# APPENDIX P TRANSPORT AND TRAFFIC IMPACT ASSESSMENT

Amber

Traffic & Transportation Direction

# Garoo Solar Farm and BESS

## Garoo Road, Garoo

### Traffic Impact Assessment

October 2025

Reference: 1056 rep 251030 final

# Garoo Solar Farm and BESS

## Garoo Road, Garoo

### Traffic Impact Assessment

Prepared for: Environmental Resource Management Australia Pty Ltd

Status: Final report

Date: 30 October 2025

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| Revision | Date | Description | Author | Reviewed | Approved |
|---|---|---|---|---|---|
| A | 13/01/2025 | Preliminary Draft for Project Team comment | S. Eduards | T. Dwyer | T. Dwyer |
| A | 14/02/2025 | Updated Draft | S. Eduards | T. Dwyer | T. Dwyer |
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| G | 30/10/2025 | Revised Final including response to further authority feedback and inclusion of Accommodation Camp | S. Eduards | T. Dwyer | T. Dwyer |


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# Executive Summary

Amber Organisation Pty Ltd has been engaged by Environmental Resource Management Pty Ltd (ERM) to prepare a Traffic Impact Assessment for the proposed Garoo Solar Farm and BESS Project.

The solar farm is proposed to have a capacity of up to 133.76 MW AC and a Battery Energy Storage System (BESS) with a capacity of 360MW/1,400MWh storage capacity. The Project Area is located on the eastern side of New England Highway, approximately 40 kilometres south of Tamworth. A new access to the site is proposed from Garoo Road at the north-east corner of the Project Area.

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 20 vehicle trips per day associated with between 5 to 10 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 late 2026 and take approximately 18 months, with the peak construction period expected to take 10 months. A construction workforce of up to 250 personnel would be on-site during the peak construction phase. The Project proposes an on-site accommodation camp which is anticipated to accommodate 250 full time equivalent personnel for 15 months.

It is anticipated that during peak construction the Project could generate up to 108 light and 156 heavy vehicles per day. Construction of the solar farm and BESS is expected to generate approximately 82 vehicles per hour in the morning and evening peak hours during the peak construction period, which would reduce to 35 vehicles per hour during the average construction periods.

In order to determine the traffic impact generated during the construction of the Project, an analysis of the operation of the New England Highway / Garoo Road and New England Highway / Lindsays Gap Road intersections were carried out. Light vehicles approaching the site from the north only can use the New England Highway / Garoo Road intersection, reaching the site access gate from the north. All other vehicles, including OSOM, will be required to use the New England Highway / Lindsays Gap Road intersection, approaching the site access gate from the east.

Analysis of the two key intersections on New England Highway were carried out using the SIDRA computer modelling program. Midblock assessments at the proposed site access location and Lindsays Gap Road near Garoo Road were also undertaken. 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 of Newcastle has been identified as the port where the solar farm and BESS plant will be imported. The access route generally utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map. It is noted that a range of key State Roads and intersections near the Port of Newcastle are being upgraded by EnergyCo to facilitate access for renewable energy projects as part of the *Port to REZ* project.

The preferred access route for oversize/overmass vehicles travelling from Port of Newcastle has been identified within a Route Assessment which the anticipated vehicle combinations can successfully access the Project Area with the use of suitable management measures. The Route

Assessment is provided within Appendix A of this document. Furthermore, feedback from the TfNSW Special Permits Unit (SPU) confirms that the vehicle combination and load can be accommodated on the State Road network without the need for a bridge assessment as it remains on the TfNSW High Load Platform (HLP) network.

Two potential transport access routes from New England Highway to the Project Area have been identified. Amber has undertaken an assessment of both access routes for construction traffic to the site, which identified that the existing turn treatments currently in place at the key intersections between the State Road network and the site are suitable for the expected future traffic demand.

The site access on Garoo Road is designed to accommodate the Project traffic and is provided with adequate sight distance to allow vehicles to safely enter the road network. The alignment of the site access on Garoo Road does not permit heavy vehicles to access via the north on Garoo Road, however light vehicles could be accommodated.

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 solar farm and Battery Energy Storage System (BESS) 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** | GreenPulse Solar Farm and BESS Unit Trust |
| **Application** | Application for Development Consent under Part 4.7 of the EP&A Act; and Determination under Part 9 of the EPBC Act. |

# 1. Background

## 1.1 Introduction

Amber Organisation has been engaged by Environmental Resource Management Australia Pty Ltd (ERM) on behalf of GreenPulse Solar Farm and BESS Unit Trust (GreenPulse, The Proponent) to prepare a Traffic Impact Assessment (TIA) of the proposed Garoo Solar Farm and Battery Energy Storage System (BESS) (The Project).

The Project area is located approximately 40 kilometres south of Tamworth, on the eastern side of New England Highway. The Project is entirely located within the Tamworth Regional Local Government Area (LGA). The Project area is approximately 368 hectares and is currently used for agriculture.

The Project includes the construction, operation and decommissioning of a solar farm and associated infrastructure with a targeted electricity generation capacity of 133.76 MW AC and includes the construction of a BESS with a capacity of up to 360MW/1,440MWh AC.

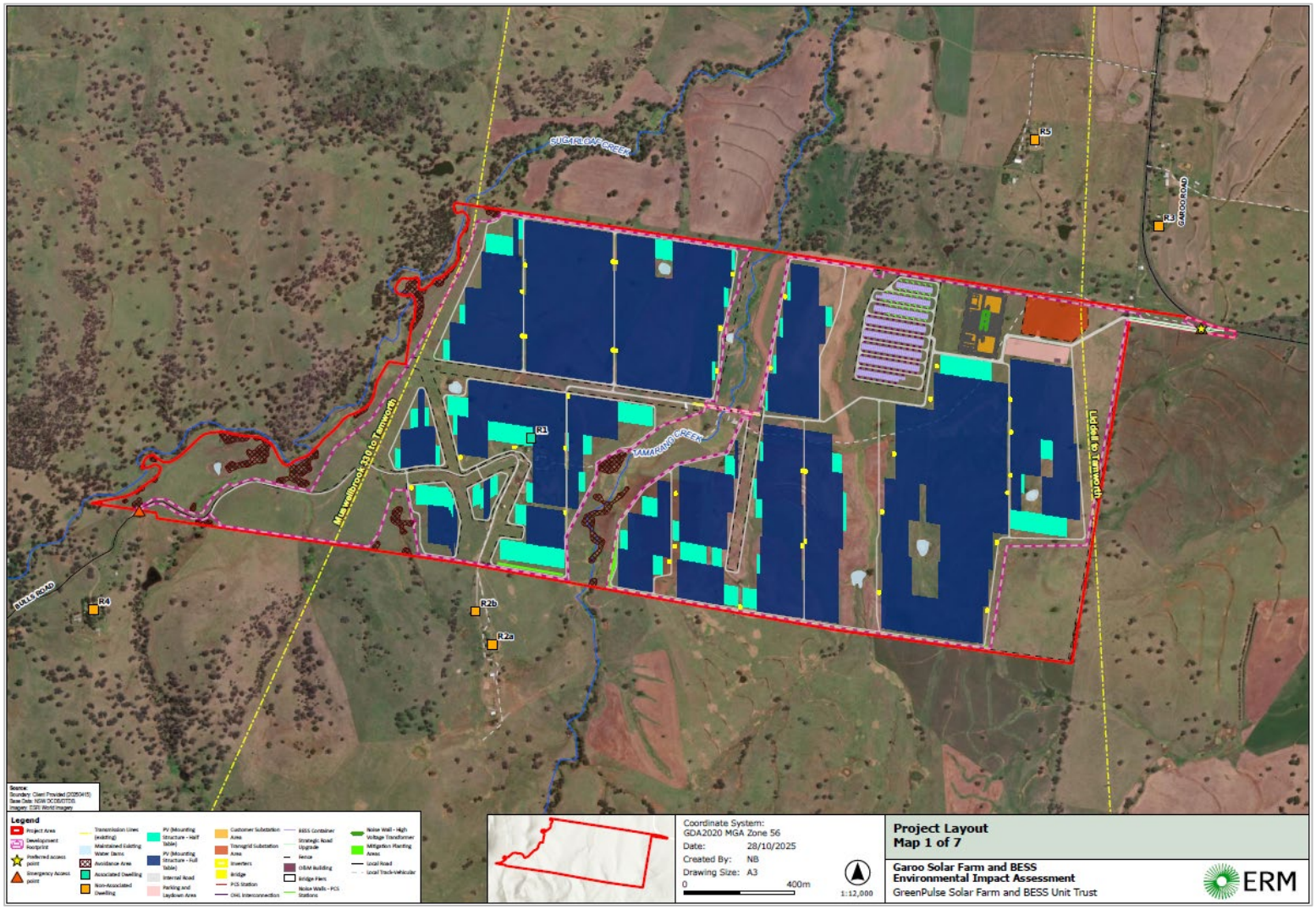
Access to the site is proposed via a new connection with Garoo Road at the northeast corner of the site. Figure 1 shows the proposed layout of the site in relation to the road network and existing infrastructure.

The construction period is expected to commence in late 2026 and take approximately 18 months, with the peak construction period expected to take 10 months. A construction workforce of up to 250 personnel would be on-site during the peak construction phase, accommodated on-site in the accommodation camp.

All plant is expected to be delivered from Port of Newcastle. Materials and equipment will generally be sourced from the surrounding area where practicable.

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: ERM*

## 1.2 Environmental Assessment Requirements

This report supports a State Significant Development (SSD) Development Consent application under Part 4, Division 4.7 of the Environmental Planning and Assessment Act 1979 (SSD-79747209), as an appendix to the Environmental Impact Statement (EIS) for the Project. NSW Department of Planning, Housing and Infrastructure (DPHI) have issued Secretary's Environmental Assessment Requirements (SEARs) for the Project, with the traffic and transport matters listed within Table 1 along with the relevant response section to each matter.

**Table 1: Traffic and Transport SEARs and Responses**

| SEARs | Response |
|---|---|
| An assessment of the peak and average traffic generation, including light vehicles (including shuttle buses), heavy vehicles, heavy vehicles requiring escort, high risk heavy vehicles requiring escort (noting Table 1 in TfNSW Fact Sheet - Transport Management Plans for Over Size and/or Overmass Movements in NSW) and construction worker transportation. | Refer Section:<br>4. Traffic Assessment |
| An assessment of the likely transport impacts to the site access route(s), including the above listed vehicles, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance. | Refer Sections:<br>4. Traffic Assessment<br>6. High Risk OSOM Vehicles |
| A concept Level Route Analysis required for high risk heavy vehicles requiring escort. | Refer Sections:<br>6. High Risk OSOM Vehicles<br>Appendix A OSOM Route Assessment |
| A cumulative impact assessment of traffic from nearby developments (including mining operations and the Hexham Straight Project). | Refer Sections:<br>4.2.5. Cumulative Traffic Impacts<br>6.2. State Road Projects |
| Provide details of measures to mitigate and / or manage potential impacts (developed in consultation with the relevant road authorities) including:<br>a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes),<br>clear figures of proposed road upgrades (including the site access point); and<br>road maintenance contributions, and any other traffic control measures. | Refer Sections:<br>5.1. Mitigation Measures<br>9. Mitigation Measure Summary<br>Appendix D Site Access Designs |

This Traffic Impact Assessment has also been prepared in response to the Agency Advice provided by Transport for New South Wales (TfNSW) and Tamworth Regional Council. Responses to each of the comments provided within the Agency Advice are outlined within Appendix B.

## 1.3 Road/Rail Authority Consultation

This Traffic Impact Assessment has been undertaken in consultation with TfNSW and ARTC with a summary provided in Table 2.

