial Drive	TfNSW	
Maitland Road		
John Renshaw Drive		
Hunter Expressway (M15)		
New England Highway (M15) (A15)		
Bell Street, Muswellbrook	Muswellbrook Shire Council	Unrated
Victoria Street, Muswellbrook		
Market Street, Muswellbrook		
New England Highway (A15)	TfNSW	Approved
Kamilaroi Highway (B51)		
Boundary Road, Gunnedah		
Bloomfield Street, Gunnedah		
Warrabungle Street, Gunnedah		
Kamilaroi Highway (B51)		
Newell Highway (A39)		Conditions
Bulluss Drive, Moree	Moree Plains Shire Council	Unrated

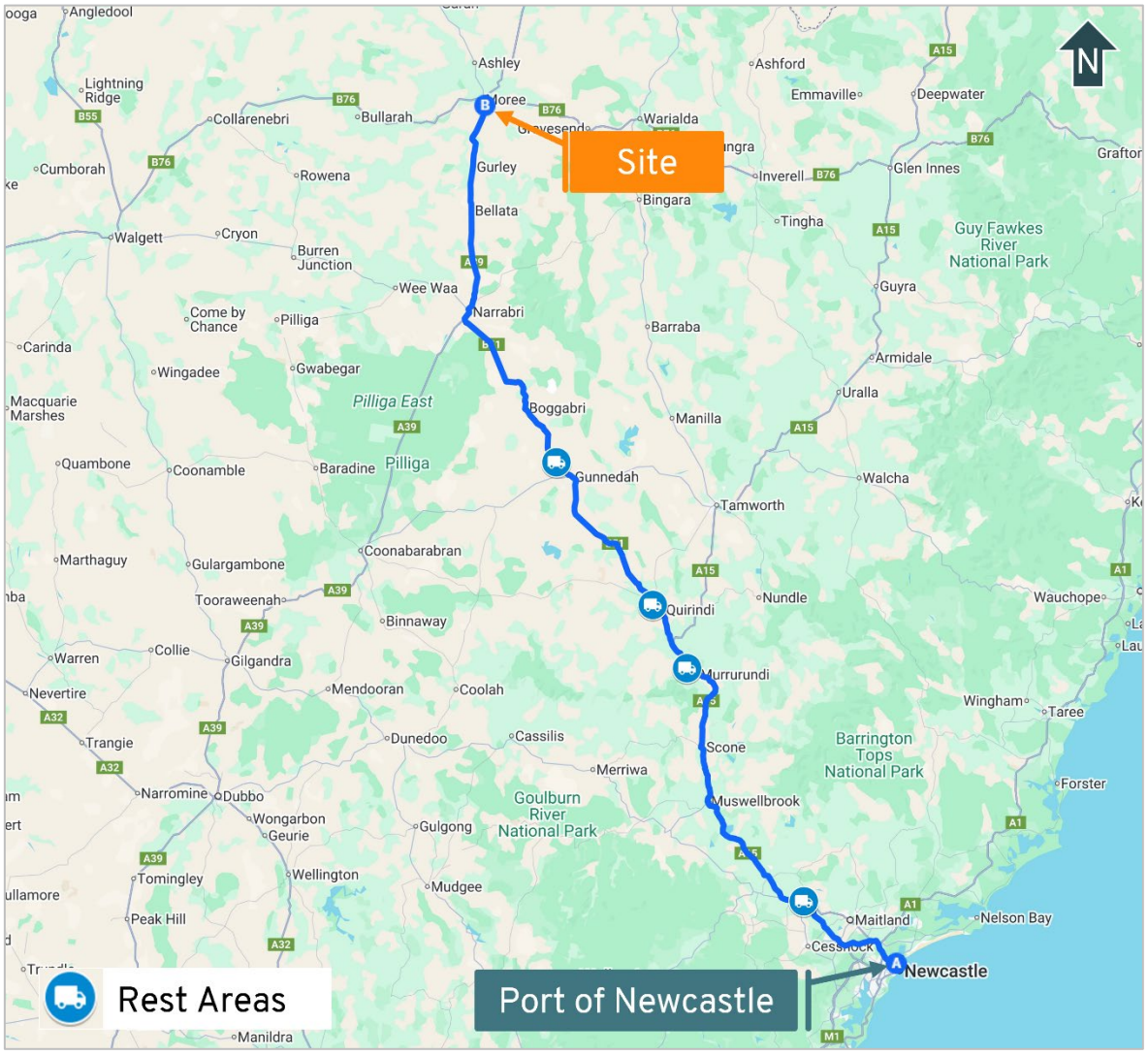
The route uses roads managed by Muswellbrook Shire Council as a diversion around the rail underpass in Muswellbrook. Their approval, and any other impacted road or rail authority, would be sought as part of the formal application through the NHVR. Additionally, use of Bulluss Drive and the rail level crossing would require approval from the Moree Plains Shire Council and ARTC due to not currently being rated for OSOM vehicle use.

Conditions for Class 1 OSOM vehicle on some roads listed in Table 18 generally relate to time of travel and the requirement to advise NHVR of intent to travel with and OSOM load. It is noted that road access restrictions can change over time and therefore it would be necessary for the NHVR Network Map be consulted in advance of travel to ensure appropriate routes are being taken and all necessary approvals and permits are attained.

A total of 23 points of interest were identified as part of the assessment of the access route. The access route is shown in Figure 13 along with four identified rest areas that may be utilised for fatigue management, emergency stopping or as otherwise required. The route, points of interest and rest areas have been assessed in further detail within the full assessment provided in Appendix A.

It is noted that additional rest stop areas may also be available along the route. Operating protocol in relation to the use of rest stop areas would be outlined as part of the TMP to be prepared prior to construction in order to ensure appropriate access is maintained for general traffic. Further assessments of the rest areas would be conducted by a logistics contractor once the exact details of the OSOM vehicle and load combination are known as part of the overall strategy to manage driver fatigue.

Figure 13: Port of Newcastle OSOM Route – NHVR Route ID: 2NIW8-1



Source: Google Maps - Link, NHVR Route ID: 2NIW8-1

The assessment of the access route identified that the vehicle is able to access the site with suitable traffic management measures. A summary of the key constraints along the route is provided below in Section 6.3.2 with an overview of the proposed treatments and/or management measures at each point of interest.

6.3.1 Bridge and Rail Infrastructure

A desktop assessment of bridge and rail infrastructure has been undertaken to determine interfacing locations with the proposed OSOM route.

6.3.1.1 Bridges and Overpasses

A detailed review of the load limits on all bridges and structures along the route will be undertaken as part of the permit process for the OSOM vehicles, however it is noted that the route predominantly utilises major highways between Port of Newcastle and the project site. The State Roads along the route have been utilised for other renewable energy projects in the area and no restricted structures have been identified based on the NHVR Route Map and TfNSW Oversize Overmass Load Carrying Vehicles Network maps.

The bridge crossing in Bell Street, Muswellbrook (swept path demonstrated in Appendix A – Sheet 07) is not within the approved NHVR OSOM road network or State Road network. No weight, height or width limitations have been identified for the structure, so a formal assessment and approval will ascertain suitability for this OSOM vehicle combination.

Accordingly, it is expected that the vehicle loading will be within the allowable limit for all bridges, culverts and other structures on the State Road network.

6.3.1.2 Underpasses

An assessment of the height clearances along the Port of Newcastle OSOM route was undertaken to confirm the suitability of the proposed route for the proposed OSOM vehicle and load.

The height clearance assessment showed that the lowest clearance along the Port of Newcastle route is 5.0 metres on the New England Highway under the Liddel Power Station overpass. Accordingly, the available height clearance along the proposed route is appropriate to accommodate the required OSOM vehicles.

6.3.1.3 Railway Level Crossings

A total of four active railway level crossings have been identified along the OSOM route as outlined in Table 19 which includes summarised advice from the relevant rail authority.

Table 19: Port of Newcastle Route Railway Level Crossing Assessment

Railway Crossing Location	Rail Authority	Authority Advice
Selwyn Street near David Backer Road, Mayfield North, NSW (LXM ID 1659)	ARTC	ARTC approval to be sought prior to travel. ARTC have indicated that the level crossing on Selwyn Street may not require management however the timing of the level crossing may need to be checked to ensure that it is adequate for the length of the load.
Kamilaroi Highway, Werris Creek (LXM ID 48)	ARTC	ARTC approval to be sought prior to travel.
Kamilaroi Highway, Curlewis (LXM ID 520)	ARTC	
Newell Highway, Narrabri (LXM ID 745)	UGL Regional Linx	Rail Protection Officer likely required for crossing. TMP required with application for crossing permit.
Bulluss Drive, Moree (LXM ID 560)	ARTC	ARTC approval to be sought prior to travel.

Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. Accordingly, the OSOM traffic is expected to have no major impact on the operation or safety of the railway level crossings.

6.3.2 Port of Newcastle Route Summary

The Port of Newcastle route assessment prepared for the High-Risk OSOM vehicle identifies that the combination is able to access the site with suitable management measures, with a summary provided in Table 20. Escorts and spotters will be required at all locations to control traffic and ensure the vehicle and load are clear of infrastructure.

Table 20: Port of Newcastle Route Work Schedule

Pinch Point / Sheet	Location	Works Required
City of Newcastle		
01	Selwyn Street / George Street (Tigers Hill, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
02	George Street / Industrial Drive (Tigers Hill, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
03	Industrial Drive / Pacific Highway (Mayfield West, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
04	John Renshaw Drive / Hunter Expressway (Buchanan, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
05	John Renshaw Drive / Hunter Expressway (Buchanan, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
NSW Regional Area		
06	New England Highway / Bell Street (Muswellbrook, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
07	Bell Street / Victoria Street (Muswellbrook, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
08	Market Street / New England Highway (Muswellbrook, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
09	New England Highway (Blandford, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

Pinch Point / Sheet	Location	Works Required
10	New England Highway / Kamilaroi Highway (Willow Tree, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
11	Lennox Street / Loder Street (Kamilaroi Highway) (Quirindi, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
12	Kamilaroi Highway / Oxley Highway (Gunnedah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
13	Kamilaroi Highway / Boundary Road (Gunnedah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
14	Bloomfield Street / Warrabungle Street (Gunnedah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
15	Warrabungle Street / Kamilaroi Highway (Gunnedah, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
16	Grantham Street / Wee Waa Street (Kamilaroi Highway) (Boggabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
17	Kamilaroi Highway / Newell Highway (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
18	Newell Highway / Old Turrawan Road (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
19	Newell Highway / Tibbereena Street (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
20	Tibbereena Street / Killarney Street (Newell Highway) (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
21	Killarney Street / Barwan Street (Newell Highway) (Narrabri, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

Pinch Point / Sheet	Location	Works Required
22	Newell Highway / Bulluss Drive (Moree, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.
23	Bulluss Drive / Site Access (Moree, NSW)	No road upgrades required. Escorts to control traffic as required and spotter/s to assist to ensure load is clear of infrastructure.

6.4 Summary

The route assessments show that both routes would be suitable for the proposed High Risk OSOM vehicles, subject to relevant formal approvals.

Relevant permits need to be applied for as part of the TMP and mitigation measures, as outlined in Section 8, are to be adhered to. It is recommended that any OSOM movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

7. Site Access

The layout of the site and the proposed access location is shown within Figure 1, which shows the respective access points to the project which are discussed in turn below.

7.1 Main Access

The majority of project vehicles accessing the main site access to Bulluss Road would be truck and dog and semi-trailers which are typically 19 metres in length while B-Double vehicles are expected to access the site up to three times per day, during peak construction as per Table 7. A swept path assessment has been undertaken for the access which is provided within Appendix E and demonstrates the access has been suitably designed to cater for the Project traffic expected to access the site.

The swept path analysis shows that simultaneous entry and exit movements can be undertaken by 19m semitrailers. The swept path assessment also shows that B-Doubles are able to access the site while a heavy vehicle is propped on the driveway waiting to depart.

A swept path assessment has also been undertaken for the High Risk OSOM vehicle entering the site as part of the Route Assessments shown in Appendix A. The assessment shows that the OSOM vehicle can suitably access the site.

Accordingly, it is concluded that the site access has been suitably designed and is able to accommodate the vehicles expected to access the site.

7.1.1 Sight Distance Assessment

Bulluss Drive has a speed limit of 50km/hr. A design speed of 60km/hr has been adopted which requires an SISD of 131 metres based on a reaction time of 2.5 seconds. The available sight distance at the site access would exceed the requirements of the Austroads Guide. Accordingly, vehicles are expected to be able to safely enter the road network from the proposed site access.

7.2 Transgrid Access

In order to facilitate safe access to the Transgrid substation and works area, it is proposed to upgrade the existing Transgrid site access on Campion Close A strategic concept design has been prepared which is shown in Appendix I.

The works would be subject to further design and approval from Council.

Swept path assessments have been undertaken using a 12.5m Heavy Rigid Vehicle which confirm that access would be suitable for the vehicle types expected to and from the Transgrid works.

7.2.1 Sight Distance Assessment

A review of the sight distance at the intersection of Campion Close and Bulluss Drive confirms that suitable sight distance is available, which is to be expected given the location of Campion Close at the apex of the bend and the straight approaches of Bulluss Drive.

8. Traffic Management Plan

It is recommended that a TMP be prepared prior to commencement of construction of the development. The TMP should be prepared and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The TMP would provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time including:

- Road transport volumes, distribution and vehicle types broken down into:
  - Hours and days of construction.
  - Schedules for phasing/staging of the Project.
- The origin, destination and routes for:
  - Employee and contractor light vehicles.
  - Heavy vehicle traffic.
  - Oversize/overmass vehicles.
- A map of the primary haulage routes highlighting critical locations.
- An induction process for vehicle operators and regular toolbox meetings.
- A complaint resolution and disciplinary procedure.
- Local climatic conditions that may impact road safety of employees throughout all Project phases (e.g. fog, wet and significant dry, dusty weather).

The following provides recommended measures that should be adopted within the TMP to minimise the impact of construction traffic along the road network.

8.1 Information and Communication

The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the Project Area. This program may include elements of the following as appropriate to the phase of works:

- Press releases in local newspapers.
- Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the Project.
- Provision of a website providing details of the status of works and contact details for complaints or enquiries.
- Provide key contact personnel and contact details, including out of hours contact information to residents, schools, public activities and business operating alongside the local route.
- Neighbours of the BESS would be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.

8.2 Signage

If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied.

8.3 On-Site Mitigation Measures

On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include:

- On-site speed restrictions.
- Appropriate dust suppression measures.
- Maintenance program for on-site access tracks to ensure safe access.
- Loading and unloading is proposed to occur within the work area. No street or roads would be used for material storage at any time.
- Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network.
- All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.

8.4 Driver Protocols

Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the workforce. A Driver Code of Conduct is to be implemented as a measure to maintain safety within and around the site:

- All vehicles would enter and exit the site in a forward direction.
- Heavy vehicle movements should avoid peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.
- Safety initiatives for impacts to residential areas and/or school bus zones.
- Utilisation of only the designated transport routes.
- Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.
- All permits for working within the road reserve must be received from the relevant authority prior to works commencing.

The above recommendations will ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The TMP would be prepared in conjunction with consultation with Transport for NSW and Moree Plains Shire Council.

9. Mitigation Measure Summary

The assessment has identified a number of traffic management measures that are to be implemented during construction and recommended to be included in the TMP. The key measures are summarised below:

- Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with the road authority. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the BESS would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the BESS are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.
- It is recommended that any OSOM vehicle trips be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

10. Conclusion

Amber Organisation has assessed the traffic impacts of the proposed Moree BESS. The BESS is proposed to have a capacity of up to 120MW with up to four hours capacity.

The Project Area is located on the southern fringe of Moree, on the eastern side of Bulluss Drive. Main access to the site is proposed via a new crossover from Bulluss Drive. The Project Area is within the Moree Special Activation Precinct.

The construction period is expected to commence in 2026 and take approximately 12 months, with the peak construction period expected to take 6 months. A construction workforce of up to 75 full time personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

Most specialist plant is expected to be delivered from Port Botany. General construction materials and equipment will generally be sourced from the surrounding area where practicable.

The above assessment determined the following:

- During peak construction of the BESS, the project is expected to generate up to 80 light and 78 heavy vehicle trips per day, with 52 vehicle trips per hour during peak morning and evening periods, reducing to 30 trips per hour during average construction. In the unlikely scenario of concurrent Transgrid works, daily trips could increase to 96 light and 98 heavy vehicles, with 62 trips per hour in peak periods.
- The road network is able to accommodate the traffic generated by the development during the construction, operation and decommissioning stages.
- The heavy vehicle access route utilises roads that are designated for B-Doubles within the Transport for New South Wales Restricted Access Vehicle Map.
- Two access route options for oversize/overmass vehicles from Glen Waverley and the Port of Newcastle have been identified within a Route Assessment which shows that the vehicles are able to suitably access the Project Area with suitable traffic management measures. The Route Assessments are provided within Appendix A of this document.
- The main site access to Bulluss Drive is suitable to safely accommodate the project construction vehicles.
- The proposed upgraded access to Campion Close will facilitate safe access to the Transgrid substation and associated connection works, subject to approval by Council.
- In order to mitigate the impacts of the development during construction a TMP would be prepared which should include the recommendations provided within this document.

Accordingly, based on the assessment above, it is concluded that the proposed access arrangements for the BESS are suitable to accommodate the expected construction vehicle types and traffic volumes during the construction and operation phase of the Project.

Appendix A

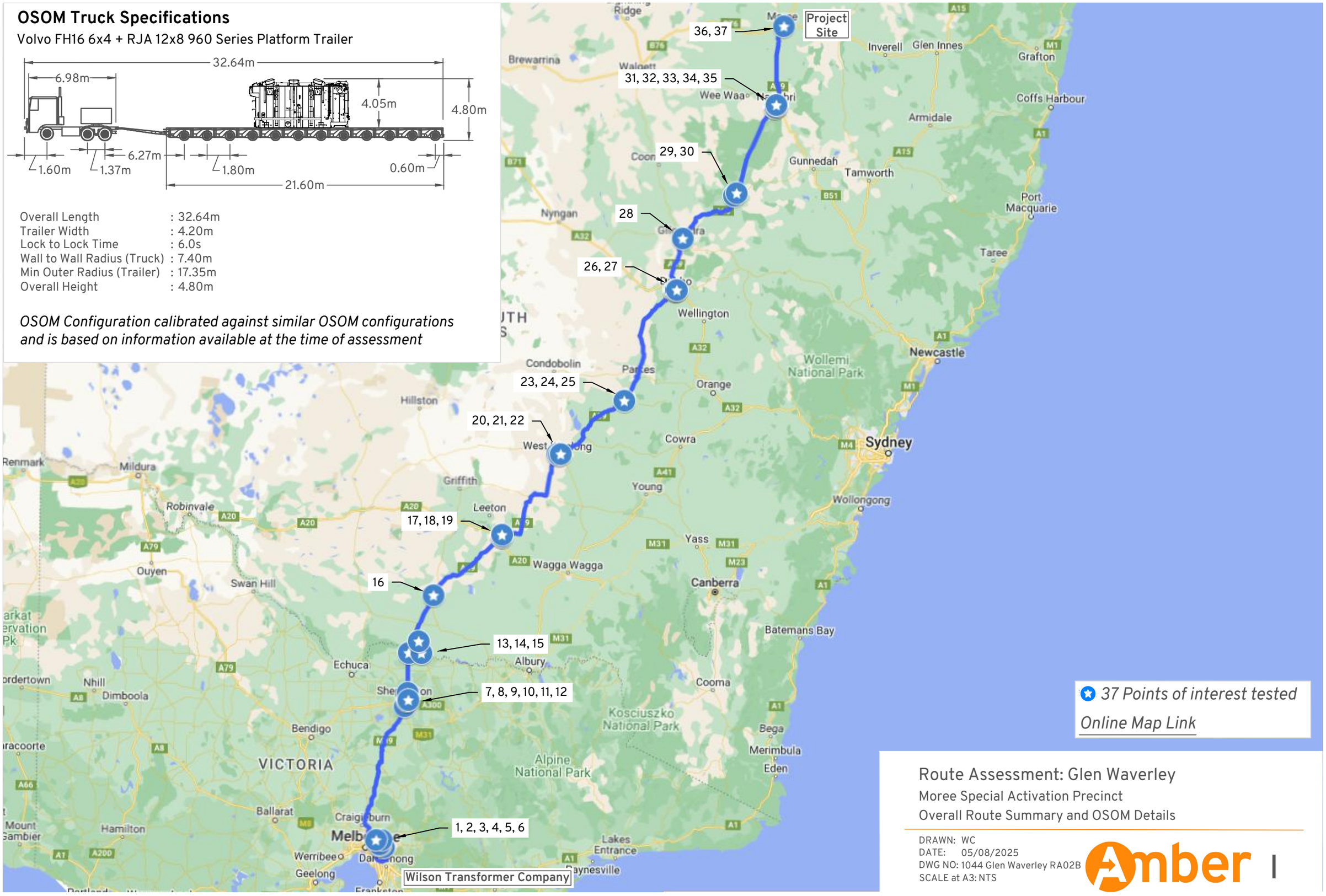
OSOM Route Assessments: Glen Waverley and Port of Newcastle

OSOM Truck Specifications

Volvo FH16 6x4 + RJA 12x8 960 Series Platform Trailer

Overall Length	: 32.64m
Trailer Width	: 4.20m
Lock to Lock Time	: 6.0s
Wall to Wall Radius (Truck)	: 7.40m
Min Outer Radius (Trailer)	: 17.35m
Overall Height	: 4.80m

OSOM Configuration calibrated against similar OSOM configurations and is based on information available at the time of assessment



37 Points of interest tested

Online Map Link

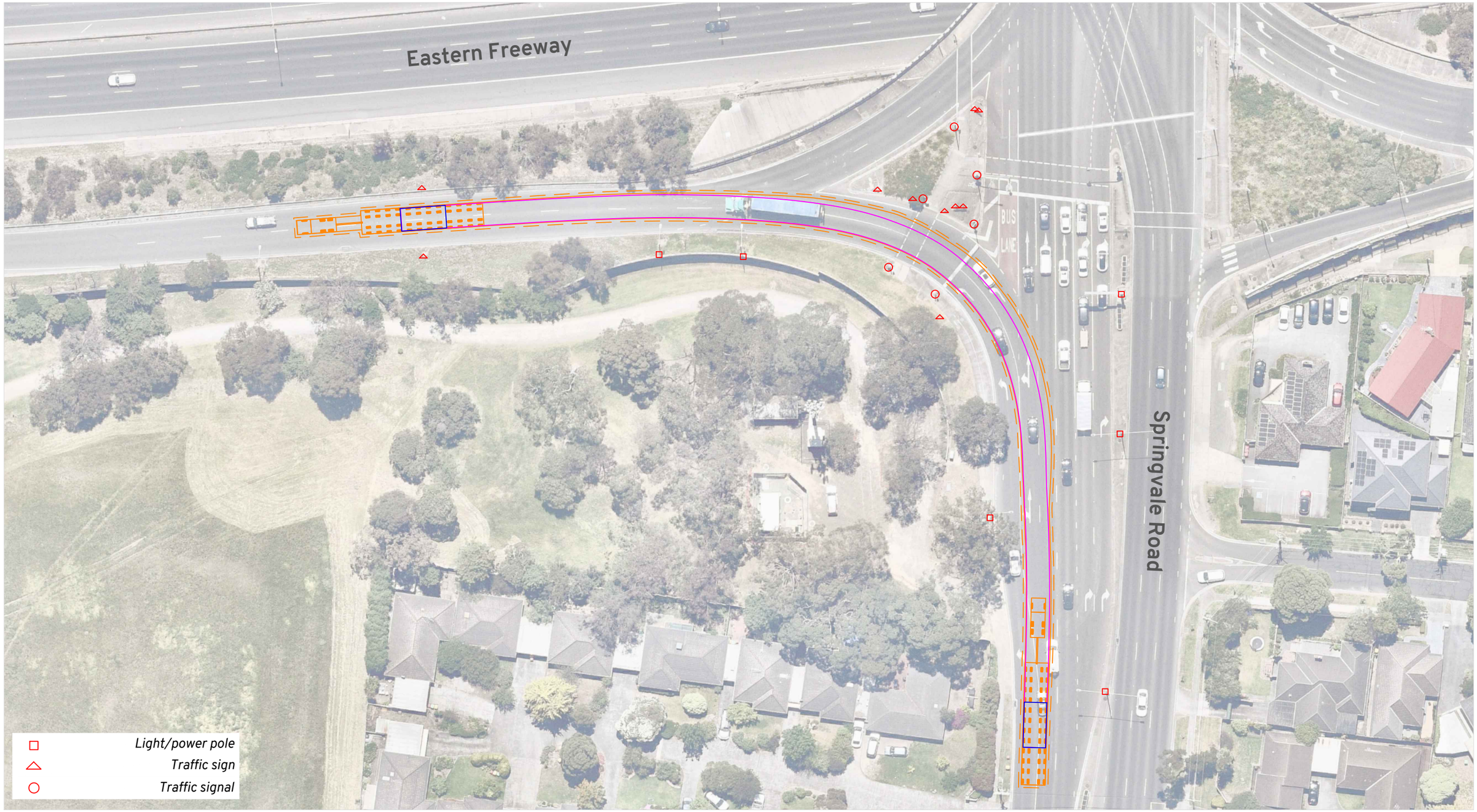
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Overall Route Summary and OSOM Details

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: NTS

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Nunawading VIC 3131
Online Map Link

Route Assessment: Glen Waverley

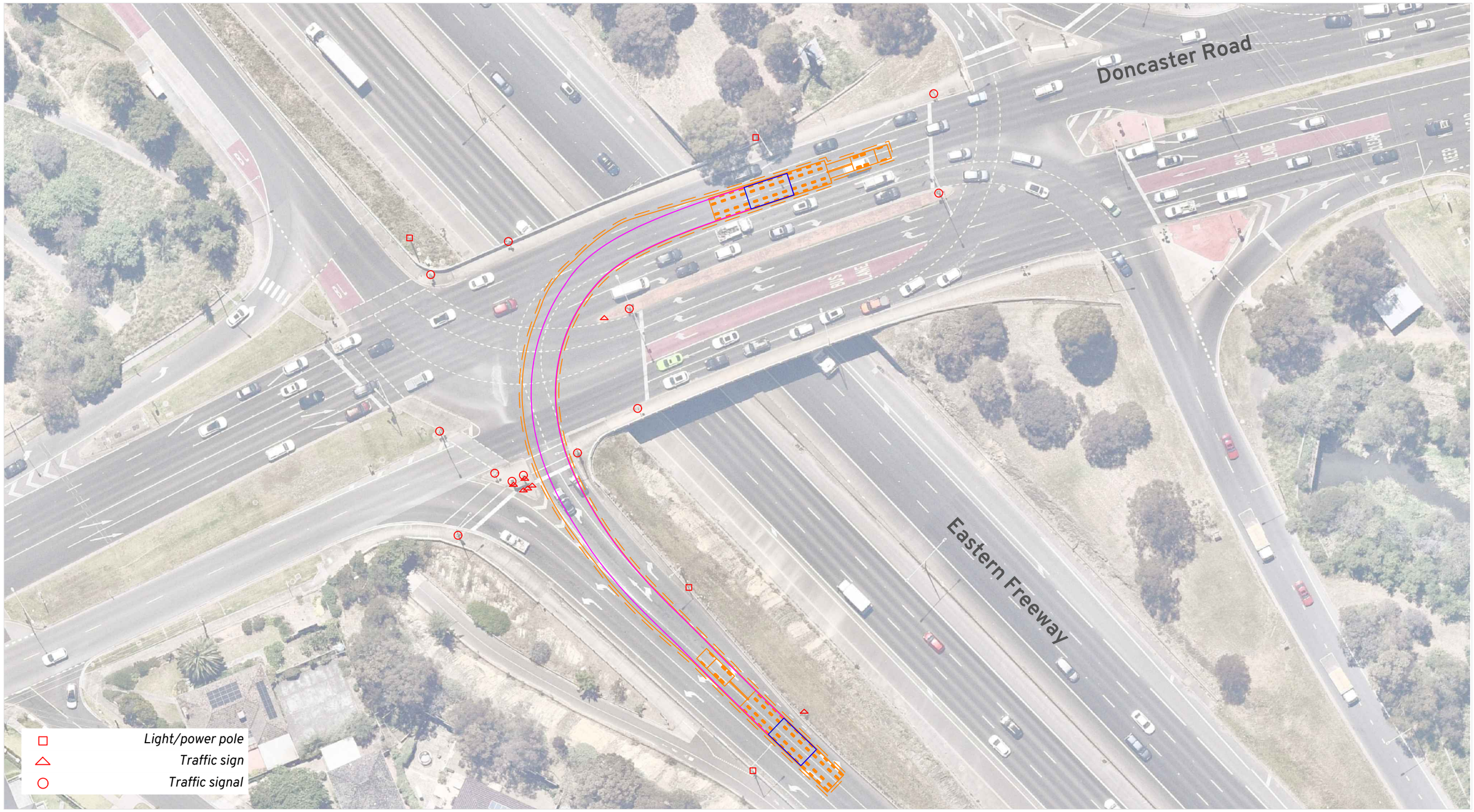
Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber

01



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

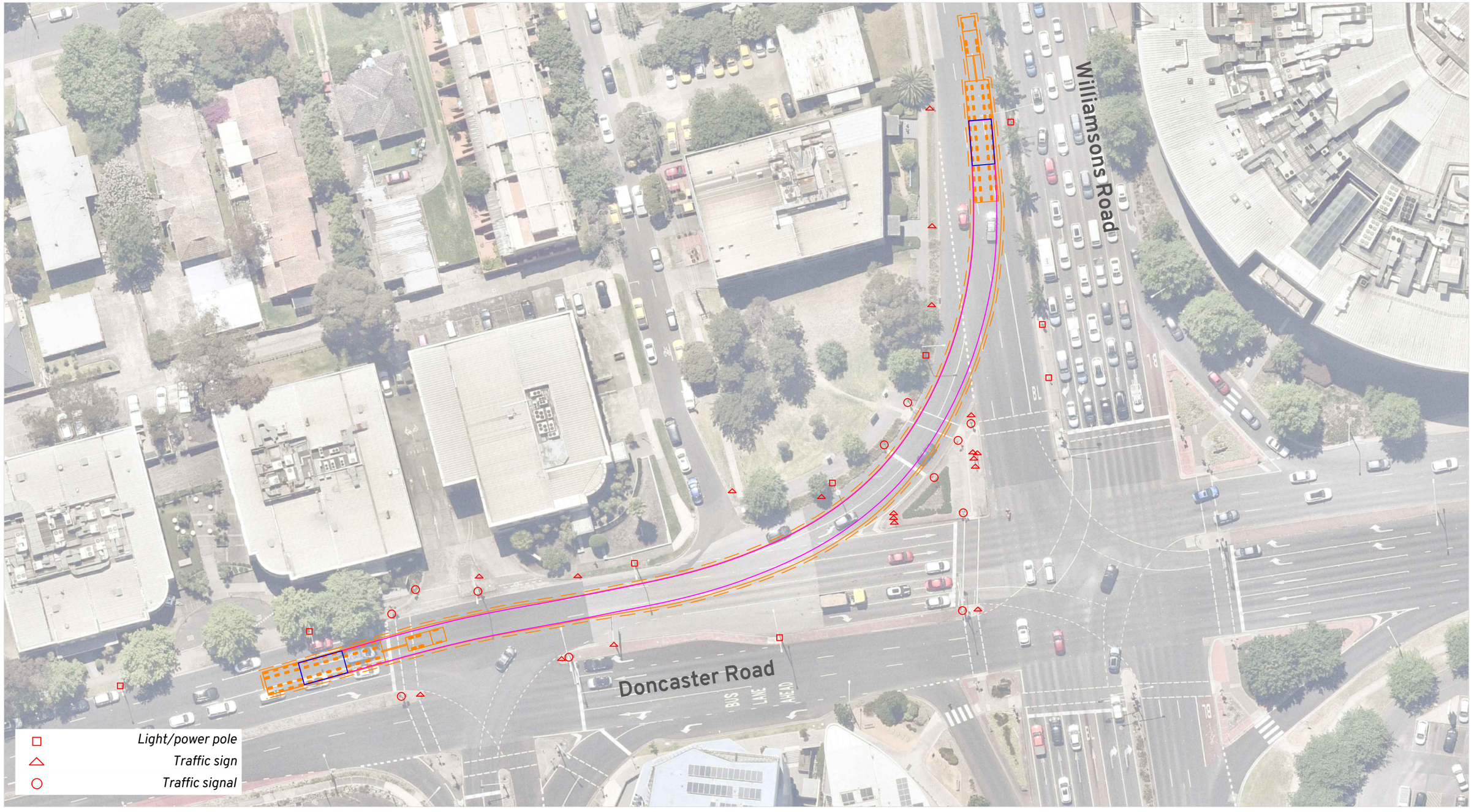
Location:
Balwyn North VIC 3104
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber 02



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

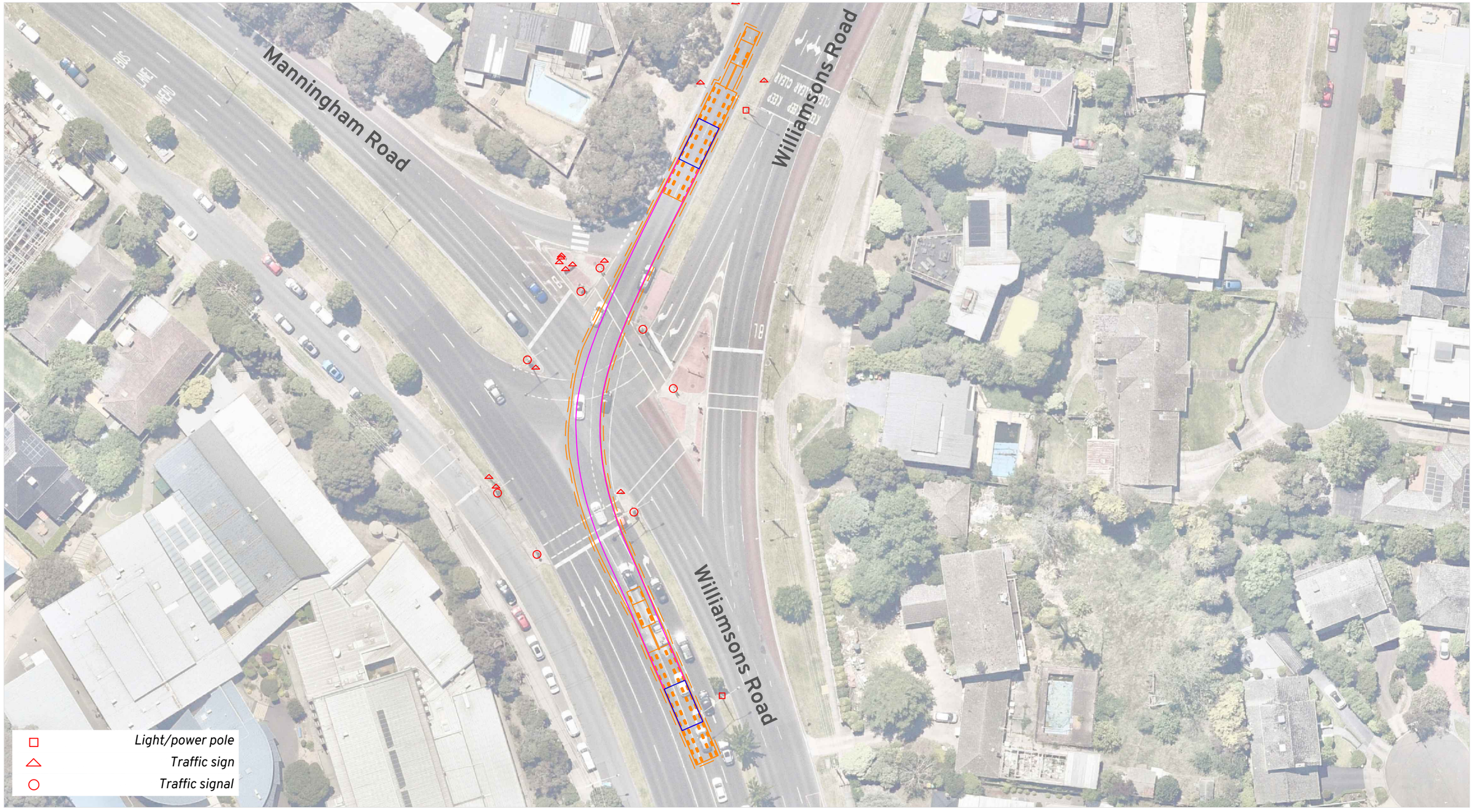
Location:
Doncaster VIC 3108
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

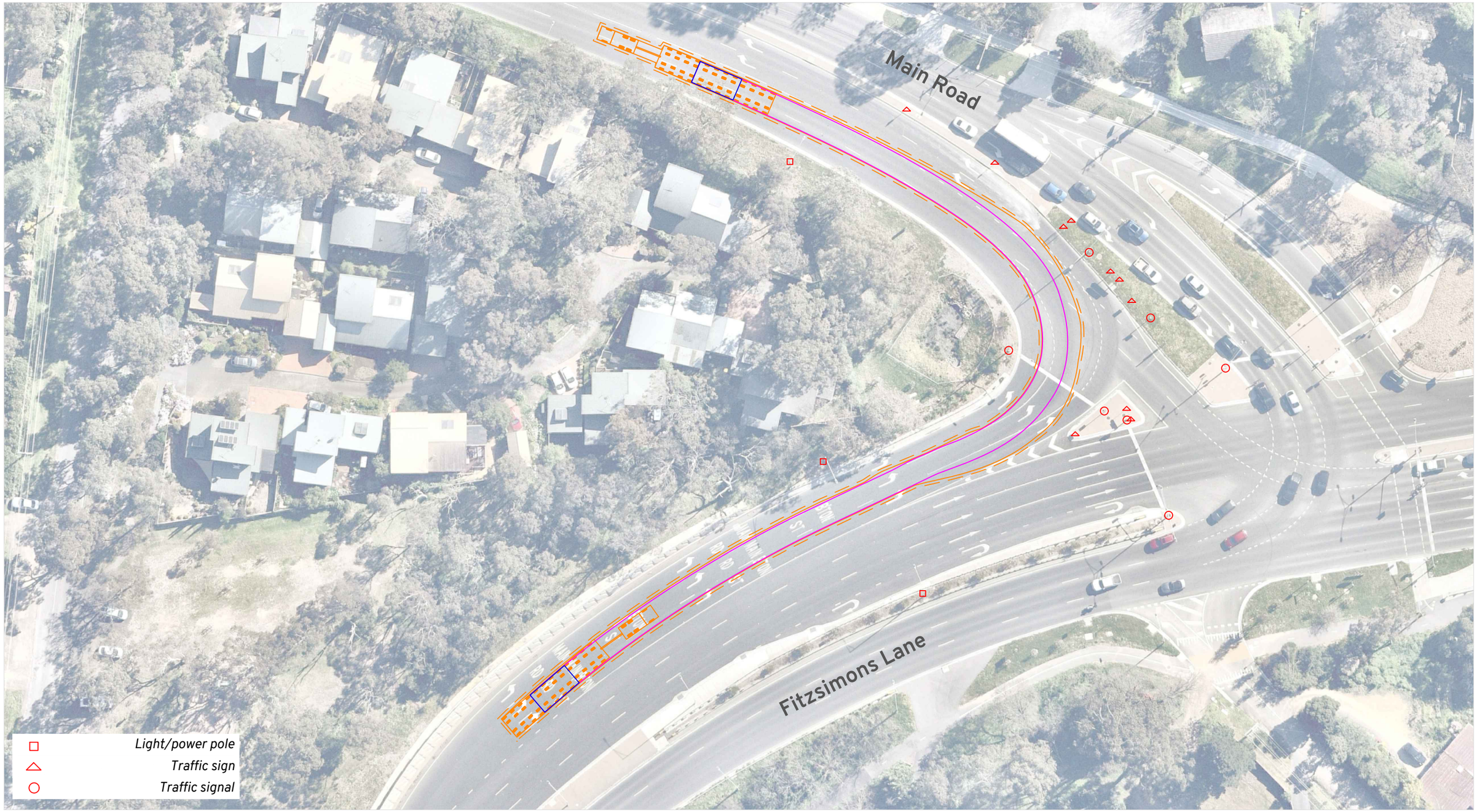
Location:
Doncaster VIC 3108
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

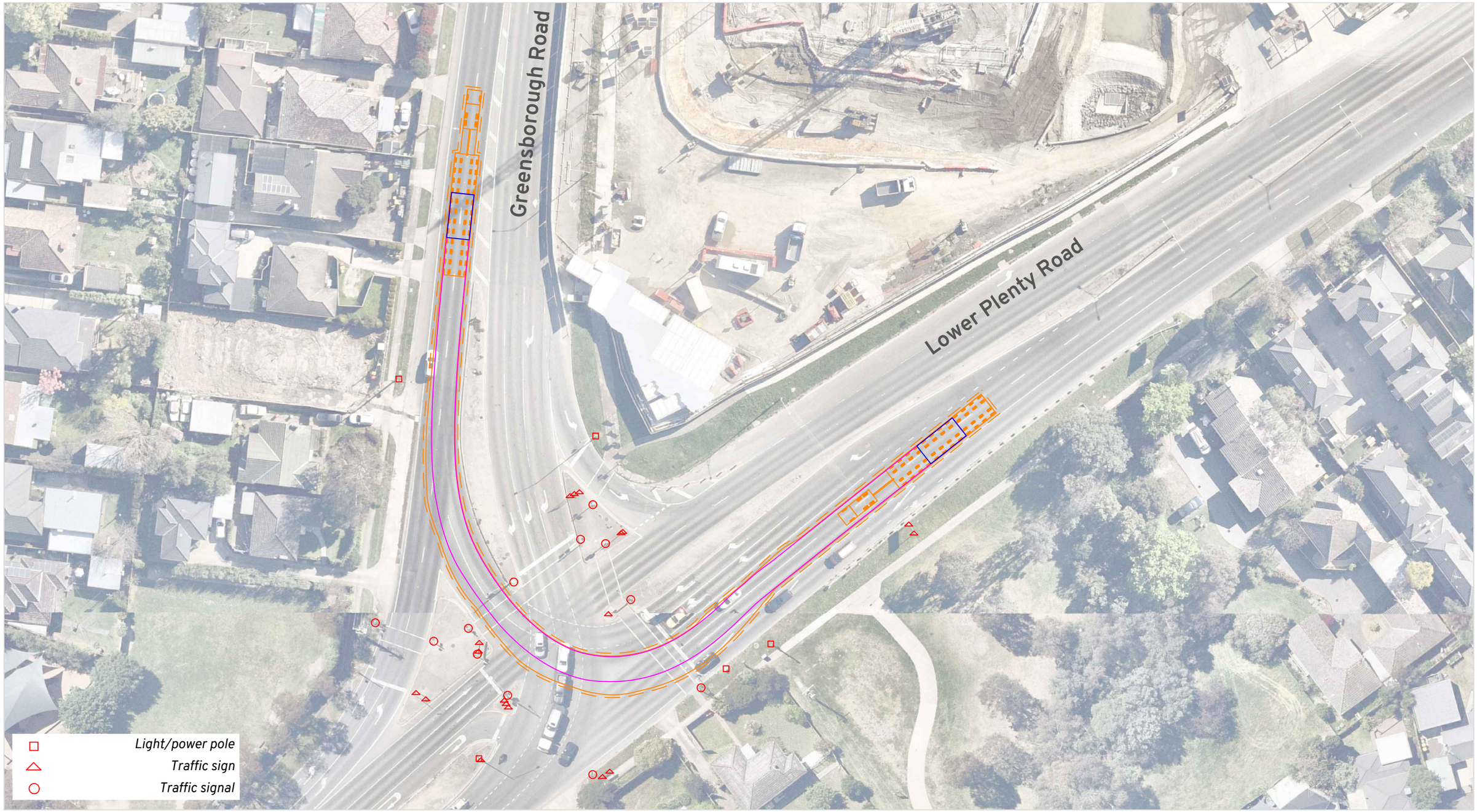
Location:
Eltham VIC 3095
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber 05



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

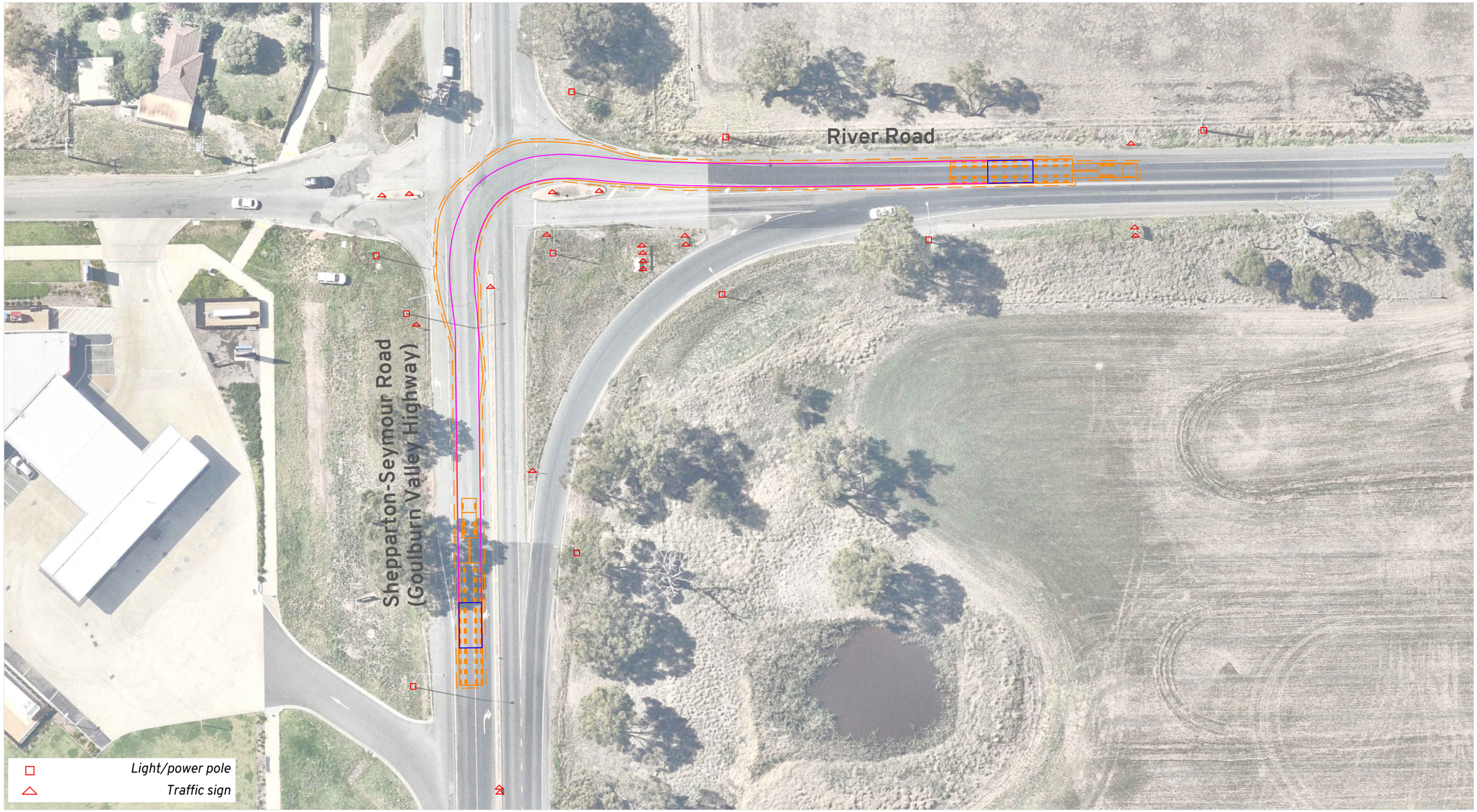
Location:
Rosanna VIC 3084
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

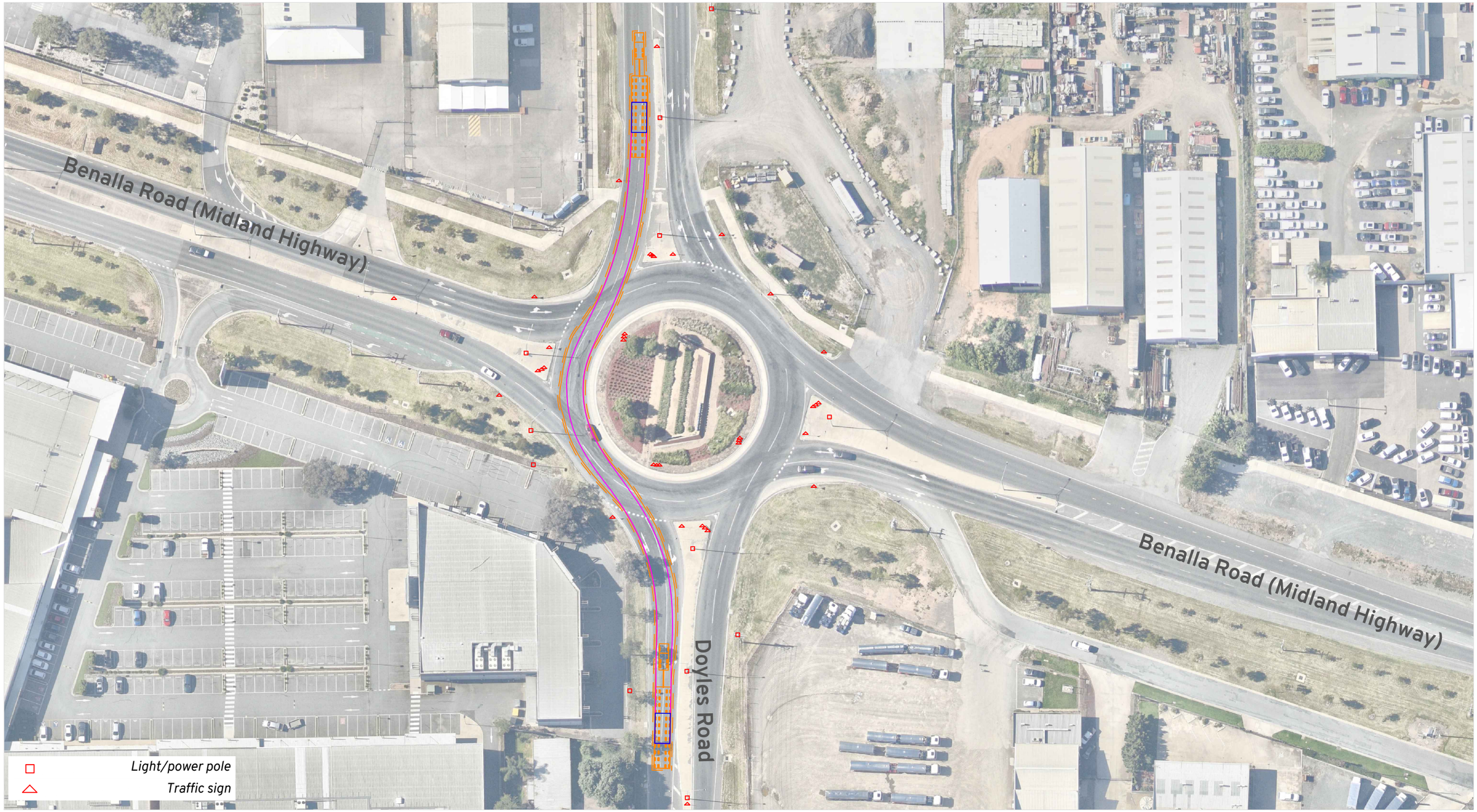
Location:
Kialla VIC 3631
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

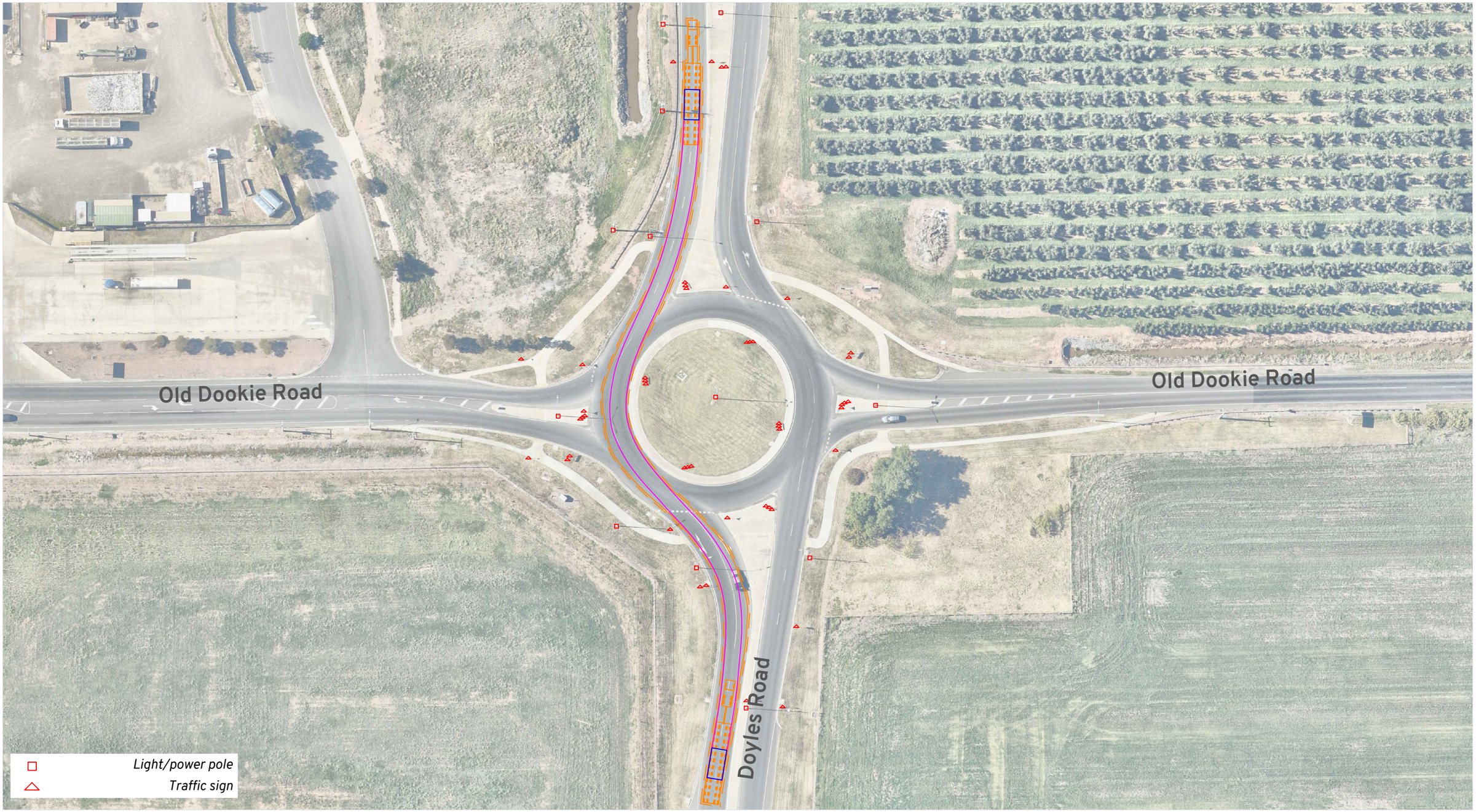
Location:
Orrvale VIC 3631
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

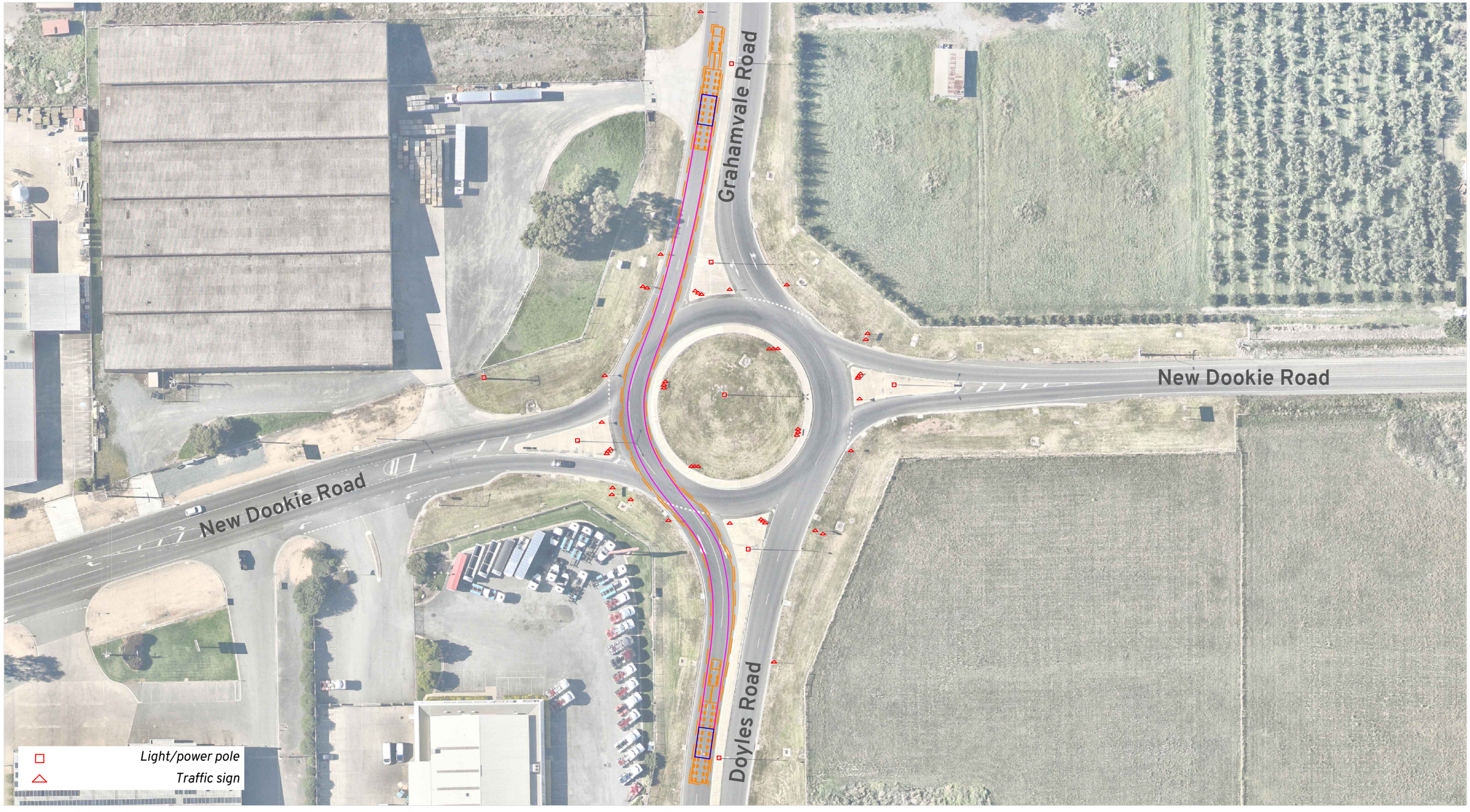
Location:
Shepparton-Mooroopna VIC 3630
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber



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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

Location:
Grahamvale VIC 3631
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

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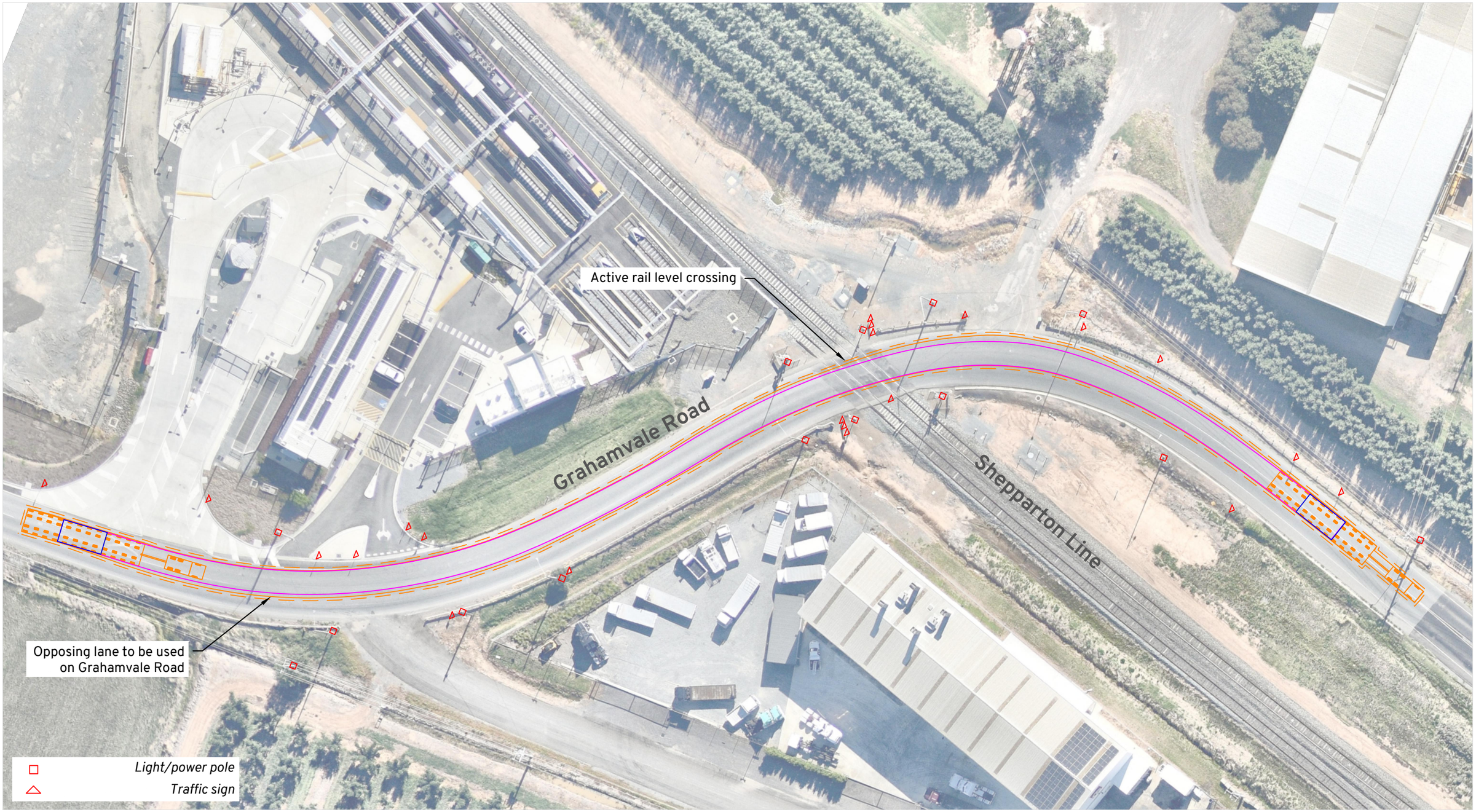

Vehicle Envelope

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Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of opposing lane on Grahamvale Road.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Active rail level crossing requires ODL permit from DTP before crossing.

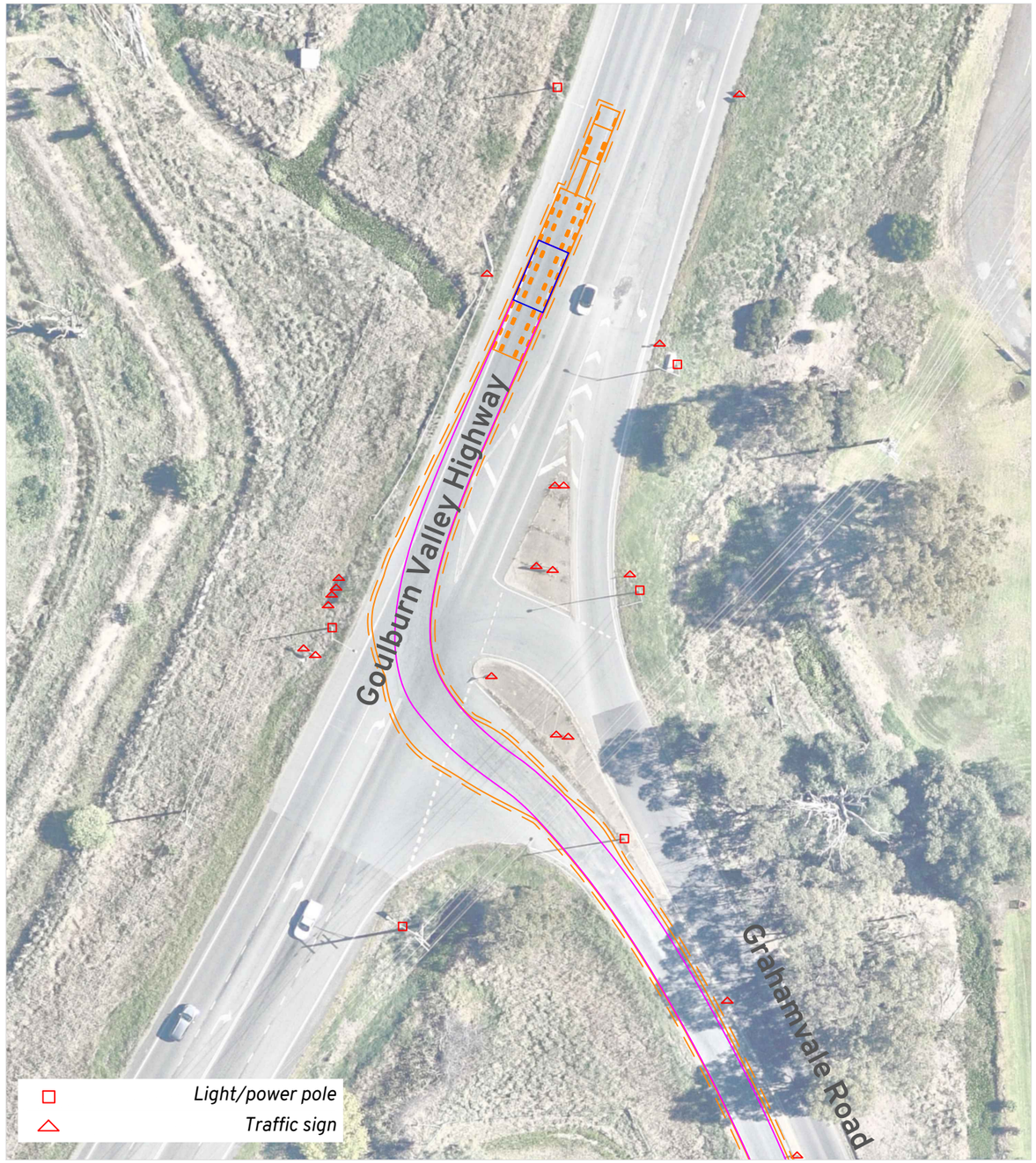
Location:
Greater Shepparton VIC 3630
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber

12a



12b

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

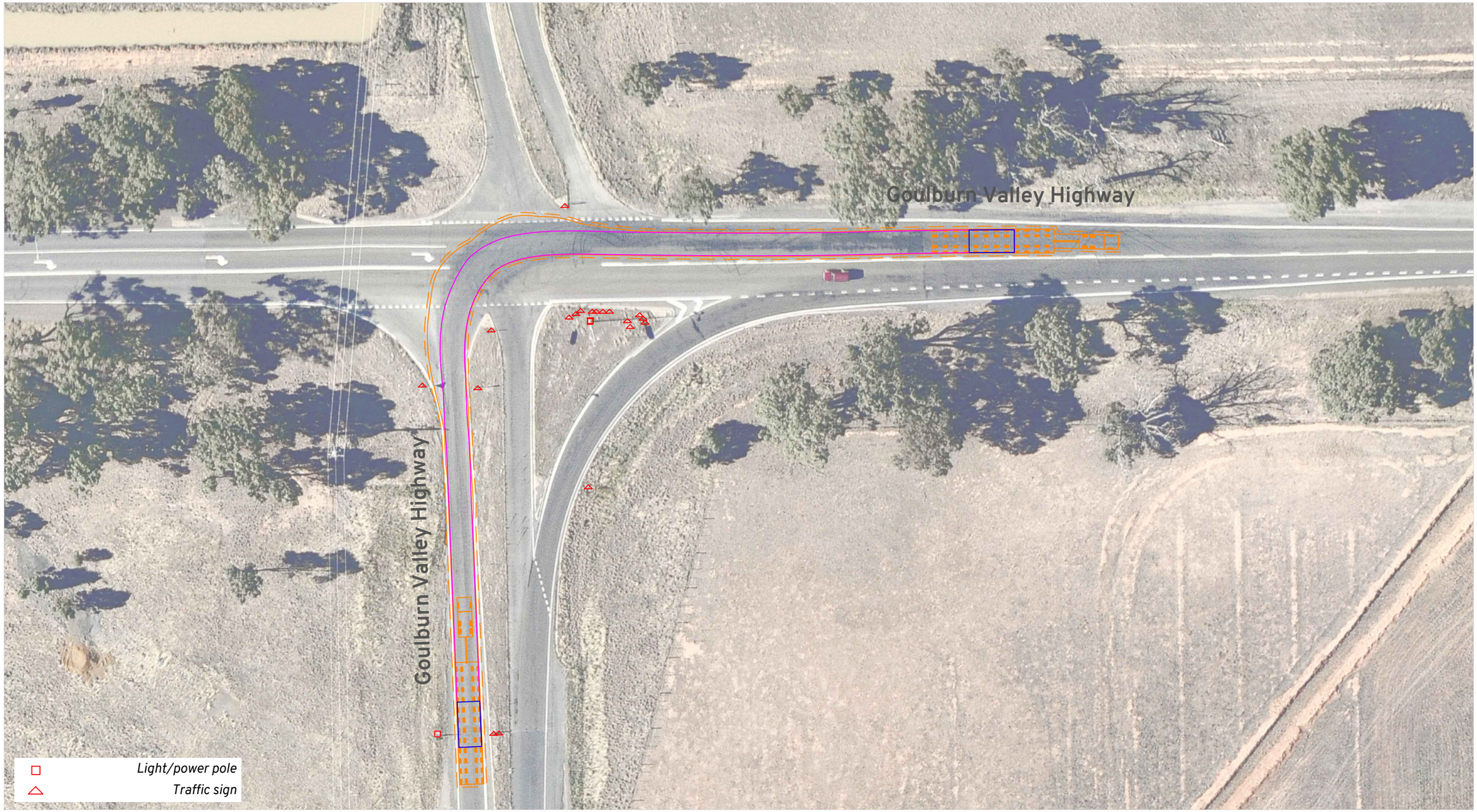
Location:
Congupna VIC 3633
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of opposing lane from east.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Strathmerton VIC 3641
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

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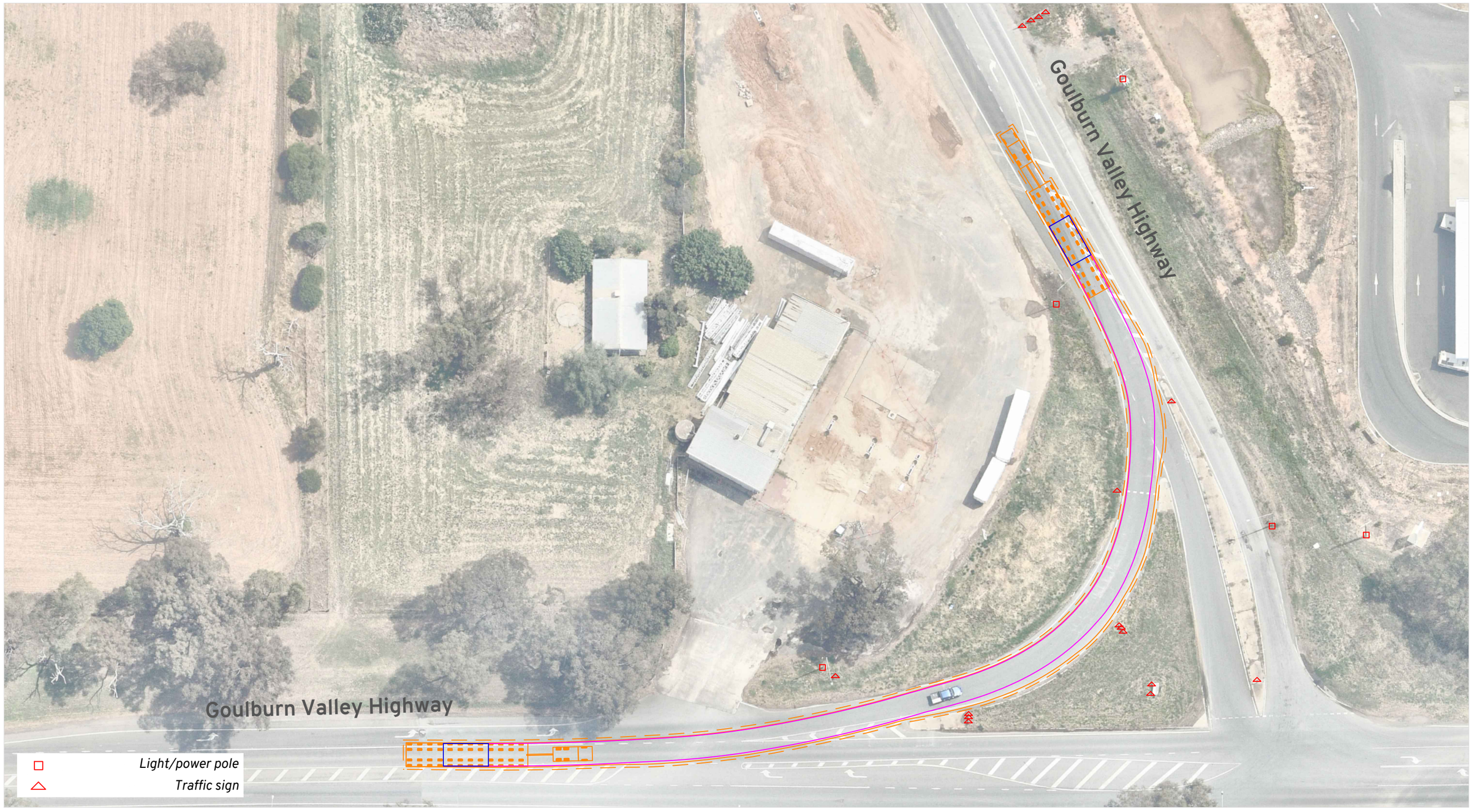


Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
All kerbs are mountable.

Location:
Yarroweyah VIC 3644
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Outer roundabout island designed to be used by heavy vehicles.

Location:
Tocumwal NSW 2714
Online Map Link

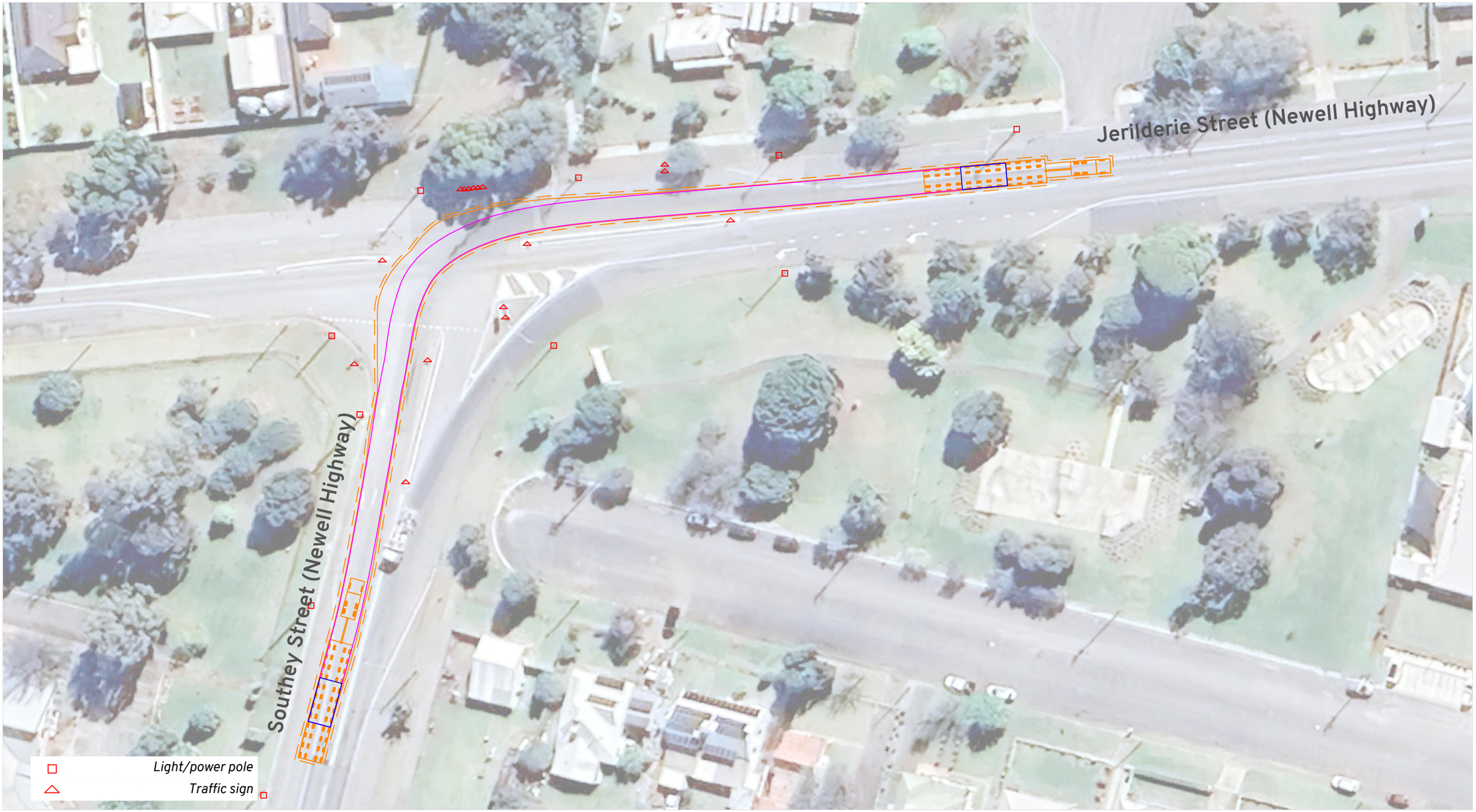
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

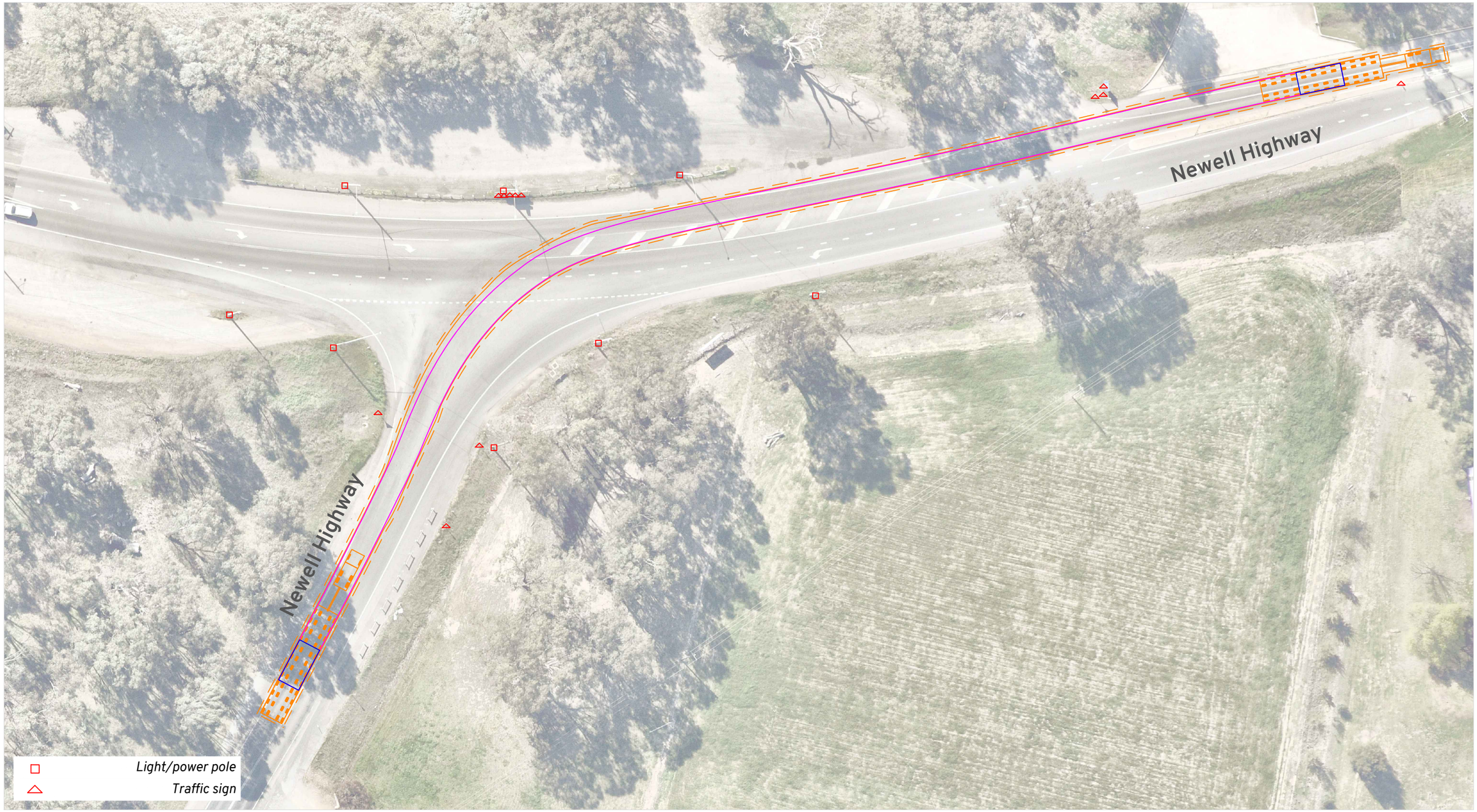
Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Jerilderie NSW 2716
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of opposing lane.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Gillenbah NSW 2700
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