**Table 2: Road Authority Consultation**

| Road Authority | Method | Correspondence |
|---|---|---|
| **Transport for NSW** | Email to Development Renewables team | Advised to utilise growth rate of 1.5% per annum for traffic forecasts. |
| | Online meeting held with Development Renewables team 2/7/2025 | The draft TIA (Rev. E) was provided to TfNSW for a discussion and preliminary review.<br>A range of matters were discussed with a focus on the High-Risk route assessment. TfNSW advise a bridge and culvert assessment was required to be submitted to the Special Permits Unit (SPU) as well as other considerations about the route to site related to the Port2Rez road upgrade project.<br>They also requested some additional information related to sight distance at intersections with the state road network which are included in this revision of the TIA (Rev. F) in Section 7.2.2 and Appendix E.<br>Their feedback and email summary is included for reference in Appendix H. |
| | Email with Special Permits Unit 9/7/2025, response 25/7/2025 | A submission was made for a bridge and culvert assessment after the meeting with TfNSW Renewables Development team. The unit advised that the proposed load and vehicle combination did not need a bridge and culvert assessment as the route remained on the defined High Load Platform (HLP) network.<br>Their feedback is included for reference in Appendix H. |
| **ARTC** | Email | Received preliminary advice regarding the level crossing on Selwyn Street near Port of Newcastle. |
| **Tamworth Regional Council** | Email and Phone | Received preliminary advice in relation to the access route to site and the suitability of bridges on the local road network. |
| | Online meeting 12/06/2025 | As part of a Pre-Development Application Advice meeting the access arrangements and traffic impacts were discussed. Council's engineering team outlined their desire that speeds be reduced at the proposed site access and geometry to Garoo Road, which could be achieved through physical constraints and/or a Driver's Code of Conduct.<br>The concept design of the site access is to be further developed as part of future detailed design in consultation with Council as the relevant road authority.<br>Minutes from the meeting are included for reference in Appendix H. |

| Road Authority | Method | Correspondence |
|---|---|---|
| **Liverpool Plains Shire Council** | Online meeting 14/10/2025 | A meeting was held with representatives from Liverpool Plains Shire Council and TfNSW to discuss the local access roads to site. The focus was on Lindsays Gap Road which is proposed to be used for the OSOM vehicles to site.<br>Council had items to clarify and discuss as well as recommendations related to safe use of the Lindsays Gap Road. They recommended the following measures:<br>• The condition of Lindsays Gap Road be monitored, especially after prolonged periods of wet weather.<br>• Vegetation over the road monitored and trimmed if needed for vertical height clearances.<br>• Appropriate traffic control measures during OSOM vehicle use of Lindsays Gap Road, which would involve a temporary closure of Lindsays Gap Road between the New England Highway and the site access.<br>• Suitable measures in a future TMP to ensure motorists are aware of the conditions and risk of wildlife, especially during dawn and dusk.<br>These measures have been included in this revision of the TIA where applicable (refer Section 8.2 and 8.6) |

## 1.4 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 responds to the SEARs and 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.

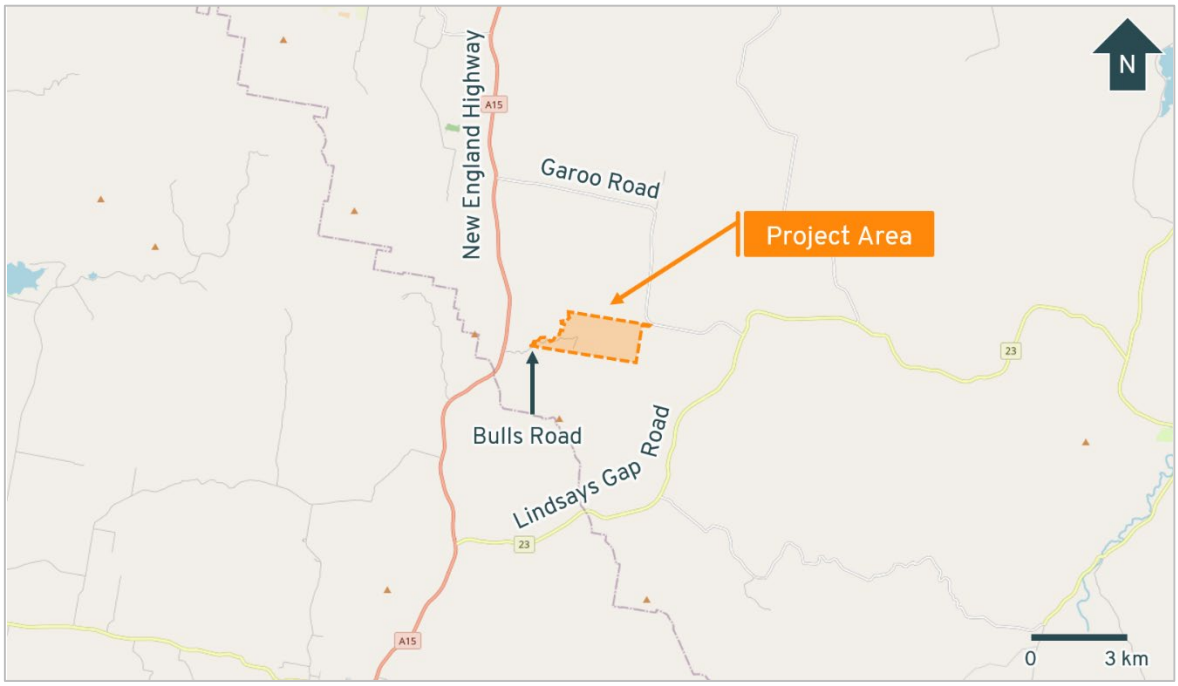
The traffic assessment has been undertaken in accordance with the *Guide to Transport Impact Assessment and* relevant Austroads Guidelines.

# 2. Existing Conditions

## 2.1 Site Location

The Project Area is located at 291 Bulls Road, Garoo, approximately 40 kilometres south of Tamworth. Figure 2 shows the location of the site in relation to the surrounding transport network.

**Figure 2: Site Location**

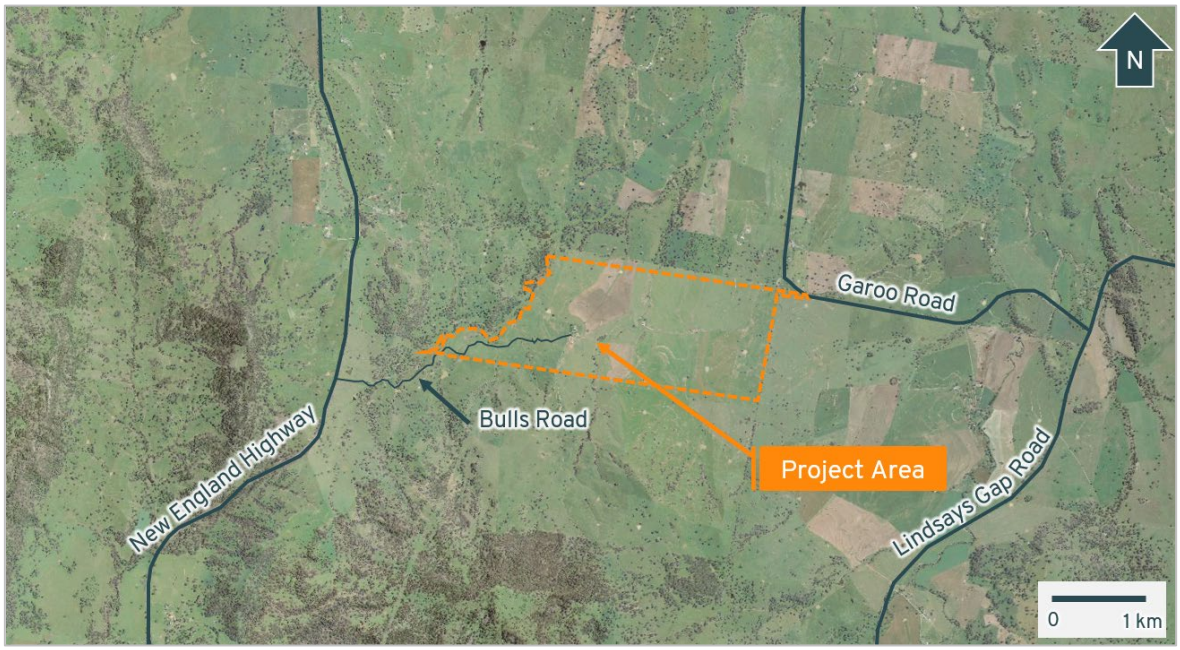



*Source: OpenStreetMap*

The figure shows the site is well connected with the surrounding State Road network with access provided to New England Highway via Garoo Road. New England Highway provides access to the nearby town of Tamworth in the north or the small towns of Quirindi and Scone in the south.

The site and surrounding areas are zoned RU1 - Primary Production per the *Tamworth Regional Local Environmental Plan 2010* and are primarily occupied by agricultural grazing and irrigated cropping. Figure 3 provides an aerial photograph of the site and the surrounding area.

**Figure 3: Aerial Photograph of Site and Surrounding Area**




*Source: SixMaps*

## 2.2 Road Network

A summary of the surrounding road network is provided within Table 3.

**Table 3: Road Network**

| Road | Surface | Typical Width | Speed Limit | Alignment |
|---|---|---|---|---|
| **State Roads** | | | | |
| **New England Highway** | Sealed | 13.0m providing one lane of traffic in each direction and 3.0m sealed shoulders. | 100km/hr | General north-south alignment between Muswellbrook and Yarraman in Queensland. |
| **Local Roads** | | | | |
| **Garoo Road** | Sealed | 7.0m providing one lane of traffic in each direction and grassed shoulders. | 100km/hr | General northwest-southeast alignment between New England Way and Lindsays Gap Road. |
| **Lindsays Gap Road** | Sealed | 7.0m providing one lane of traffic in each direction and grassed shoulders. | 100km/hr | General northeast-southwest alignment between New England Highway and Nundle Road. |

Garoo Road and Lindsays Gap Road connect with New England Highway at T-intersections. Both of the intersections have channelised right turn and channelised left turn treatments. Photographs taken during a site visit are shown in Figure 4 and Figure 5.

**Figure 4: New England Highway and Garoo Road Intersection Photographs**

| Looking South | Looking North |
|---|---|
|  |  |

**Figure 5: New England Highway and Lindsays Gap Road Intersection Photographs**

| Looking South | Looking North |
|---|---|
|  |  |

The intersection of Garoo Road and Lindsays Gap Road is a T-intersection with a basic left and basic right (BAL and BAR) treatments. Photographs taken during a site visit are shown in Figure 6.

**Figure 6: Lindsays Gap Road and Garoo Road Intersection Photographs**

| Looking North | Looking South |
|---|---|
|  |  |

The photographs show clear visibility at all key intersections.

Both Garoo Road and Lindsays Gap Road have a single lane bridge crossing where the road width narrows to 3.6 metres (kerb to kerb). North bound traffic must give way to oncoming traffic at both locations.

Bulls Road is a municipal road that connects to New England Highway approximately 600 metres south of the Project Area boundary and at the boundary of the Project Area. It principally functions to provide private access to the lot immediately south of the project area and will not be utilised for access to the Project.

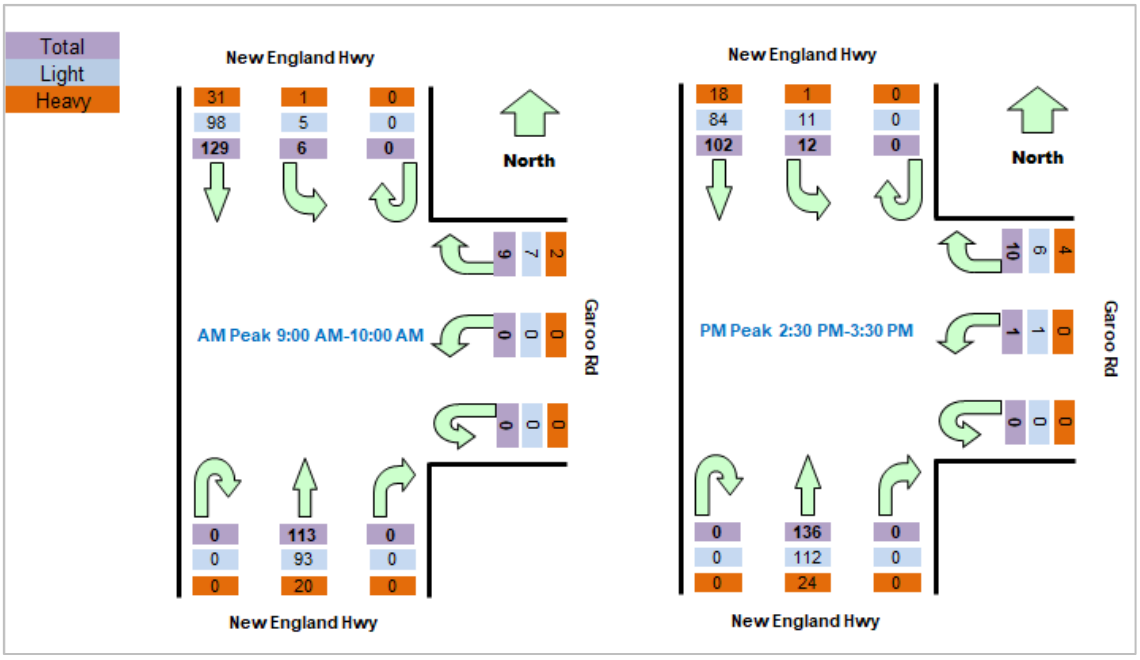
# 2.3 Traffic Volumes

## 2.3.1 Intersection Volumes

Amber commissioned a turning movement count survey at three key intersections to determine the existing traffic conditions. The surveys were undertaken on Wednesday 4 December 2024 from 6:00am-10:00am and 2:00pm-6:00pm. A summary of the results are presented in Figure 7, to Figure 9 with the full survey data provided within Appendix C.