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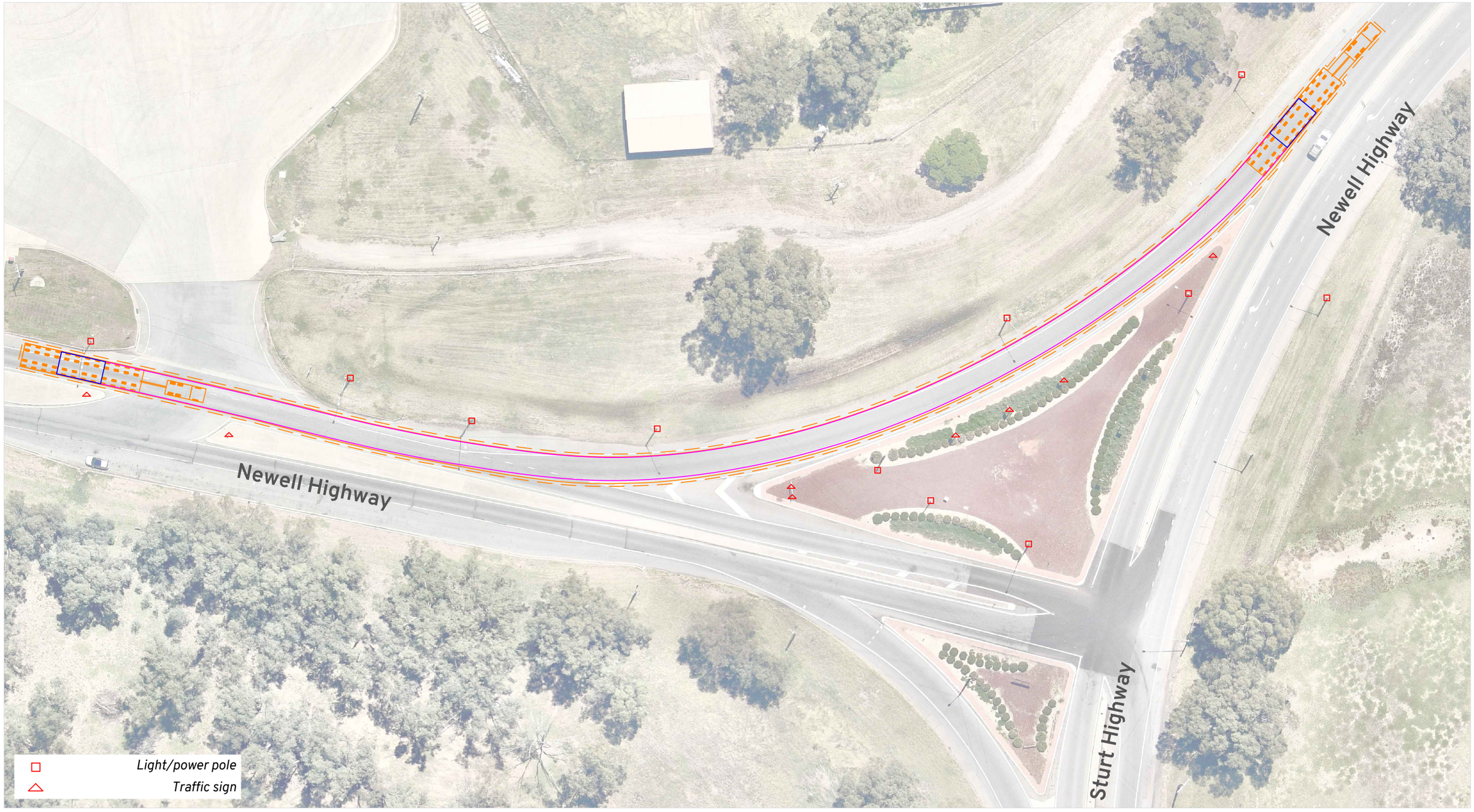

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Gillenbah NSW 2700
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
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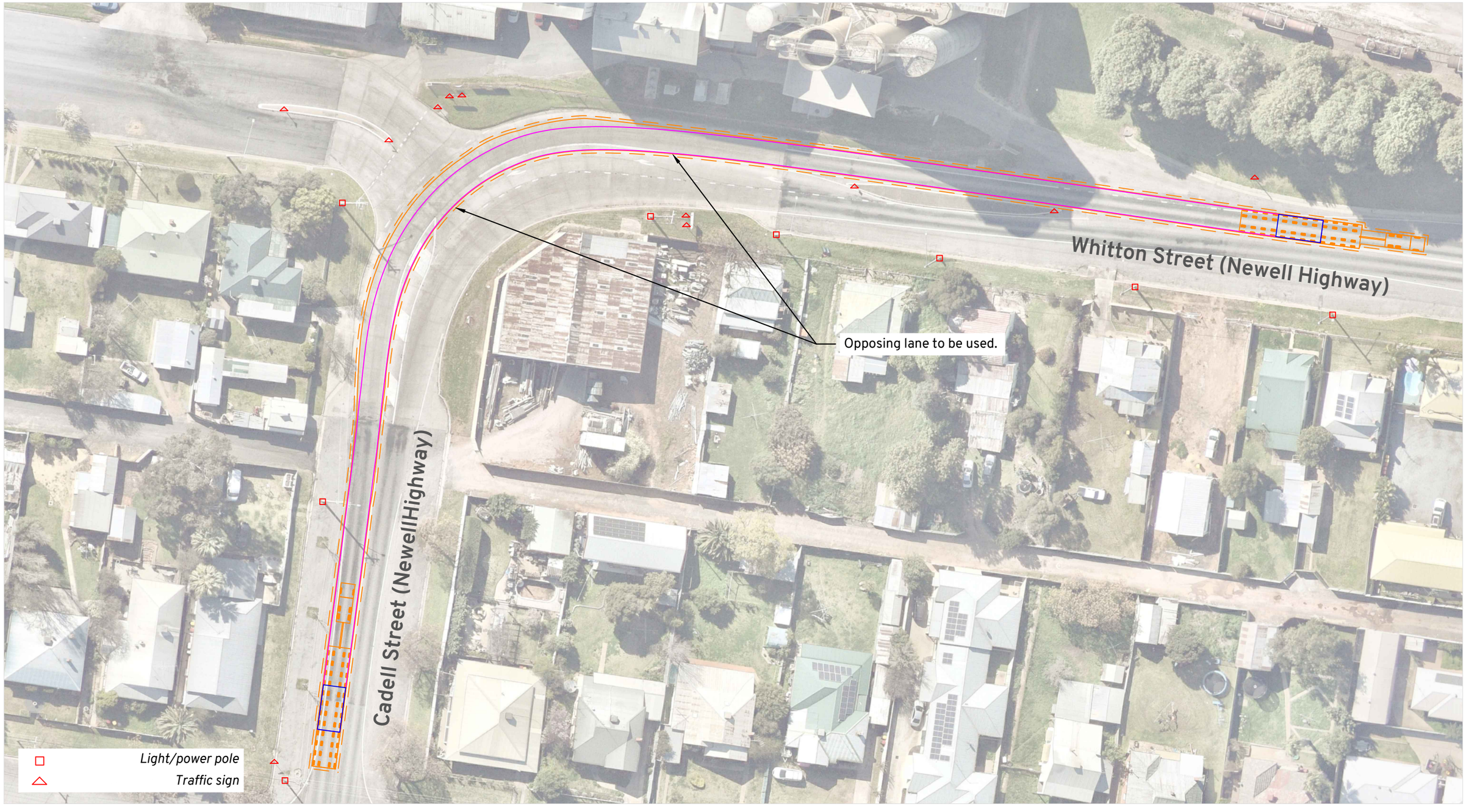


Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing turning lane.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Narrandera NSW 2700
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

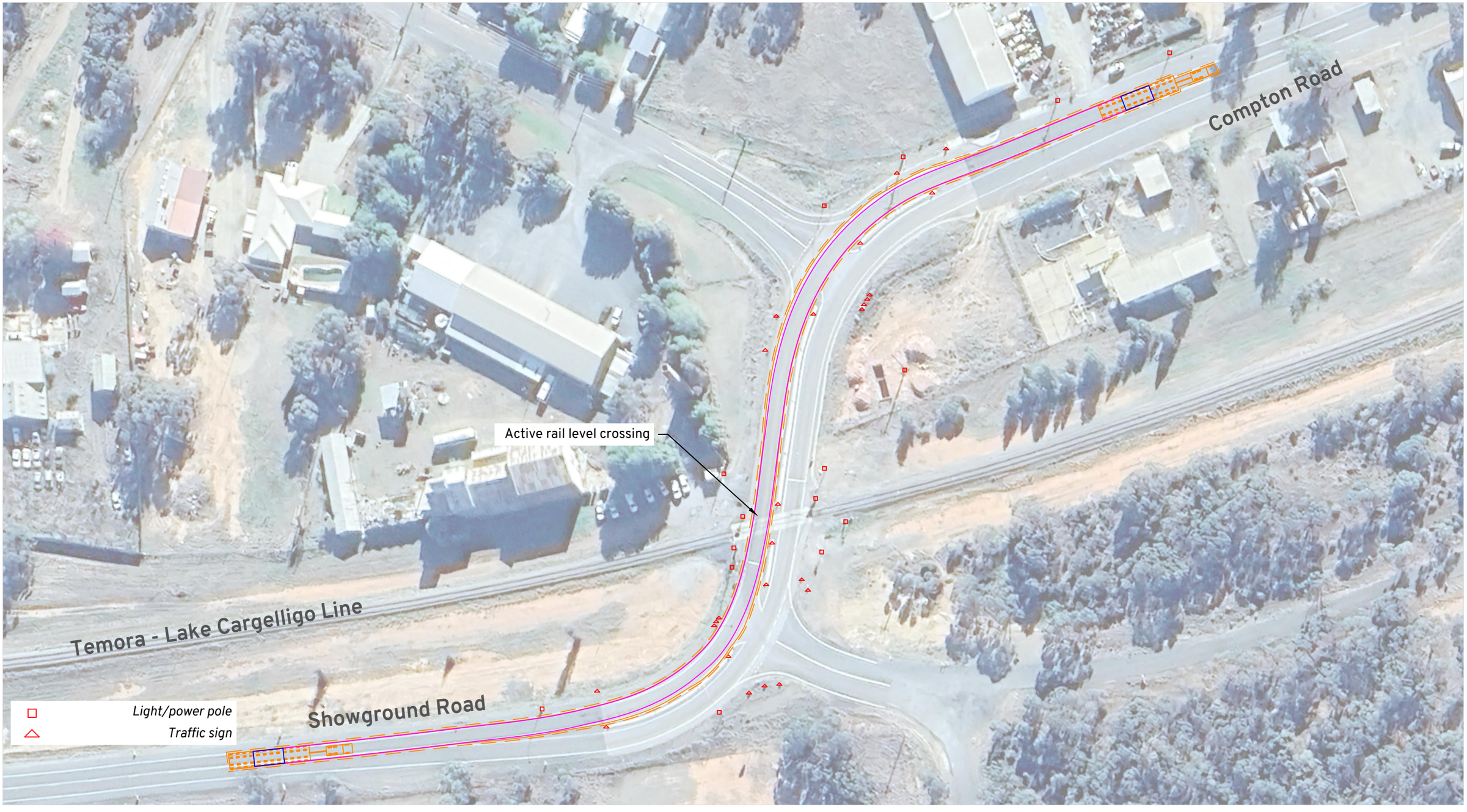
Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
West Wyalong NSW 2671
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Active rail level crossing requires permit from UGL Regional Linx before crossing - LXM ID 1193

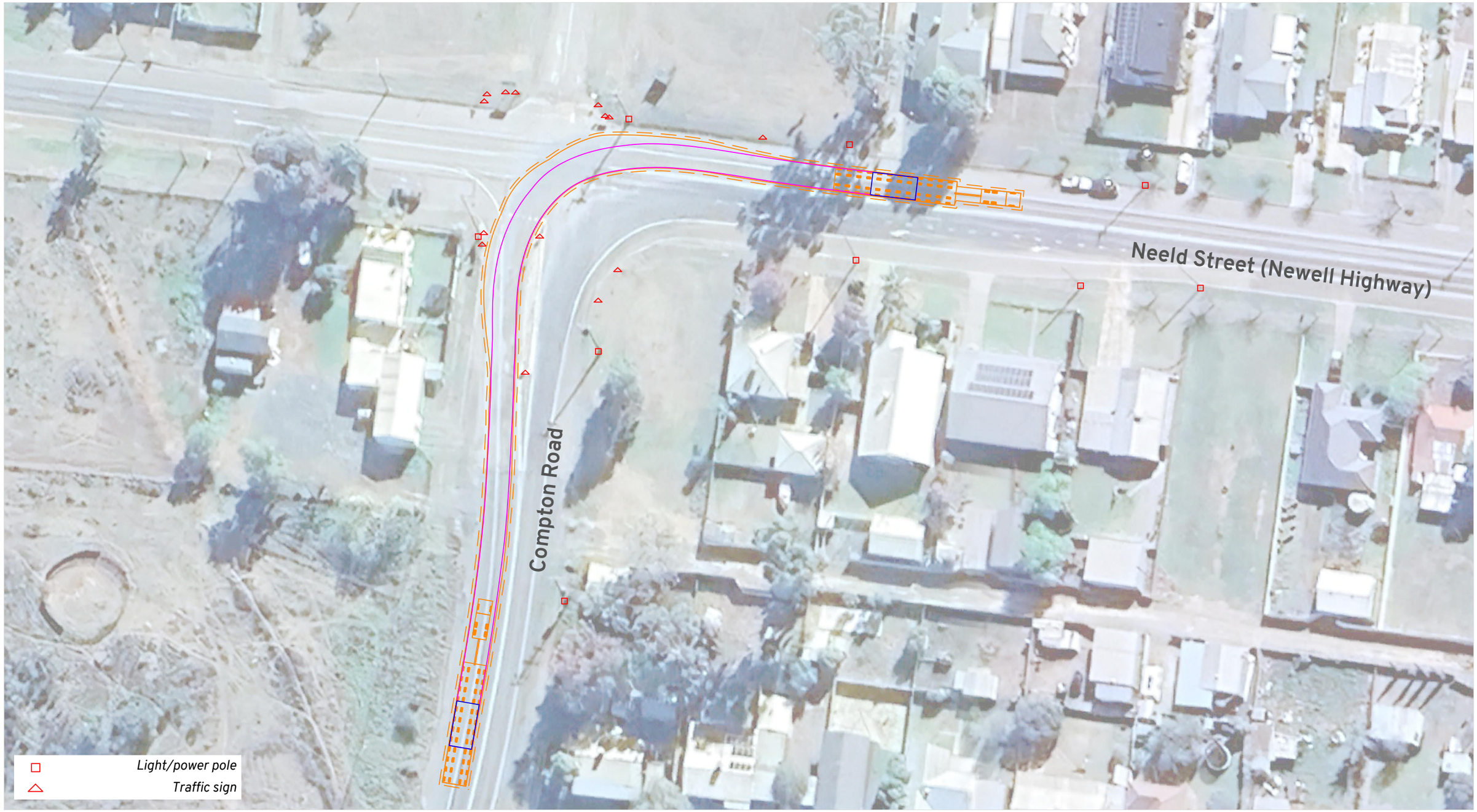
Location:
West Wyalong NSW 2671
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber 21



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

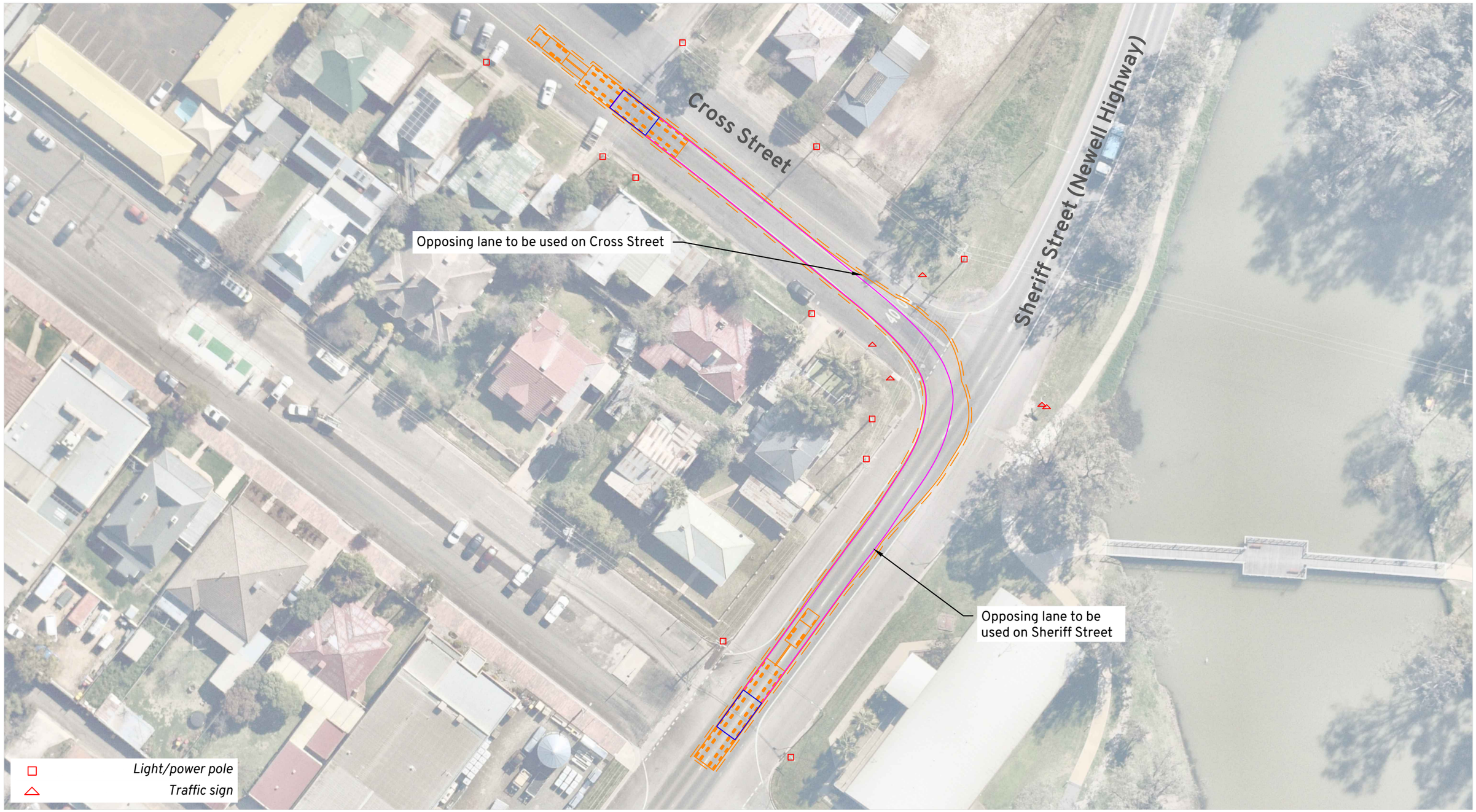
Notes:
Escorts to control traffic as required and facilitate use of opposing traffic lane.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Wyalong NSW 2671
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber 22



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

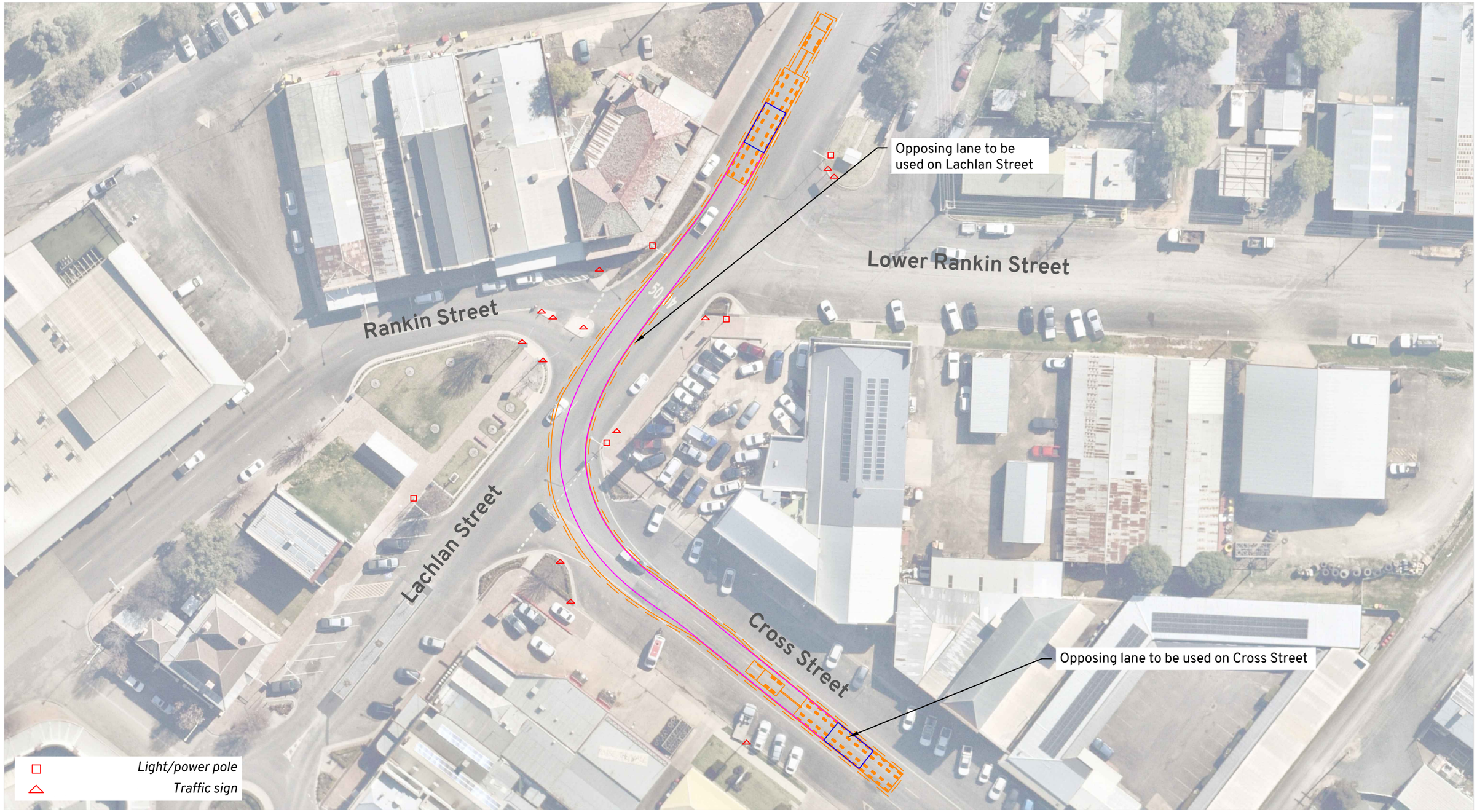
Location:
Forbes NSW 2871
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and faciliate use of opposing lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

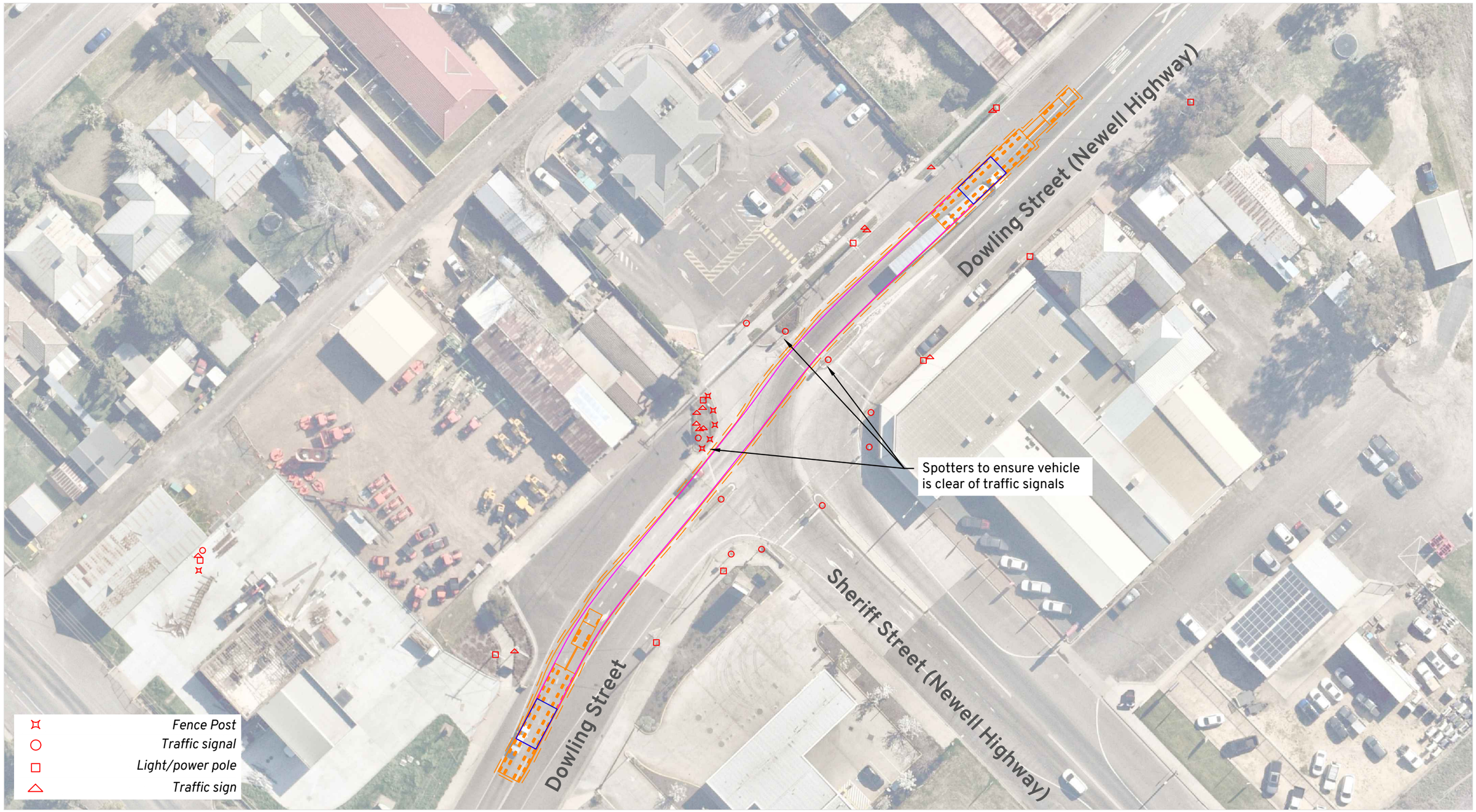
Location:
Forbes VIC 2871
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber 24



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of opposing/multiple traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Forbes NSW 2871
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

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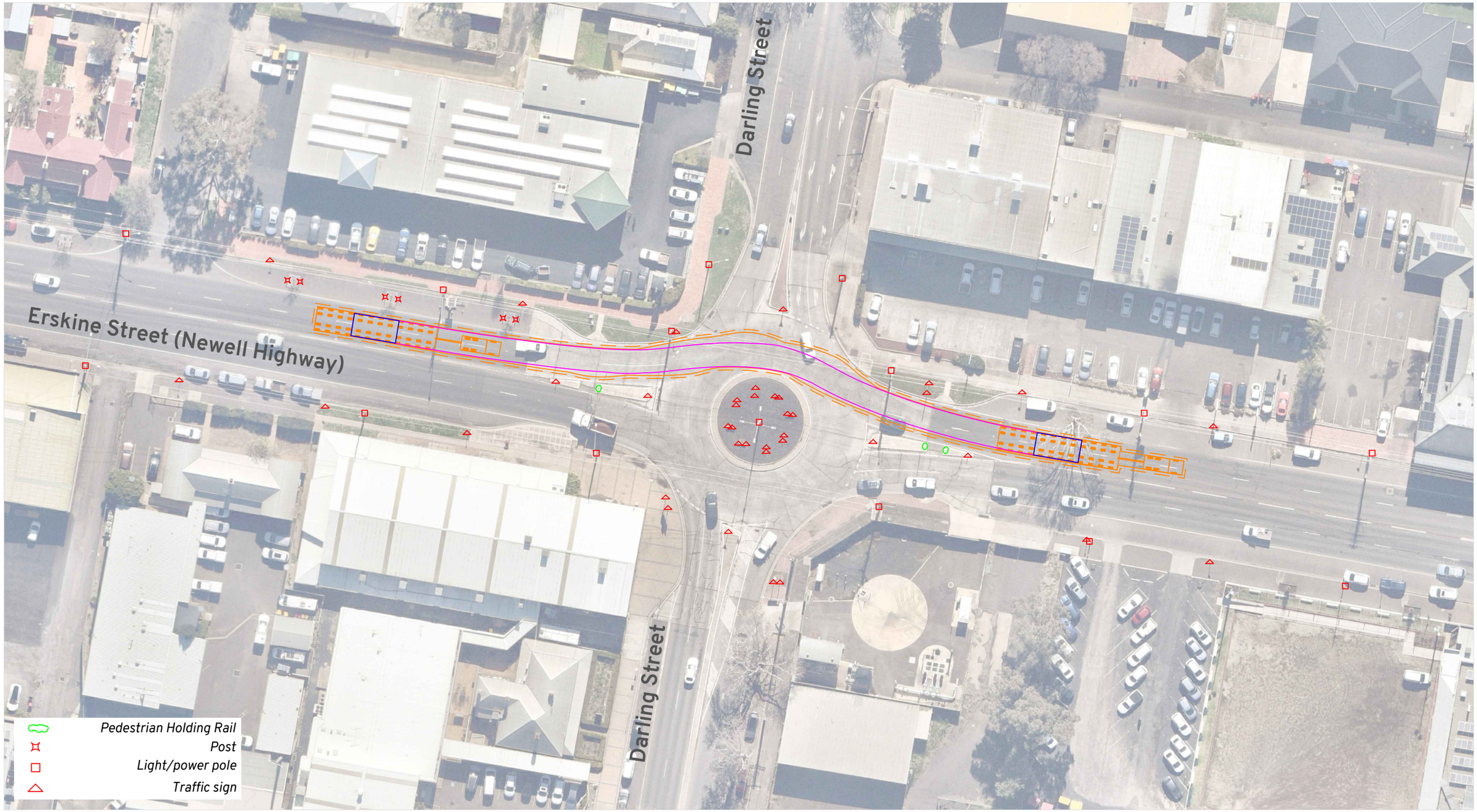


Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Provide hardstand and mountable kerbing as required at yellow highlighted area.
Temporary relocation of one road sign required.

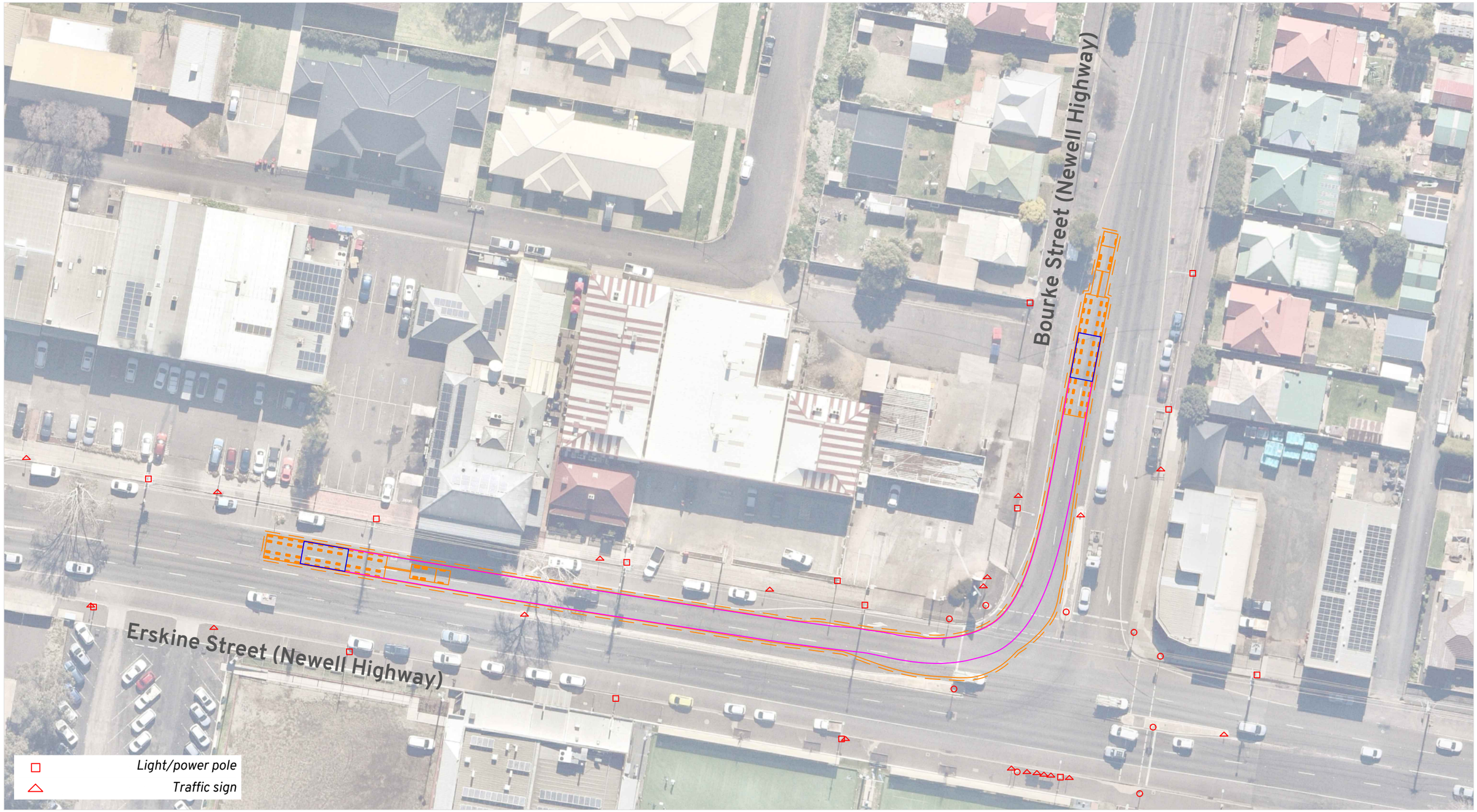
Location:
Dubbo NSW 2830
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lane.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Dubbo NSW 2830
Online Map Link

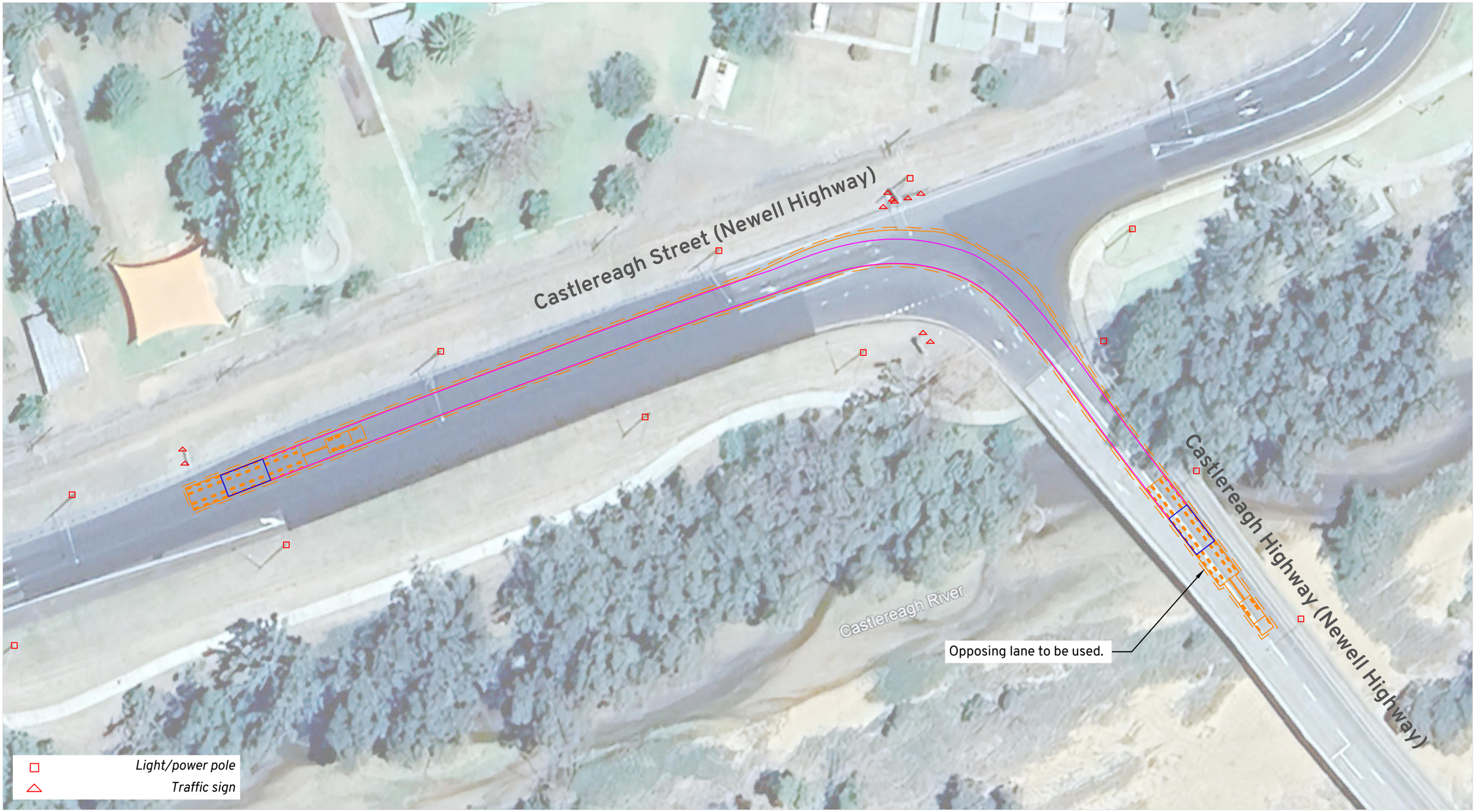
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Intersection is currently under construction - OSOM movements and temporary road infrastructure changes dependant on final road design.

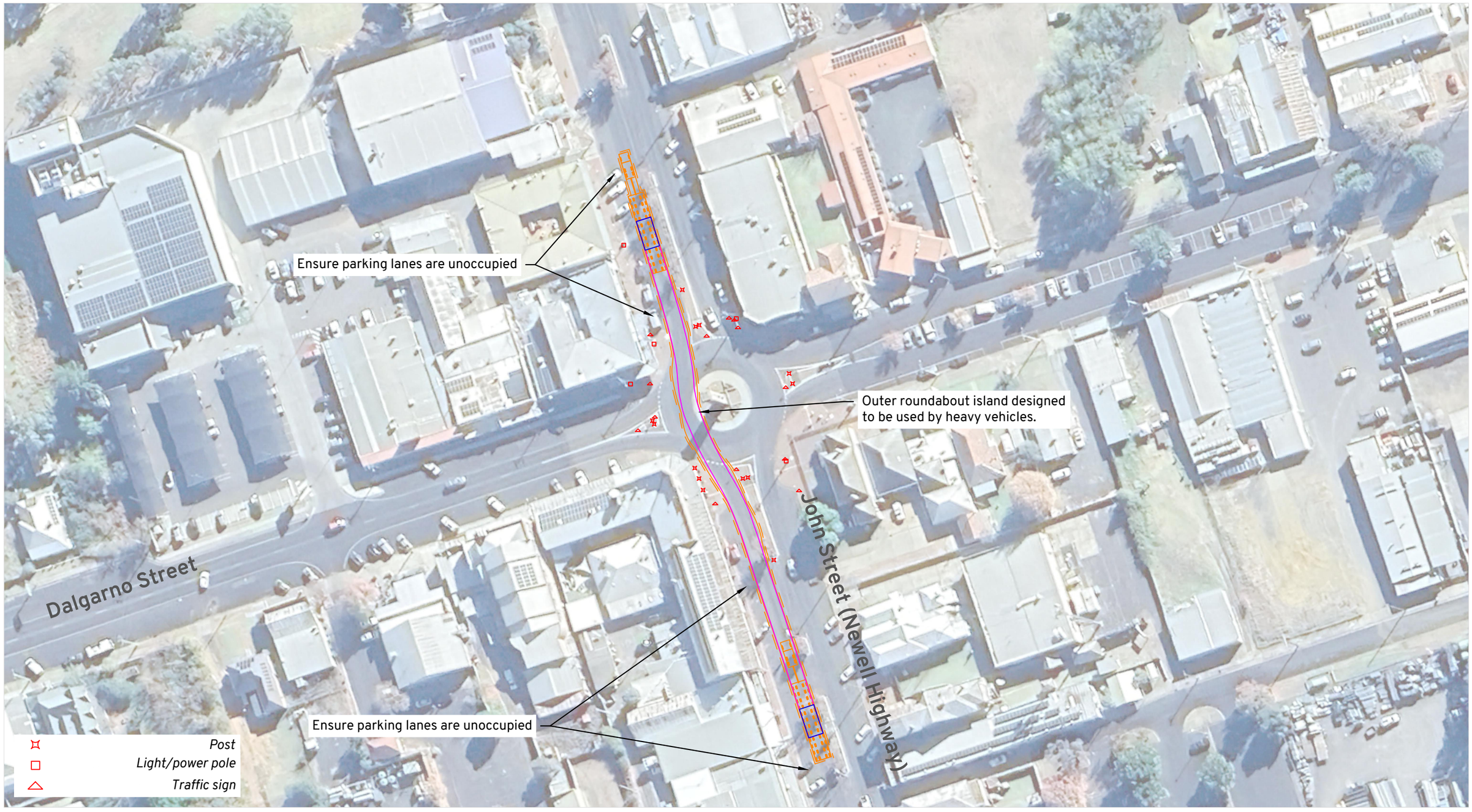
Location:
Gilgandra NSW 2827
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Ensure parking lanes along on John Street are unoccupied in advance of transit.
Outer roundabout island designed to be used by heavy vehicles.

Location:
Coonabarabran NSW 2357
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

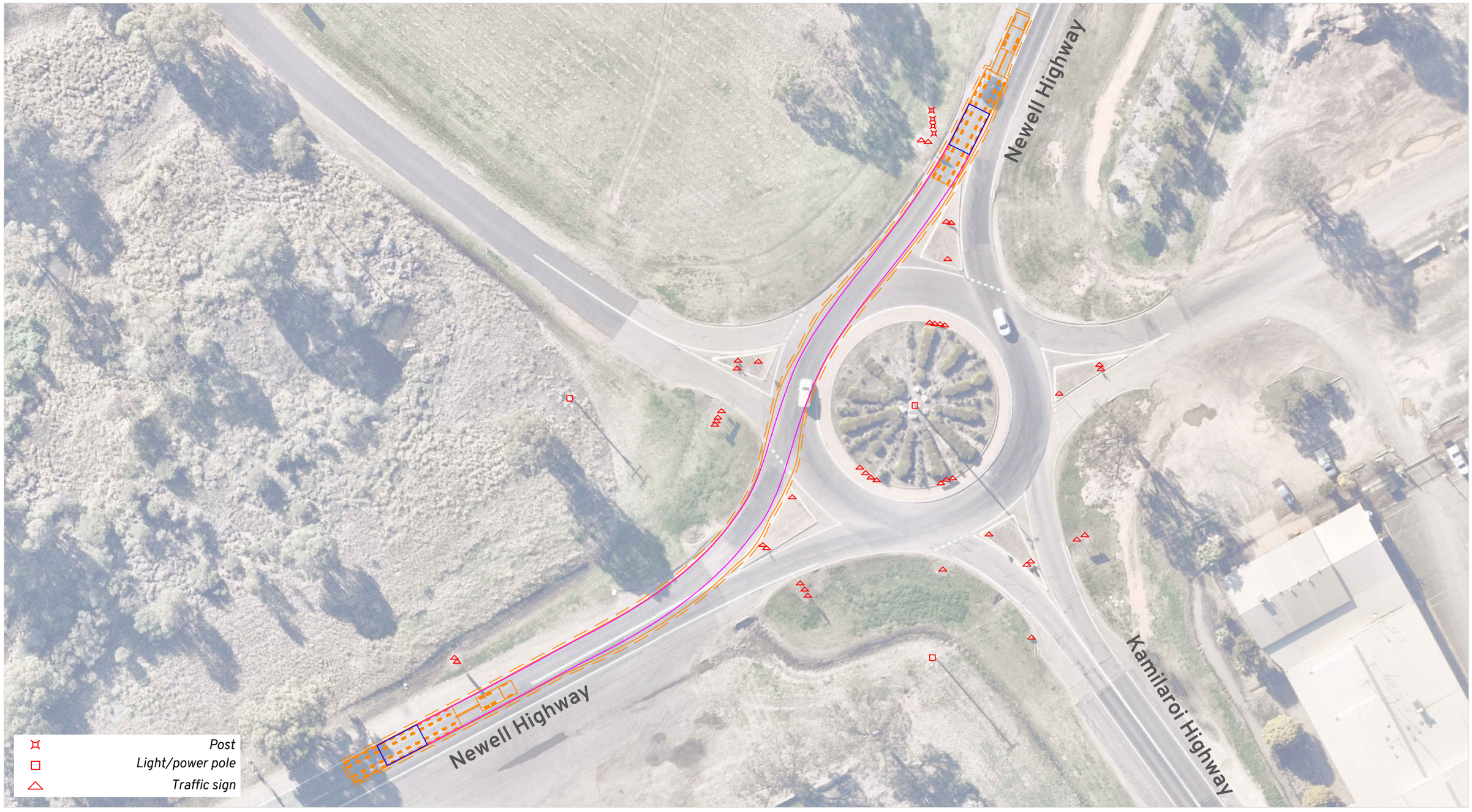
Location:
Coonabarabran NSW 2357
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

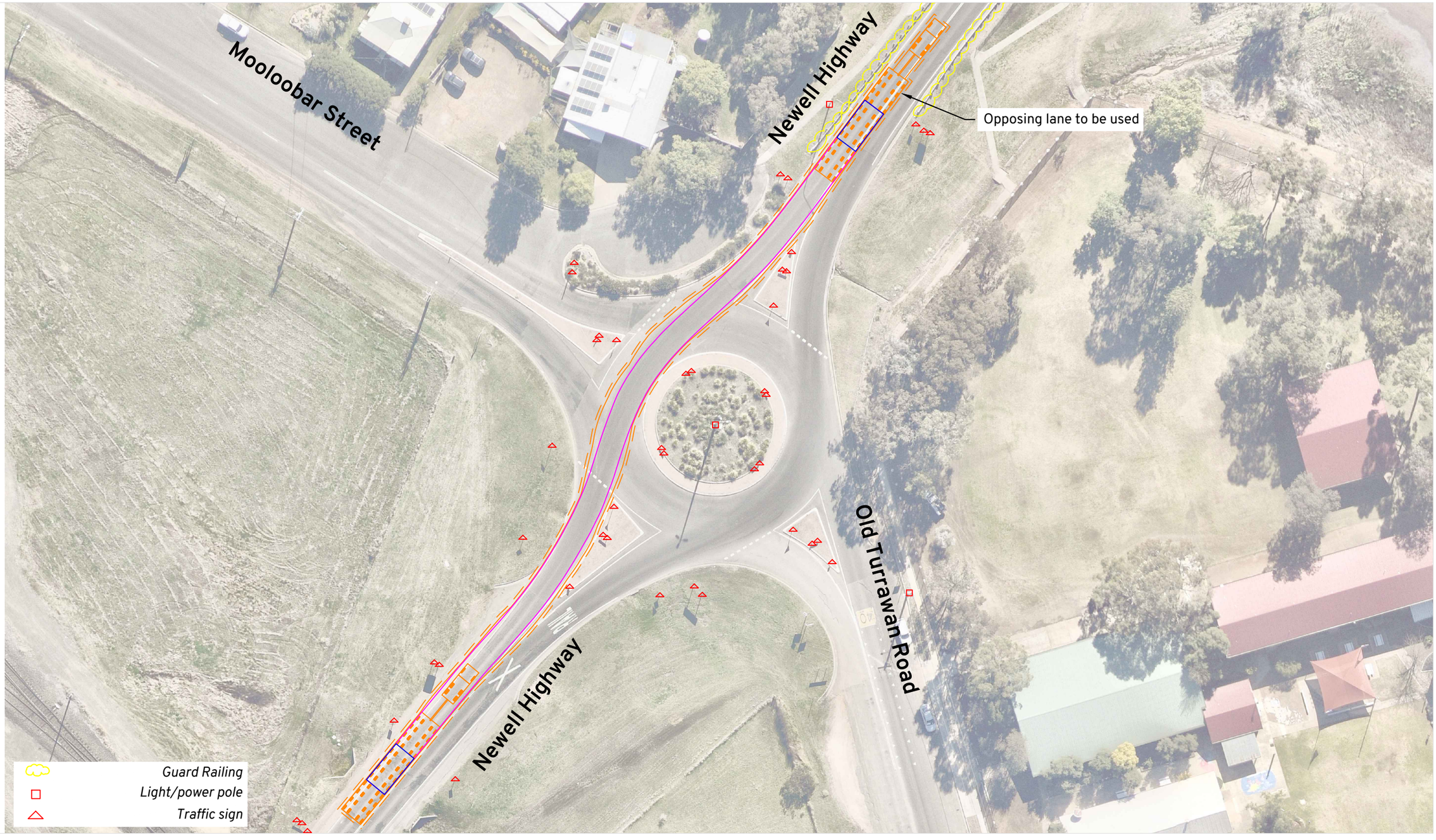
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Narrabri NSW 2390
Online Map Link

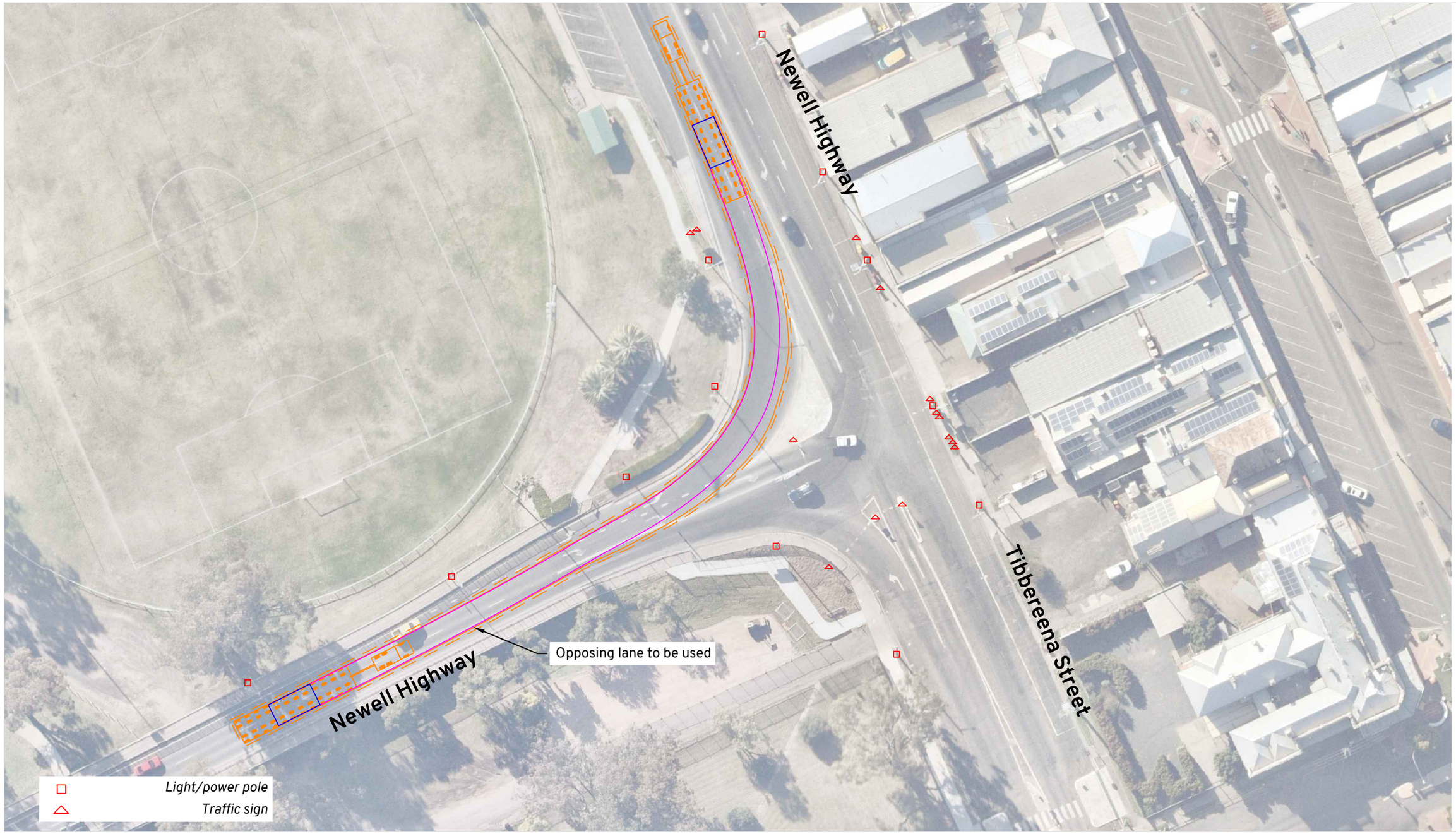
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

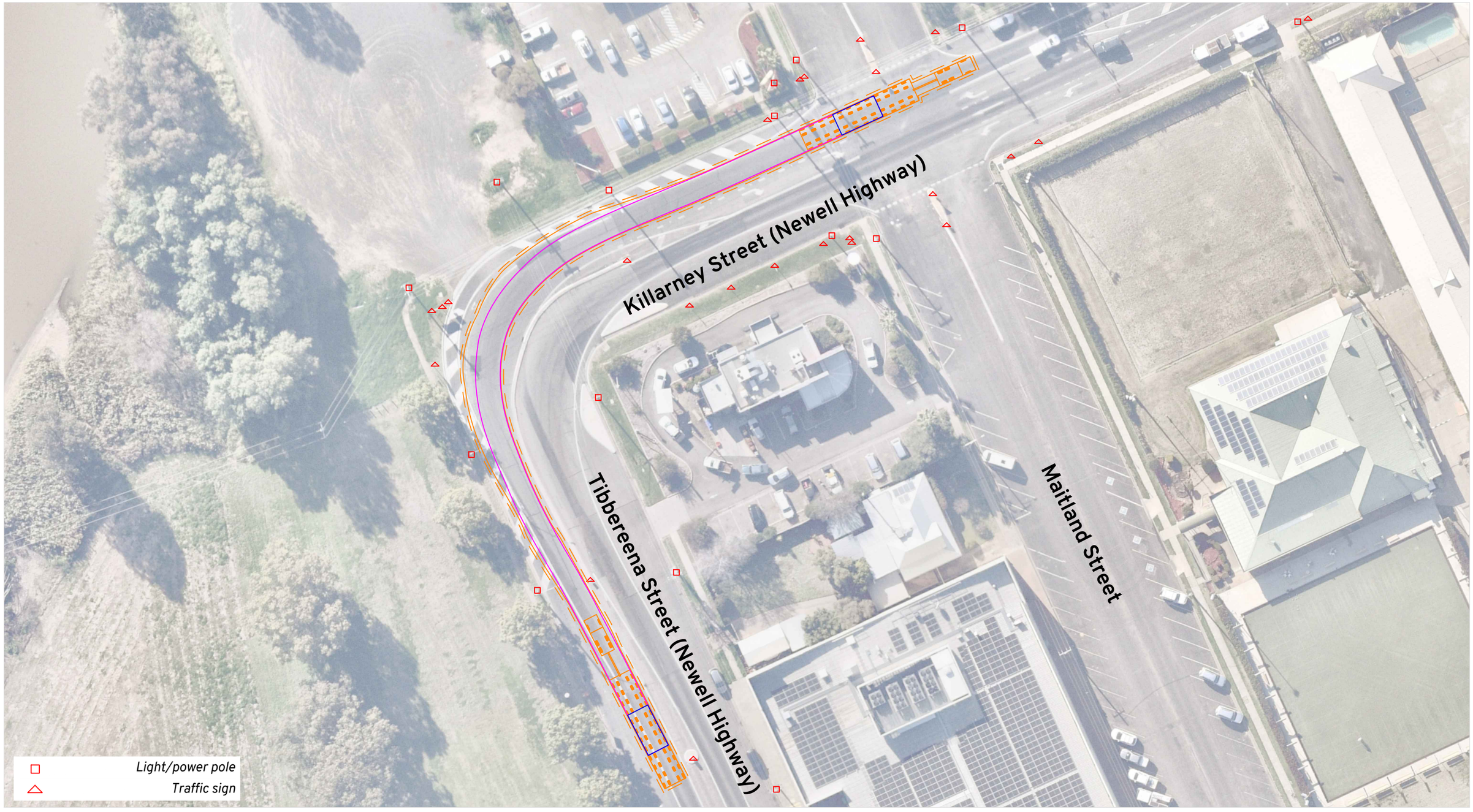
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

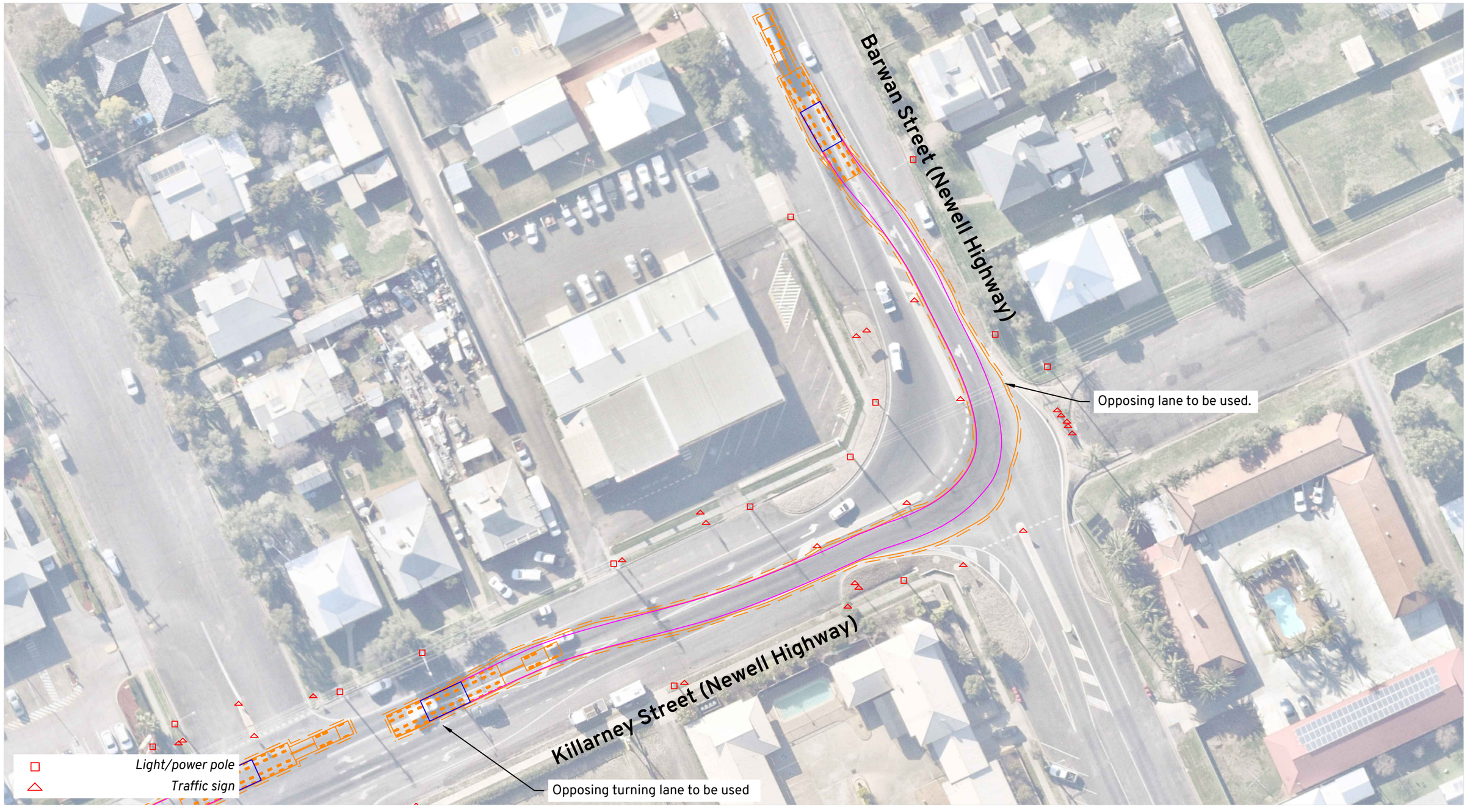
Notes:
Escorts to control traffic as required.
Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Glen Waverley
Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Narrabri NSW 2390
Online Map Link

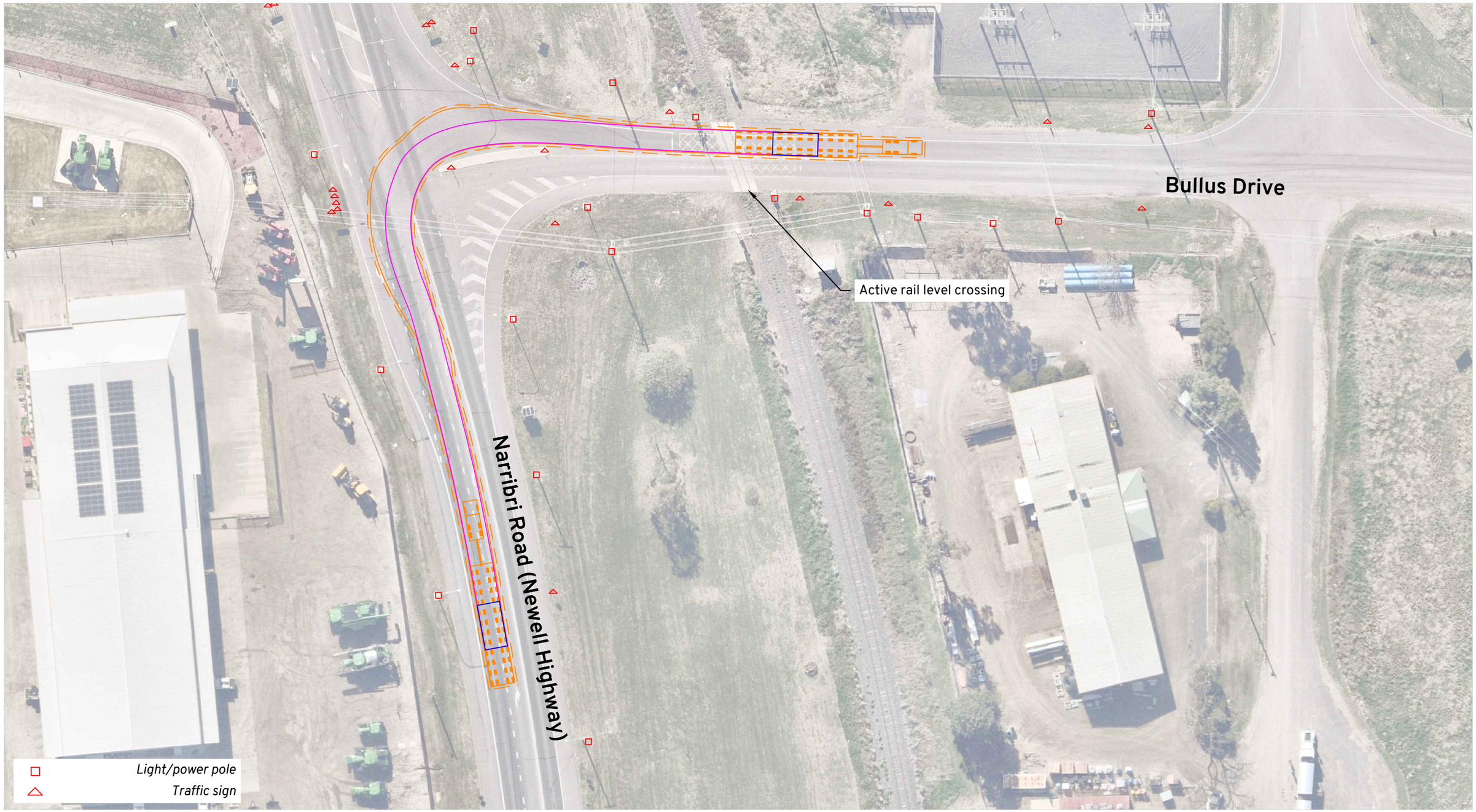
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.
Active rail level crossing requires permit from ARTC before crossing - LXM ID 560

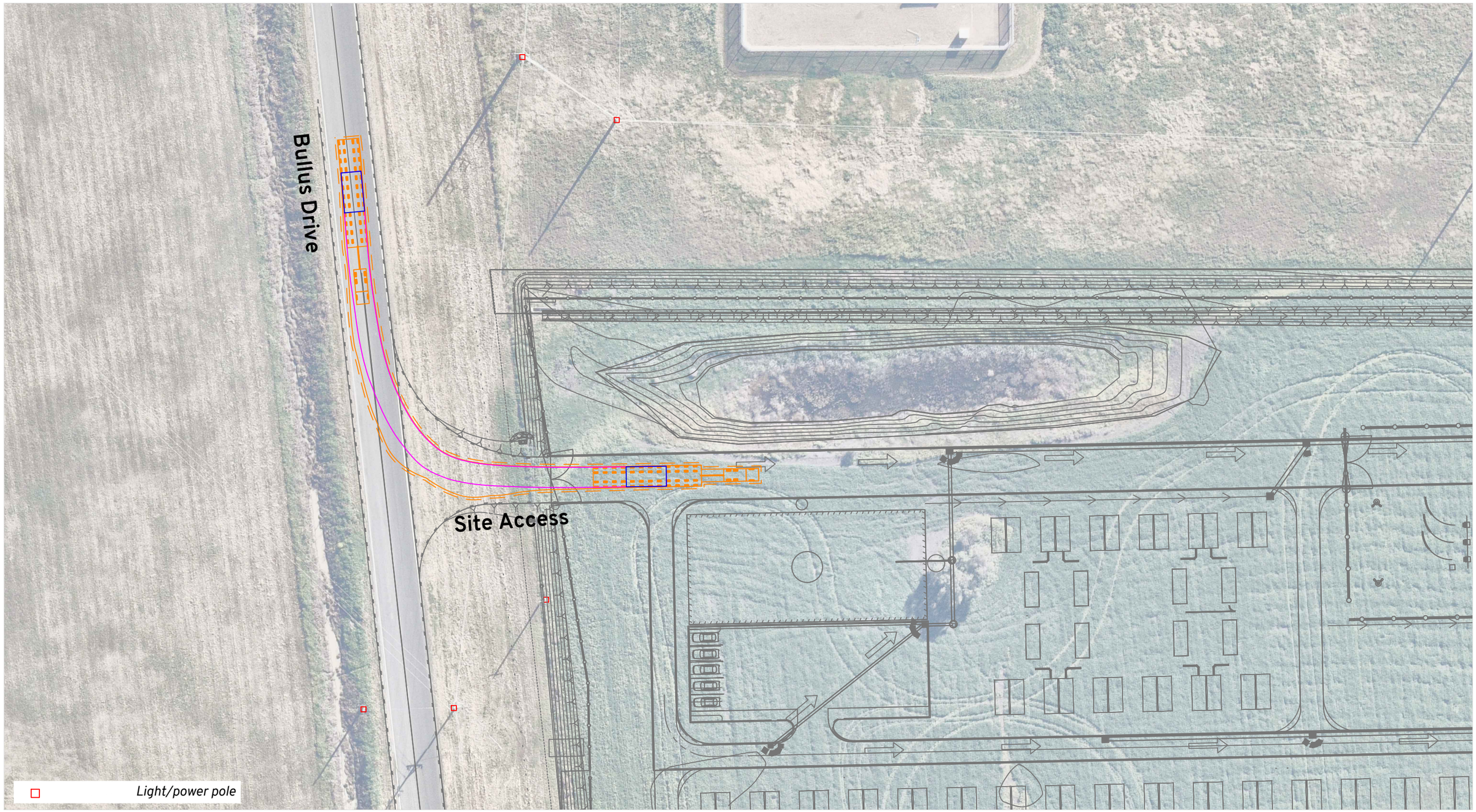
Location:
Moree NSW 2400
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

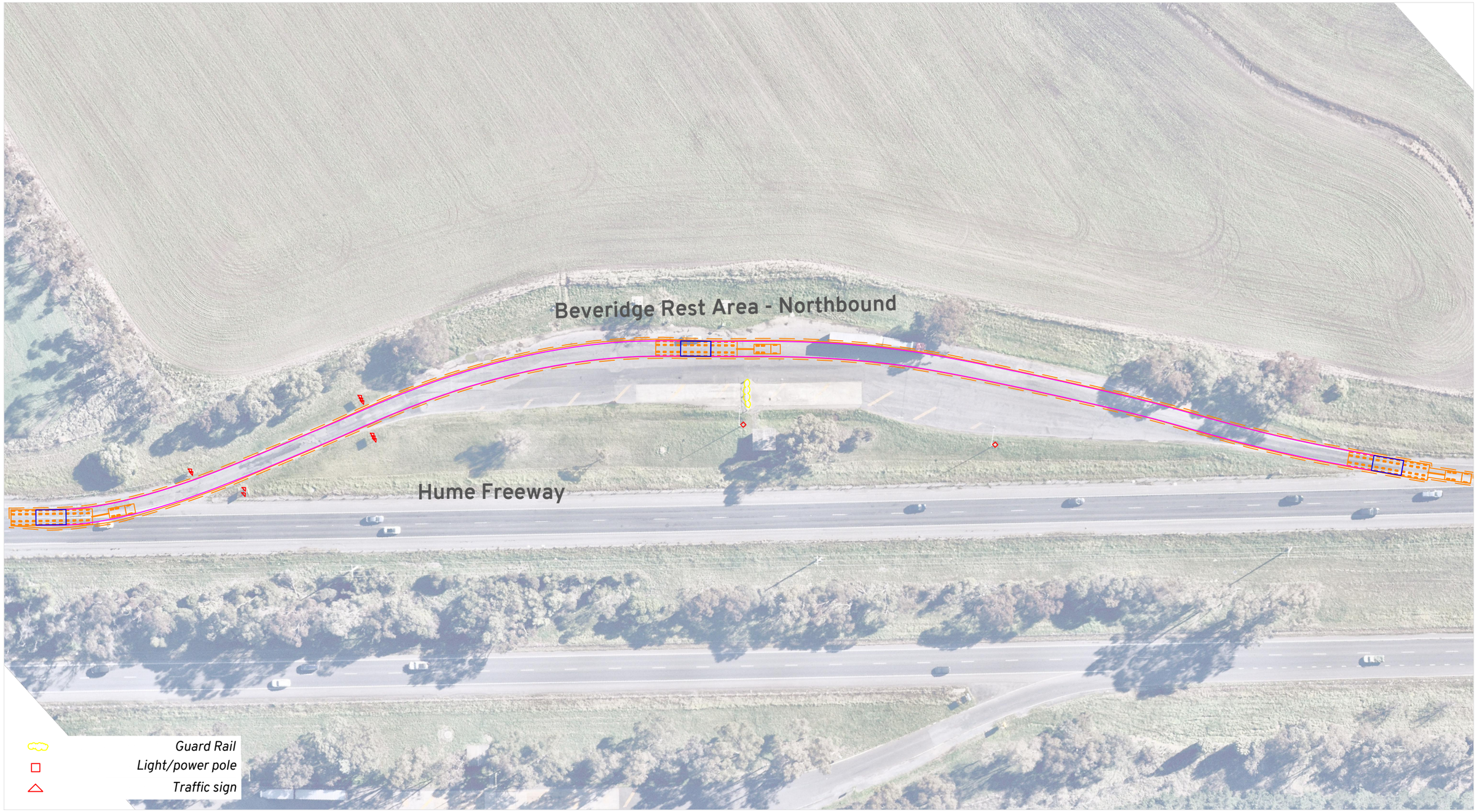
Location:
Moree NSW 2400
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Beveridge VIC 3753
Online Map Link

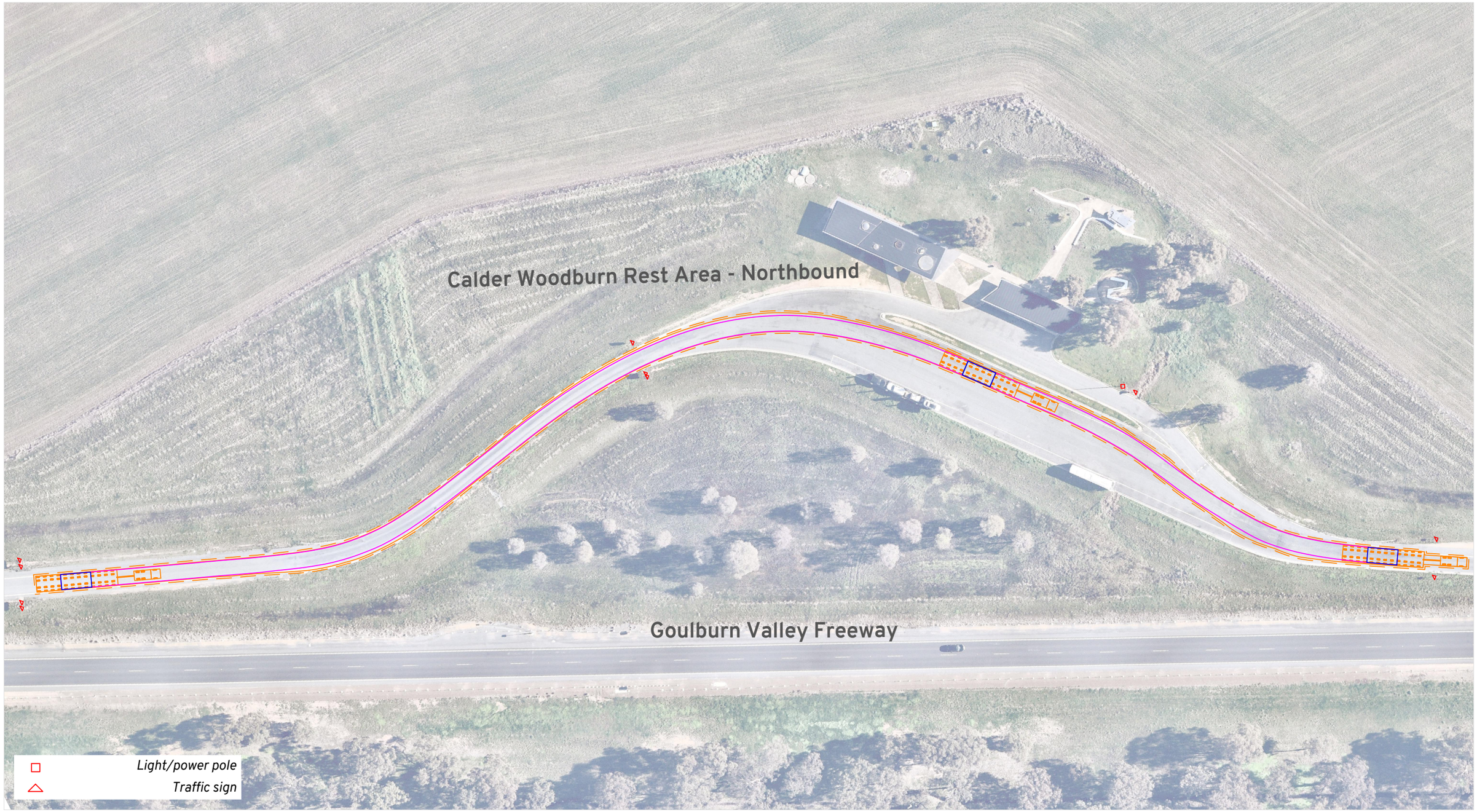
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment - Rest Area

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber RA1



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Arcadia VIC 3631
Online Map Link

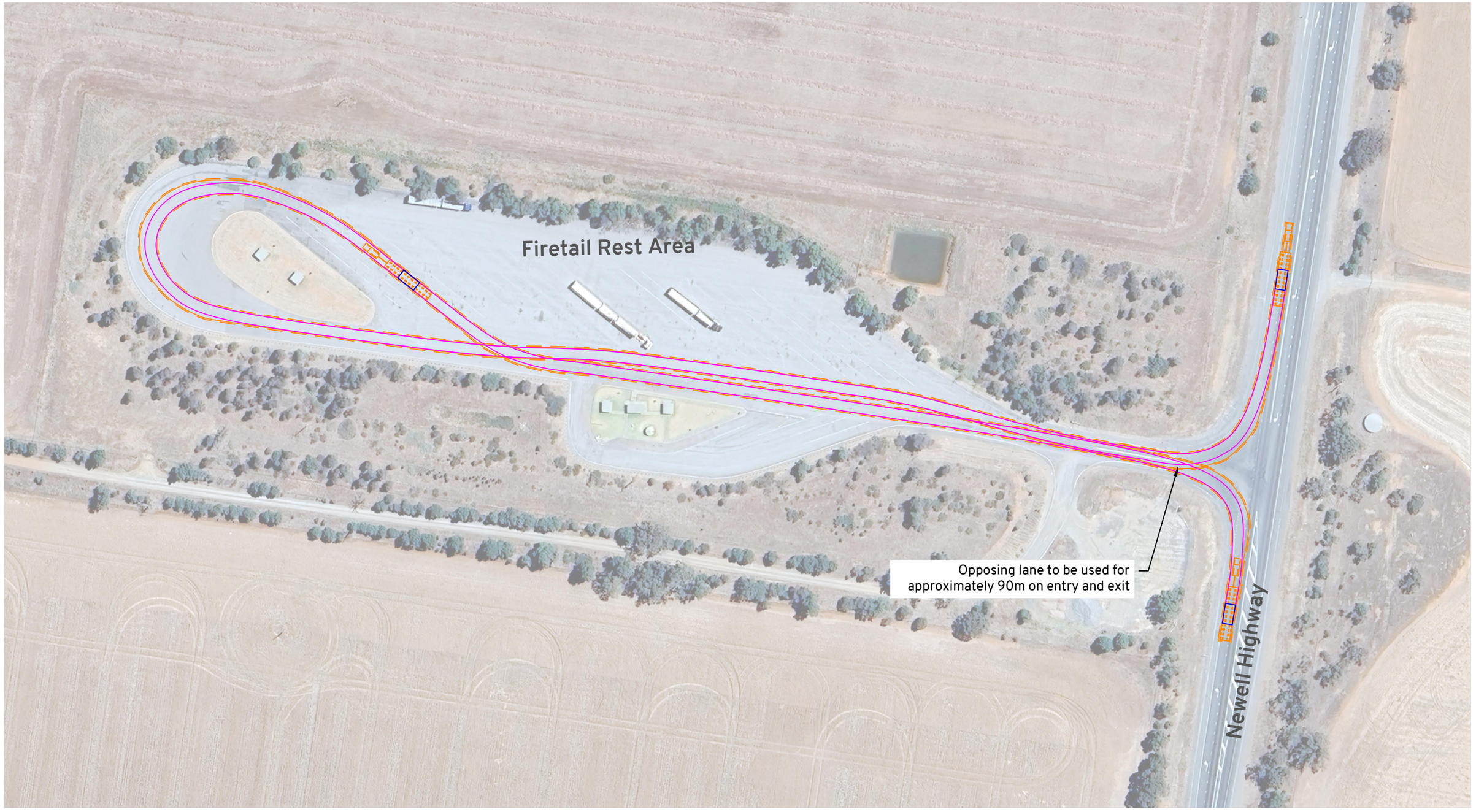
Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment - Rest Area

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber RA2



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Grong Grong NSW 2652
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment - Rest Area

DRAWN: WC
DATE: 08/10/2024
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1500

Amber RA3

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Back Creek NSW 2671
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct

Swept Path Assessment - Rest Area

DRAWN: WC
DATE: 08/10/2024
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:750

Amber RA4

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location:
Coonabarabran NSW 2357
Online Map Link

Route Assessment: Glen Waverley

Moree Special Activation Precinct

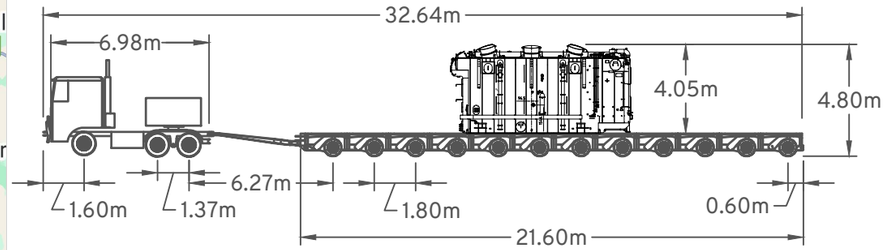
Swept Path Assessment - Rest Area

DRAWN: WC
DATE: 08/10/2024
DWG NO: 1044 Glen Waverley RA02B
SCALE at A3: 1:1000

Amber RA5

OSOM Truck Specifications

Volvo FH16 6x4 + RJA 12x8 960 Series Platform Trailer



Overall Length	: 32.64m
Trailer Width	: 4.20m
Lock to Lock Time	: 6.0s
Wall to Wall Radius (Truck)	: 7.40m
Min Outer Radius (Trailer)	: 17.35m
Overall Height	: 4.80m

OSOM Configuration calibrated against similar OSOM configurations and is based on information available at the time of assessment

22, 23 — Project Site — 19, 20, 21 — 17, 18 — 16 — 12, 13, 14, 15 — RA4 — RA3 — 11 — 10 — 9 — RA2 — 6, 7, 8 — RA1 — 4 — 5 — 1, 2 — 3

4 Rest Areas

23 Points of interest tested

Online Map Link

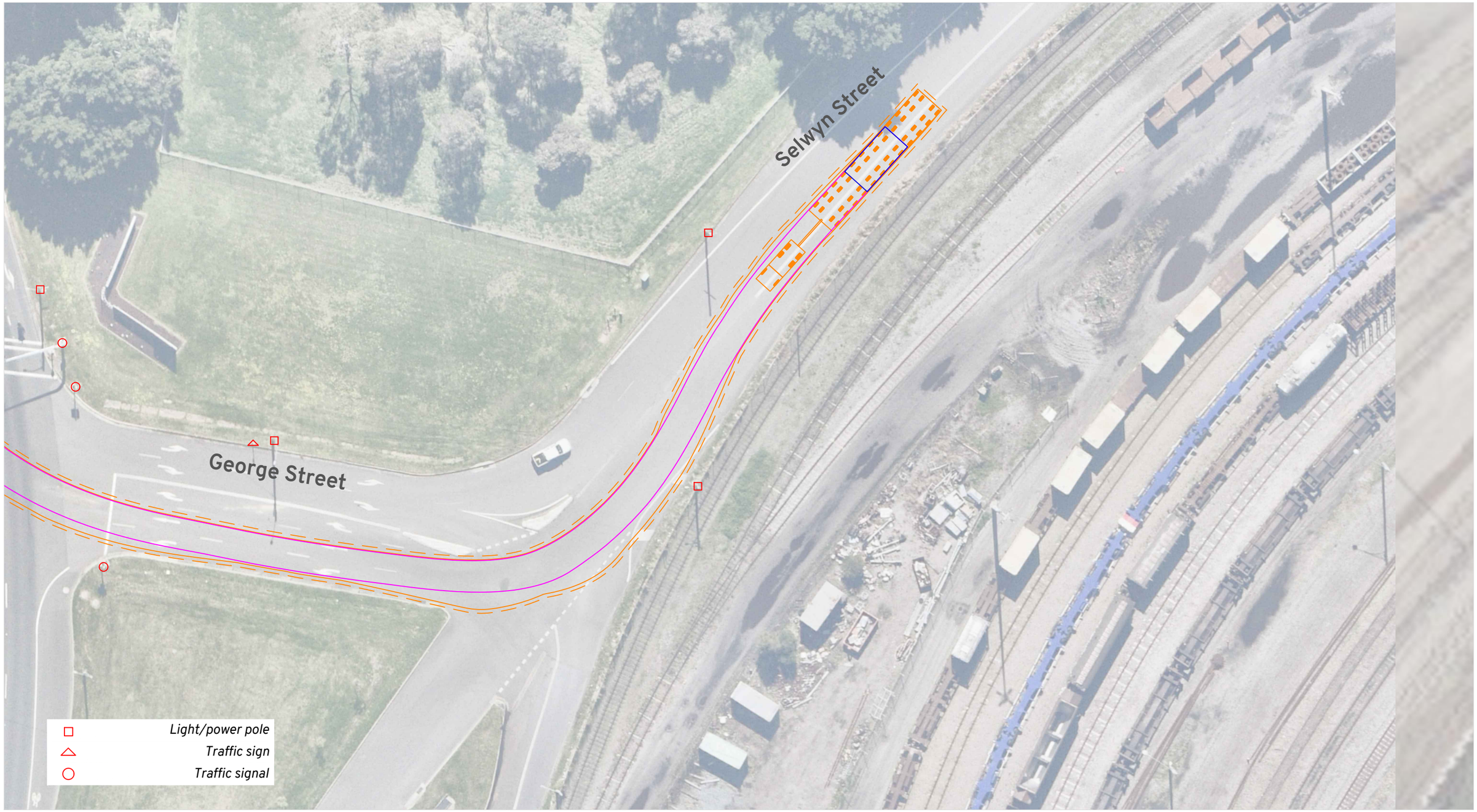
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Overall Route Summary and OSOM Details