### *2.3.1.1 New England Highway / Garoo Road Intersection*

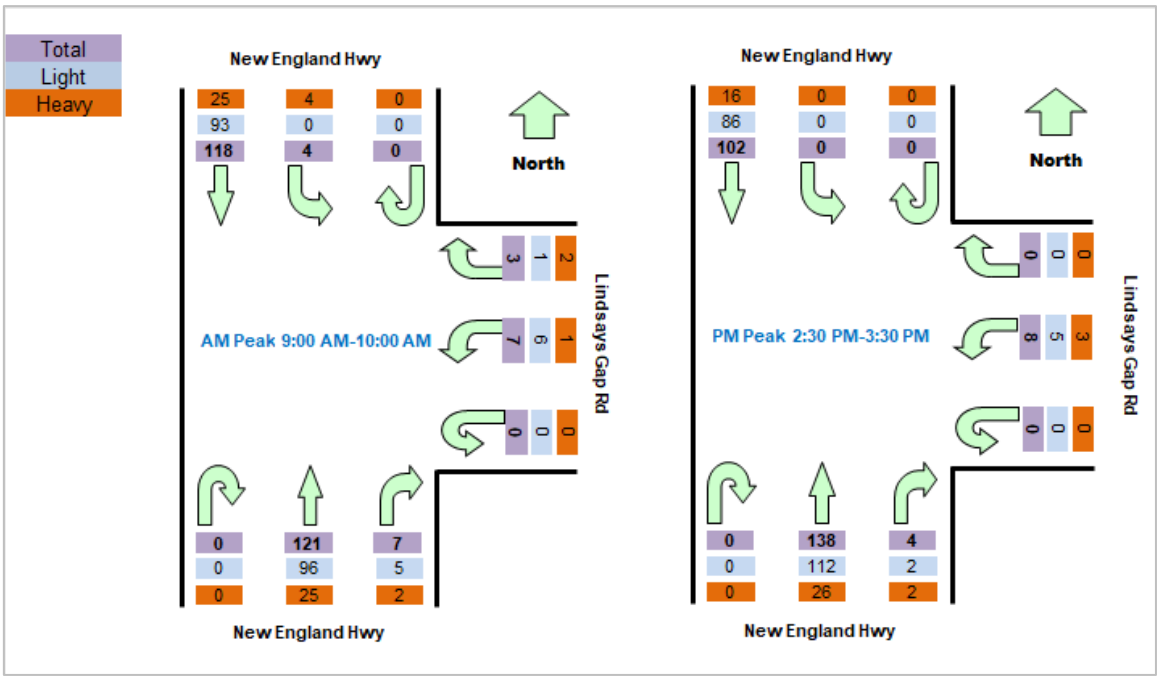
**Figure 7: Peak Hour Survey Results – New England Highway /Garoo Road**




The survey data indicates that the intersection currently experiences a low level of traffic with a slightly higher southbound flow in the AM peak and northbound in the PM peak. A total of 15 and 23 vehicles turn to/from Garoo Road during the AM and PM peak hours, respectively, with no turning movements to/from the south. 21% and 18% heavy vehicles use this intersection in the AM and PM peak hours, respectively.

### 2.3.1.2 New England Highway / Lindsays Gap Road Intersection

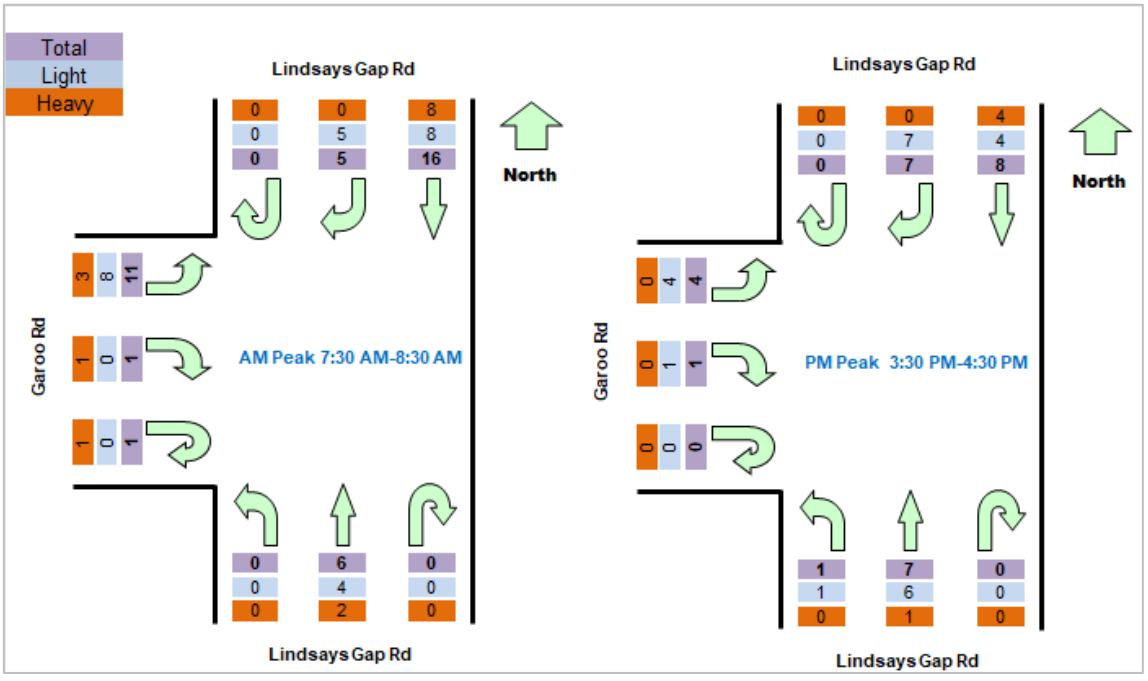
**Figure 8: Peak Hour Survey Results – New England Highway /Lindsays Gap Road**




The survey data indicates that the intersection currently experiences a low level of traffic with a slightly higher northbound PM peak flow. A total of 17 and 12 vehicles turn to/from Lindsays Gap Road during the AM and PM peak hours, respectively. Most of these turning movements are to/from the south. 23% and 19% heavy vehicles use this intersection in the AM and PM peak hours, respectively.

### 2.3.1.3 Lindsays Gap Road / Garoo Road Intersection

**Figure 9: Peak Hour Survey Results – Lindsays Gap Road /Garoo Road**



The survey data indicates that the intersection currently experiences a very low level of traffic in the order of approximately 40 vehicles in the AM peak hour. Most vehicle undertake through movements and very small portion turn between Garoo Road to/from the south. 38% and 18% heavy vehicles use this intersection in the AM and PM peak hours, respectively, with the majority of heavy vehicles remaining on Lindsays Gap Road.

### 2.3.2 Mid-block Volumes

Amber commissioned a tube count on Garoo Road near the proposed site access location and on Lindsays Gap Road, approximately 70 metres south of Garoo Road. The tube count was undertaken from Tuesday 3 December to Tuesday 10 December 2024. The survey results are provided in Appendix C with a summary presented in Table 4 and Table 5.

**Table 4: Garoo Road Traffic Volumes – 3.25 km west of Lindsays Gap Road**

| | Weekday Traffic (vpd) | Weekday AM Peak - 7:00 (vph) | Weekday PM Peak - 14:00 (vph) | 85th Percentile Speed (km/hr) | Heavy Vehicle Percentage |
|---|---|---|---|---|---|
| **Eastbound** | 61 | 5 | 6 | 100.0 | 16.5% |
| **Westbound** | 52 | 5 | 4 | 91.1 | |
| **Both Directions** | 113 | 10 | 10 | 95.7 | |

**Table 5: Lindsays Gap Road Traffic Volumes – south of Garoo Road**

| | Weekday Traffic (vpd) | Weekday AM Peak - 7:00 (vph) | Weekday PM Peak - 12:00 (vph) | 85th Percentile Speed (km/hr) | Heavy Vehicle Percentage |
|---|---|---|---|---|---|
| **Northbound** | 107 | 7 | 9 | 99.7 | 27.3% |
| **Southbound** | 102 | 11 | 8 | 92.8 | |
| **Both Directions** | 209 | 19 | 17 | 96.2 | |

The survey data indicates that both roads currently experience a very low level of daily traffic. During the peak hours the distribution of traffic is relatively evenly split. The data shows that the recorded 85th percentile speeds are very high which may be attributed to the long sight distances, vertical and horizontal road geometry at both locations and local driver familiarity with these roads.

Overall, the data indicates that Lindsays Gap Road and Garoo Road currently accommodates a relatively low level of traffic for its road classification and is able to accommodate an increase in vehicle traffic.

## 2.4 Public Transport and School Bus Services

No public transport services are provided within the vicinity of the site. There are two school bus services, S202 and S218, operated by Hannaford Coaches and Macphersons Tamworth, respectively.

The S202 service, Tamworth Schools to Garoo Road via Gowrie Road, uses Garoo Road from New England Highway to the proposed site access. The bus travels on Garoo Road between the hours of 7:00am to 7:40am and 4:25pm to 4:50pm on school days.

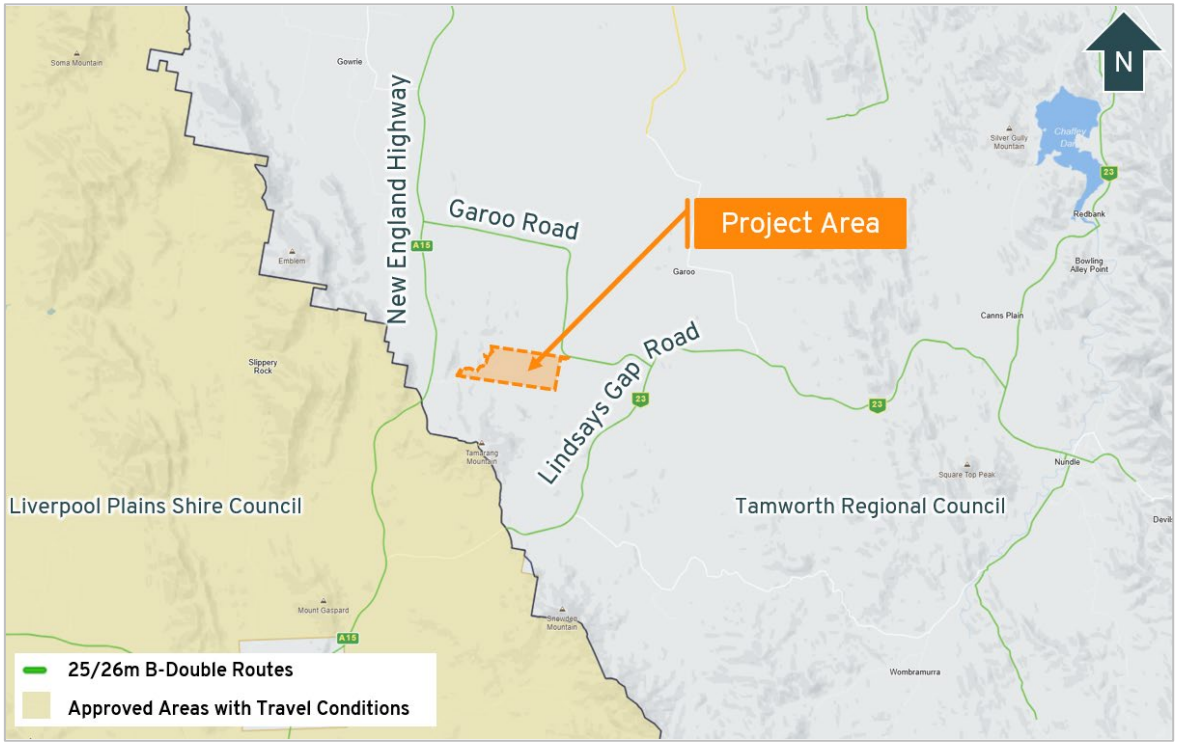
The S218 service, Timbumburi PS to Timbumburi via Garoo, uses the Garoo Road bus stop at the intersection of New England Highway. The service travels north from this intersection only. The bus is scheduled for this stop at 8:10am and 3:50pm on school days.

## 2.5 Restricted Vehicle Access

### 2.5.1 B-Doubles

The NHVR Restricted Access Vehicle Map for the surrounding area is provided within Figure 10. The green lines indicate approved B-Double routes and yellow shaded areas indicate approved areas with conditions. The figure shows that New England Highway and the surrounding State Road network are B-Double approved routes as well as the local road, Garoo Road.