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: NTS

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

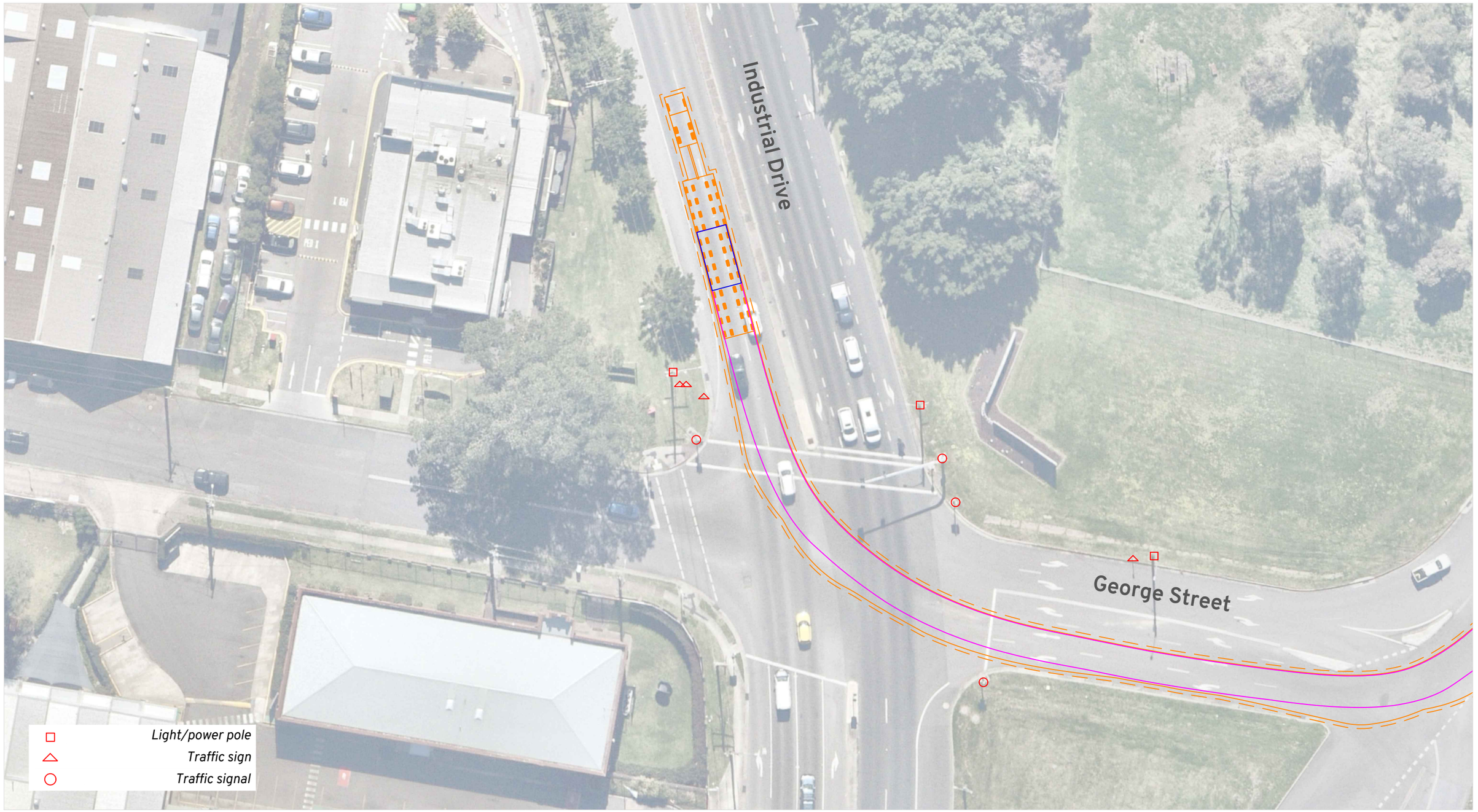
Location:
Mayfield North NSW 2304
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:500

Amber 01



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic at intersection to enable use of multiple lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Mayfield East NSW 2304
Online Map Link

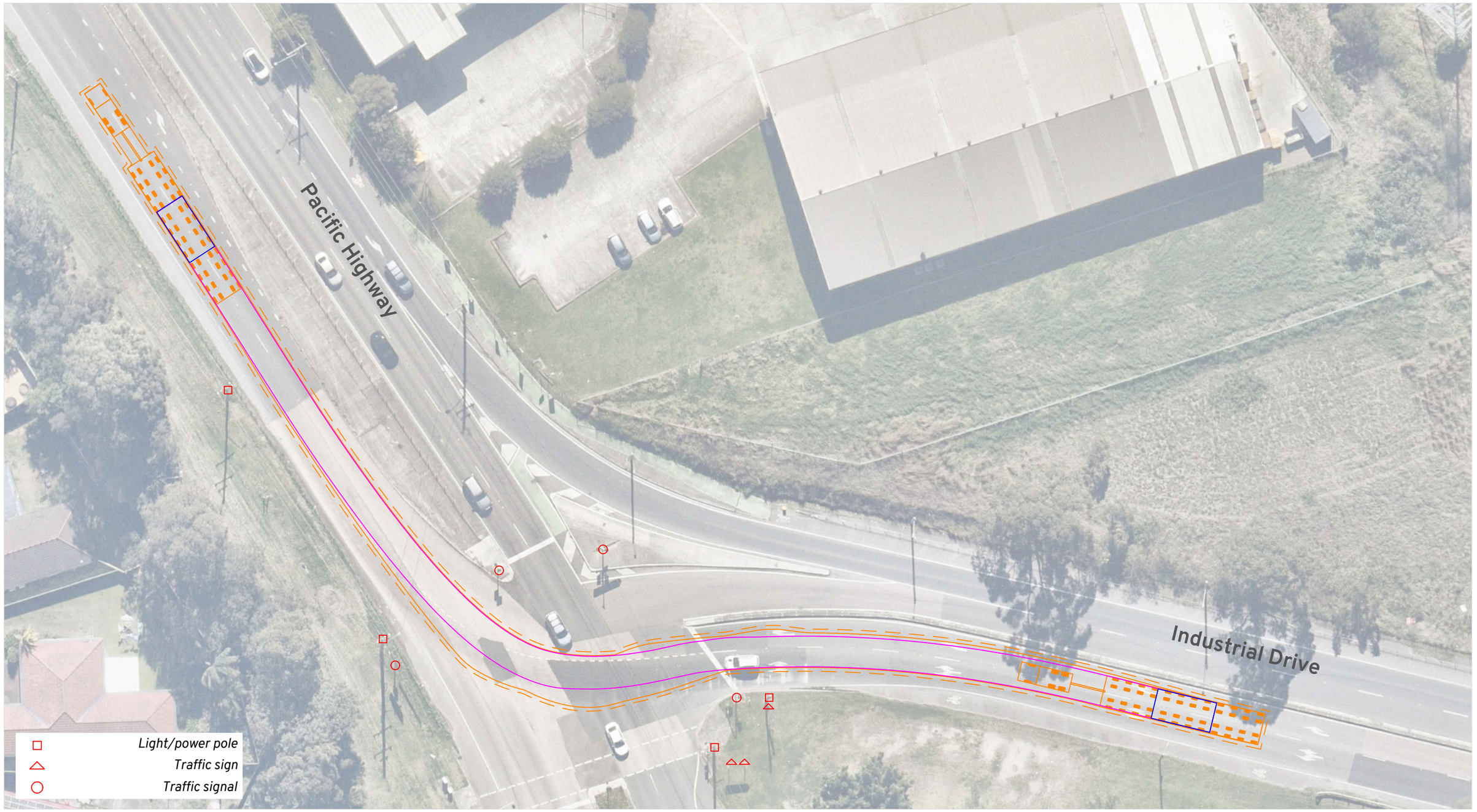
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:500

Amber 02



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic at intersection to enable use of multiple lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

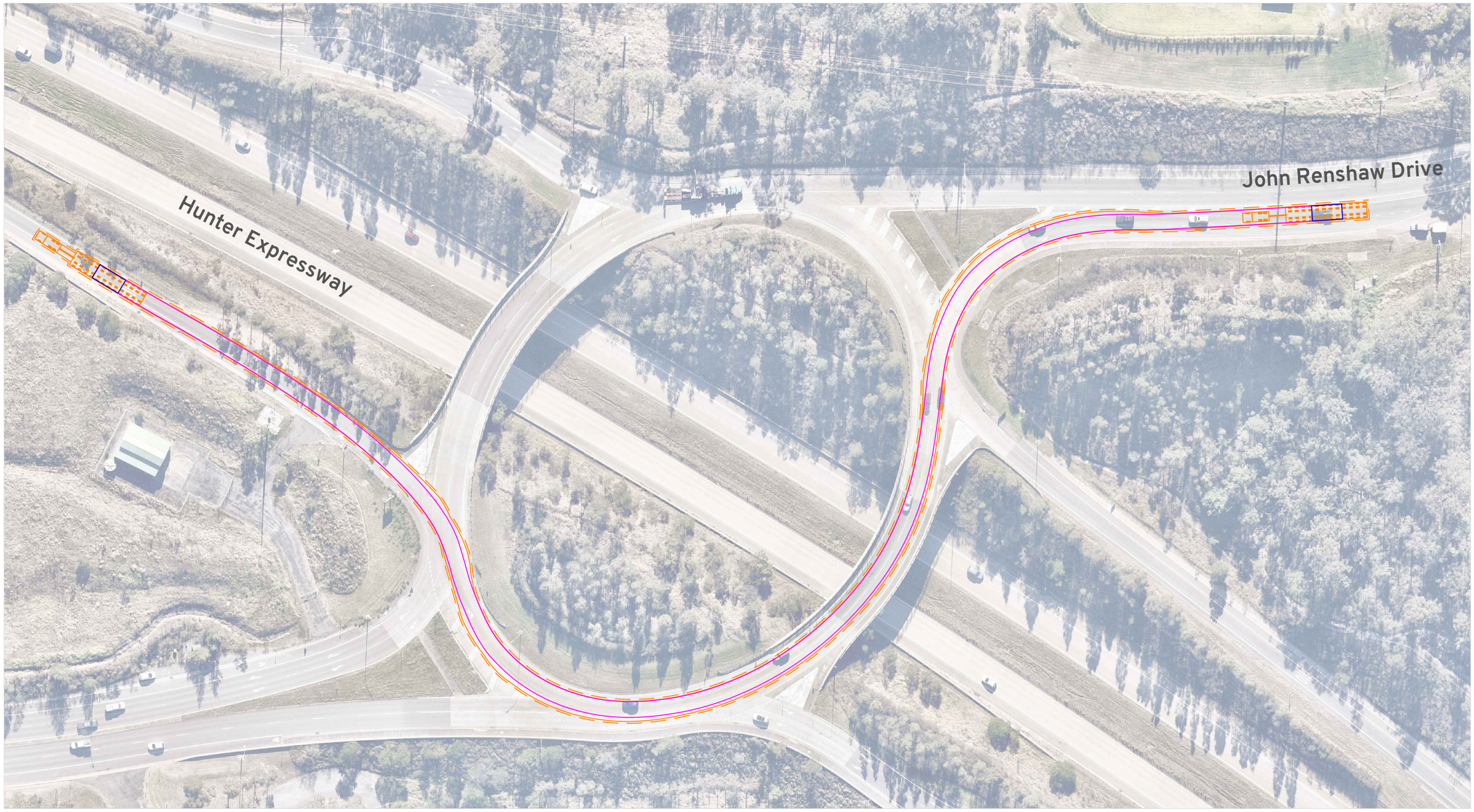
Location:
Mayfield West NSW 2304
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:500

Amber 03



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic at roundabout to enable use of both circulating lanes.

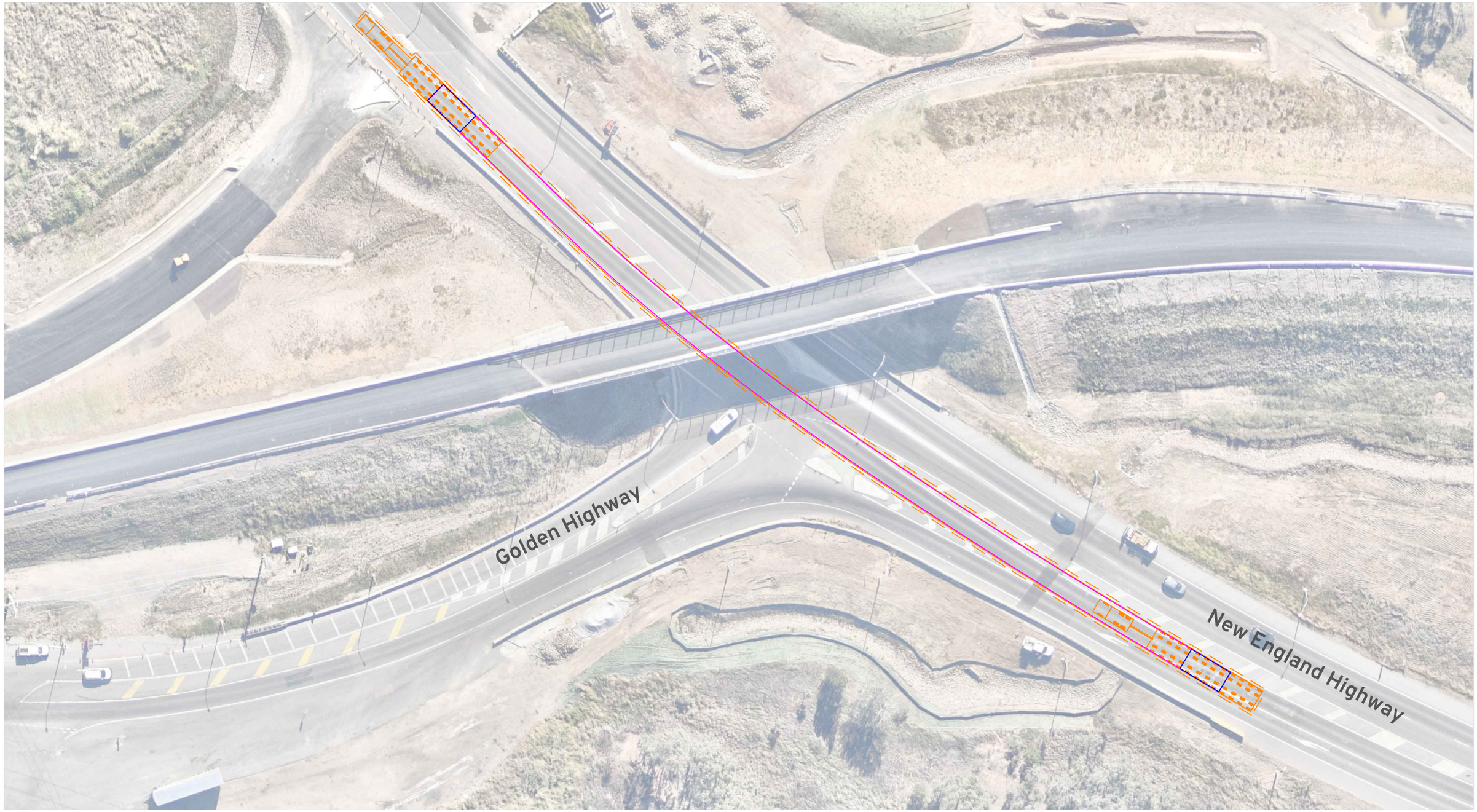
Location:
Buchanan NSW 2323
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000

Amber 04



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic and facilitate use of multiple/opposing traffic lanes.

Location:
Whittingham NSW 2330
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:500

Amber 05

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

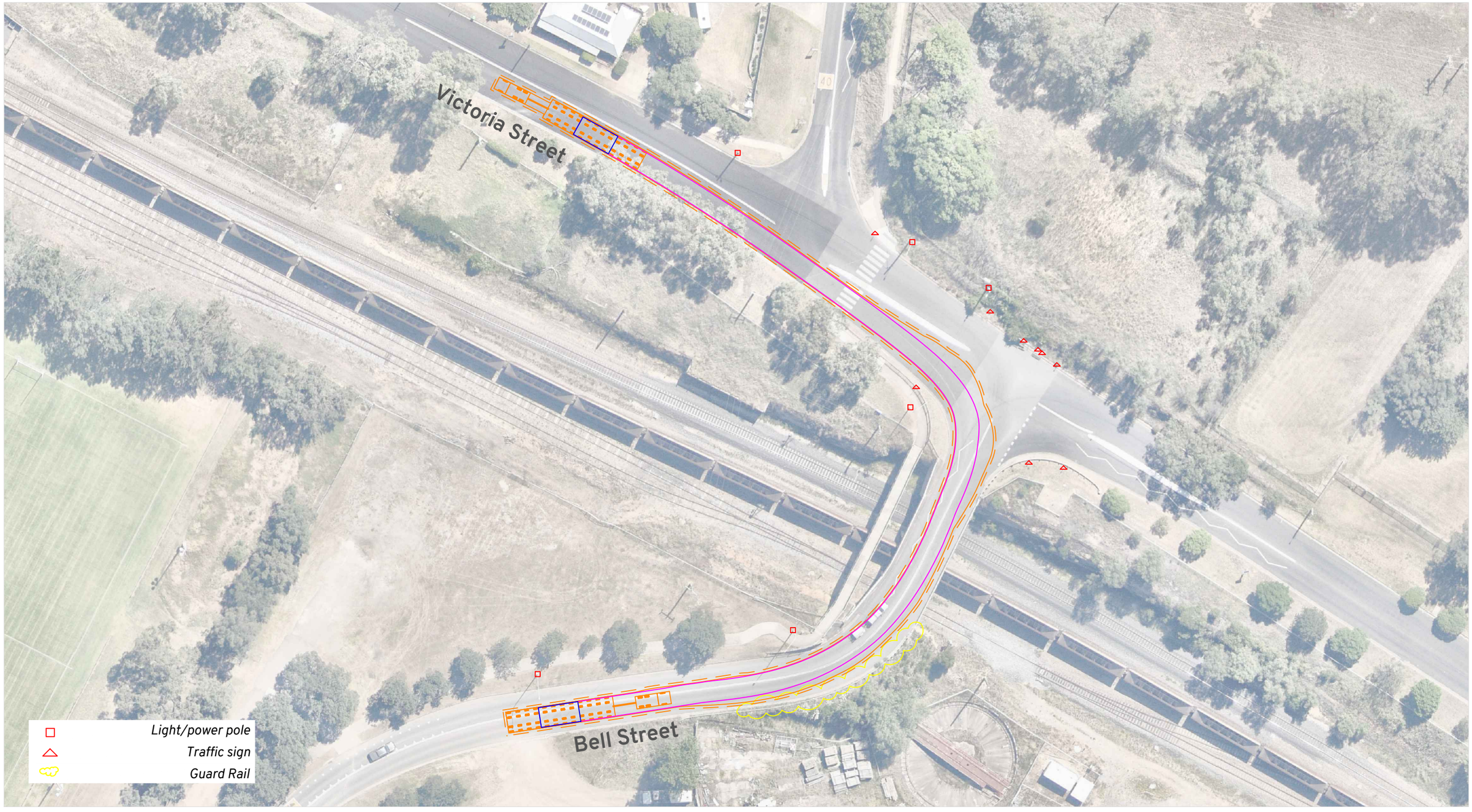
Location:
Muswellbrook NSW 2333
https://maps.app.goo.gl/wqyqPNVgpCgxJSG18

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 06



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple/opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Location:

Muswellbrook NSW 2333

https://maps.app.goo.gl/bU1V7mf4JJAY2cQF9

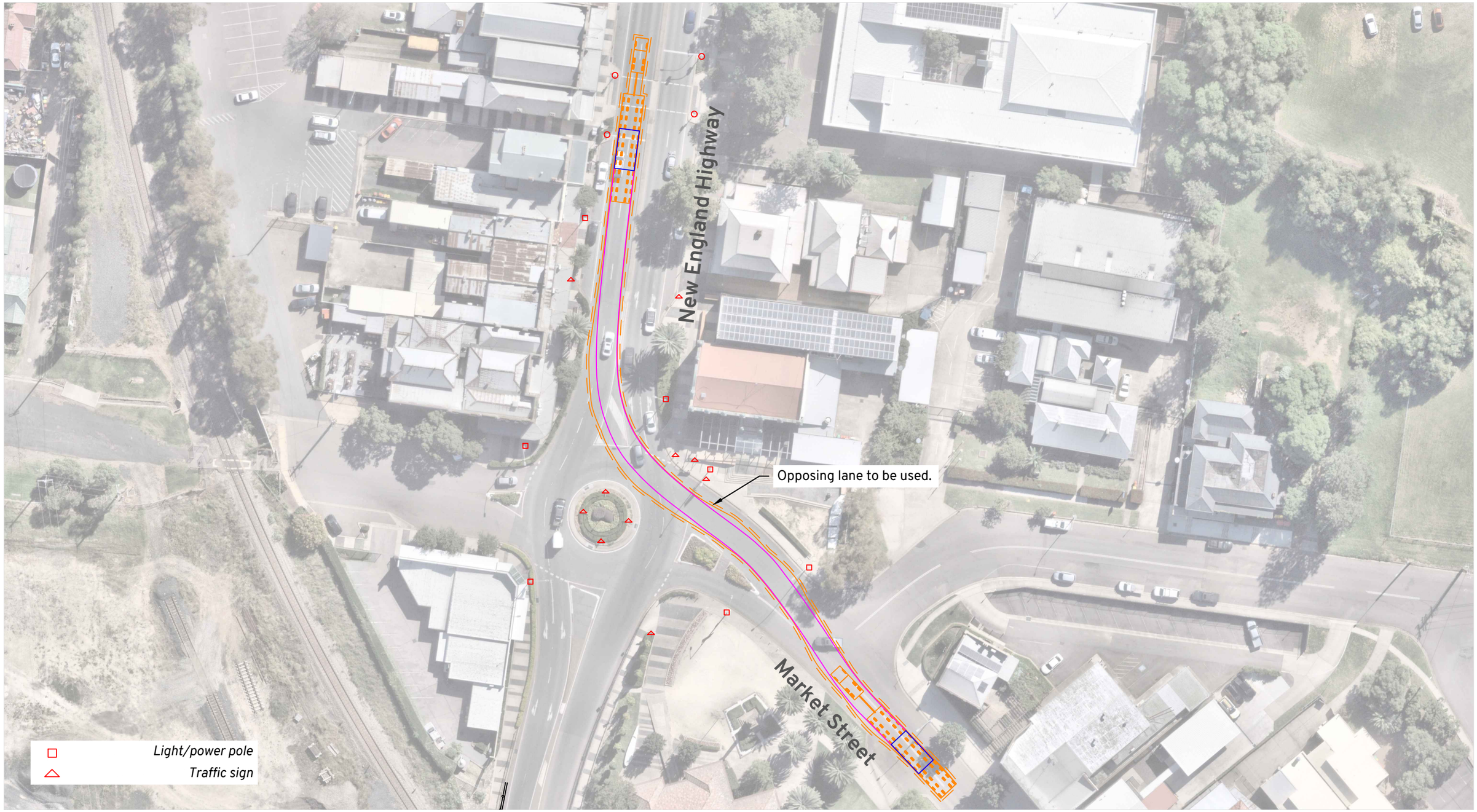
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple/opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Location:
Muswellbrook NSW 2333
https://maps.app.goo.gl/CZpBFLC6AqjfLcBPA

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 08

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.

Location:
Blandford NSW 2338
https://maps.app.goo.gl/k3ZkZ1KQSJYaZA6A7

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 09

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Location:

Willow Tree NSW 2339

https://maps.app.goo.gl/Hsna9pM2yAhssEyt7

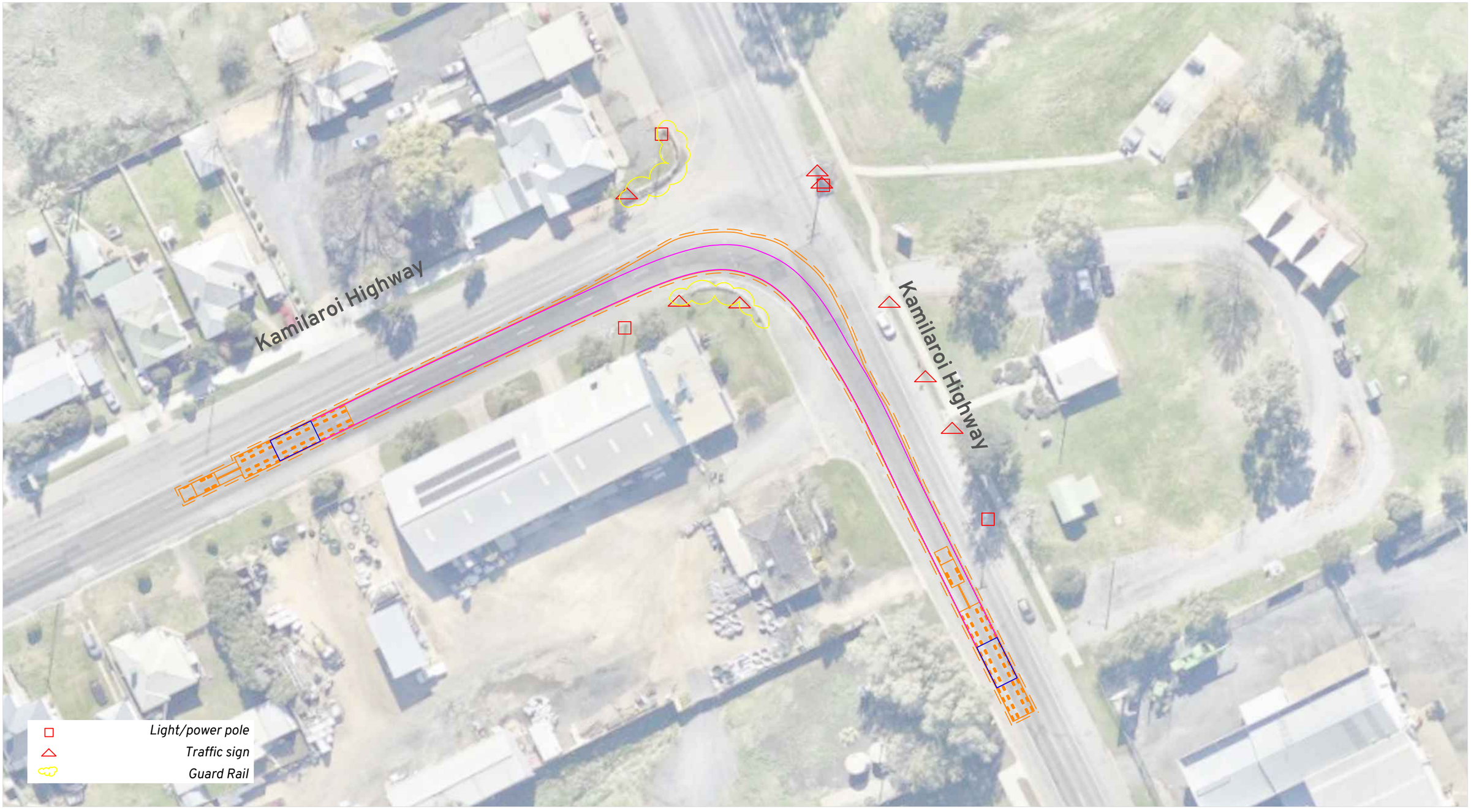
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber 10



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Location:

Quirindi NSW 2343

https://maps.app.goo.gl/AHRcMh1XHLkFDB9S9

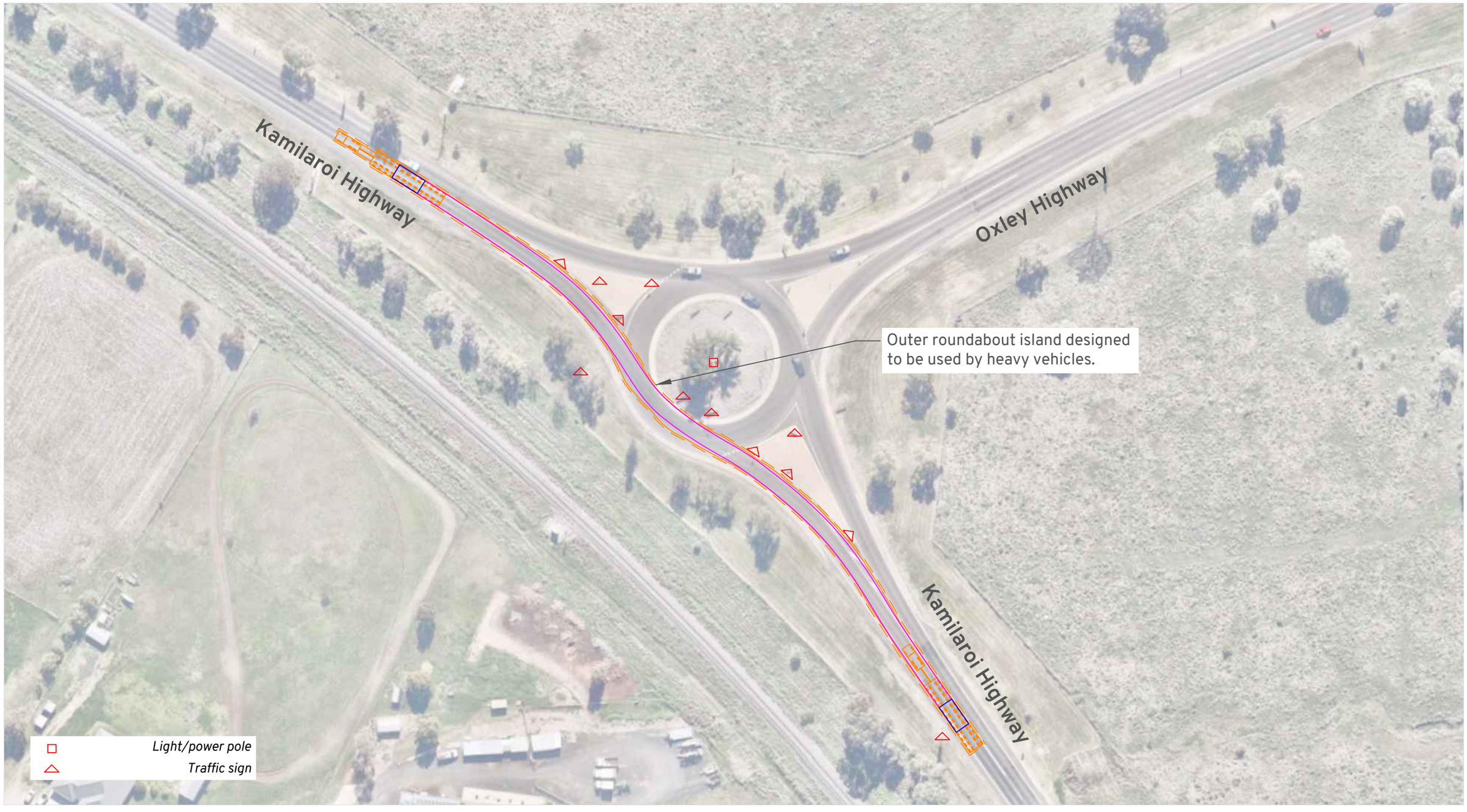
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 11



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Outer roundabout island designed to be used by heavy vehicles.

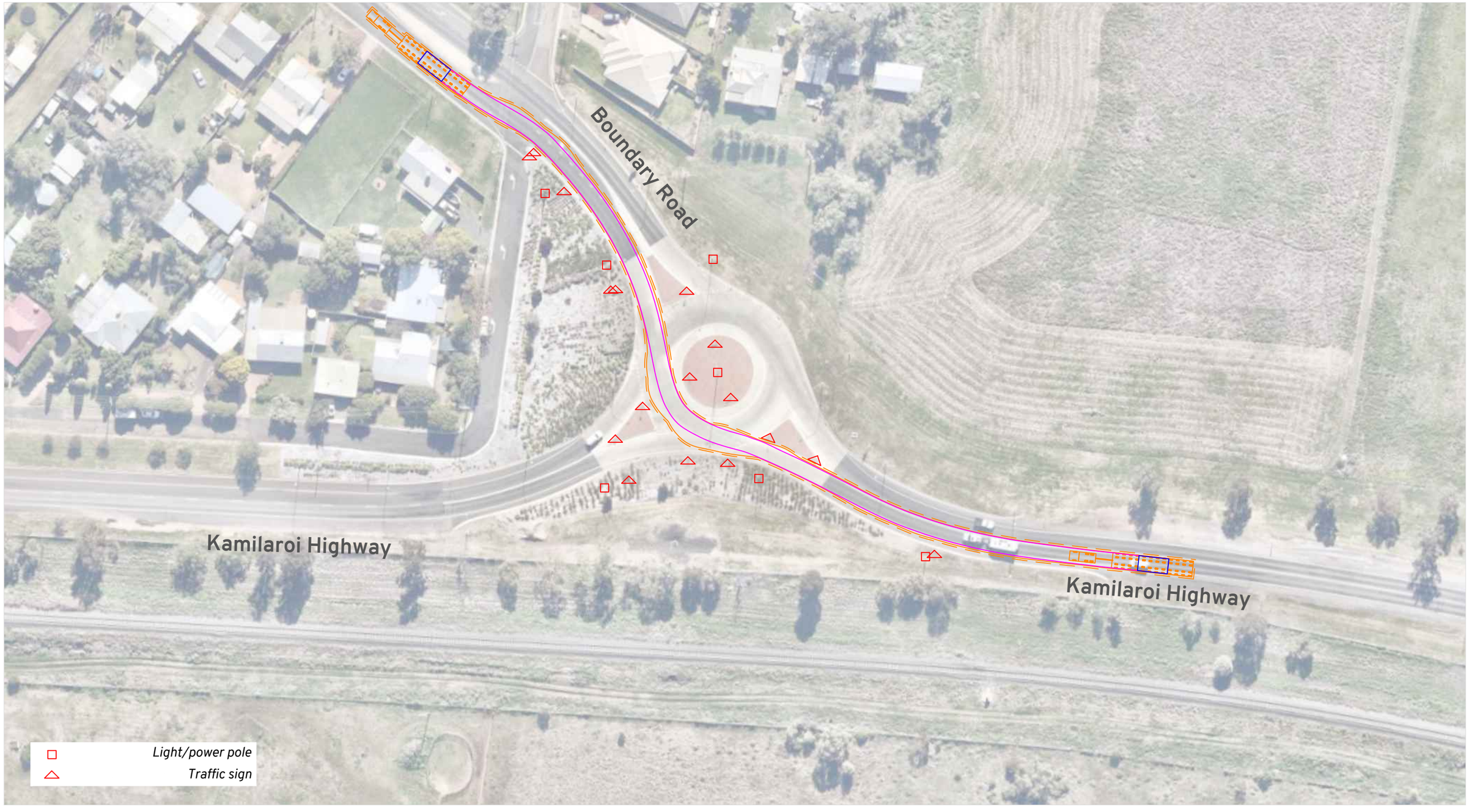
Location:
Gunnedah NSW 2380
https://maps.app.goo.gl/NriK1fszrHThGSQPA

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber 12



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

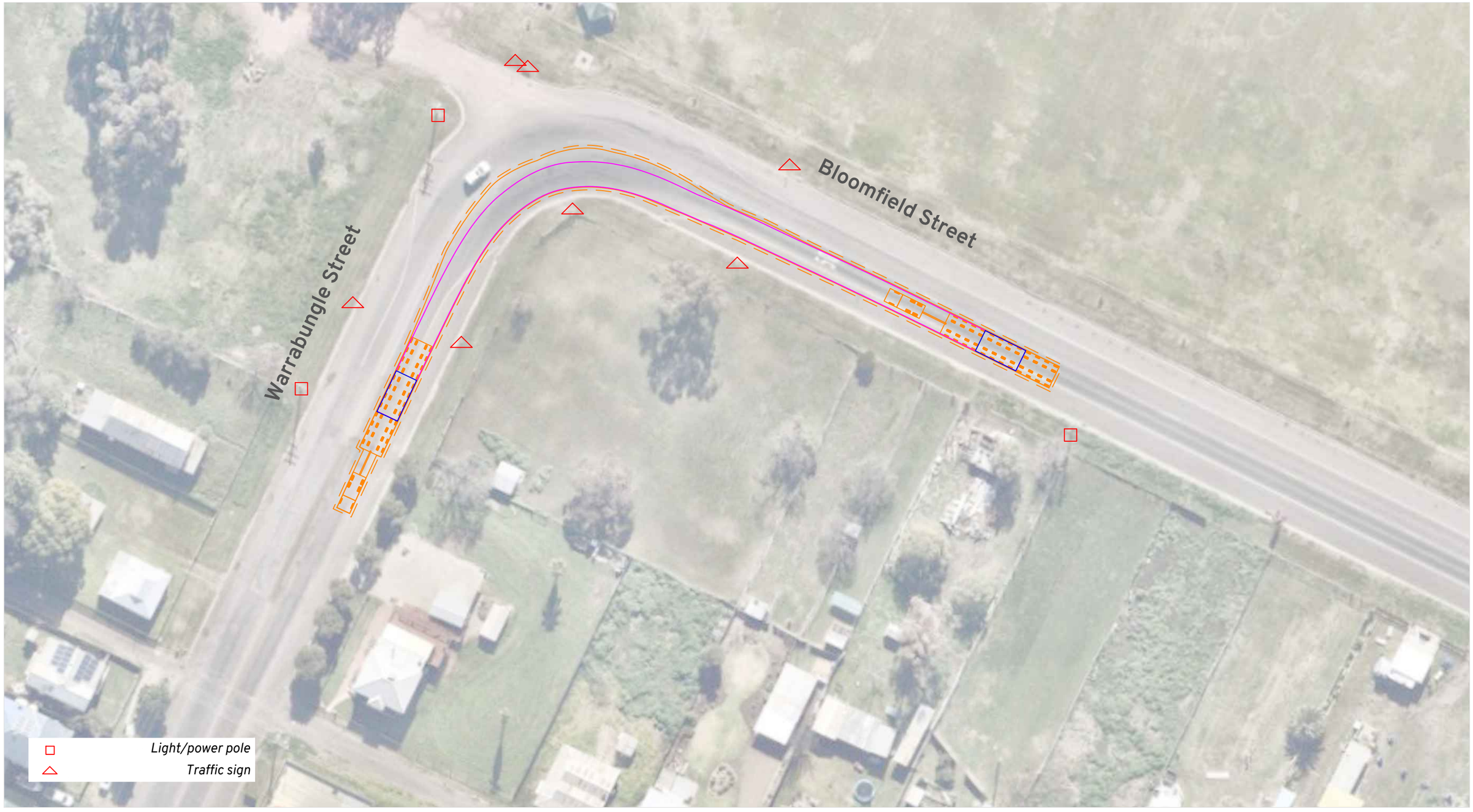
Location:
Gunnedah NSW 2380
https://maps.app.goo.gl/v1Tvy79ApRvxVHhd7

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber 13



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

Location:
Gunnedah NSW 2380
https://maps.app.goo.gl/EK4UUbf9pwDXL91Z6

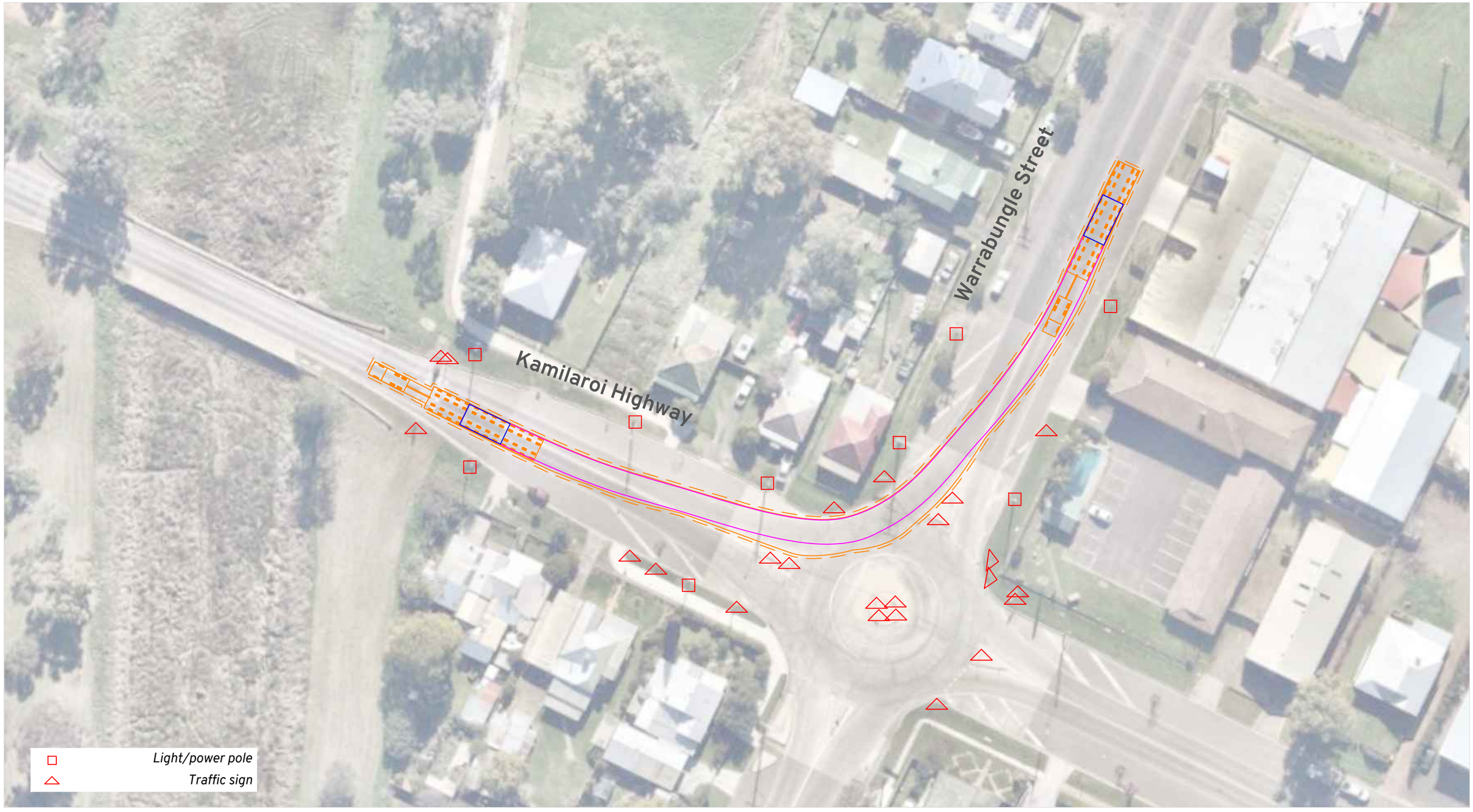
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 14



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing traffic lanes.

Spotter(s) to monitor path and impact to existing infrastructure.

Location:

Gunnedah NSW 2380

https://maps.app.goo.gl/HLP3UpAawxd8tQeN6

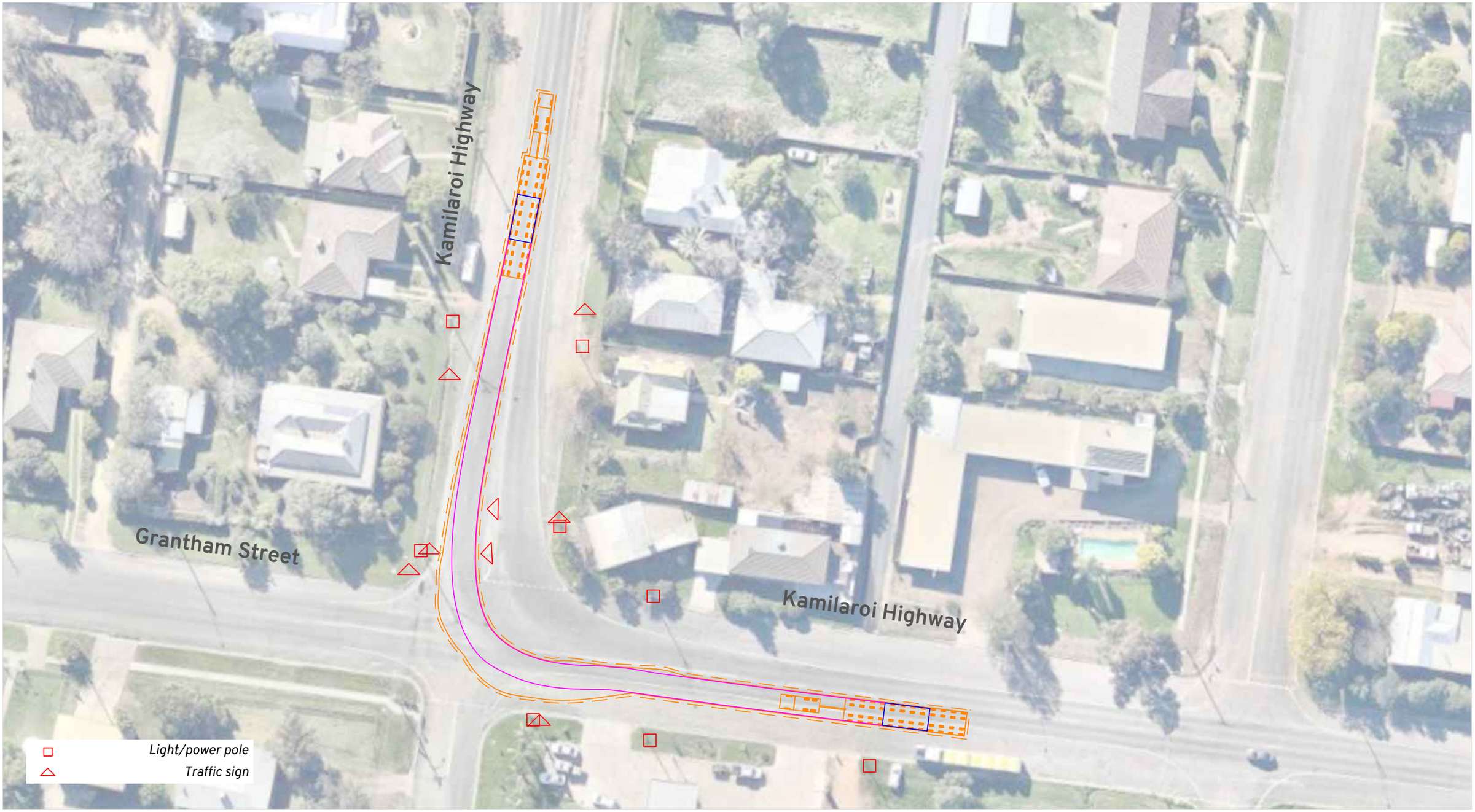
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 15



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing traffic lanes.

Spotter(s) to monitor path of travel and impact to existing infrastructure.

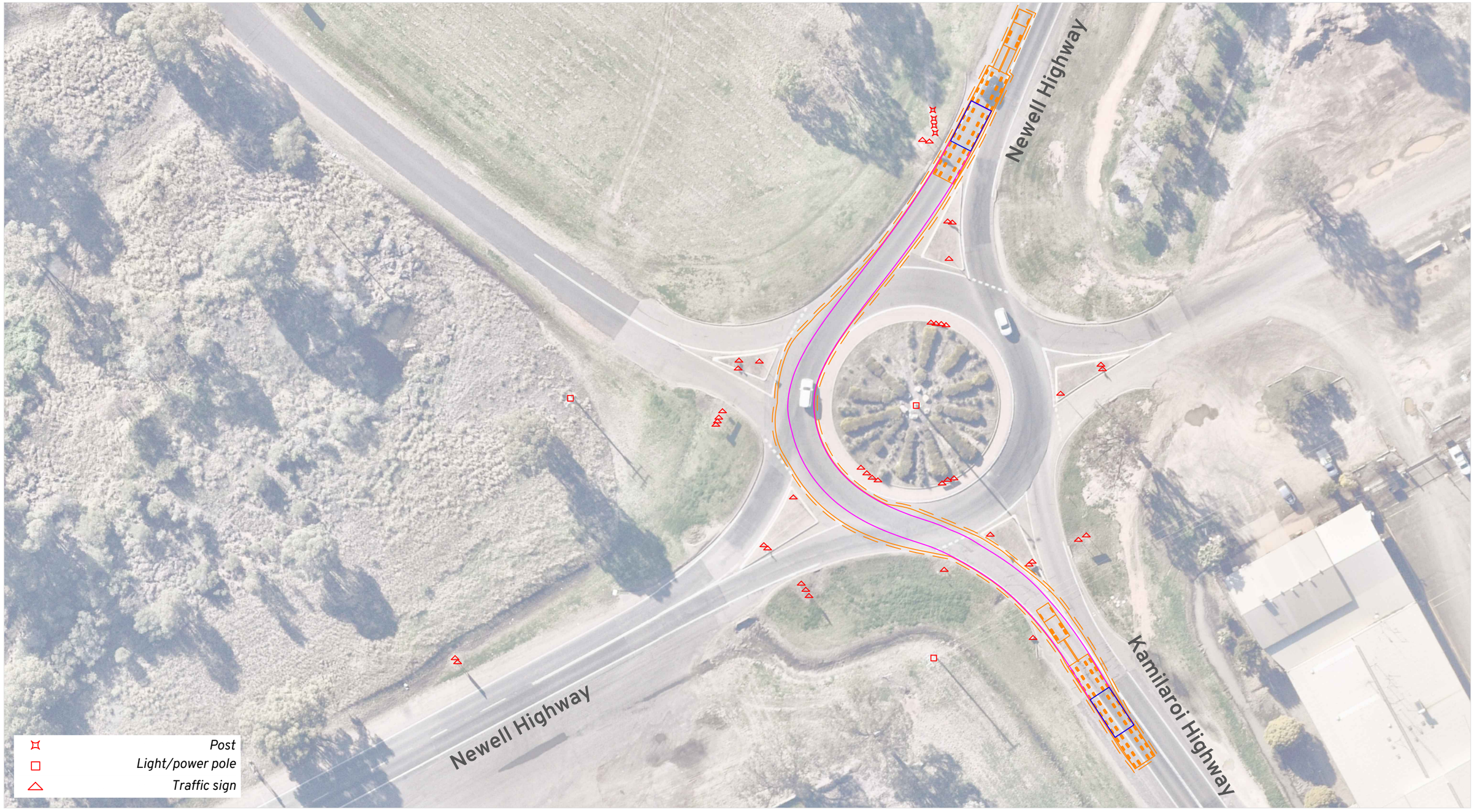
Location:
Boggabri NSW 2382
https://maps.app.goo.gl/M6uNW77Kc1qU1DxA6

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:750m

Amber 16



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

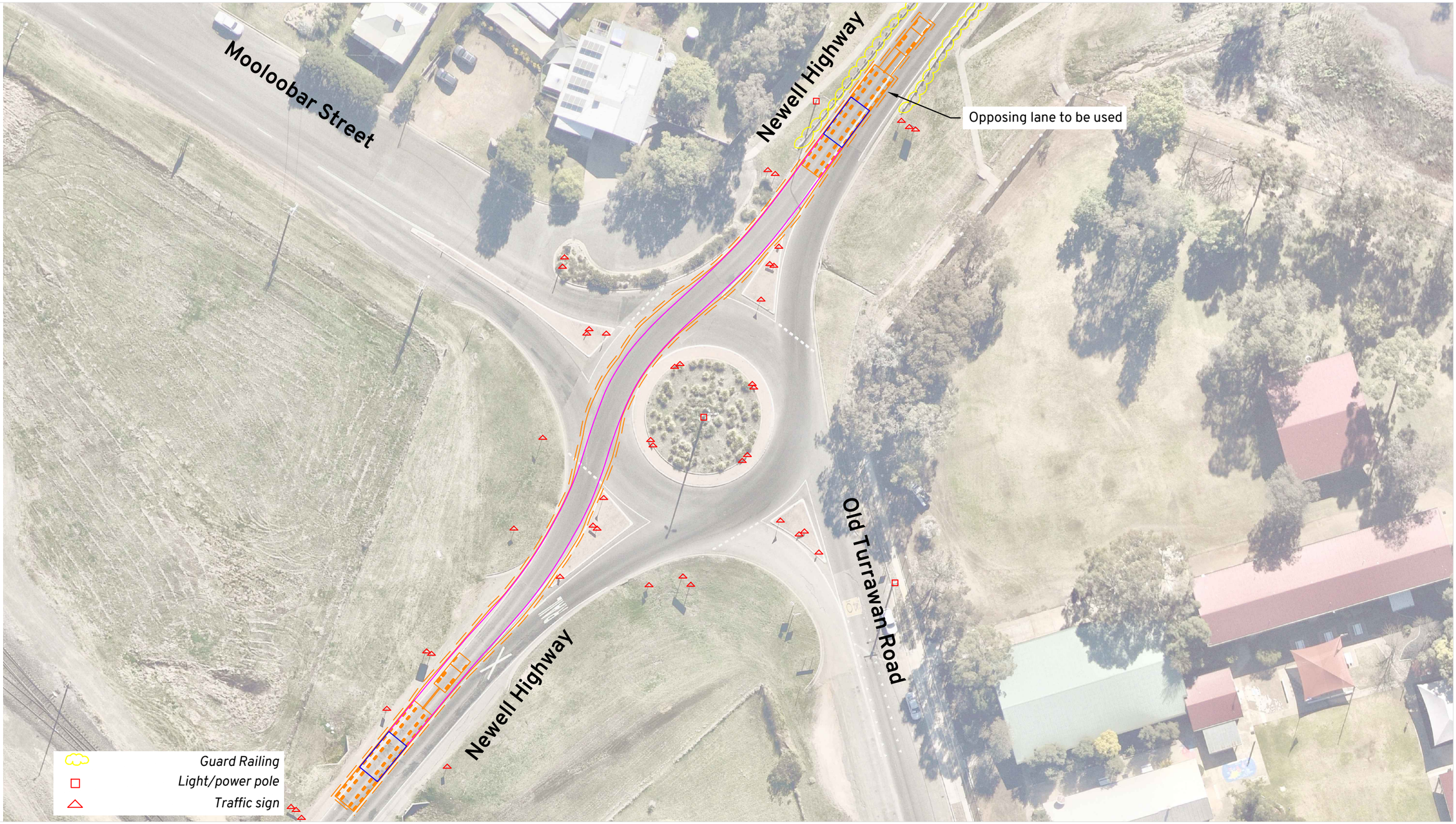
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 17



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

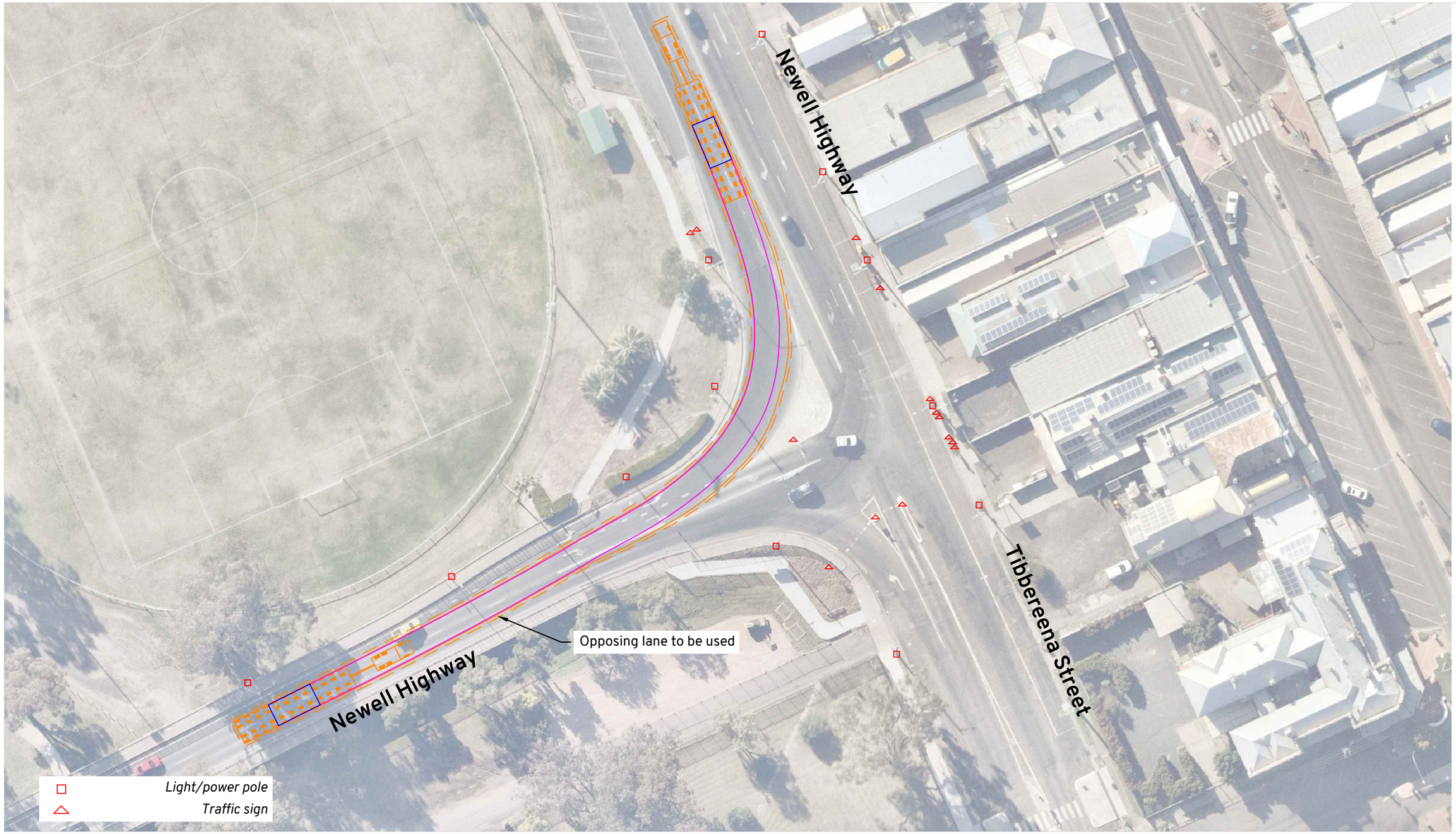
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 18



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing traffic lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

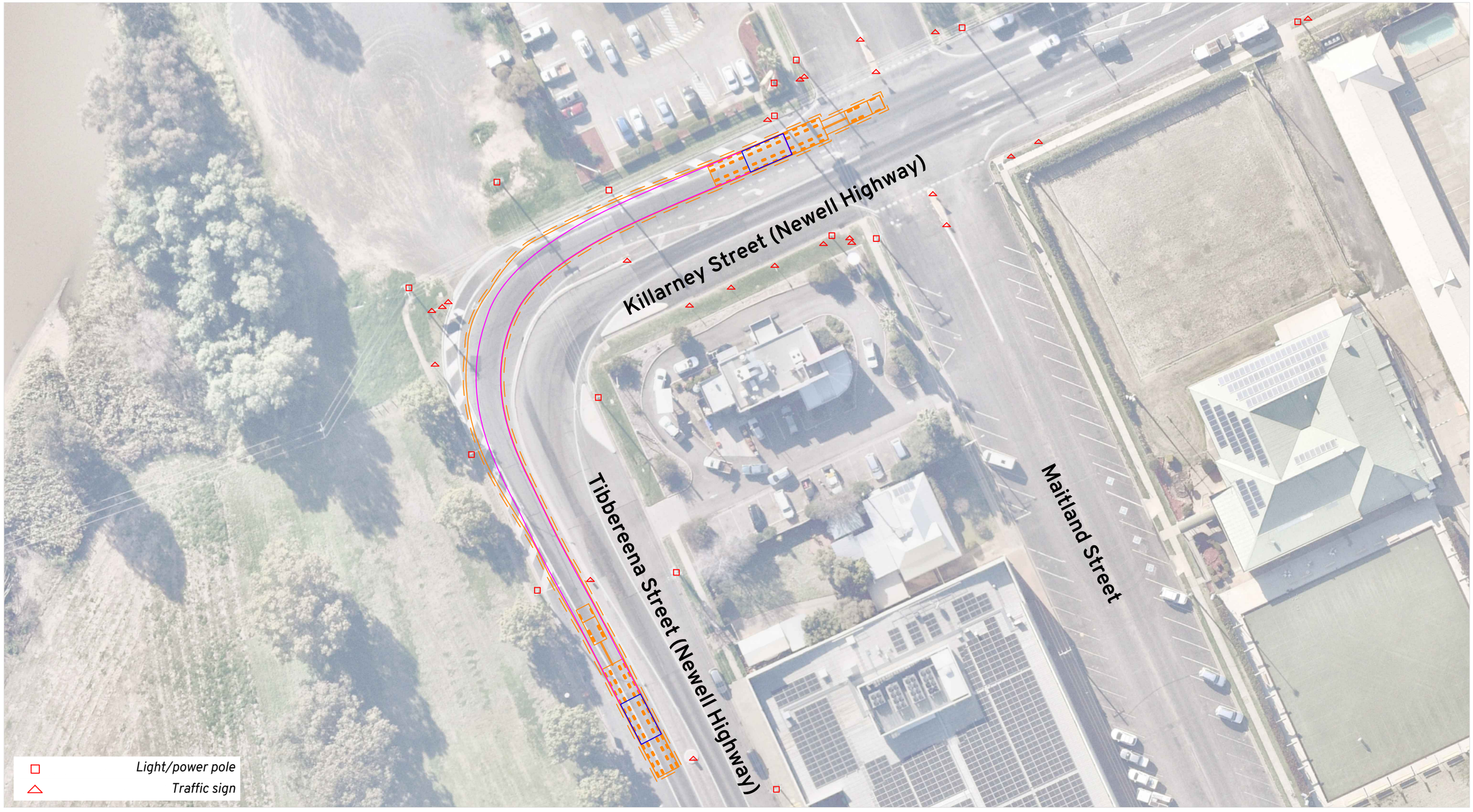
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required.
Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Narrabri NSW 2390
Online Map Link

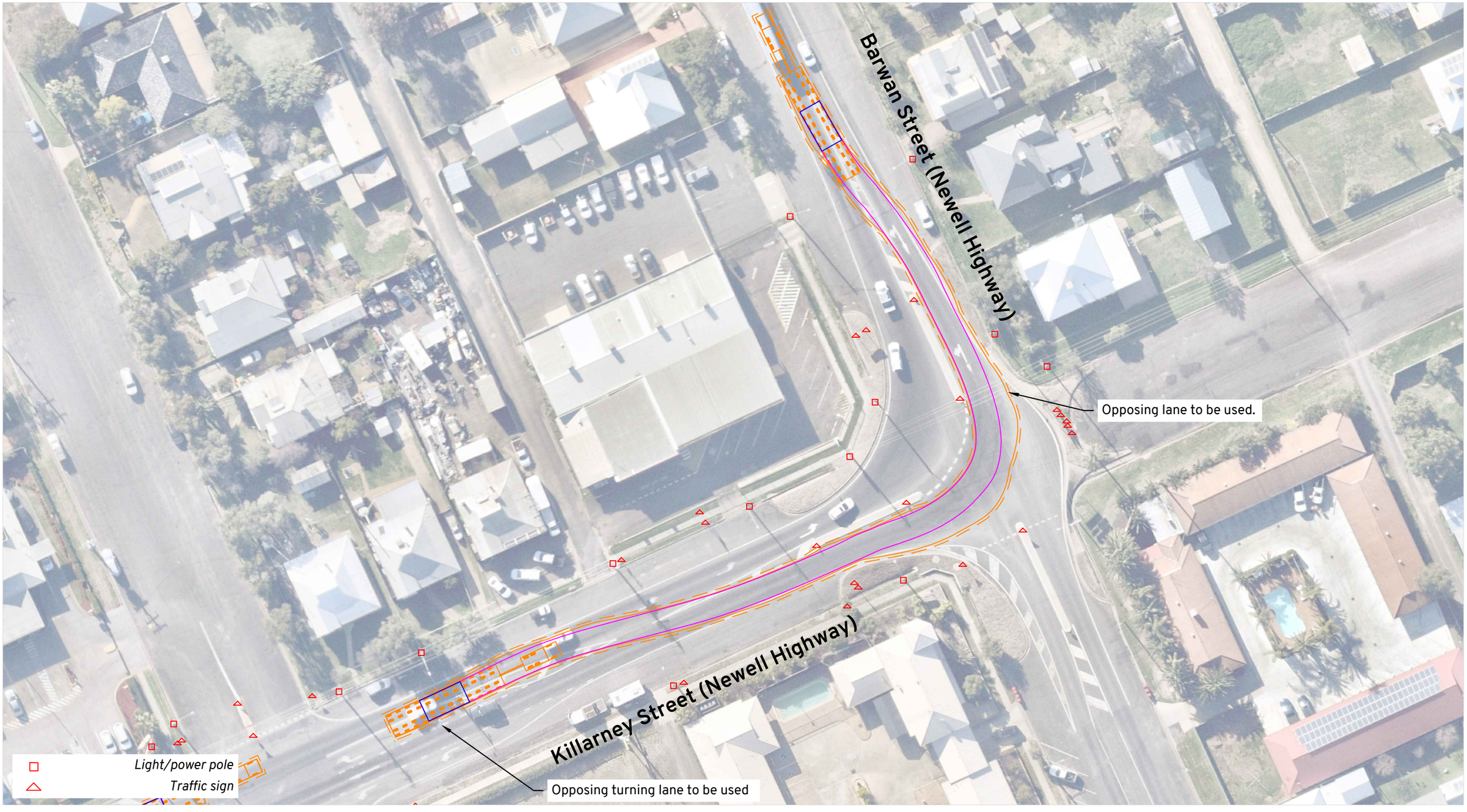
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 20



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

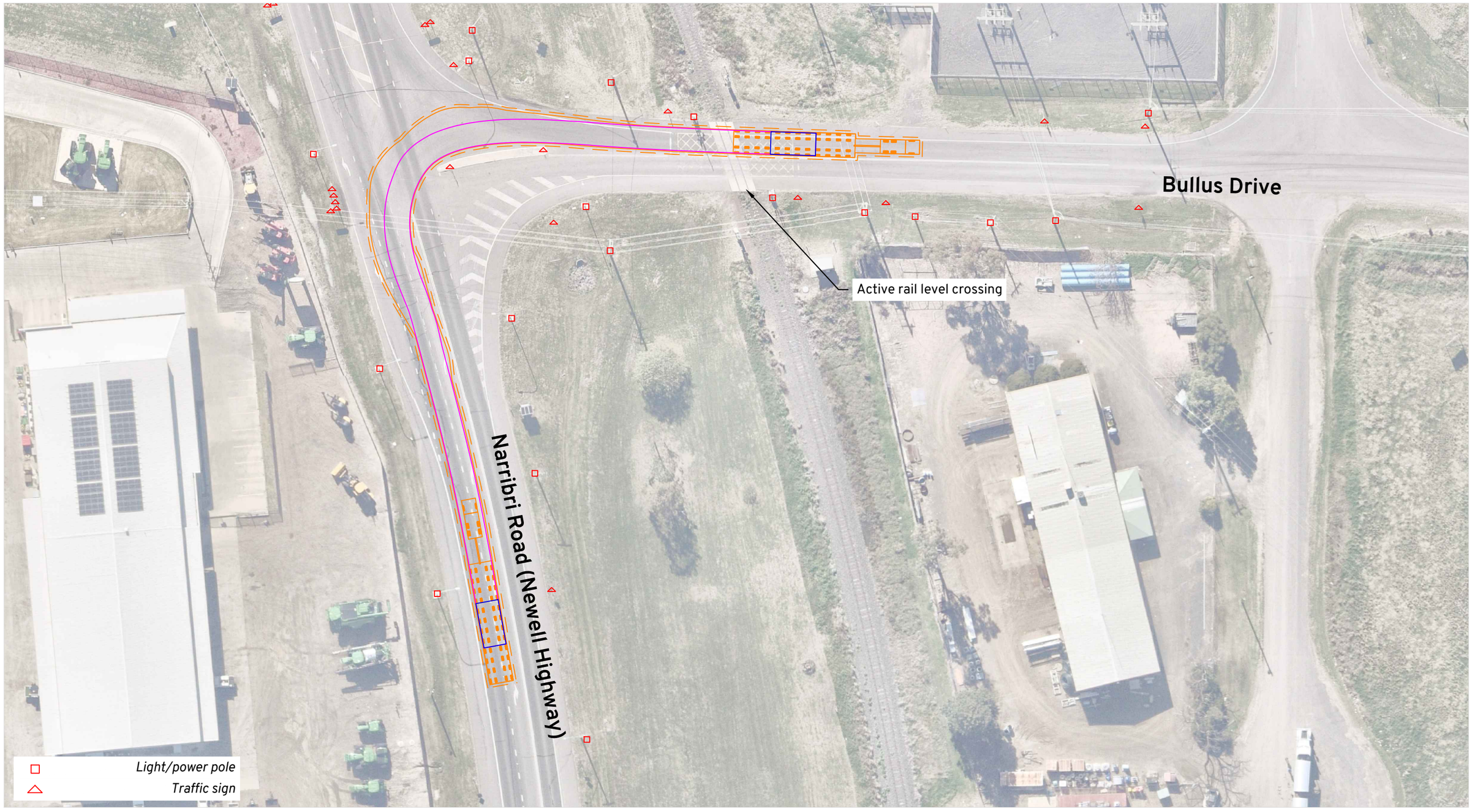
Location:
Narrabri NSW 2390
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 21



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.
Active rail level crossing requires permit from ARTC before crossing - LXM ID 560

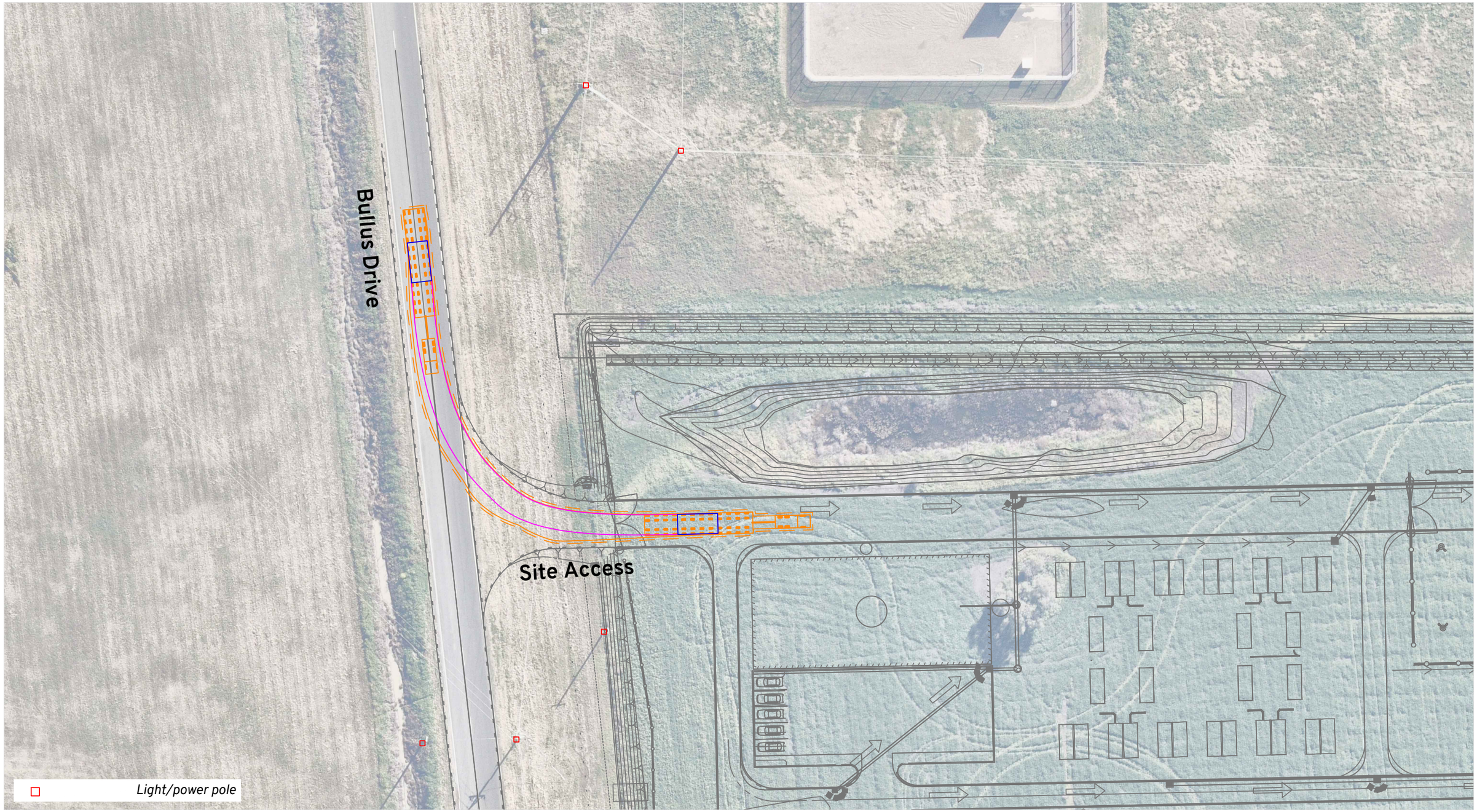
Location:
Moree NSW 2400
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 22



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:
Escorts to control traffic as required and facilitate use of multiple/opposing lanes.
Spotters to monitor path of travel and impact to existing infrastructure.

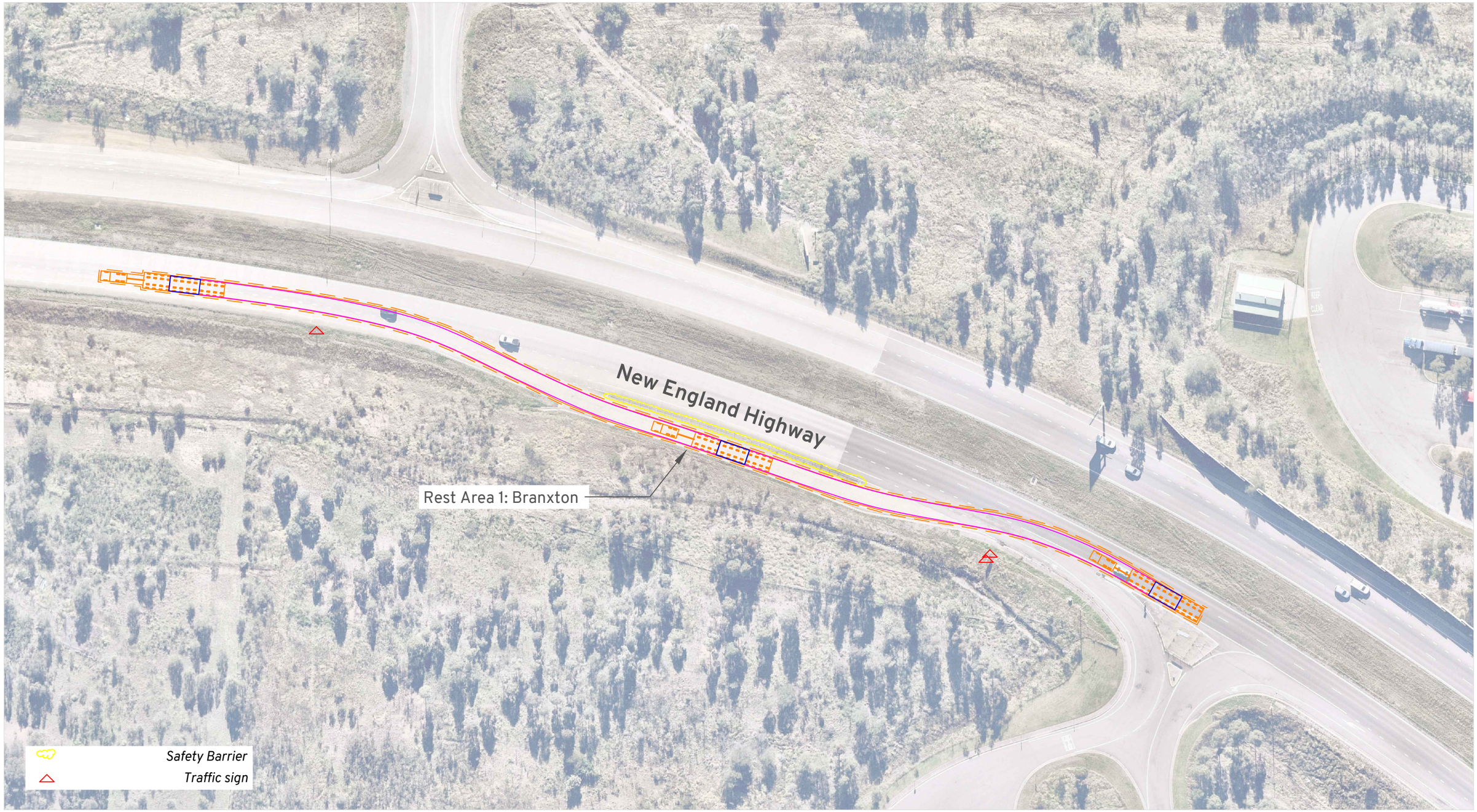
Location:
Moree NSW 2400
Online Map Link

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct
Swept Path Assessment

DRAWN: WC
DATE: 05/08/2025
DWG NO: 1044 RA02B - MGA55
SCALE at A3: 1:750m

Amber 23



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple traffic lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:

Branxton NSW 2335

https://maps.app.goo.gl/CYcMM6JNNikMb7GS8

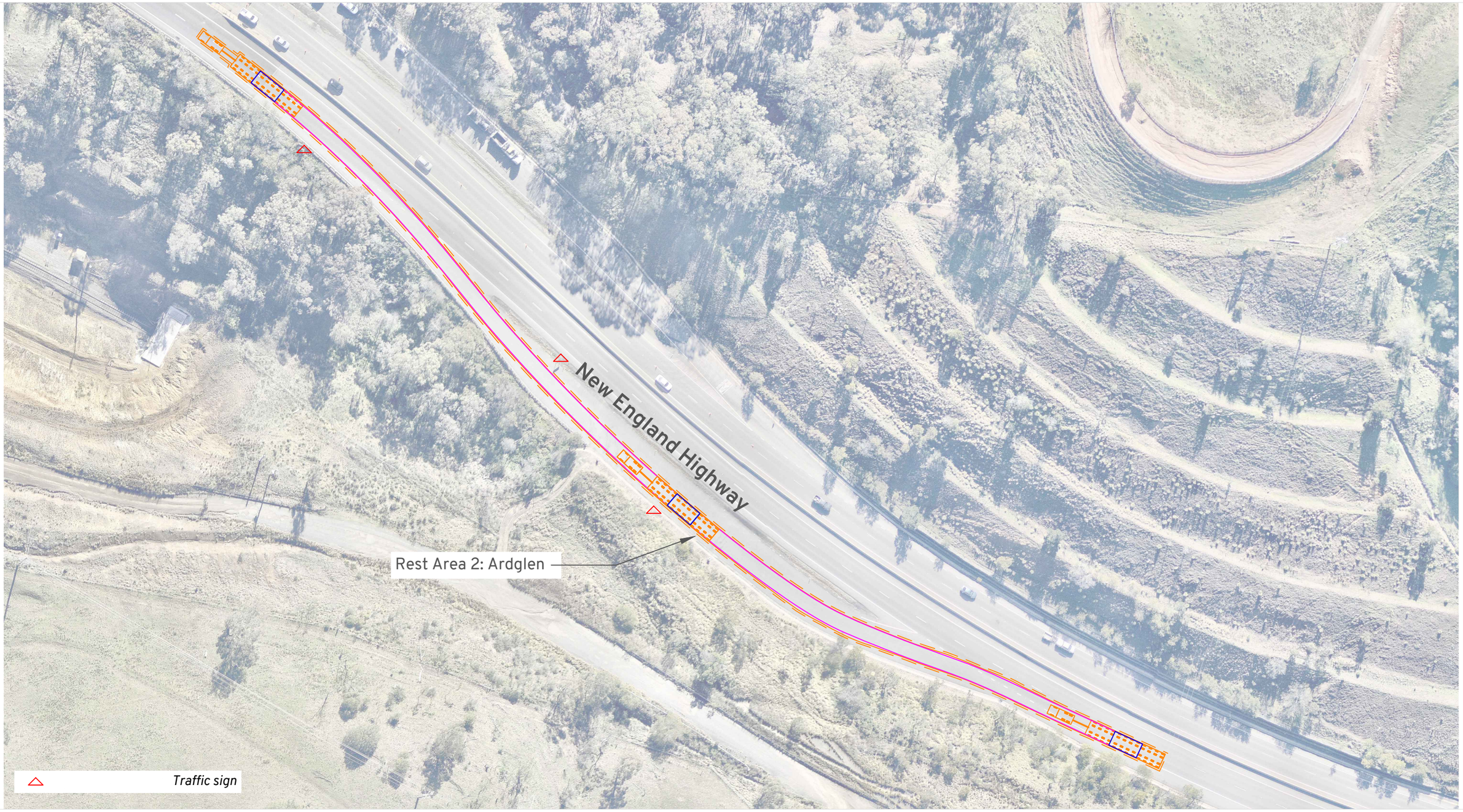
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 1

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA1



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple traffic lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:

Ardglen NSW 2338

https://maps.app.goo.gl/4cs7hw7QyRELSquD6

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 2

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA2A

New England Highway

Rest Area 2: Ardglen

A 26.0m B-double is shown passing the stationary OSOM vehicle and stopping to use the rest area.