**Figure 10: NHVR 26m B-Double Network Approved Roads**




*Source: NHVR Restricted Access Vehicle Map*

Lindsays Gap Road is currently approved for B-Double vehicles within the Tamworth Regional Council area and approved with travel conditions within the Liverpool Plains Shire Council area. The operating conditions for B-Doubles within the Liverpool Plains area, as per the NHVR Restricted Access Vehicle Map, are as follows:

1. *It is the responsibility of the driver of the B-Double transport to satisfy themselves that the proposed route is suitable for use under the conditions existing at the time and undertake a risk assessment of the route prior to travelling the route to assess the suitability of travel along the route.*
2. *Temporary route restrictions may be imposed when routes become impassable for heavy vehicles.*
3. *Following rainfall, the driver of a B-Double transport must check with the Liverpool Plains Shire Council, or the RTA Area Office, regarding possible road closures.*

4. *Extreme care must be taken on the route especially during wet weather or during school bus hours.*

Accordingly, the site currently has access to the B-Double approved road network via Garoo Road, Lindsays Gap Road and New England Highway under the provision that the above travel conditions are implemented within the Travel Management Plan.

## 2.5.2 Vehicles

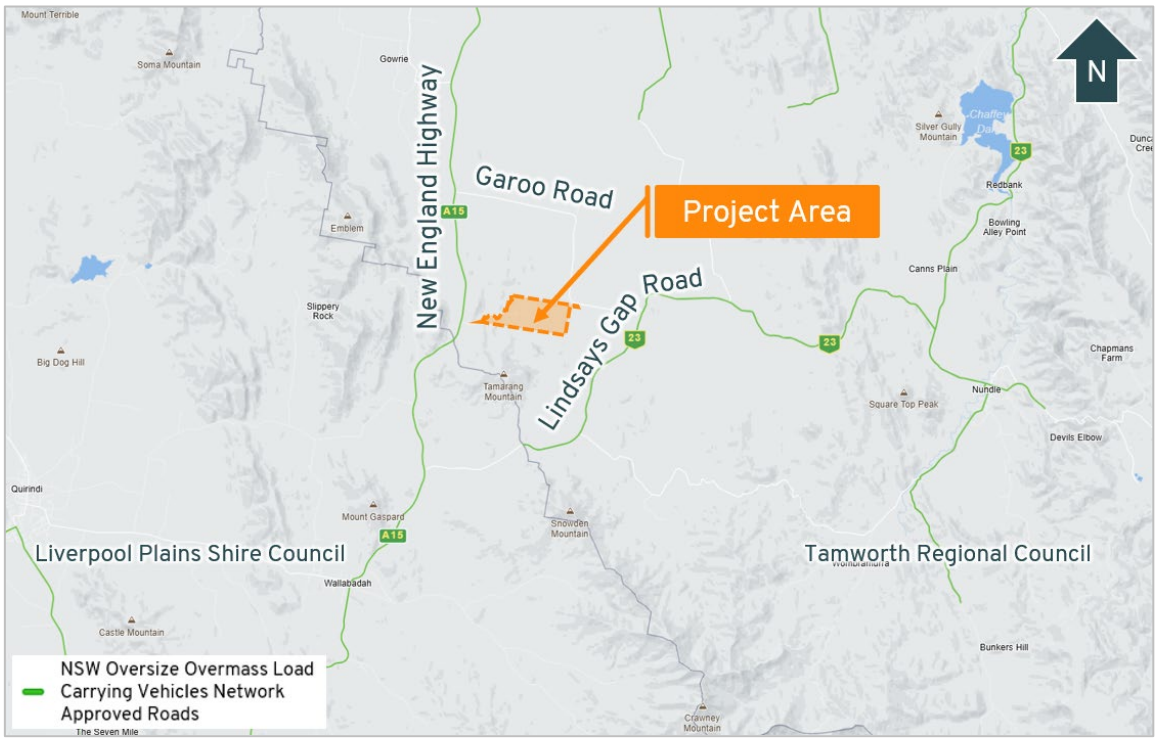
The NHVR Oversize Overmass (OSOM) Load Carrying Vehicles Network map for the surrounding area is provided within Figure 11. The map shows approved routes for eligible vehicles operating under the Multi-State Class 1 Load Carrying Vehicles Mass and Mass Exemption Notices. A summary of the allowances under 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, the site has access to the Class 1 OSOM approved road network via New England Highway. However, Garoo Road and a section of Lindsays Gap Road within Liverpool Plains Shire Council are unrated for Class 1 OSOM vehicles.

**Figure 11: NHVR Class 1 Oversize Overmass Load Carrying Vehicles Network Approved Roads**




*Source: NHVR Restricted Access Vehicle Map*

Accordingly, any required road upgrades or mitigation measures along Garoo Road or Lindsays Gap Road would be confirmed as part of specific permits that would be applied for prior to construction through Tamworth Regional Council and Liverpool Plains Shire Council, respectively.

### 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.

The approved routes for SPV Level 1 vehicles travelling within the surrounding area are identified within Figure 12. The figure shows that SPV Level 1 vehicles are approved with travel conditions from Tamworth along New England Highway. Details of approved routes and conditions are provided in Table 6.

**Figure 12: NHVR SPV Level 1 Network Approved Roads**


*Source: NHVR Restricted Access Vehicle Map*

The approved route for SPV Level 3 vehicles and above is limited due to the restricted bridge structure on the New England Highway. It is noted that bridge structures on Garoo Road and Lindsays Gap Road are not identified as restricted.

**Table 6: Approved NHVR SPV Routes and Conditions**

| Road | Approved SPV Levels | Infrastructure Restrictions | Travel Conditions |
|---|---|---|---|
| **New England Highway** | All SPV with conditions | SPV Level 3 and above - Bridge over Swamp Creek near Goonoo Goonoo | 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) |
| **Garoo Road** | Level 1 | None listed | None listed |
| **Lindsays Gap Road** | Level 1<br>Level 3 | None listed | Approved within Tamworth Regional Council area only |

Approval for SPV vehicles to travel on Lindsays Gap Road within the Liverpool Plains Shire Council area is required. Use of these roads by SPV vehicles would be confirmed as part of specific permits that would be applied for prior to construction through Liverpool Plains Shire Council.

## 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:

- New England Highway for 500 metres north and south of the intersections with Lindsays Gap Road and Garoo Road;
- Garoo Road;
- Lindsays Gap Road from New England Highway to 500 metres north of Garoo Road; and
- all associated intersections.

The results of the crash search are summarised in Table 7.

**Table 7: Crash Search Results**

| Road | Location | Severity | Crash Type | Date and Time | Light and Weather Conditions |
|---|---|---|---|---|---|
| New England Hwy | 70m South of Garoo Rd | Minor/Other Injury | Off road to the right, hitting object | March 2021 (14:00 - 15:59) | Daylight (Fine) |
| Garoo Rd | 3000m East of New England Hwy | Moderate Injury | Off road to the left | August 2020 (10:00 - 11:59) | Daylight (Fine) |
| New England Hwy | 500m North of Lindsay Gap Rd | Serious Injury | Head on collision | November 2019 (18:00 - 19:59) | Daylight (Fine) |

The crash search indicates that there are no discernible crash trends, and the crashes are distributed along the road with no 'Black Spots'. It is noted that a head on collision occurred near the intersection of New England Highway and Lindsays Gap road. The crash occurred during daylight hours on a relatively straight section of road where overtaking is not permitted. This crash type is uncommon under these conditions however it does not appear to be reflective of a specific road safety issue at this location given the isolated nature of the crash.

Given the large search area, the associated traffic volumes on the roads, the road classifications, and the rural high-speed road environment, 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 solar farm, BESS and associated infrastructure. The Project would consist of the following components:

- Solar Arrays mounted to steel structures,
- Power Station (inverter, DC-AC transformer and associated equipment),
- Substation and Switching Station,
- Internal electrical reticulation network,
- BESS and associated electrical equipment,
- Internal access tracks,
- Temporary on-site infrastructure including construction compounds, worker's accommodation camp, concrete batching plants, borrow pits, and laydown and storage areas,
- Permanent Operations & Maintenance building with associated infrastructure, and
- Perimeter security fencing.

## 3.2 Construction Information

The physical construction of the Project is expected to commence in late 2026 and take approximately 18 months, with the peak construction period expected to take 10 months. 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 250 personnel would be on-site during the peak construction phase , accommodated on-site within a worker's camp.

In order to mitigate the impacts of the Project during construction a TMP 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. A TMP should be finalised post-approval and prior to the construction of the Project.

# 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. Despite the on-site worker's accommodation proposing to house all project construction personnel during the peak construction period, the traffic assessment has been undertaken conservatively assuming all workers would approach/depart the site within the peak hours. It has been assumed that the personnel would be travelling from the nearby towns of Tamworth, Quirindi and Scone. During operation the Project is expected to generate a lower amount of traffic associated with between 5 to 10 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 8: 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 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 9.

**Table 9: 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 conservative vehicle occupancy of 1.5 people per car has been adopted to calculate the light vehicle traffic generation noting a carpooling program would be implemented as outlined in Section 8.3. |
| **Heavy Vehicles** | |
| **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. It is anticipated that during peak construction the Project would generate up to 108 light and 156 heavy vehicle trips per day. Table 10 summarises the forecast traffic volumes expected to be generated during the construction period of the Project.

**Table 10: Traffic Generation During Construction Period**

| 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** | | 58 | 24 | 108 | 54 |
| **Shuttle Buses** | | 20 | 5 | 28 | 7 |
| **Heavy Vehicles** | Rigid Trucks | 6 | 1 | 56 | 6 |
| | Truck and Dog | 28 | 2 | 62 | 8 |
| | Semitrailers | 4 | 1 | 26 | 5 |
| | B-Doubles | 0 | 0 | 10 | 2 |
| | Special Purpose | 0 | 1 | 0 | 0 |
| | Non High Risk OSOM | 0 | 1 | 2 | 0 |
| | *HV Subtotal* | 38 | 6 | 156 | 21 |
| **Total** | | **116** | 35 | 292 | 82 |

Overall, the Project is expected to generate up to 82 vehicle trips per hour (vph) in the morning and evening peak hours during the peak construction period, which would reduce to 35 vph during the average construction periods.

#### *4.2.1.1 On-Site Accommodation Camp*

It is proposed the Project would utilise an on-site accommodation camp for the workforce during the peak construction phase.

Establishment of the on-site accommodation camp would occur following the construction of any road upgrades and prior to the commencement of the solar farm and BESS construction. It is estimated that up to 20 vehicles per day (two-way total) would access the site during the camp establishment phase, generally consisting of light vehicles and rigid trucks. The small workforce associated with the establishment of the camp is expected to travel from the nearby towns.

During construction of the solar farm and BESS, vehicle movements associated with the workforce accessing the on-site accommodation would generally be spread over multiple hours outside of peak times, including on weekends. It is noted that the Project Area occupies a very large footprint which is able to readily accommodate the on-site parking demand, with no parking to occur on the nearby road network.

Personnel may also travel between nearby towns on weekends or incidentally as required. Several vehicles may also be required to service the camps which would occur outside of the peak hours.

The vehicle movements associated with the accommodation camp are not expected to have any material impact on the operation of the road network as they would generally occur outside of peak times and would result in a lower level of traffic than the peak construction period volumes outlined in Section 4.2.1.

### 4.2.2 Non High Risk OSOM Vehicles

There is a mix of non-high risk OSOM vehicles required for the construction which would include vehicles and plant like:

- cranes
- drum rollers
- dump truck
- concrete pumps
- excavators
- grader
- compactors
- pile driving rig
- cable trenching and laying equipment

It is anticipated that the vehicles would comply with the Class 1 exemption notices and would be able to operate on the approved NSW Special Purpose Vehicle Network. The vehicles would access the site directly from the New England Highway which is rated to accommodate complying vehicles.

Many of the vehicles listed above would not create daily trips in and out of the Project Area. It is expected that there will be influxes of arrivals and departures from the site depending on the phase of the construction. Once arrived, they would remain until not required, before being removed from the site. The trips would be generated outside of peak site access hours.

Vehicle types and any necessary permits would be confirmed and obtained (as needed) once the construction methodology is determined.

### 4.2.3 High Risk OSOM Vehicles

In addition to the traffic volumes outlined in Table 10, 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 10 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

Project related traffic will approach the Project Area from both directions on Garoo Road. Light vehicles travelling to/from the north would turn at the New England Highway / Garoo Road intersection to approach the site from the north and all other vehicles, including all OSOM vehicles, would turn at the New England Highway / Lindsays Gap Road intersection to approach the site from the east.

The routes are shown in Figure 13.

**Figure 13: Vehicle Routes to Project Area**


When off-site, the workforce for the construction of the Project would be located in the nearby towns including Tamworth, Quirindi and Scone. Materials and equipment will generally be sourced from the surrounding area where practicable, with all larger plant expected to be delivered from Port of Newcastle.