Traffic sign

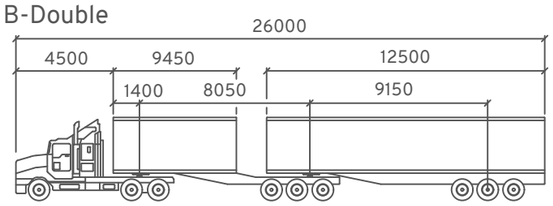
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 2

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA2B

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of multiple/opposing traffic lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Quirindi NSW 2343
https://maps.app.goo.gl/HDpZV1fk9CJ8Kwnn8

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 3

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA3A

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing/multiple traffic lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:
Quirindi NSW 2343
https://maps.app.goo.gl/HDpZV1fk9CJ8Kwnn8

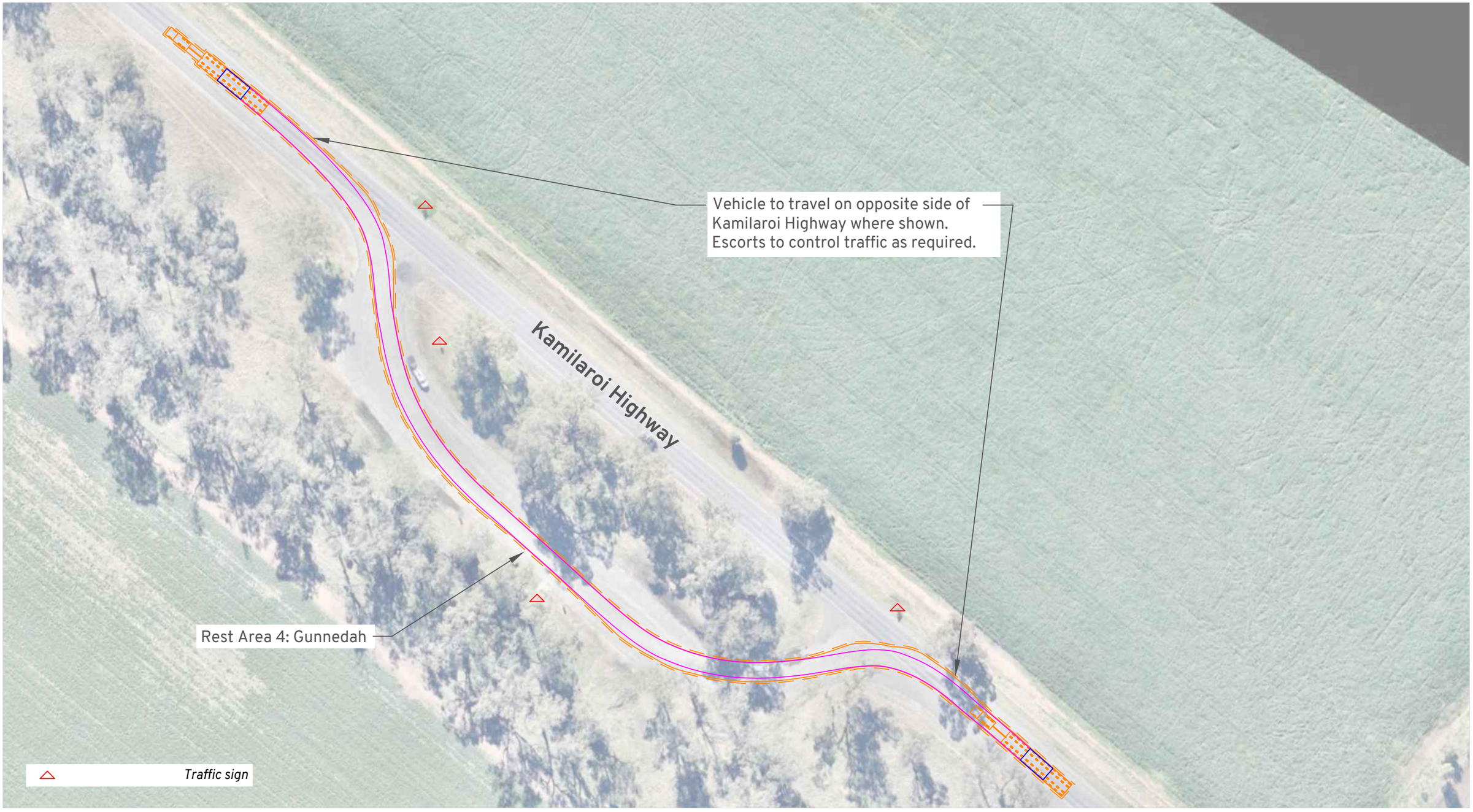
Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 3

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA3B



Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as necessary and facilitate use of opposing/multiple traffic lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Location:

Gunnedah NSW 2380

https://maps.app.goo.gl/WGbhic5EPEKSzWVB8

Route Assessment: Port Of Newcastle

Moree Special Activation Precinct

Swept Path Assessment - Rest Area 4

DRAWN: WC
DATE: 11/08/2025
DWG NO: 1044 RA01B - MGA56
SCALE at A3: 1:1000m

Amber RA4

Appendix B

Traffic Survey Data

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Newell Hwy and Bulluss Dr, Moree

GPS *-29.484426, 149.850658*

Date:	Thu 06/02/25
Weather:	Fine
Suburban:	Moree
Customer:	Amber

North:	Newell Hwy
East:	Bulluss Dr
South:	Newell Hwy
West:	N/A

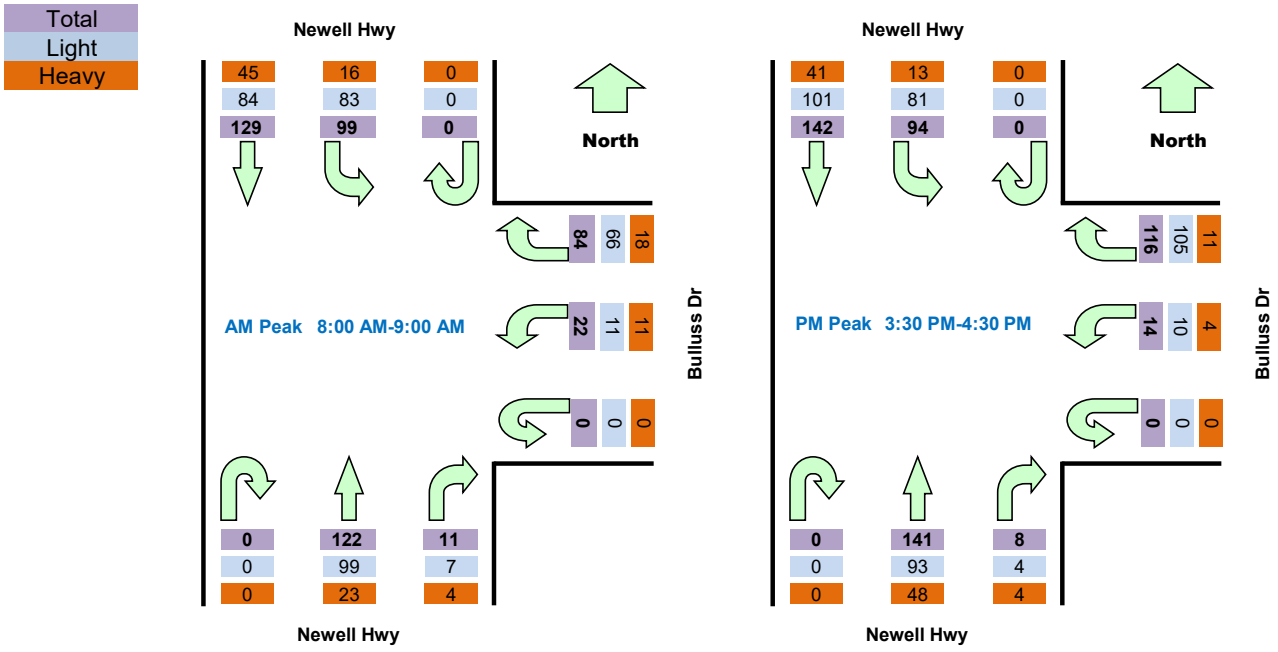
Survey Period	AM:	6:00 AM-9:00
	PM:	3:00 PM-6:00
Traffic Peak	AM:	8:00 AM-9:00
	PM:	3:30 PM-4:30

All Vehicles

Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
6:00	6:15	0	10	17	0	6	1	0	0	8	273	
6:15	6:30	0	19	11	0	9	1	0	2	16	330	
6:30	6:45	0	21	16	0	8	5	0	2	15	349	
6:45	7:00	0	31	38	0	11	3	0	6	17	351	
7:00	7:15	0	21	39	0	22	2	0	4	11	337	
7:15	7:30	0	19	24	0	9	2	0	1	22	356	
7:30	7:45	0	33	10	0	6	1	0	1	18	409	
7:45	8:00	0	25	19	0	16	4	0	4	24	450	
8:00	8:15	0	32	24	0	28	5	0	4	25	467	Peak
8:15	8:30	0	36	33	0	20	4	0	0	37		
8:30	8:45	0	31	17	0	19	9	0	3	31		
8:45	9:00	0	30	25	0	17	4	0	4	29		
15:00	15:15	0	23	24	0	39	5	0	4	34	488	
15:15	15:30	0	26	19	0	24	3	0	2	34	498	
15:30	15:45	0	34	18	0	23	2	0	3	40	515	Peak
15:45	16:00	0	38	29	0	25	3	0	3	33	512	
16:00	16:15	0	39	25	0	30	5	0	1	39	490	
16:15	16:30	0	31	22	0	38	4	0	1	29	485	
16:30	16:45	0	26	17	0	33	2	0	2	37	467	
16:45	17:00	0	28	17	0	23	1	0	4	36	459	
17:00	17:15	0	40	22	0	27	6	0	3	36	434	
17:15	17:30	0	34	11	0	18	5	0	3	36		
17:30	17:45	0	31	8	0	15	5	0	2	48		
17:45	18:00	0	25	10	0	14	3	3	3	26		

Peak Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw			Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	129	99	0	84	22	0	11	122	467
15:30	16:30	0	142	94	0	116	14	0	8	141	515

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



Light Vehicles

Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw		
Period Start	**Period End**	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	7	16	0	3	1	0	0	6
6:15	6:30	0	15	11	0	8	1	0	2	7
6:30	6:45	0	19	15	0	6	5	0	2	14
6:45	7:00	0	28	38	0	9	2	0	5	14
7:00	7:15	0	16	35	0	18	2	0	1	11
7:15	7:30	0	14	23	0	6	2	0	1	18
7:30	7:45	0	28	8	0	5	1	0	1	13
7:45	8:00	0	15	16	0	12	3	0	4	20
8:00	8:15	0	24	21	0	24	2	0	3	21
8:15	8:30	0	24	26	0	12	3	0	0	27
8:30	8:45	0	17	15	0	14	4	0	2	27
8:45	9:00	0	19	21	0	16	2	0	2	24
15:00	15:15	0	18	22	0	33	4	0	4	26
15:15	15:30	0	22	15	0	21	2	0	2	22
15:30	15:45	0	23	15	0	21	2	0	2	26
15:45	16:00	0	29	24	0	23	2	0	1	25
16:00	16:15	0	27	22	0	28	3	0	0	25
16:15	16:30	0	22	20	0	33	3	0	1	17
16:30	16:45	0	16	16	0	32	0	0	2	26
16:45	17:00	0	19	14	0	22	1	0	3	23
17:00	17:15	0	33	20	0	27	6	0	2	24
17:15	17:30	0	29	11	0	17	3	0	2	24
17:30	17:45	0	23	8	0	14	2	0	0	33
17:45	18:00	0	16	7	0	14	3	3	1	17

Peak Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw			Peak
Period Start	**Period End**	U	SB	L	U	R	L	U	R	NB	**total**
8:00	9:00	0	84	83	0	66	11	0	7	99	350
15:30	16:30	0	101	81	0	105	10	0	4	93	394

Heavy Vehicles

Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	3	1	0	3	0	0	0	2
6:15	6:30	0	4	0	0	1	0	0	0	9
6:30	6:45	0	2	1	0	2	0	0	0	1
6:45	7:00	0	3	0	0	2	1	0	1	3
7:00	7:15	0	5	4	0	4	0	0	3	0
7:15	7:30	0	5	1	0	3	0	0	0	4
7:30	7:45	0	5	2	0	1	0	0	0	5
7:45	8:00	0	10	3	0	4	1	0	0	4
8:00	8:15	0	8	3	0	4	3	0	1	4
8:15	8:30	0	12	7	0	8	1	0	0	10
8:30	8:45	0	14	2	0	5	5	0	1	4
8:45	9:00	0	11	4	0	1	2	0	2	5
15:00	15:15	0	5	2	0	6	1	0	0	8
15:15	15:30	0	4	4	0	3	1	0	0	12
15:30	15:45	0	11	3	0	2	0	0	1	14
15:45	16:00	0	9	5	0	2	1	0	2	8
16:00	16:15	0	12	3	0	2	2	0	1	14
16:15	16:30	0	9	2	0	5	1	0	0	12
16:30	16:45	0	10	1	0	1	2	0	0	11
16:45	17:00	0	9	3	0	1	0	0	1	13
17:00	17:15	0	7	2	0	0	0	0	1	12
17:15	17:30	0	5	0	0	1	2	0	1	12
17:30	17:45	0	8	0	0	1	3	0	2	15
17:45	18:00	0	9	3	0	0	0	0	2	9

Peak Time		North Approach Newell Hw			East Approach Bulluss Dr			South Approach Newell Hw			Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	45	16	0	18	11	0	4	23	117
15:30	16:30	0	41	13	0	11	4	0	4	48	121

Appendix C

TfNSW Correspondence

From:	Ruvimbo Timba
To:	Tom Dwyer
Cc:	Development Renewables
Subject:	Re: WST24/00370/001 - Moree BESS within Special Activation Precinct - Route Assessment
Date:	Friday, 8 November 2024 1:46:02 PM
Attachments:	image003.png image004.png image005.png image006.png Outlook-22k1iyon.png Outlook-v1thi3p3.png Outlook-hzy5z54d.png

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Hi Tom,

TfNSW has concerns with the route which originates from Port Botany due to the complexity of the movement required for the beam set. In addition to this, Port Botany has not been used for the import of larger goods (similar to this development) in recent years. Due to the OSOM vehicle being high risk (as defined by TfNSW), a concept level route analysis will be required with the following information:

a. Port or point of origin for the entire route to the site access and intersections required to facilitate high risk OSOM movements required for the project.
b. Overall combination type, configuration, load and vehicle configuration.
c. The laden dimensions and weight of the vehicle configuration and loads.
d. Details of all high risk OSOM loads and vehicle configurations for the project.
e. The location of pull-over bays / rest areas along high risk OSOM routes (including GPS coordinates) and demonstrate through swept paths that high risk OSOMs can be physically accommodated for the project (in terms of size, width and accessibility).
f. Bridge Assessments for any at risk bridges on classified roads due to dimensions and weight of OSOM vehicles.
g. The design vehicle templates used in the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN).
h. Highlighting each at-risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.
i. Traffic mitigation measures or road works, modifications, or road upgrades to facilitate the movement of the high risk OSOM(s) associated with the project.
j. Potential high level mitigation measures or commitments to mitigate known traffic, safety and impacts to road users along the high risk OSOM route (i.e school bus routes, mining shift changes, TSRs, harvest periods and events).
k. Identify and assess implications of any road and rail projects under construction during the indicative schedule for project related OSOM movements.

The route from Victoria includes current TfNSW projects along the route which will create additional pinch points depending on the timings of the OSOM movements. A list of projects should be provided and assessed on their impacts to the OSOM movements including any applicable mitigation measures where timings align.

Please also note that NHVR permits do not cover road works or upgrades and environmental

approvals required along any proposed OSOM route. Any road works or upgrades works required along the OSOM route must be included within the scope of works in the project to ensure the development is constructable.

Given high number of renewable energy and other large scale projects requiring road haulage of OSOM components, restrictions, and limitations on OSOM movements may be in imposed. In this regard, it is recommended you engage earlier with TfNSW's Development Services Renewables team to discuss any additional requirements of the route assessment.

Ruvimbo Timba
Development Services Case Officer - Renewables
Transport Planning
Planning, Integration and Passenger
Transport for NSW

M 0473627129 **E** development.renewables@transport.nsw.gov.au

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

transport.nsw.gov.au

Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

OFFICIAL

From: Development Renewables <development.renewables@transport.nsw.gov.au>
Sent: Thursday, 24 October 2024 11:44 AM
To: Tom Dwyer <tdwyer@amberorg.com.au>; Ruvimbo Timba <Ruvimbo.Timba@transport.nsw.gov.au>
Subject: WST24/00370/001 - Moree BESS within Special Activation Precinct - Route Assessment

Hi Tom,

I can confirm the Development Services West Renewables team has received your email below.

This has been registered and the matter has been assigned to case officer @Ruvimbo Timba

TfNSW Reference – WST24/00370/001

Please ensure all future correspondence is sent to – development.renewables@transport.nsw.gov.au

Kind Regards,

Rosa Gillogly
Development Assessment Support Officer
Development Services West
Transport Planning – Planning, Integration and Passenger
Transport for NSW

E rosa.gillogly@transport.nsw.gov.au

transport.nsw.gov.au

Level 1 51-55 Currajong Street
Parkes NSW 2870

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

Transport for NSW

I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

Please consider the environment before printing this email.

OFFICIAL

From: Tom Dwyer <tdwyer@amberorg.com.au>
Sent: Thursday, October 17, 2024 10:48 AM
To: Development Renewables <development.renewables@transport.nsw.gov.au>
Cc: Shannon Eduards <seduards@amberorg.com.au>; Sarah Hillis <sarah.h@nghconsulting.com.au>; David Canterbury <david.c@nghconsulting.com.au>
Subject: Moree BESS within Special Activation Precinct - Route Assessment

Hi there

Amber has been engaged to prepare a route assessment in relation to a Battery Energy Storage System (BESS) project located with the Moree Special Activation Precinct (SAP). As a result of the location with the

SAP it is understood that the project follows a different planning pathway as compared to an SSD.

The assessment is available for download here: 1044 mem 241017 draft for comment.pdf

The route assessment has been undertaken for the delivery of a transformer to site from two potential origins: Port Botany, New South Wales, or Glen Waverley, Victoria. The assessment has been undertaken to determine the need for any civil works to support access to the site for the largest component likely to be delivered, with the assessments finding temporary road works would be required to facilitate access.

It is noted that formal approvals would be sought through the NHVR from relevant road authorities close to the construction of the BESS.

We seek your feedback on the assessment undertaken as the Development Application for the site is finalised.

Don't hesitate to contact me if any further information is required.

Kind regards
Tom

Tom Dwyer
BEng (CivInfra) (Hons) GradDipUrbPlanEnv MIEAust NER RPEV
Associate

Ph: +61 481 959 464

Appendix D

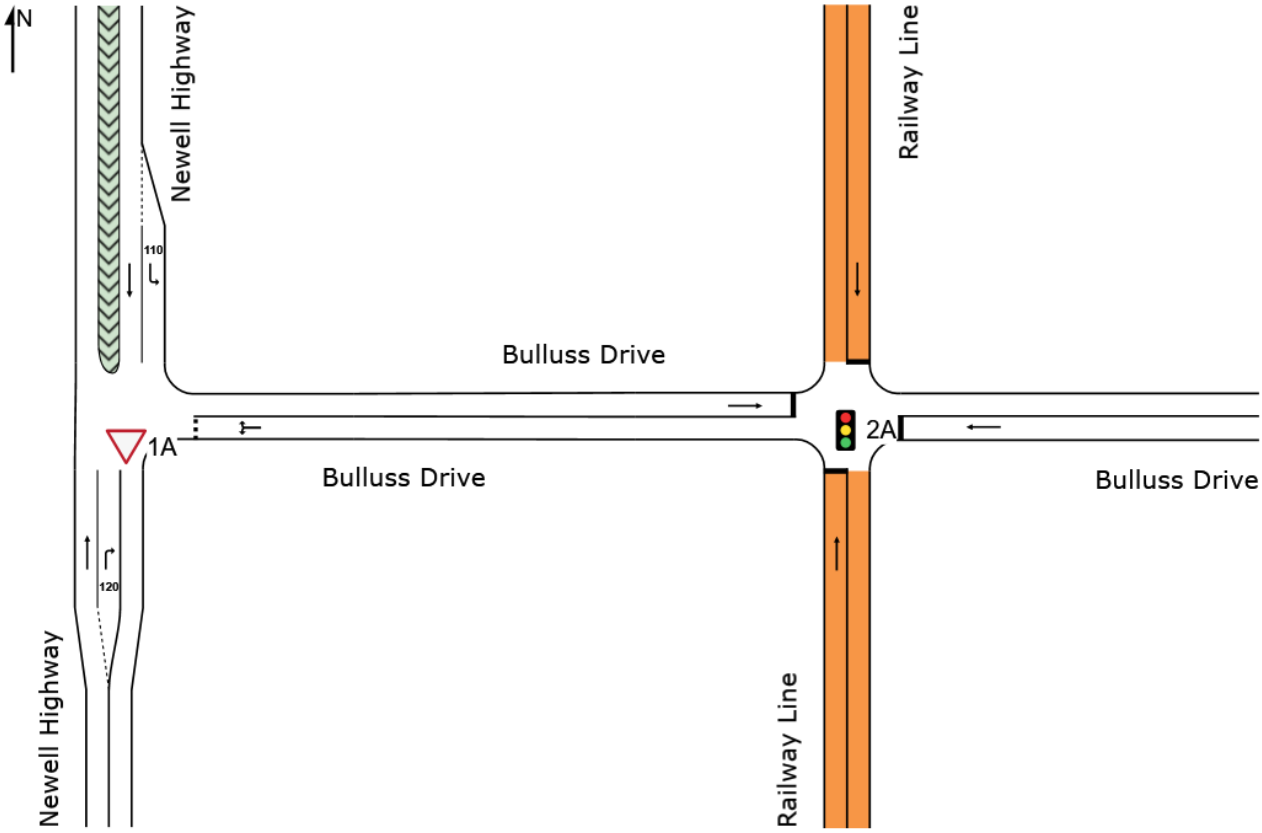
SIDRA Results

NETWORK LAYOUT

Network: [1] AM (Folder1)

New Network
Network Category: (None)
Network Scenario: 1 | Local Volumes

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1A	NA	AM Peak Construction Newell Highway / Bulluss Drive
2A	NA	AM Peak Construction Railway Line / Bulluss Drive

Organisation: AMBER ORGANISATION | Licence: NETWORK / 1PC | Created: Wednesday, 13 August 2025 12:30:28 PM
Project: C:\Users\EmilyYoung\OneDrive - Amber Organisation Pty Ltd\Amber Organisation - Admin's files - Amber\Jobs\1044 - Moree SAP - Renewable\Modelling\SIDRA Newell Hwy Bulluss Drive - rail.sipx

MOVEMENT SUMMARY

Site: [1A] AM Peak Construction Newell Highway / Bulluss Drive (General)

Network: [1] AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Newell Highway / Bulluss Drive
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Newell Highway															
2	T1	All MCs	60	36.8	60	36.8	0.038	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	100	33.7	100	33.7	0.111	7.5	LOS A	4.8	43.0	0.40	0.64	0.40	40.9
Approach			160	34.9	160	34.9	0.111	4.7	NA	4.8	43.0	0.25	0.40	0.25	47.9
East: Bulluss Drive															
4	L2	All MCs	13	8.3	13	8.3	0.093	4.2	LOS A	0.1	1.2	0.43	0.62	0.43	37.5
6	R2	All MCs	45	25.6	45	25.6	0.093	7.7	LOS A	0.1	1.2	0.43	0.62	0.43	26.0
Approach			58	21.8	58	21.8	0.093	7.0	LOS A	0.1	1.2	0.43	0.62	0.43	29.2
North: Newell Highway															
7	L2	All MCs	144	8.8	144	8.8	0.083	5.6	LOS A	6.9	51.7	0.00	0.57	0.00	37.7
8	T1	All MCs	105	15.0	105	15.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			249	11.4	249	11.4	0.083	3.3	NA	6.9	51.7	0.00	0.33	0.00	50.8
All Vehicles			467	20.7	467	20.7	0.111	4.2	NA	6.9	51.7	0.14	0.39	0.14	46.4

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

MOVEMENT SUMMARY

Site: [2A] AM Peak Construction Railway Line / Bulluss Drive
(General)

Network: [1] AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 3600.0 seconds (Site User-Given Phase Times)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Railway Line															
2	T1	All MCs	1	0.0	1	0.0	*0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
Approach			1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
East: Bulluss Drive															
5	T1	All MCs	58	21.8	58	21.8	0.036	6.8	LOS A	3.6	30.1	0.07	0.06	0.07	13.9
Approach			58	21.8	58	21.8	0.036	6.8	LOS A	3.6	30.1	0.07	0.06	0.07	13.9
North: Railway Line															
8	T1	All MCs	1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
Approach			1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
West: Bulluss Drive															
11	T1	All MCs	244	19.0	244	19.0	*0.148	7.6	LOS A	5.5	45.0	0.08	0.07	0.08	15.1
Approach			244	19.0	244	19.0	0.148	7.6	LOS A	5.5	45.0	0.08	0.07	0.08	15.1
All Vehicles			304	19.4	304	19.4	0.148	18.7	LOS B	5.5	45.0	0.08	0.07	0.08	13.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

QUEUE ANALYSIS

Site: [1A] AM Peak Construction Newell Highway / Bulluss Drive (General)

Network: [1] AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Newell Highway / Bulluss Drive
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn v/c	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m) Av.	Back of Queue (m) 95%	Queue at Start of Gap (m) Av.	Queue at Start of Gap (m) 95%	Cycle-Average Queue (m) Av.	Cycle-Average Queue (m) 95%	Queue Storage Ratio Av.	Queue Storage Ratio 95%	Prob. Block. %	Prob. SL Ov. %	Ov. Lane No.
South: Newell Highway															
Lane 1	Y	0.038	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.111	1.000	0.0	43.0[N5]	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.36[N5]	-[N9]	NA	0.0	1
Approach		0.111			43.0	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.00	-[N9]			
East: Bulluss Drive															
Lane 1		0.093	1.000	0.0	1.2	2.9	1.1	2.7	0.4	0.8	0.03	0.06	0.0	NA	NA
Approach		0.093			1.2	2.9	1.1	2.7	0.4	0.8	0.03	0.06			
North: Newell Highway															
Lane 1	Y	0.083	1.000	0.0	51.7[N5]	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.47[N5]	-[N9]	NA	0.0	2
Lane 2	Y	0.059	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.083			51.7	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.00	-[N9]			
Intersection		0.111			51.7	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.03	-[N9]			

Two-Way Sign Control Capacity Model: SIDRA Standard.
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).
Short Lanes are not included in determining Queue Storage Ratios.

N5 This result is determined by Average Back of Queue value of a downstream lane (proportional to lane movement flows).
N9 Refer to the full Percentile Back of Queue value given for the queue formed at the originating downstream Site.
N10 Values of Queue at Start of Green and Cycle-Average Queue have not been given due to the Excess Back of Queue from a downstream Site.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn v/c	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh) Av.	Back of Queue (veh) 95%	Queue at Start of Gap (veh) Av.	Queue at Start of Gap (veh) 95%	Cycle-Average Queue (veh) Av.	Cycle-Average Queue (veh) 95%	Queue Storage Ratio Av.	Queue Storage Ratio 95%	Prob. Block. %	Prob. SL Ov. %	Ov. Lane No.
South: Newell Highway															
Lane 1	Y	0.038	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.111	1.000	0.0	4.8[N5]	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.36[N5]	-[N9]	NA	0.0	1
Approach		0.111			4.8	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.00	-[N9]			
East: Bulluss Drive															
Lane 1		0.093	1.000	0.0	0.1	0.3	0.1	0.3	0.1	0.1	0.03	0.06	0.0	NA	NA
Approach		0.093			0.1	0.3	0.1	0.3	0.1	0.1	0.03	0.06			

North: Newell Highway															
Lane 1	Y	0.083	1.000	0.0	6.9[N5]	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.47[N5]	-[N9]	NA	0.0	2
Lane 2	Y	0.059	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.083			6.9	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.00	-[N9]			
Intersection		0.111			6.9	-[N9]	-[N10]	-[N10]	-[N10]	-[N10]	0.03	-[N9]			

Two-Way Sign Control Capacity Model: SIDRA Standard.
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).
Short Lanes are not included in determining Queue Storage Ratios.

N5 This result is determined by Average Back of Queue value of a downstream lane (proportional to lane movement flows).
N9 Refer to the full Percentile Back of Queue value given for the queue formed at the originating downstream Site.
N10 Values of Queue at Start of Green and Cycle-Average Queue have not been given due to the Excess Back of Queue from a downstream Site.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Newell Highway													
Lane 1	0.038	60.0	0.0	60.00	999.7	6.5	0.51	59.49	0.7	0.9	1.0	1.3	LOS A
North: Newell Highway													
Lane 1	0.083	60.0	0.0	24.96	415.8	5.0	0.42	24.54	1.2	1.7	2.4	2.6	LOS A
Lane 2	0.059	60.0	0.0	34.20	569.7	5.3	0.44	33.76	0.9	1.3	1.8	2.0	LOS A

Midblock Effective Detection Zone Length = 2 m

QUEUE ANALYSIS

Site: [2A] AM Peak Construction Railway Line / Bulluss Drive

(General)

Network: [1] AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 3600.0 seconds (Site User-Given Phase Times)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Green (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane No.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Railway Line															
Lane 1		0.010	1.000	0.0	7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02	0.0	NA	NA
Approach		0.010			7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02			
East: Bulluss Drive															
Lane 1		0.036	1.000	0.0	30.1	49.1	29.1	47.4	0.9	1.9	0.06	0.10	0.0	NA	NA
Approach		0.036			30.1	49.1	29.1	47.4	0.9	1.9	0.06	0.10			
North: Railway Line															
Lane 1		0.010	1.000	0.0	7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02	0.0	NA	NA
Approach		0.010			7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02			
West: Bulluss Drive															
Lane 1		0.148	1.000	0.0	45.0[N4]	227.9[N8]	120.2	196.2	4.2	8.8	1.00[N4]	5.06[N8]	50.0	NA	NA
Approach		0.148			45.0	227.9	120.2	196.2	4.2	8.8	1.00	5.06			
Intersection		0.148			45.0	227.9	120.2	196.2	4.2	8.8	1.00	5.06			

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

N4 Average Back of Queue has been restricted to the available queue storage space as it extends to lanes at upstream Sites.
N8 The Percentile Back of Queue extends to upstream Site lanes.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Green (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane No.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Railway Line															
Lane 1		0.010	1.000	0.0	1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02	0.0	NA	NA
Approach		0.010			1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02			
East: Bulluss Drive															
Lane 1		0.036	1.000	0.0	3.6	5.9	3.5	5.7	0.1	0.2	0.06	0.10	0.0	NA	NA
Approach		0.036			3.6	5.9	3.5	5.7	0.1	0.2	0.06	0.10			
North: Railway Line															
Lane 1		0.010	1.000	0.0	1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02	0.0	NA	NA

Approach	0.010			1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02			
West: Bulluss Drive														
Lane 1	0.148	1.000	0.0	5.5[N4]	28.0[N8]	14.8	24.1	0.5	1.1	1.00[N4]	5.06[N8]	50.0	NA	NA
Approach	0.148			5.5	28.0	14.8	24.1	0.5	1.1	1.00	5.06			
Intersection	0.148			5.5	28.0	14.8	24.1	0.5	1.1	1.00	5.06			

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

N4 Average Back of Queue has been restricted to the available queue storage space as it extends to lanes at upstream Sites.
N8 The Percentile Back of Queue extends to upstream Site lanes.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing	Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	sec	sec	%	%	veh/km	pc/km	

There are no Continuous Lanes at this Site.

Organisation: AMBER ORGANISATION | Licence: NETWORK / 1PC | Processed: Wednesday, 13 August 2025 11:30:19 AM
Project: C:\Users\EmilyYoung\OneDrive - Amber Organisation Pty Ltd\Amber Organisation - Admin's files - Amber\Jobs\1044 - Moree SAP - Renewable\Modelling\SIDRA Newell Hwy Bulluss Drive - rail.sipx

MOVEMENT SUMMARY

Site: [1P] PM Peak Construction Newell Highway / Bulluss Drive (General)

Network: [2] PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Newell Highway / Bulluss Drive
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Newell Highway															
2	T1	All MCs	189	32.8	189	32.8	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	14	53.8	14	53.8	0.032	8.4	LOS A	0.0	0.3	0.43	0.64	0.43	39.6
Approach			203	34.2	203	34.2	0.118	0.6	NA	0.0	0.3	0.03	0.04	0.03	58.5
East: Bulluss Drive															
4	L2	All MCs	52	38.8	52	38.8	0.331	6.2	LOS A	0.6	5.1	0.59	0.79	0.70	34.8
6	R2	All MCs	134	9.4	134	9.4	0.331	10.7	LOS A	0.6	5.1	0.59	0.79	0.70	26.0
Approach			185	17.6	185	17.6	0.331	9.4	LOS A	0.6	5.1	0.59	0.79	0.70	29.2
North: Newell Highway															
7	L2	All MCs	67	10.9	67	10.9	0.068	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	37.6
8	T1	All MCs	217	27.2	217	27.2	0.131	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			284	23.3	284	23.3	0.131	1.4	NA	0.0	0.0	0.00	0.14	0.00	56.9
All Vehicles			673	25.0	673	25.0	0.331	3.3	NA	0.6	5.1	0.17	0.29	0.20	48.9

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

MOVEMENT SUMMARY

Site: [2P] PM Peak Construction Railway Line / Bulluss Drive

(General)

Network: [2] PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 3600.0 seconds (Site User-Given Phase Times)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Railway Line															
2	T1	All MCs	1	0.0	1	0.0	* 0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
Approach			1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
East: Bulluss Drive															
5	T1	All MCs	185	17.6	185	17.6	* 0.111	7.3	LOS A	12.5	100.8	0.07	0.07	0.07	14.1
Approach			185	17.6	185	17.6	0.111	7.3	LOS A	12.5	100.8	0.07	0.07	0.07	14.1
North: Railway Line															
8	T1	All MCs	1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
Approach			1	0.0	1	0.0	0.010	1631.4	LOS F	1.0	7.1	0.97	0.61	0.97	2.1
West: Bulluss Drive															
11	T1	All MCs	81	18.2	81	18.2	0.049	6.8	LOS A	5.1	41.5	0.07	0.06	0.07	14.9
Approach			81	18.2	81	18.2	0.049	6.8	LOS A	5.1	41.5	0.07	0.06	0.07	14.9
All Vehicles			268	17.6	268	17.6	0.111	19.9	LOS B	12.5	100.8	0.08	0.07	0.08	13.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

QUEUE ANALYSIS

Site: [1P] PM Peak Construction Newell Highway / Bulluss Drive (General)

Network: [2] PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Newell Highway / Bulluss Drive
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Newell Highway															
Lane 1	Y	0.118	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.032	1.000	0.0	0.3	0.7	0.3	0.7	0.1	0.2	0.00	0.01	NA	0.0	1
Approach		0.118			0.3	0.7	0.3	0.7	0.1	0.2	0.00	0.00			
East: Bulluss Drive															
Lane 1		0.331	1.000	0.5	5.1	12.7	4.1	10.2	2.4	4.3	0.11	0.28	0.0	NA	NA
Approach		0.331			5.1	12.7	4.1	10.2	2.4	4.3	0.11	0.28			
North: Newell Highway															
Lane 1	Y	0.068	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	2
Lane 2	Y	0.131	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.131			0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00			
Intersection		0.331			5.1	12.7	4.1	10.2	2.4	4.3	0.11	0.28			

Two-Way Sign Control Capacity Model: SIDRA Standard.
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).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Newell Highway															
Lane 1	Y	0.118	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.032	1.000	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.00	0.01	NA	0.0	1
Approach		0.118			0.0	0.1	0.0	0.1	0.0	0.0	0.00	0.00			
East: Bulluss Drive															
Lane 1		0.331	1.000	0.1	0.6	1.6	0.5	1.3	0.3	0.5	0.11	0.28	0.0	NA	NA
Approach		0.331			0.6	1.6	0.5	1.3	0.3	0.5	0.11	0.28			
North: Newell Highway															
Lane 1	Y	0.068	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	2
Lane 2	Y	0.131	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA

Approach	0.131	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Intersection	0.331	0.6	1.6	0.5	1.3	0.3	0.5	0.11	0.28

Two-Way Sign Control Capacity Model: SIDRA Standard.
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).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Newell Highway													
Lane 1	0.118	59.9	0.0	19.00	316.3	6.3	0.50	18.50	2.0	2.6	3.2	4.0	LOS A
North: Newell Highway													
Lane 1	0.068	59.9	0.0	53.44	889.8	5.1	0.43	53.01	0.6	0.8	1.1	1.2	LOS A
Lane 2	0.131	59.9	0.0	16.60	276.4	6.0	0.48	16.12	2.2	2.9	3.6	4.5	LOS A

Midblock Effective Detection Zone Length = 2 m

QUEUE ANALYSIS

Site: [2P] PM Peak Construction Railway Line / Bulluss Drive

(General)

Network: [2] PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 3600.0 seconds (Site User-Given Phase Times)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Green (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane No.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Railway Line															
Lane 1		0.010	1.000	0.0	7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02	0.0	NA	NA
Approach		0.010			7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02			
East: Bulluss Drive															
Lane 1		0.111	1.000	0.0	100.8	164.5	90.3	147.3	3.0	6.3	0.20	0.33	0.0	NA	NA
Approach		0.111			100.8	164.5	90.3	147.3	3.0	6.3	0.20	0.33			
North: Railway Line															
Lane 1		0.010	1.000	0.0	7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02	0.0	NA	NA
Approach		0.010			7.1	11.6	7.1	11.5	3.3	7.0	0.01	0.02			
West: Bulluss Drive															
Lane 1		0.049	1.000	0.0	41.5	67.8	39.6	64.7	1.2	2.6	0.92	1.51	42.5	NA	NA
Approach		0.049			41.5	67.8	39.6	64.7	1.2	2.6	0.92	1.51			
Intersection		0.111			100.8	164.5	90.3	147.3	3.3	7.0	0.92	1.51			

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Green (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov. Lane No.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Railway Line															
Lane 1		0.010	1.000	0.0	1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02	0.0	NA	NA
Approach		0.010			1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02			
East: Bulluss Drive															
Lane 1		0.111	1.000	0.0	12.5	20.4	11.2	18.3	0.4	0.8	0.20	0.33	0.0	NA	NA
Approach		0.111			12.5	20.4	11.2	18.3	0.4	0.8	0.20	0.33			
North: Railway Line															
Lane 1		0.010	1.000	0.0	1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02	0.0	NA	NA
Approach		0.010			1.0	1.7	1.0	1.6	0.5	1.0	0.01	0.02			

West: Bulluss Drive														
Lane 1	0.049	1.000	0.0	5.1	8.4	4.9	8.0	0.2	0.3	0.92	1.51	42.5	NA	NA
Approach	0.049			5.1	8.4	4.9	8.0	0.2	0.3	0.92	1.51			
Intersection	0.111			12.5	20.4	11.2	18.3	0.5	1.0	0.92	1.51			

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	

There are no Continuous Lanes at this Site.

Organisation: AMBER ORGANISATION | Licence: NETWORK / 1PC | Processed: Wednesday, 13 August 2025 11:30:22 AM
Project: C:\Users\EmilyYoung\OneDrive - Amber Organisation Pty Ltd\Amber Organisation - Admin's files - Amber\Jobs\1044 - Moree SAP - Renewable\Modelling\SIDRA Newell Hwy Bulluss Drive - rail.sipx

Appendix E

Site Access Design and Swept Path Assessment

Site Access

Bulluss Drive

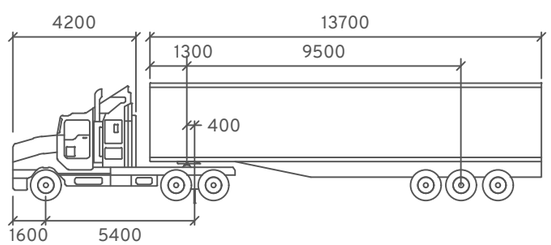
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

AV



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 28.3
Articulating Angle	70.0

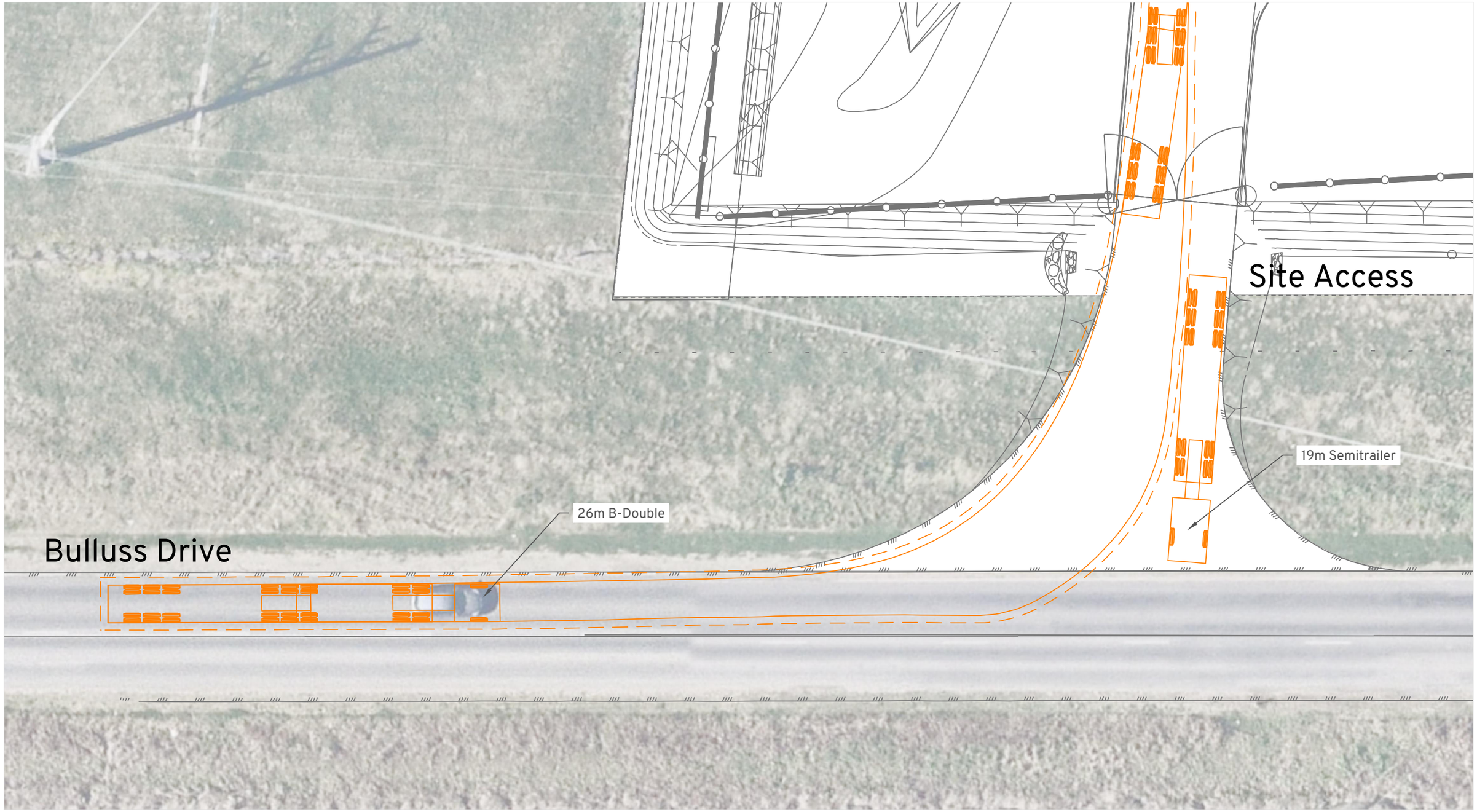
Moree BESS

Moree Special Activation Precinct

Site Access Swept Path Assessment

DRAWN: SE
DATE: 28/02/2025
DWG NO: 1044 S01C
SCALE at A3: 1:250

Amber 01



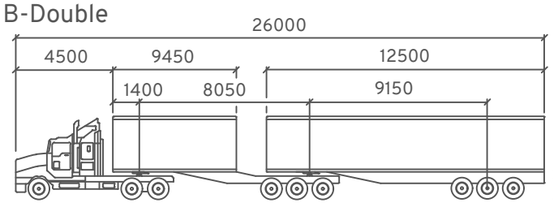
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

Moree BESS

Moree Special Activation Precinct

Site Access Swept Path Assessment

DRAWN: SE
DATE: 28/02/2025
DWG NO: 1044 S01C
SCALE at A3: 1:250

Amber 02

Appendix F

Moree Plains Shire Council Correspondence

From:	Sarah Hillis
To:	Shannon Eduards
Subject:	Fw: Moree BESS - SAP
Date:	Wednesday, 5 March 2025 3:11:55 PM
Attachments:	image001.png image002.png image003.png image004.png 23x23-7000689581387412544.png 23x23-9030098416522805783.png 23x23-16983202350067456251.png 23x23-6279537786028880917.png

FYI

Sarah Hillis
NSW Regional Lead - Environmental Planning

m: 0413 343 912 p: 02 6971 9696 (Ext 104)
e. sarah.h@nghconsulting.com.au
a. 35 Kincaid Street (PO Box 5464), Wagga Wagga, NSW 2650
w. nghconsulting.com.au | Our commitment to reconciliation

Working hours: Tuesday to Friday

From: Darryl Fitzgerald <Darryl.Fitzgerald@mpsc.nsw.gov.au>
Sent: Friday, 20 December 2024 5:15 PM
To: Sarah Hillis <sarah.h@nghconsulting.com.au>
Cc: Jeremy Moore <jeremy.moore@avenisenergy.com.au>; Simon Kerrison <simon.kerrison@avenisenergy.com.au>; David Canterbury <david.c@nghconsulting.com.au>
Subject: RE: Moree BESS - SAP

Hi Sarah,

A draft VPA document was prepared and returned to Avenis for comment.