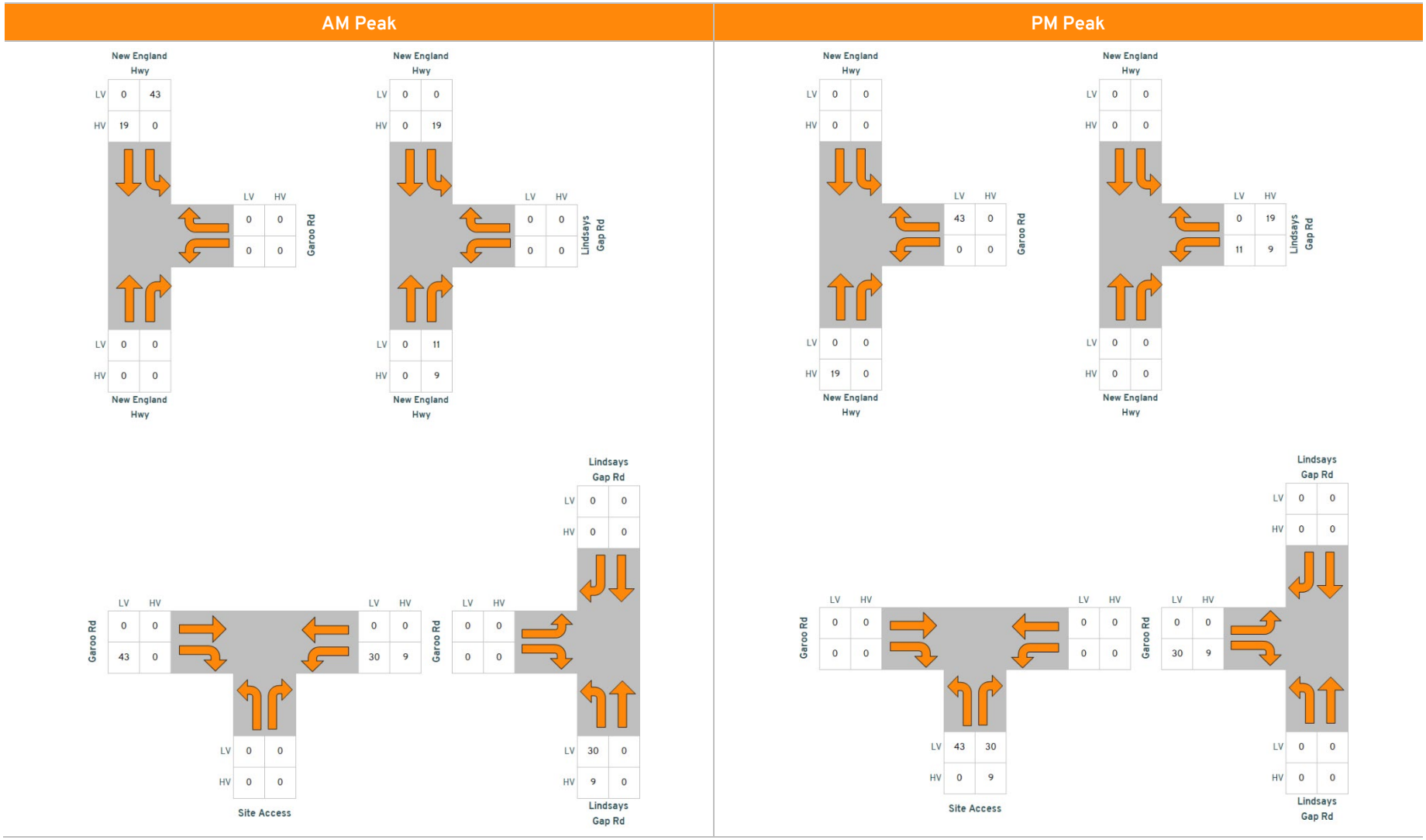
For the purposes of this assessment, the Proponent has assumed the origins of workers and vehicle types accessing the Project Area. The following provides a breakdown of the distributions for each of the vehicle classifications outlined within Table 10:

- **Light Vehicles:** Light vehicles would be associated with workers travelling to/from the on-site accommodation camp. It is anticipated that 80% would be located in Tamworth and would travel along New England Highway to/from the north with the remaining 20% traveling to/from Quirindi or Scone in the south.
- **Shuttle Buses:** All vehicle movements would be to/from Tamworth along New England Highway;
- **Rigid Trucks:** These vehicles would predominantly be water trucks and vehicles transporting materials such as concrete and fencing supplies which would generally be sourced within the surrounding area. The Proponent has advised that 90% of trips would be to/from the north and 10% would be to/from the south along New England Highway.
- **Truck and Dog:** These vehicles would transport quarry material from the local area, with 90% expected to travel to/from the north and 10% to/from the south.
- **Semitrailers, B-Doubles and Non High Risk OSOM:** Plant would be transported from the Port of Newcastle to the site via New England Highway / Lindsays Gap Road intersection, with all vehicles expected to reach the Project Area from the east.

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 four key intersections are outlined in Figure 14.

**Figure 14: Expected Project Traffic During Peak Construction**



### 4.2.5 Cumulative Traffic Impacts

The primary traffic impact of the Project is generated during construction which is anticipated to commence in late 2026 and take approximately 18 months. A summary of the major projects proposed in the surrounding area is provided in Table 11 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 New England Highway between Tamworth and Willow Tree during the construction period.

**Table 11: Assessment of Cumulative Impacts of Nearby Developments**

| Project | Description | Potential Vehicle Conflict |
|---|---|---|
| Hills of Gold Wind Farm (Approved) | A wind farm and associated infrastructure located 50 km south-east of Tamworth and 8 km south of Nundle, comprising up to 70 wind turbines, battery storage and grid connection. Approximately 25 km south-east of the Garoo Project.<br>Vehicles accessing the site would utilise Lindsays Gap Road or Nundle Road which connect with New England Highway. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. The site is located to the southeast of the proposal and subsequently light vehicles accessing the Hills of Gold site would travel along New England Highway and could use Garoo Road and Lindsays Gap Road in the morning and evening peak period. |
| Werris Creek Coal Mine Expansion (Approved) | The coal mine is located approximately 45 km southwest of Tamworth and has been approved for an extension of the coal resource to the north of the approved open cut area. | A small percentage (5%) of coal carrying trucks are destined for Tamworth, where vehicles for both projects may interact.<br>Interaction at the Site access or key project intersections is not expected. |
| Keepit Dam Upgrade Project (Approved) | The dam is located on the Namoi River, approximately 55 km northwest of Tamworth, with upgrade works involving raising of the dam concrete monoliths and main embankment. | There is potential for construction of both projects to overlap. The traffic generated by the projects may interact within the township of Tamworth where staff for both projects are proposed to be located. |
| Manilla Hospital (Approved) | Redevelopment of an existing hospital in Manilla, approximately 45 km northwest of Tamworth, increasing by 3 beds and 4 staff. | The traffic generated by the projects may interact within the township of Tamworth. However, the increase in traffic would not be readily perceivable in peak hourly or daily traffic terms. |
| Rushes Creek Poultry Production Farm (Approved) | Construction and operation of an intensive poultry production farm, comprising 1,016 hectares, located within the catchment of the Namoi River and Lake Keepit, approximately 60 km north-west of Tamworth. | The traffic generated by the projects may interact within the township of Tamworth. |

| Project | Description | Potential Vehicle Conflict |
|---|---|---|
| Dungowan Dam (Withdrawn) | Construction of a new dam (approx. 22.5 gigalitres capacity), 33 km pipeline and ancillary infrastructure, southeast of Tamworth. | No further construction will take place for the Dungowan Dam. |
| Winterbourne Wind Farm (Response to Submissions) | Construction of a wind farm with up to 119 wind turbines, energy storage and associated infrastructure, approximately 74 km northeast of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. |
| Middlebrook Solar Farm (Approved) | Up to 320 MW proposed solar farm, battery storage (100 MW) and ancillary infrastructure, approximately 10 km south of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. The site is located to the south of the proposal and subsequently light vehicles accessing the Middlebrook site would travel along New England Highway and pass Lindsays Gap Road and Garoo Road in the morning and evening peak period. |
| Bendemeer Solar Farm (Response to Submissions) | Development of a 280 MW solar farm with energy storage of up to 280 MW and associated infrastructure, approximately 43 km northeast of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle, Port of Brisbane and Port of Melbourne. |
| Tamworth BESS (Exhibition) | Development of a 200 MW battery energy storage facility with associated infrastructure, approximately 7 km north of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. |
| Kingswood BESS (Response to Submissions) | Development of a battery energy storge system (500 MW / 1,000 MWh) and associated infrastructure, approximately 8 km north of the site. | The construction periods for the projects could potentially overlap and the traffic generated by the projects may interact within the township of Tamworth. |
| Thunderbolt Wind Farm (Approved) | Development of a 192 MW wind farm, with up to 32 WTGs, as part of the Thunderbolt Energy Hub, with ancillary infrastructure, approximately 56 km northeast of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. |

| Project | Description | Potential Vehicle Conflict |
|---|---|---|
| New England Solar Farm (Approved) | Adding 127 ha of land to the project to accommodate a change to the project infrastructure layout and increasing the BESS capacity, approximately 87 km northeast of the site. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle. |
| Tamworth Solar Farm (Approved) | Development of a 65 MW solar farm with energy storage and ancillary infrastructure, approximately 36 km northwest of the site. The solar farm would gain access from Soldiers Settlement Road which connects with Oxley Highway west of Tamworth. Construction workers are proposed to be located within Tamworth. | The construction period is expected to be 9-12 months. However, no construction dates were provided. The project was approved in 2020. There is potential for construction of both projects to overlap. The traffic generated by the projects may interact within the township of Tamworth where staff for both projects are proposed to be located. |
| Calala BESS (approved) | Development of a 300 MW / 600 MWh battery storage system and associated infrastructure including grid connection. Located on south-east edge of Tamworth. | The construction periods have potential to overlap. Workers off both projects would be located in Tamworth and as such traffic associated with each project may interact. Both projects would use the same transport route along New England Highway from the Port of Newcastle. |
| Willow Tree Gravel Extension (Prepare EIS) | An extension of an existing quarry, to increase production from 490,000 tpa to 750,000 tpa, located outside Willow Tree, approximately 75 km south of Tamworth. The extension includes a development of a waste or resource management facility. | There is potential for construction of both projects to overlap. The traffic generated by the projects and operation of the quarry, may interact within the township of Tamworth, and along the New England Highway. |
| Lambruk Solar Farm (Prepare EIS) | Development of a 500 MW solar farm with 300 MW battery energy storage system and associated infrastructure located approximately 22 km north of the Project. | The construction periods for the projects could potentially overlap. Both projects are anticipated to have staff located in Tamworth and would utilise the same transport route to deliver plant and equipment to/from the Port of Newcastle via New England Highway. |

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

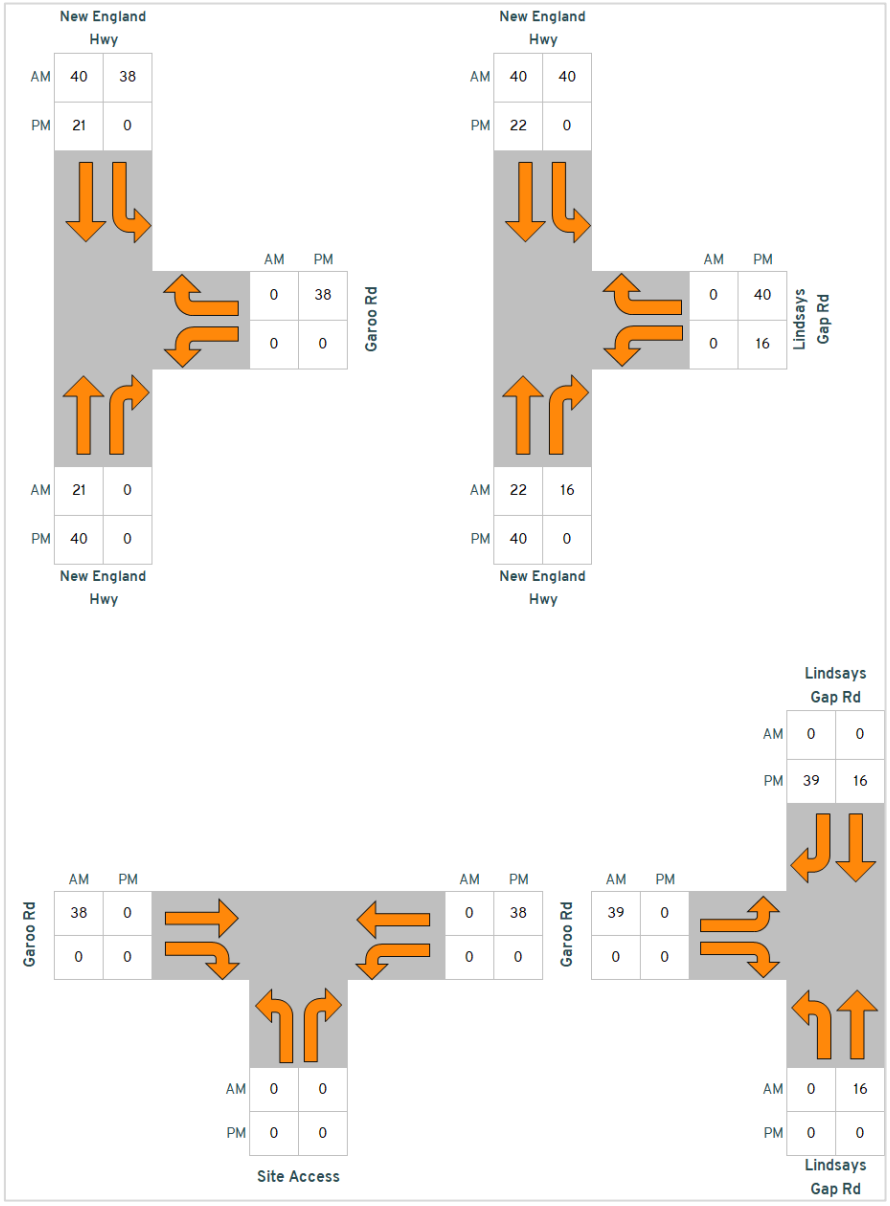
The review indicates that the following projects have the potential to generate additional vehicle movements at the four key intersections surrounding the Project:

- Hills of Gold Wind Farm: has potential to introduce traffic to all four intersections as Lindsays Gap Road and Garoo Road are designated as key transport routes to the site.
- Middlebrook Solar Farm: heavy vehicles would utilise New England Highway passing Lindsays Gap Road and Garoo Road intersections.

- Calala BESS: a small portion of the workers would approach the site from the south on New England Highway passing the Lindsays Gap Road and Garoo Road intersections.
- Willow Tree Gravel Extension: it has been estimated that approximately 50% of the peak hour traffic will approach the New England Highway and Lindsays Gap Road and Garoo Road intersections from the south.
- Lambruk Solar Farm: A small portion of light vehicles would approach the site from the south on New England Highway, passing key intersections, during the peak hours.

Expected construction traffic volumes for the projects have been sourced from available public documents and are outlined in Figure 15.

**Figure 15: Cumulative Traffic Volumes on Key Intersections During Peak Construction**



## 4.2.6 Traffic Assessment

### *4.2.6.1 SIDRA Intersection Analysis*

All traffic travelling to/from the Project Area would travel via either Garoo Road or Lindsays Gap Road. 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 intersections of New England Highway / Garoo Road and New England Highway / Lindsays Gap Road using the SIDRA intersection modelling software.

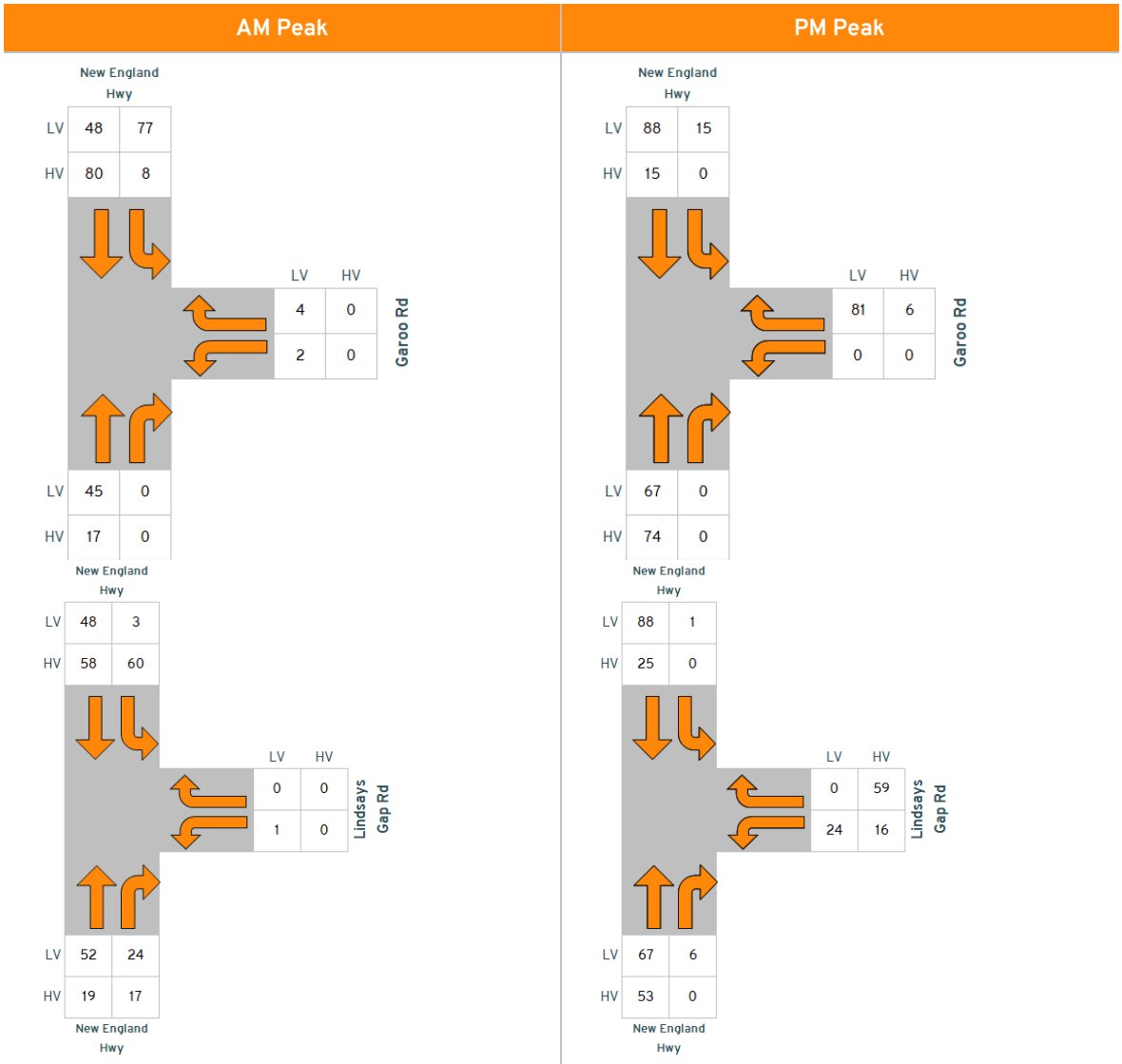
Level of Service is a qualitative measure used to describe the operating conditions of a section of road or an intersection. Levels of Service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) and represent the perception 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 (6:00pm-7:00pm) during the peak construction period. The traffic volumes utilised for the assessment are the total volumes for the following:

- Existing surveyed traffic volumes presented within Appendix C adjusted by an estimated 1.5% compounded annual growth rate over 4 years to reflect the end of the construction period in 2028;
- The peak construction project traffic volumes presented within Figure 14; and
- The cumulative traffic volumes presented within Figure 15.

The resulting total traffic volumes used for the assessment are provided in Figure 16.

**Figure 16: Peak Hour Volumes During Peak Construction**




The results of the SIDRA analysis for the morning and evening peak construction hour at the New England Highway / Garoo Road intersection are provided within Appendix F and are summarised in Table 12.

**Table 12: SIDRA Analysis Results Summary – New England Highway / Garoo Road**

| Approach / Movement | | Morning Peak Hour | | | Evening Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Average Delay (sec) | 95% Queue (m) | Level of Service | Average Delay (sec) | 95% Queue (m) | Level of Service |
| New England Highway (South) | Through | 0.0 | 0.0 | A | 0.0 | 0.0 | A |
| | Right Turn | 6.4 | 0.0 | A | 5.9 | 0.0 | A |
| Garoo Road (East) | Left Turn | 6.2 | 0.2 | A | 6.0 | 3.9 | A |
| | Right Turn | 7.5 | 0.2 | A | 8.3 | 3.9 | A |
| New England Highway (North) | Left Turn | 5.7 | 0.0 | A | 5.5 | 0.0 | A |
| | Through | 0.0 | 0.0 | A | 0.0 | 0.0 | A |

The SIDRA analysis indicates the following:

- The intersection is expected to operate with minimal queue lengths on all legs;
- The overall average delay at the intersection is 1.9 and 2.4 seconds in the morning and evening peak hour respectively; and
- The intersection is expected to continue to operate with good level of service (LOS A).

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.

The results of the SIDRA analysis for the morning and evening peak construction hour at the New England Highway / Lindsays Gap Road intersection are provided within Appendix F and are summarised in Table 13.

**Table 13: SIDRA Analysis Results Summary – New England Highway / Lindsays Gap Road**

| Approach / Movement | | Morning Peak Hour | | | Evening Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Average Delay (sec) | 95% Queue (m) | Level of Service | Average Delay (sec) | 95% Queue (m) | Level of Service |
| New England Highway (South) | Through | 0.0 | 0.0 | A | 0.0 | 0.0 | A |
| | Right Turn | 8.3 | 2.2 | A | 6.2 | 0.2 | A |
| Lindsays Gap Road (East) | Left Turn | 5.8 | 0.1 | A | 6.4 | 10.2 | A |
| | Right Turn | 8.1 | 0.1 | A | 14.1 | 10.2 | A |
| New England Highway (North) | Left Turn | 6.7 | 0.0 | A | 5.5 | 0.0 | A |
| | Through | 0.0 | 0.0 | A | 0.0 | 0.0 | A |

The SIDRA analysis indicates the following:

- The intersection is expected to operate with minimal queue lengths on all legs;
- The overall average delay at the intersection is 2.7 and 3.3 seconds in the morning and evening peak hour respectively; and
- The intersection is expected to continue to operate with good level of service (LOS A).

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.

#### *4.2.6.2 Midblock Analysis*

An assessment of the mid-block operation of these roads has been carried out to determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period.

An important consideration in determining the impact of a development proposal on the road system is to assess the effect on traffic efficiency, the objective of which is to maintain the existing level of service. Level of Service is defined within the *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis* as:

> *'... a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety.'*

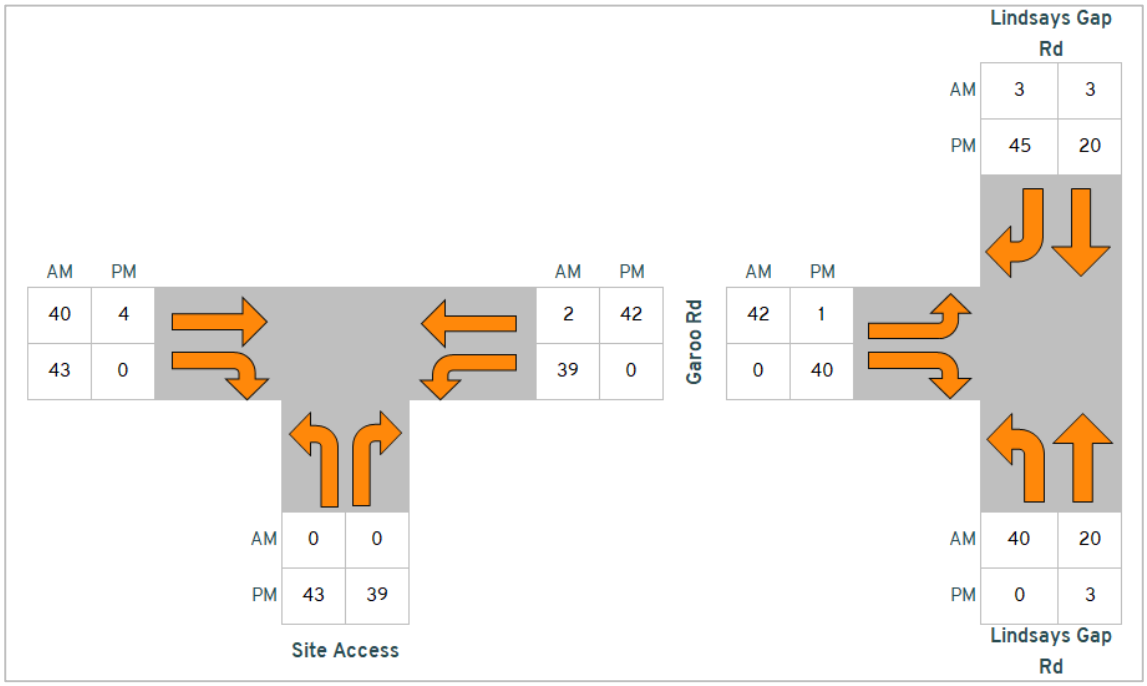
Levels of service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays). Table 4.5 of the RTA Guide sets out two-way hourly road capacities for two-lane roads for different levels of service and based on different terrain types. The maximum volume to achieve LOS A for a rolling terrain rural road with up to 15% heavy vehicle traffic is in the order of 310 vehicle trips per hour.

The expected traffic volumes along Garoo Road and Lindsays Gap Road have been determined 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 presented within Section 2.3.2, adjusted by an estimated 1.5% compounded annual growth rate over 4 years to reflect the end of the construction period in 2028;
- The cumulative traffic impact volumes that may coincide with peak construction of the Project as outlined in Figure 15; and
- The peak construction project traffic volumes presented within Figure 14.