Council wasn't previously requested to provide comment on the proposed traffic arrangements, and given the brief nature of the document, Council can offer little in the way of comment outside of advising that the capacity of the road network can accommodate the proposed construction traffic. Comment will be made in relation to a properly prepared Traffic Impact Assessment.

If you require anything more from Council, please provide some context to DPHI's request for comment from Council.

Regards

Darryl Fitzgerald | Director - Planning and Development
t. (02) 6757 3250 **m.** 0408 579 044
e. darryl.fitzgerald@mpsc.nsw.gov.au
Level 2, 30 Heber Street | Moree NSW 2400 | PO Box 420

From: Sarah Hillis <sarah.h@nghconsulting.com.au>
Sent: Thursday, December 19, 2024 7:19 AM
To: Darryl Fitzgerald <Darryl.Fitzgerald@mpsc.nsw.gov.au>
Cc: Jeremy Moore <jeremy.moore@avenisenergy.com.au>; Simon Kerrison <simon.kerrison@avenisenergy.com.au>; David Canterbury <david.c@nghconsulting.com.au>
Subject: Moree BESS - SAP
Importance: High

Good morning Daryl

Avenis and NGH are preparing themselves to lodge the Moree BESS Development Application on the Portal early in the new year.

To close out DPHI comments, we are required to get Council response on the proposed construction traffic on the local road network as detailed in our letter in August.

Would Council please let me know if they have any concerns with the proposed arrangement, or if they would like to meet in the new year.

We would also appreciate the results of the discussion on the VPA arrangements, from the Ordinary Council Meeting on 31 October please.

I have re-attached ours and Council's correspondence for your information and easy reference.

Looking forward to hearing from you soon

Sarah

Sarah Hillis
NSW Regional Lead - Environmental Planning

m: 0413 343 912 p: 02 6971 9696 (Ext 104)
e. sarah.h@nghconsulting.com.au
a. 35 Kincaid Street (PO Box 5464), Wagga Wagga, NSW 2650
w. nghconsulting.com.au | Our commitment to reconciliation

Working hours: Tuesday to Friday

27 August 2024

Darryl Fitzgerald
Director – Planning and Development
Moree Plains Shire Council
PO Box 420
Moree NSW 2400

Darryl.fitzgerald@mpsc.nsw.gov.au

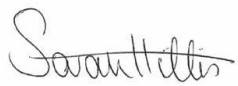
Dear Darryl

Re: 230246 – Moree Battery Energy Storage System

Thank you for taking the time to speak with NGH and Avenis Energy regarding the Moree Battery Energy Storage System (BESS) last week. As requested, please see a brief overview of the Project, proposed traffic arrangements and swept-path diagrams, and the proposed Voluntary Planning Contribution (VPA) in line with the Moree Plains Shire Section 7.12 Contribution Plan.

If you have any questions, please contact me or David Cantebury on 0403 709 813. We would be pleased to discuss any aspect of this project with you further.

Yours sincerely,



Sarah Hillis
Principal Consultant – Environmental Assessment and Approvals
0413 343 912

The Proposal

Avenis Energy (the Applicant) propose to construct a 120MW/480MWh lithium-ion Battery Energy Storage System (BESS) within the Moree Special Activation Precinct (MSAP) at Bulluss Drive, Moree (the proposal).

The BESS would connect to the national electricity market (NEM) via TransGrid's 132kV Moree Bulk Supply Point substation, located immediately to the north of the development site (leased developable area). The connection to the substation would be via underground transmission.

The proposal would include the following:

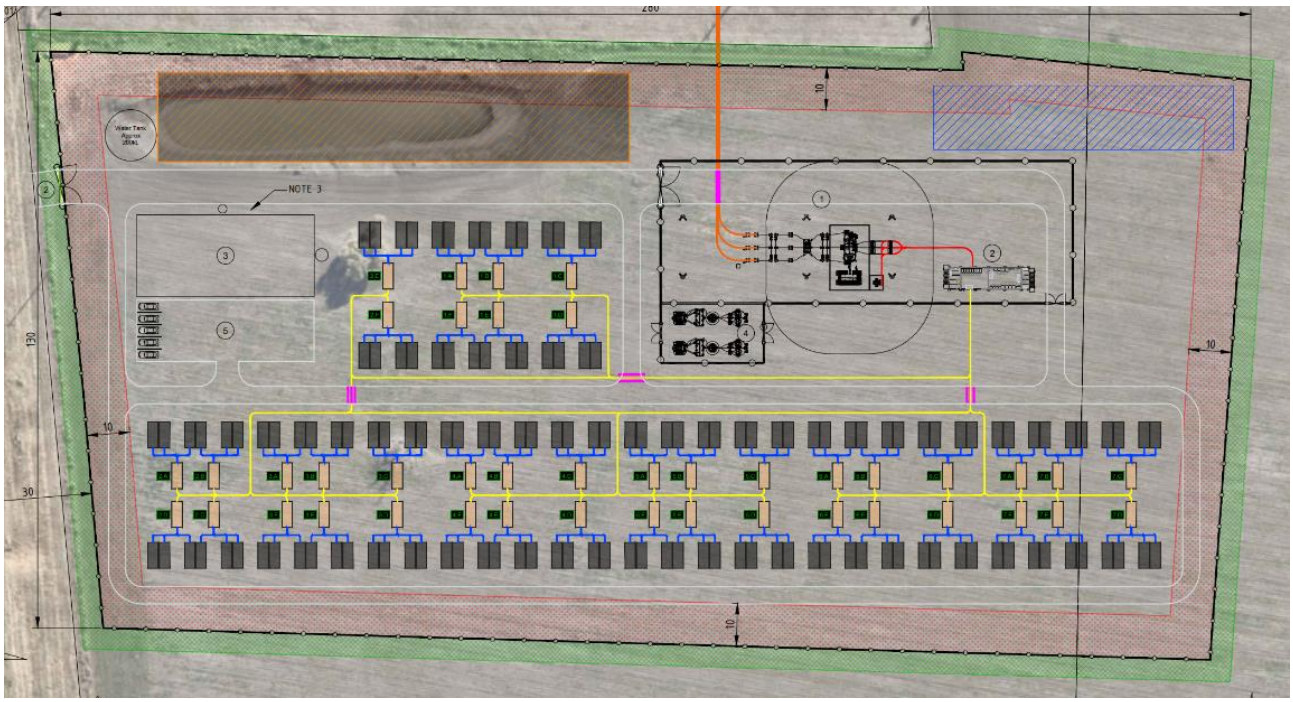
- Approximately 140 battery containers, containing lithium-ion technology
- Approximately 42 skid-mounted Power Conversion Systems (PCS) comprising of; the inverters, which convert direct current (DC) to alternating current (AC); the medium-voltage transformer, which converts the inverter output voltage to the medium-voltage of the system (33 kilovolt); and the medium voltage switchgear, which contains the medium voltage circuit breakers and disconnectors for the PCS
- A 33kV switch room, which collects all the individual medium voltage cables from the PCS units in one location, before connection to the high-voltage transformer. Auxiliary power is supplied from a low-voltage room, which is connected to the medium-voltage switch room. Underground cables would connect the switch room, power conversion units and batteries, to allow for easy access and minimal disruption (if access is required)
- A control room, which will contain battery-monitoring equipment, allowing operators to control the plant remotely
- A short overhead / underground transmission line which would connect the proposed BESS to the adjacent Moree substation. The connection type would be subject to TransGrid requirements
- Associated ancillary infrastructure, including:
    - Operations and Maintenance (O&M) building
    - Auxiliary low-voltage transformers
    - Ancillary storage
    - Staff amenities
    - Sewerage holding tank
    - On-site car parking
    - A water tank
    - Internal access tracks
    - Security fencing
    - Onsite drainage infrastructure.

Subject land and locality, site selection and design

The subject land (the full area of all involved lots) comprises Lot 82 DP 751780 and part of Lot 144 DP751780 for siting of the BESS (4.06ha), and Lot 1 DP 751780 for connection to the TransGrid substation. The area to be developed (referred to as the development site) would comprise approximately 5.3 ha (Figure 1).

The subject land is currently undeveloped. It is devoid of stands of remnant vegetation. An existing borrow pit turned farm dam is present in the north-western portion. As indicated above, the subject land is adjacent to the Moree Bulk Supply Point substation and fronts Bullus Drive.

Figure 1 Proposal location



SYMBOL	DESCRIPTION
	BESS MODULE
	POWER CONVERSATION SYSTEM
	10m ASSET PROTECTIN ZONE
	5m LANDSCAPE BOUNDARY
	33 KV UNDERGROUND CABLES
	132 kV UNDERGROUND CABLES
	LAYDOWN/CONSTRUCTION AREA
	DENTENTION POND
①	HV SUBSTATION
②	SWITCHROOM
③	OPERATIONS BUILDING
④	HARMONIC FILTER (TBC)
⑤	VISTERS CARPARKING

Figure 2 General layout

Construction phase

The construction phase is expected to last approximately 6-12 months. At the peak construction period, the BESS is expected to require approximately 80 workers.

Construction activities would be undertaken during standard construction hours:

- 7.00 am to 6.00 pm Monday to Friday,
- 8.00 am to 1.00 pm on Saturdays.
- No work on Sundays or public holidays

Construction activities would be restricted to the hours indicated above, construction required outside of these hours would only be undertaken with prior approval from relevant authorities and in accordance with the development's Construction Management Plan, or in the event of emergency circumstances i.e., to make work safe.

Operations

Once operational, the BESS would operate on a continuous basis; recharging when supply is high and energy prices are low and discharging when demand and energy prices are high.

There would be 5 staff members on site to take care of the operation of the BESS during workdays and it can be automated/remotely operated outside of work hours. The battery component of the proposal would need to be replaced every 10-15 years. The BESS would be operational for 20-25 years after which it would either be decommissioned or refurbished.

Access and traffic

Existing Environment

The subject land is within close proximity to Newell Highway, with the site being accessed via Bulluss Drive. Bulluss Drive is a 7m wide two-lane sealed road with clear markings with no posted speed limit.

Bulluss Drive connects to Newell highway approximately 550m from the site entrance. Newell Highway is a National Highway and provides a major link between Queensland and Victoria via central NSW. The highway has a posted speed limit of 60km per hour at the intersection of Bulluss Drive. The Highway has also got a dedicated right turning lane to turn into Bulluss Drive from the south – north direction.

Both the Newell Highway and Bulluss Drive are approved B-double routes.

A Transport and Traffic Plan (Arcadis, 2021) was prepared for the Moree SAP.

Construction

During construction, the proposed development is likely to generate additional light and heavy vehicle movements as detailed within Table 1 below.

Table 1 Traffic generation during construction

Vehicle type	Average vehicle movements per day		Peak vehicle movements per day	
	Daily (vpd)	Peak hour (vpd)	Daily (vpd)	Peak hour (vpd)
Light vehicle	35	20	60	40
Shuttle bus	4	2	12	8
MRV/HVR	30	6	60	8
AV/B-Double	8	2	14	2
Total	**77**	**29**	**146**	**58**

One over-sized over-mass (OSOM) vehicle is expected to be required, to deliver the transformer to the site.

The traffic generated during the construction period is on average 38 heavy vehicles per day, maxing out at 74 heavy vehicles per day during peak. When comparing to the traffic volumes generated along the Newell Highway using 2012 data from the Arcadis Transport and Traffic Plan (Arcadis, 2021), the proposed peak construction traffic shows a daily increase of 1.2% from the south, and 1.5% from the north (assuming a 50/50% directional split). This is not predicted to be significant. As such, it is considered that the road network would be more than sufficient to accommodate the additional trips required for the construction of the development.

Table 2 2012 traffic data from the Arcadis Transport and Traffic Plan (Arcadis, 2021)

Statistic	Narrabri to Moree	Moree to Boggabilla
Daily Traffic		
AADT	2,924	2,533
%Heavy vehicles (two-way)[1]	40.5%	47.7%
Typical Peaking Characteristics		
Northbound peak (11:00am)	127	113
Opposing flow	106	93
%Heavy vehicles (two-way)	32.5%	36.2%
Southbound peak (2:00pm)	109	94
Opposing flow	118	96
%Heavy vehicles (two-way)	35.7%	40.4%

Source: RMS 2012

Bulluss Drive is and will be a major access road for the SAP and would be suitable to service the proposed development. Swept paths have been investigated for the likely vehicle types to be generated by the proposed development during the construction phase and a suitable access point has been developed. The swept path analysis and driveway design are presented in Appendix A.

Operation

During operation, the proposal is expected to generate light vehicle movements only.

While estimating traffic generation within the Moree SAP, it was assumed that solar and energy precincts were non-trip generating areas (Arcadis, 2021). This was attributed to the small proportion of staff required to operate energy / solar related developments.

Voluntary Planning Agreement

In line with Appendix B of the Moree Plains Shire Operations Plan (Fees and Charges 2024-25) (MPSC, 2024), the Applicant proposed a monetary contribution of $100,000.00 per annum plus CPI paid over a period of 20 years (Appendix B). With an approximate Estimated Development Cost (EDC) of $2.5 million, this is the approximate equivalent of 1% development cost.

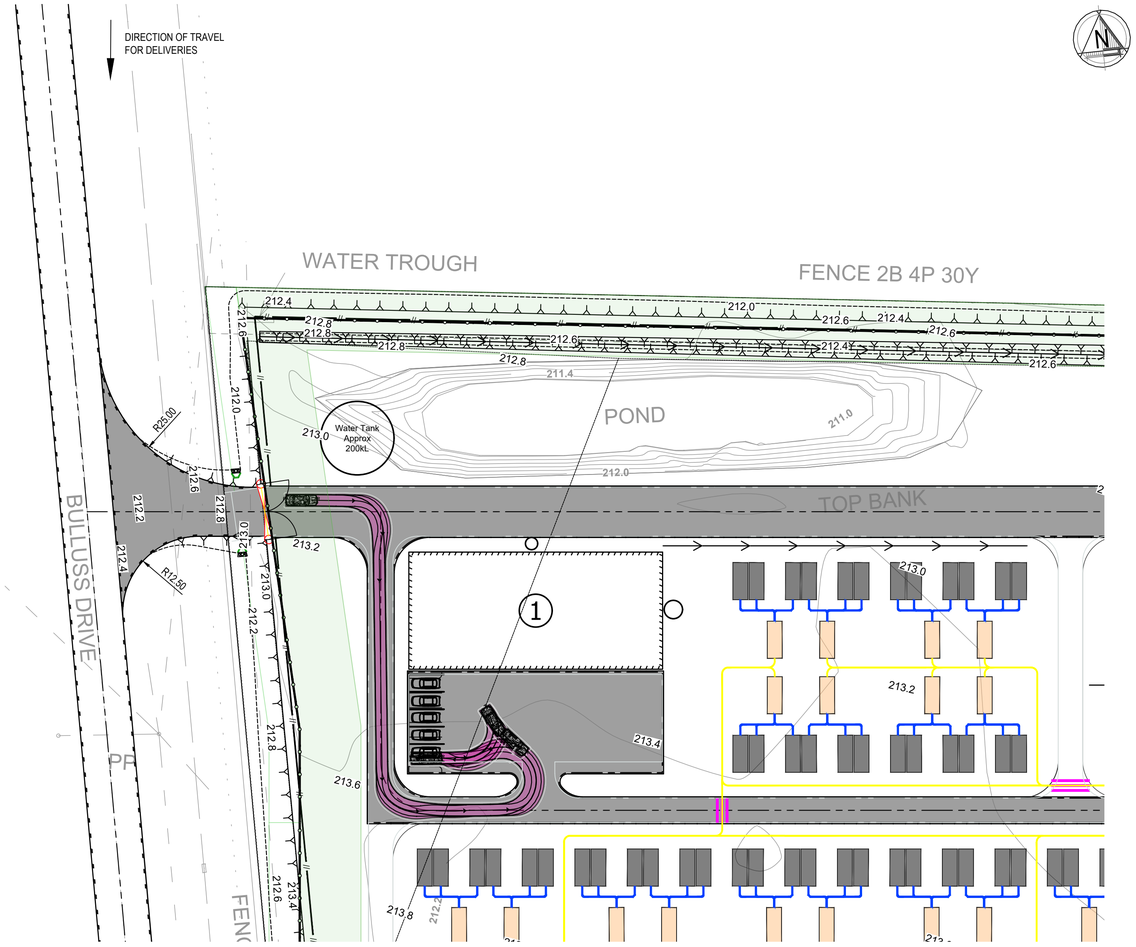
References

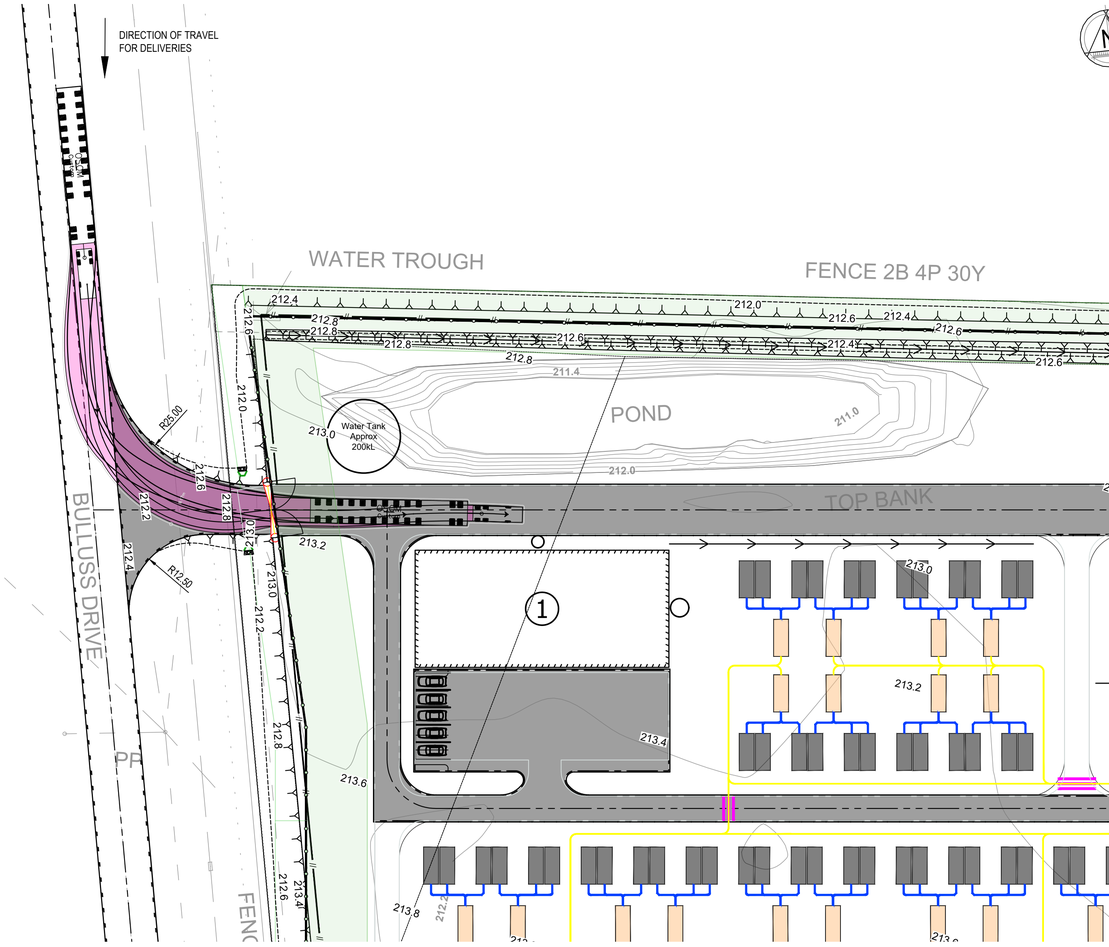
Arcadis. (2021). *Moree Special Activation Precinct - Transport and Traffic Plan.* Arcadis Design & Consultancy.

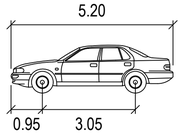
MPSC. (2024). *Operational Plan Appendix B Fees and Charges 2024-25*. Retrieved from https://www.mpsc.nsw.gov.au/publications-documents/fees-and-charges/2597-fees-and-charges-2024-25/file

Appendix A Swept-paths for Bulluss Drive intersection

DO NOT SCALE

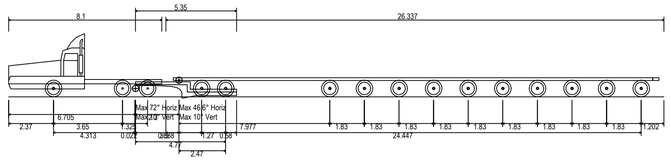






Width	:	1.94m
Track	:	1.84m
Lock to Lock Time	:	6.0m
Steering Angle	:	33.6m

PASSENGER-CAR
NTS



Drake 10 (4 Row) (4.00Trailer) (3.73m Dolly)

Overall Length	34.654m
Overall Width	4.000m
Overall Body Height	3.341m
Min Body Ground Clearance	-0.062m
Max Track Width	4.000m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	23.400m

OSOM DESIGN VEHICLE PROFILE
NTS

REV	DATE	BY	DESCRIPTION	CHK	APP
A	28/03/2024	FM	PRELIMINARY ISSUE	JM	SN

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: NSW GOVERNMENT

ARCHITECT: -

PROJECT: MOREE BESS
LOTS 82 & 144, DP 751782 AND LOT 201, DP 1186601
BULLUSS DRIVE, MOREE NSW 2400

TITLE: VEHICLE TURNING PATHS
LAYOUT PLAN

SCALE @ A1:	CHECKED:	APPROVED:
AS SHOWN	JM	SN
PROJECT NUMBER:	DRAWN:	DATE:
PS212248	FM	28/03/2024

DRAWING No: C011 REV: A

Appendix B Draft Voluntary Planning Agreement payment schedule

Suite 2, Level 10, 52 Alfred St S
Milsons Point, NSW 2061

www.avenisenergy.com.au
info@avenisenergy.com.au

ATTN: The General Manager
Moree Plains Shire Council

14/6/2024

Dear Sir/Madam

Re: Voluntary Planning Agreement Offer

AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust offers to enter into a Planning Agreement Deed with Council under section 7.4 of the *Environmental Planning and Assessment ACT 1979* in connection with the proposed Battery Energy Storage System (BESS).

The proposed development involves a 120MW 4-hour (480MWh) BESS on 4.06 Ha of the Subject Land. The development footprint includes the Moree Bulk Point supply substation (Lot 1 DP999486) which the BESS will connect to via an underground cable to either a new or existing 132kV bay.

AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust proposes the terms set out in the following table:

Item	Terms
Parties	Moree Plains Shire Council AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust
Subject Land	Lot 82 DP751780, Lot 144 DP751780
Monetary Contribution	$100,000.00 per annum plus CPI. Assuming a CPI of 2.5% over the operations period of 20 years results in total cash payments of $2,554,465.76 approximately equivalent to 1% of the proposed development's CIV.
Period	20 years.

Kind regards,

DocuSigned by:
F157D0E02CE84E4...

Jeremy Moore

Project Development Manager +61 (0) 400 928 911

Mike Willson

From: Jeremy Moore <jeremy.moore@avenisenergy.com.au>
Sent: Wednesday, 10 September 2025 5:14 PM
To: Sarah Hillis
Cc: Simon Kerrison
Subject: FW: Draft VPA

FYI

Darryl has confirmed these numbers we can discuss more on the call tomorrow.

Jeremy Moore
Project Development Manager
+61 400 928 911

avenis energy

Powering our future

Linkedin Website Find us

From: Darryl Fitzgerald <Darryl.Fitzgerald@mpsc.nsw.gov.au>
Sent: Wednesday, 10 September 2025 5:12 PM
To: Jeremy Moore <jeremy.moore@avenisenergy.com.au>
Subject: RE: Draft VPA

Hi Jeremy,

Following internal discussion re: the 20% uplift in traffic movement In the TIA, it is advised that Council considers this to be acceptable.

Regards
darryl

Darryl Fitzgerald | Director Planning & Development
t. (02) 6757 3250 **m.** 0408 579 044
e. darryl.fitzgerald@mpsc.nsw.gov.au

From: Jeremy Guard <jeremy.guard@rgdc.nsw.gov.au>
Sent: Friday, 14 March 2025 8:24 AM
To: Rebecca English <rebecca.english@mpsc.nsw.gov.au>; Shannon Eduards <seduards@amberorg.com.au>
Cc: RAU <RAU@mpsc.nsw.gov.au>; Tony Moore <Tony.Moore@mpsc.nsw.gov.au>; Tom Dwyer <tdwyer@amberorg.com.au>; David Legg <david.legg@rgdc.nsw.gov.au>; Candice Johnson <candice.johnson@rgdc.nsw.gov.au>; Mark Barwell <mark.barwell@pwa.nsw.gov.au>; Randeep Singh Wazir <randeep.singh@pwa.nsw.gov.au>
Subject: RE: Moree SAP - information request from Roads Division - Moree SAP BESS - TIA

Hi Shannon,

I hope you're well. Apologies for the delay in getting back to you. For reference, the Moree SAP TIA is not yet finalised, but will recommence shortly (within the next ~2 weeks) to address some outstanding TfNSW comments.

- Does MPSC have any traffic survey results for Bulluss Drive that could be incorporated into the TIA? Yes, traffic surveys have been carried out with additional surveys requested by TfNSW completed late last year. We will confirm the current information and provide this shortly.

- Are there any road upgrades earmarked for the SAP area that may conflict with our proposal? There will be new roads constructed within the SAP and which connect to Bulluss Drive just south of Industrial Drive (refer to the sketch below). There is potentially some pavement resurfacing work on Bulluss Drive (adjacent to the BESS lot) but no change in the road geometry.

Hapy to arrange a meeting to review in more detail.

Can you please also include RGDC Candice Johnson and Davd Legg (cc'd) and NSW Public Works Mark Barwell and Randeep Singh (cc'd) into any related correspondence.

Thanks,

Jeremy Guard

Infrastructure Manager Moree SAP
Regional Growth NSW Development Corporation
Department of Primary Industries and Regional Development

M 0408859689 **E** jeremy.guard@rgdc.nsw.gov.au
activationprecincts@regional.nsw.gov.au

NSW GOVERNMENT **Regional Growth NSW Development Corporation**

Appendix G

TfNSW Response to SEE

Transport for NSW

12 June 2025

TfNSW reference: REN25/00119/001, SF2025/086805
Your reference: DA25//6636, CNR/82171

Department of Planning, Housing and Infrastructure
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Sally Munk

DA25/6636(CNR-82171) – Moree Battery Energy Storage System – Bulluss Drive, Moree – Response to SEE

Dear Sally,

Transport for NSW (TfNSW) is responding to the Moree Battery Energy Storage System (BESS) Statement of Environmental Effects (SEE) referred to TfNSW via the Planning Portal on 23 May 2025.

TfNSW has reviewed the following information as part of the review of Moree BESS to inform this response:

- Moree BESS – Statement of Environmental Effect prepared by NGH dated 27 March 2025
- Moree BESS - Traffic Impact Assessment (TIA) prepared by Amber dated 17 March 2025

The information provided in the assessment does not demonstrate that Moree BESS has mitigated the traffic safety, efficiency and risks to TfNSW assets on the State road network. TfNSW requires additional information (see attachment 1) to form part of a revised TIA and SEE) where applicable) to be submitted.

On request, TfNSW can participate in a to discuss the additional information in Attachment 1. If you have any questions, please contact Tim Mitchell, Development Services Case Officer, on 1300 019 680 or email development.renewables@transport.nsw.gov.au.

Yours faithfully,

Alexandra Power
Team Leader Development Services – Renewables
Transport Planning
Planning, Integration and Passenger

A 51-55 Currajong Street, PARKES NSW 2870 | PO Box 334 PARKES NSW 2870 | DX20256
E development.renewables@transport.nsw.gov.au | ABN 18 804 239 602
P 1300 207 783
transport.nsw.gov.au

Attachment 1

DA25/6636(CNR-82171) – Moree Battery Energy Storage System – Bulluss Drive, Moree – Response to SEE

This attachment relates to TfNSW's response dated 12 June 2025 reference REN25/00119/001.

TfNSW additional required information

TfNSW requires additional information within this attachment to be addressed within a revised TIA and be resubmitted to TfNSW for review and formal comment prior to determination of the project.

Actionable points have been detailed below that will provide guidance in addressing the key issues within the revised TIA and EIS.

High risk OSOM Route assessments:

1. The Oversize/ overmass (OSOM) route assessments from Port Botany and Glen Waverly does not provided enough detail to properly assess the impact to the State road network. Strategic concept designs are required to be submitted where upgrade works are required. Location noted when reviewing the route assessment include:
    a. Erskine Street (Newell Hwy) and Darling Street , Dubbo - The swept path drawing (1044 Glen Waverley RA01C-page 26) indicates that temporary hardstand and mountable kerb to be provided.
    b. John Street (Newell Hwy) and Dalgarno, Coonabaraban - The swept path drawing (1044 Glen Waverley RA01C-page 29) indicates that mountable kerbing is to be provided.
    c. Newell Highway and Kimailaroi Highway, Narrabri - The swept path drawing (1044 Glen Waverley RA01C-page 31) indicates that temporary hardstand and mountable kerbing is to be provided.
    d. Botany Road and Bunnerong Road, Matraville - The swept path drawing (1044 Port Botany RA01D-page 03) indicates that temporary hardstand and mountable kerbing is to be provided.
    e. Kamilaroi Highway and Oxley Highway, Gunnedah - The swept path drawing (1044 Port Botany RA01D-page 14) indicates that temporary hardstand is to be provided.

A 51-55 Currajong Street, PARKES NSW 2870 | PO Box 334 PARKES NSW 2870 | DX20256
E development.renewables@transport.nsw.gov.au | ABN 18 804 239 602
P 1300 207 783
transport.nsw.gov.au

2. An NHVR The high-risk OSOM laden loads, class and vehicle configuration must include the following information regarding the dimensions, weight and length:

   a. NHVR route ID,
   b. Overall dimensions (width, height and length) of the laden load (laden load is the vehicle combination and the load to be transported),
   c. Total weight of laden load,
   d. GSM,
   e. Payload,
   f. deck height,
   g. axle configuration,
   h. axle spacing, including from the prime mover, and
   i. axle masses (including split axle and group axle masses)

3. No bridge assessment has been provided. This is required as the loads fall into high-risk category. This is required to be assessed and included in the response.

Construction traffic movements

4. Consideration is required regarding the seasonal harvest heavy vehicle movements near the locality of the site. The revised TIA is to identify mitigation measures that are needed to ensure that the road network can support the through and additional project construction traffic during the harvest season.
5. The impact of the increase in traffic movements near at the intersection of Newell Highway/Bulluss Drive, and the rail level crossing on Bulluss Drive need to be considered within the revised TIA.

Advisory notes

1. Strategic Concept Designs must be provided for any works required along the state road network route. Strategic-Design-requirements-for-DA-Factsheet.pdf
2. Bridge and culvert assessments are required for TfNSW assets and can be obtained by contacting spu@transport.nsw.gov.au. The result of bridge assessments may require a change to the route which must be accounted for in the updated route assessment.

A 51-55 Currajong Street, PARKES NSW 2870 | PO Box 334 PARKES NSW 2870 | DX20256
E development.renewables@transport.nsw.gov.au | ABN 18 804 239 602
P 1300 207 783
transport.nsw.gov.au

Appendix H

Bridge and Culvert Assessment Details

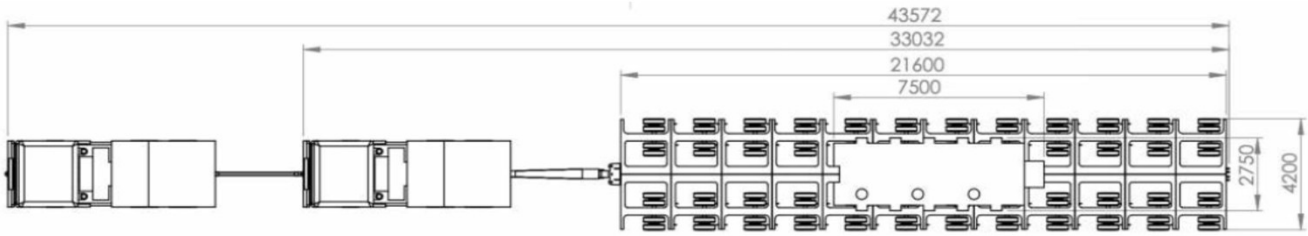
Project	Moree Battery Energy Storage System (DA25/6636) | Planning Portal - Department of Planning and Environment	
Status	Preliminary assessment at request of TfNSW Development Renewables Team	
Vehicle Description	OSOM vehicle combination carrying Transformer	
Origin - 3 different options	Metro Melbourne	Port of Newcastle
Destination	Moree	Moree
NHVR Route ID:	2NIYF-1	2NIW8-1

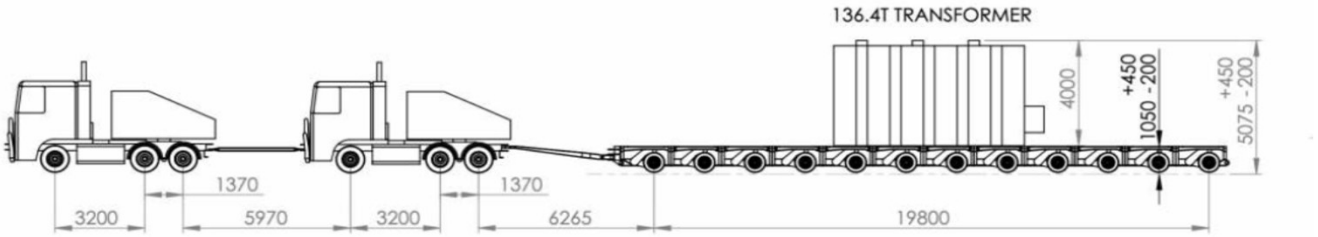
Width	Length	Min. Height	Forward projection	Rear overhang
4.2m	**43.5m**	**4.8m**	**N/A**	**N/A**

Total mass (approx.)	Euro VI compliant	Are you operating in a convoy?
180T	**No**	**No**

Loaded axle mass and spacings

Axle - Axle #	No. Tyres	Spacing	Axle group mass	Tyre size	Steerable	Ground contact width	Load sharing
Prime mover 1-2 axle - Block Truck #1							
Steer - 1	2		6	315mm	Yes	1.0m	No
Drive - 1	4	3.2m	9.25	315mm	No	2.0m	Yes
Drive - 2	4	1.37m	9.25	315mm	No	2.0m	Yes
Prime mover 1-2 axle - Block Truck #2							
Steer - 1	2	5.9m	6	315mm	Yes	1.0m	No
Drive - 1	4	3.2m	9.25	315mm	No	2.0m	Yes
Drive - 2	4	1.37m	9.25	315mm	No	2.0m	Yes
12x8 Platform Trailer							
Trailer - 1	8	6.2m	14.9	215mm	Yes	4.2m	Yes
Trailer - 2	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 3	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 4	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 5	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 6	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 7	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 8	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 9	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 10	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 11	8	1.8m	14.9	215mm	Yes	4.2m	Yes
Trailer - 12	8	1.8m	14.9	215mm	Yes	4.2m	Yes





11R22.5 T 6.0T P 0.0T G 6.0T	11R22.5 T 18.5T P 0.0T G 18.5T	11R22.5 T 6.0T P 0.0T G 6.0T	11R22.5 T 18.5T P 0.0T G 18.5T

12X8 215/75R17.5 @4.2m T 43.2T P 136.4T G 179.6T (14.97T/ROW)

Appendix I

Transgrid Access Design

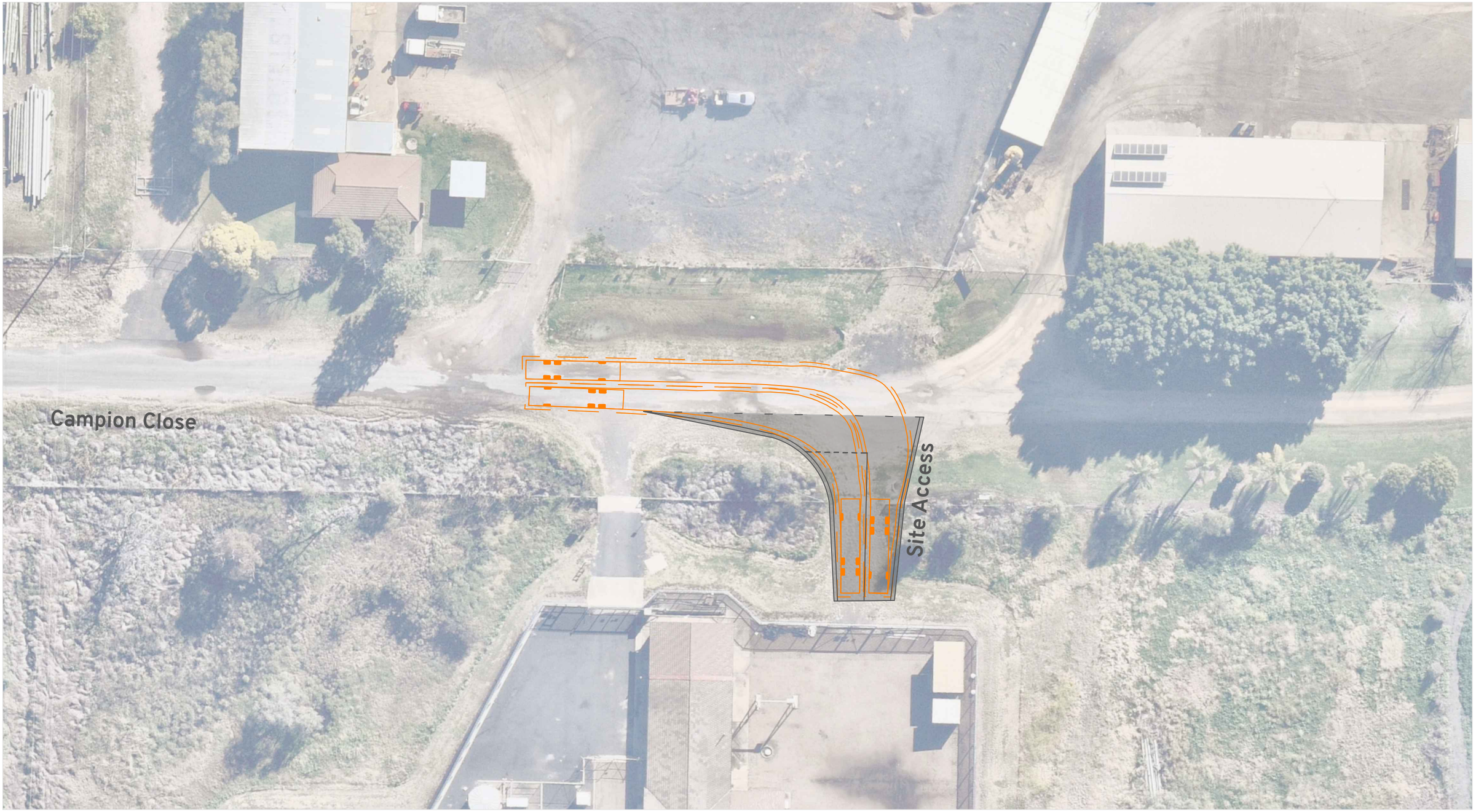
Moree SAP

Campion Close Access

Strategic Design

DRAWN: WC
DATE: 19/08/2025
DWG NO: 1044 F02A
SCALE at A3: 1:500m

Amber 01



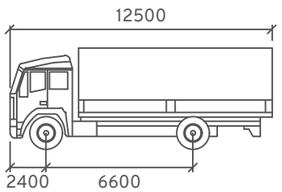
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

HRV



	mm
Width	: 2500
Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 35.2

Moree SAP

Site Access

Swept Path Assessment

DRAWN: WC
DATE: 19/08/2025
DWG NO: 1044 F02A
SCALE at A3: 1:500m

Amber 02

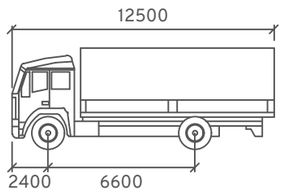
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

HRV



	mm
Width	: 2500
Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 35.2

Moree SAP

Bulluss Drive And Campion Close Intersection
Swept Path Assessment

DRAWN: WC
DATE: 19/08/2025
DWG NO: 1044 F02A
SCALE at A3: 1:500m

Amber 03