The resulting total traffic volumes used for the assessment are provided in Figure 17.

**Figure 17: Peak Construction Traffic Volumes**




The traffic volumes accommodated on Lindsays Gap Road and Garoo Road during the peak hours are shown within Table 14, which is been based on the surveyed traffic volumes presented within Section 2.3 (existing volumes) and the anticipated traffic volumes of the proposal presented within Figure 17(expected volumes).

**Table 14: Expected Peak Hour Traffic Volumes During Construction**

| Road | AM Peak | | | PM Peak | | |
|---|---|---|---|---|---|---|
| | Existing Volume | Expected Volume | LOS | Existing Volume | Expected Volume | LOS |
| Lindsays Gap Road | 8vph | 103vph | A | 8vph | 63vph | A |
| Garoo Road | 4vph | 81vph | A | 8vph | 85vph | A |

Therefore, during the peak hours of construction Lindsays Gap Road and Garoo Road would accommodate up to 103 and 85 vehicles per hour, respectively, during peak construction and remain within the capacity of the road network. The roads are expected to continue to operate with a good level of service based on Table 4.5 of the RTA Guide.

During the middle of the day the traffic movements are expected to be predominantly associated with heavy vehicles with approximately 16 vehicle movements per hour. This increase in traffic would be within the daily variation of traffic volumes on Lindsays Gap Road and Garoo Road and can be readily accommodated on the road network.

Accordingly, the road network is able to readily accommodate the traffic generated by the development during the construction and operational periods.

#### *4.2.6.3 Impact to School Bus Operations*

As outlined in Section 2.4, there are two school bus services in operation in the vicinity of the site during peak school periods (approximately 7:00am to 8:30am in the morning and between 3:45pm and 4:50pm in the evening).

Given the relatively small number of school bus services, the impact to their operation is likely to be limited but to minimise any impacts or risks t is recommended that suitable measures be included in a future TMP including scheduling of heavy vehicles outside school peak periods (refer Section 8.6).

## 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 between 5 and 10 maintenance personnel and occasional deliveries resulting in a traffic generation of up to 20 vehicle movements per day which would result in a negligible change to the traffic environment. There would also be occasional heavy vehicles delivering 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 Site. Internal roads, if not required for ongoing farming purposes or fire access, would be removed and the site reinstated as close as possible to its original state.

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. This would aim to 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 16 vehicles per hour. This increase in traffic would be within the daily variation of traffic volumes on the road network 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 road upgrades and mitigation measures discussed in Section 6 which would be confirmed as part of specific permits that would be applied for prior to construction.

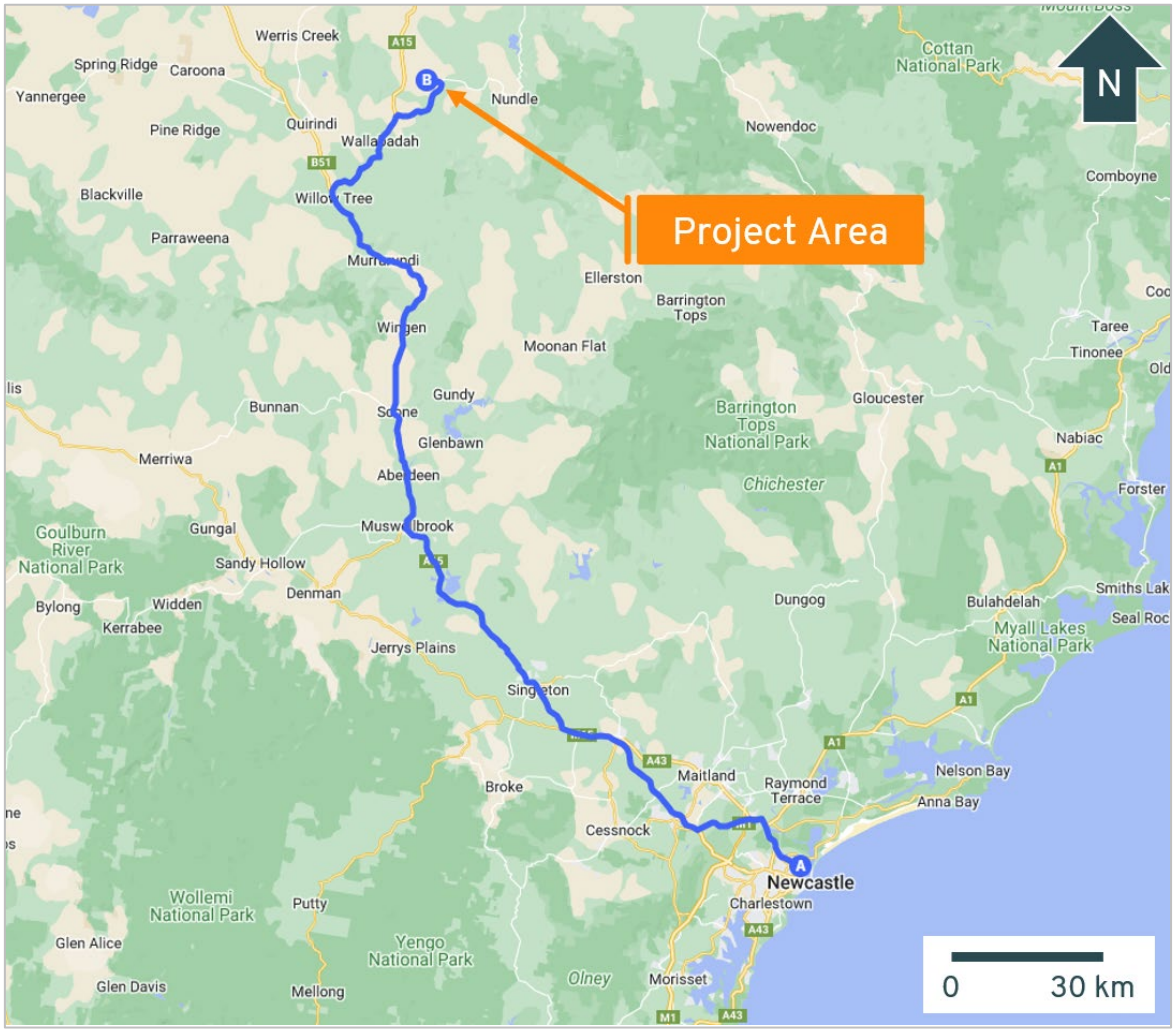
During operation the increase in traffic of between 5 and 10 vehicle movements per day would result in a negligible change to the traffic environment.

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

All plant is expected to be delivered from Port of Newcastle. 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 18 with a summary of the relevant roads provided in Table 15. The access route measures approximately 251 kilometres and utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map.

**Figure 18: B-Double Access Route from Port of Newcastle to Site**




*Source: Google Maps - Link*

**Table 15: B-Double Vehicle Route - Access Roads**

| Road Name | State | Jurisdiction | B-Double Approved |
|---|---|---|---|
| **Selwyn Street, George Street** | New South Wales | City of Newcastle | Approved |
| **Industrial Drive** | | TfNSW | |
| **Pacific Highway** | | | |
| **New England Highway** | | | |
| **John Renshaw Drive** | | | |
| **Hunter Expressway** | | | |
| **New England Highway** | | | |
| **Lindsays Gap Road** | | Liverpool Plains Shire Council | Approved with Conditions |
| | | Tamworth Regional Council | Approved |
| **Garoo Road** | | Tamworth Regional Council | |

## 5.1 Mitigation Measures

In order to mitigate the impacts of the Project during construction a TMP 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 TMP should be finalised post-approval and prior to the construction of the Project.

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 sub-station transformer and earthmoving equipment. 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 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 typically require pilot vehicle escort.

The Proponent has advised that 5 High Risk OSOM vehicles would be required to access the site during the construction period for the transport of transformers from the Port of Newcastle. The vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site to avoid classification as OSOM where possible.

High Risk OSOM vehicles will travel outside of the peak periods and would be subject to the restrictions and 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 largest transformer transport vehicle configuration and proposed access route.

## 6.1 Load and Vehicle Configuration

The 5 high risk OSOM vehicles are outlined as follows:

- 2 vehicles to transport the two main transformers from the Port of Newcastle which would result in two high risk OSOM vehicles accessing the site loaded and departing the site unloaded during construction and decommissioning.
- 1 vehicle to transport the modular building resulting in the vehicle being classed as oversize in one direction only for both construction and decommissioning. The modular building would be delivered from Port of Newcastle and is expected to utilise the same access route as the transformer delivery.
- 2 vehicles to transport switchgear buildings.

These OSOM vehicles will travel outside of the peak periods and would be subject to the road upgrades and mitigation measures discussed throughout this section which would be confirmed as part of specific permits that would be applied for prior to construction.

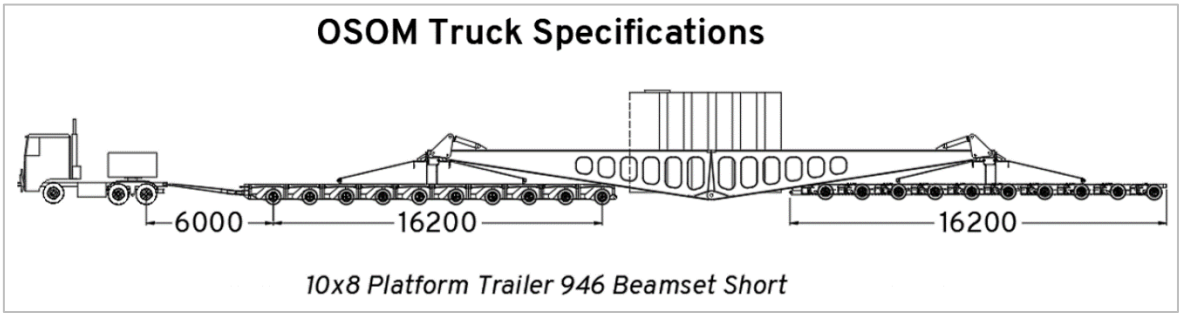
The largest component to be delivered to the site is expected to be the transformer. The Proponent has provided information regarding the expected specifications of the transformers which are outlined in Table 16.

**Table 16: Estimated Transformer Specifications**

| Length (mm) | Width (mm) | Height (mm) | Mass | Trailer Specs |
|---|---|---|---|---|
| 7850 | 3000 | 4200 | 157 tonnes | 10x8 + 10x8 Platform Trailer Beamset |

An OSOM vehicle configuration has been identified for the expected transformer model. The vehicle used for the assessment is shown within Figure 19 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.

**Figure 19: OSOM Vehicle**




*Source: RJA*

## 6.2 State Road Projects

The Proponent has advised that Port of Newcastle is to be utilised as the origin point for the delivery of the transformers. On the planned access route to site there are three State Road projects that are currently under construction, but all are expected to be complete prior to the planned commencement of construction in 2027.

The two projects are discussed in turn below.

### 6.2.1 Hexham Straight Widening

The Hexham Straight project involves[1]:

- *Upgrades to the six kilometre section of the Pacific Highway between the Newcastle Inner City Bypass and Hexham Bridge;*
- *Widening of the dual carriageway from two lanes to three lanes in each direction;*
- *Demolition of the existing Ironbark bridge and construction of two new bridges at Ironbark Creek;*
- *Minor intersection upgrades and property adjustments; and*
- *Utility relocation.*

The works are currently being undertaken which have implications on OSOM access of this section of the Pacific Highway, close to the Port of Newcastle.

The project is expected to be complete by 2026[1].

### 6.2.2 Port to Renewable Energy Zones

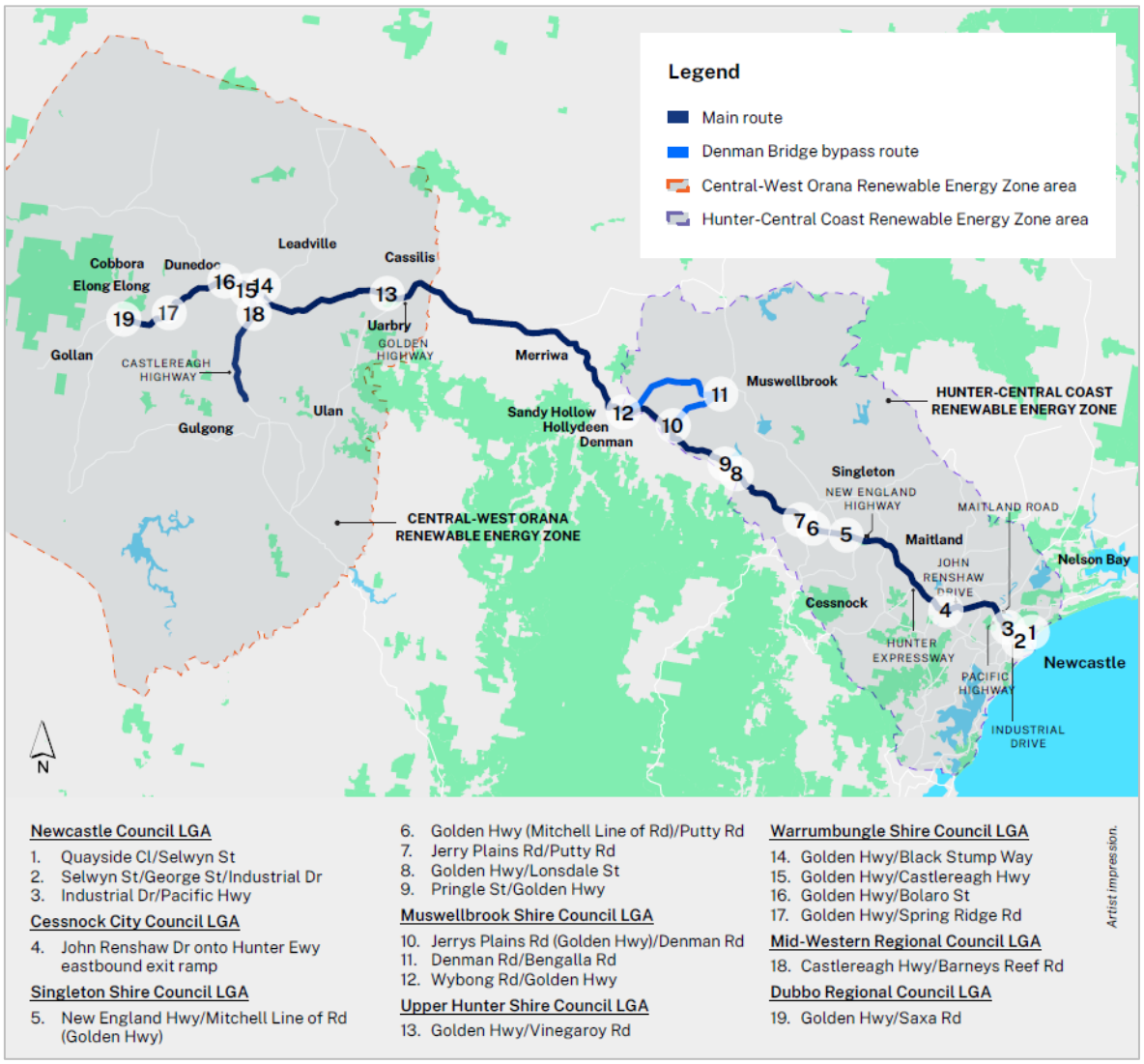
The Port to Renewable Energy Zones (REZ) project is a range of road upgrade works to enable the movement of OSOM loads for renewable energy equipment being undertaken by EnergyCo[2]. The current project scope is between the Port of Newcastle and the Central-West Orana and New England REZs.

The upgrade works aim to enable and facilitate transport of very large components associated with renewable projects, such as wind turbine components up to 100 metres in length.

[1] TfNSW Website *Pacific Highway improvements at Hexham* https://www.transport.nsw.gov.au/projects/current-projects/pacific-highway-improvements-at-hexham. Accessed 13 March 2025.
[2] EnergyCo Website *Port to Renewable Energy Zones* https://www.energyco.nsw.gov.au/port2rez. Accessed 13 March 2025.

The current scope of the project is outlined in Figure 20.

**Figure 20: Port to REZ Project Scope**




*Source: EnergyCo*

The proposed High-Risk OSOM route to site will follow the path outlined in the figure to point 4 in Buchanan.

At the time of writing EnergyCo has finalised a Memorandum of Understanding (MOU) with TfNSW to facilitate the rollout of road improvements[3]. The road upgrades are expected to start in 2025 and be complete in 2026.

## 6.2.3 Summary

Both projects are anticipated to be complete before the planned commencement of the proposal, and, by their nature, all are expected to facilitate access for heavy vehicles including High-Risk OSOM movements.

[3] https://www.energyco.nsw.gov.au/port-rez-agreement-paves-way-smooth-energy-transition

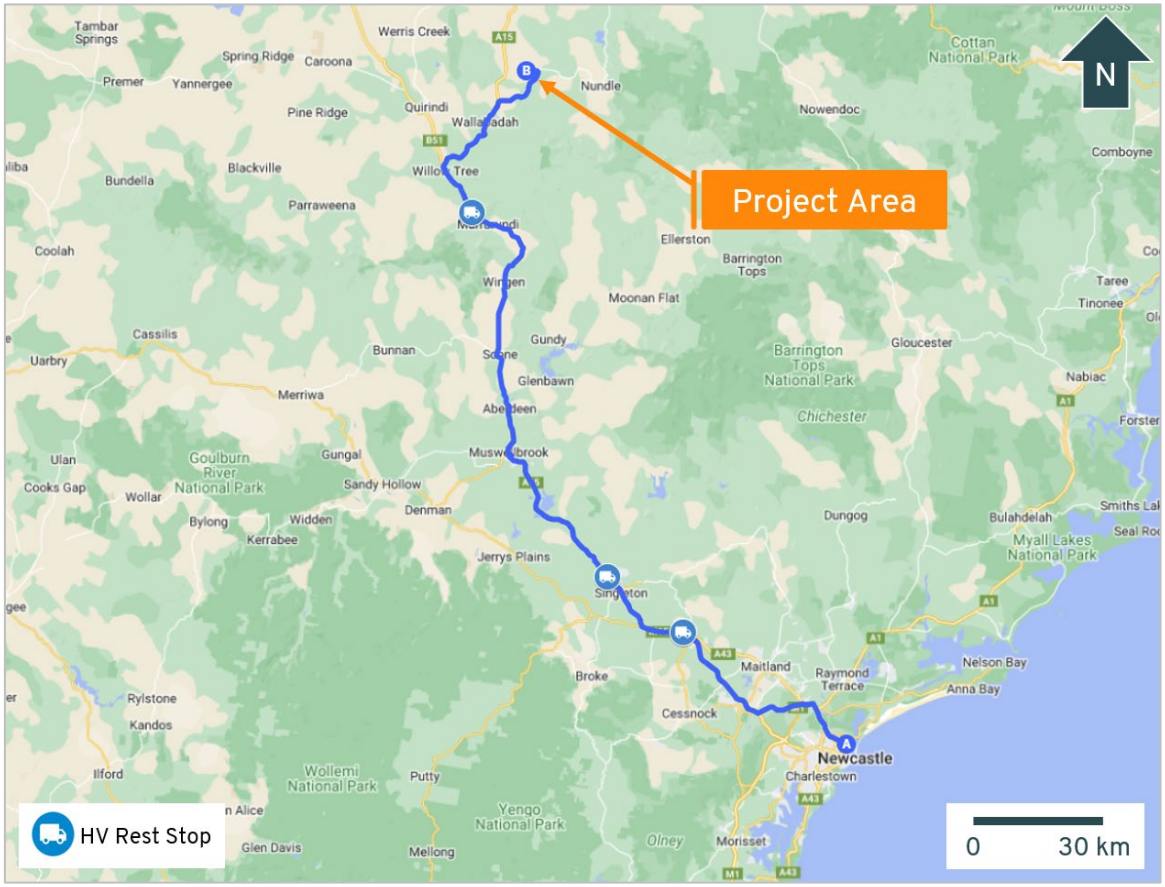
However, as there is limited publicly available information on the projects, the route assessment is based on routes using roads that are currently available for use, which could be updated at a later date as part of a future NHVR permit.

## 6.3 Access Route

In order to determine whether any civil works are required to accommodate the OSOM vehicle on the road network a route assessment has been undertaken from this origin. The OSOM vehicle would be provided with escort and pilot vehicles in accordance with relevant authority requirements.

The proposed OSOM route for the transformer varies from the B-Double access route (Section 5) due to vertical clearance heights in Muswellbrook. The access route, along with 3 identified truck rest areas that could be used along the route, are shown in Figure 21. It is noted that additional rest stop areas may also be available along the route. A total of 11 points of interest for further assessment were identified as part of the assessment of the access route involving the State road network. The points of interest have been assessed in further detail with the full assessment provided within Appendix A.

**Figure 21: OSOM Route**




*Source: Google Maps - Link, NHVR Route ID: 2N52R-2 v1*

The assessment of the access route identified that the vehicle is able to access the site without any road upgrades. A review of the key constraints along the route is provided below with an overview of the proposed treatments and/or management measures at each point of interest.

## 6.4 Bridge and Rail Infrastructure

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

### 6.4.1 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 High Risk OSOM vehicles, however it is noted that the route predominantly utilises major highways with all roads forming part of the approved Class 1 OSOM network. 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 Oversize Overmass Load Carrying Vehicles Network map. Accordingly, is expected that the vehicle loading will be within the allowable limit for all bridges, culverts and other structures on the State Road network.

After feedback from the Development Renewables team at TfNSW, to confirm the suitability of any bridges and culverts on the State Road network on the proposed route to site, feedback was sought from the Special Permits Unit of TfNSW. The unit advised via email and phone call that the load and vehicle combination did not need a bridge and culvert assessment as the proposed route remained on the TfNSW High Load Platform (HLP) network. The proposed State Road route to sits is therefore considered suitable to accommodate the proposed vehicle and load.

At approximately 2.6 kilometres south of the intersection with Garoo Road, Lindsays Gap Road has a single lane bridge crossing where the road width narrows to 3.6 metres (kerb to kerb). A bridge assessment will be required of the bridge to ensure that it is suitable for higher mass vehicles and OSOM vehicles requiring escort. The assessment is proposed to be undertaken once the materials to be delivered and logistics contractor have been confirmed. Initial feedback has been obtained from Council on the condition and suitability of the bridges near the site on the local road network which is included for reference in Appendix G.

### 6.4.2 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 proposed beamset arrangement allows for height adjustment of the transformer between the trailers, therefore enabling the load to be lowered for passage under low clearance bridges. Taking this into consideration, the minimum load height would be approximately 4.4 metres.

The height clearance assessment showed that the lowest clearance along the Port of Newcastle route is 4.88 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.

### 6.4.3 Railway Level Crossings

One railway level crossing has been identified along the OSOM route as outlined in Table 17 which includes preliminary advice from the relevant rail authority.

**Table 17: Railway Level Crossing Assessment**

| Railway Crossing Location | Rail Authority | Authority Advice |
|---|---|---|
| Selwyn Street near Port of Newcastle | ARTC | 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. |

Formal approval will be sought from the rail authority for the level crossing as part of the finalisation of the TMP. Accordingly, the OSOM traffic is expected to have no major impact on the operation or safety of the railway level crossing.

## 6.5 Summary

The route assessment prepared for the High-Risk OSOM vehicle has identified that no road upgrades are required to successfully access the site from the Port of Newcastle with a summary provided in Table 18.

The site access requires upgrading to a Basic Right and Basic Left (BAR/BAL) turn treatment to accommodate increased traffic which is detailed in Section 7. Escorts and spotters will be required at all locations to control traffic and ensure the vehicle and load are clear of infrastructure.

**Table 18: Road Upgrade Assessment - OSOM Vehicles**

| Region | Pinch Point | Location | Required Road Upgrades |
|---|---|---|---|
| **Port of Newcastle to Garoo Solar Farm and BESS** | | | |
| City of Newcastle | 01 | Quayside Close / Selwyn Street (Mayfield North, NSW) | No road upgrades required |
| | 02 | Selwyn Street / George Street / Industrial Drive (Mayfield North, NSW) | No road upgrades required |
| | 03 | Industrial Drive / Pacific Highway (Mayfield West, NSW) | No road upgrades required |
| | 04 | John Renshaw Drive / Hunter Expressway (Buchanan, NSW) | No road upgrades required |
| Regional NSW | 05 | New England Highway / Golden Highway (Whittingham, NSW) | No road upgrades required |
| | 06 | New England Highway / John Street (Singleton, NSW) | No road upgrades required |
| | 07 | New England Highway / Bell Street (Muswellbrook, NSW) | No road upgrades required |
| | 08 | Bell Street / Victoria Street (Muswellbrook, NSW) | No road upgrades required |

| Region | Pinch Point | Location | Required Road Upgrades |
|---|---|---|---|
| | 09 | Market Street / New England Highway (Muswellbrook, NSW) | No road upgrades required |
| | 10 | New England Highway (Blandford, NSW) | No road upgrades required |
| | 11 | New England Highway / Lindsays Gap Road (Wallabadah, NSW) | No road upgrades required[4] |

Accordingly, it is concluded that the proposed route is suitable for use by OSOM vehicles associated with the Project with permits to be applied for as part of the TMP. 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.

[4] It is noted that Liverpool Plains Council representatives recommended traffic control and closure of Lindsays Gap Road between the New England Highway and the site access. This measure would form part of a future Traffic Management Plan for the project as outlined in Section 8.2.

# 7. Site Access

The four key intersections impacted by the Project have been assessed as follows.

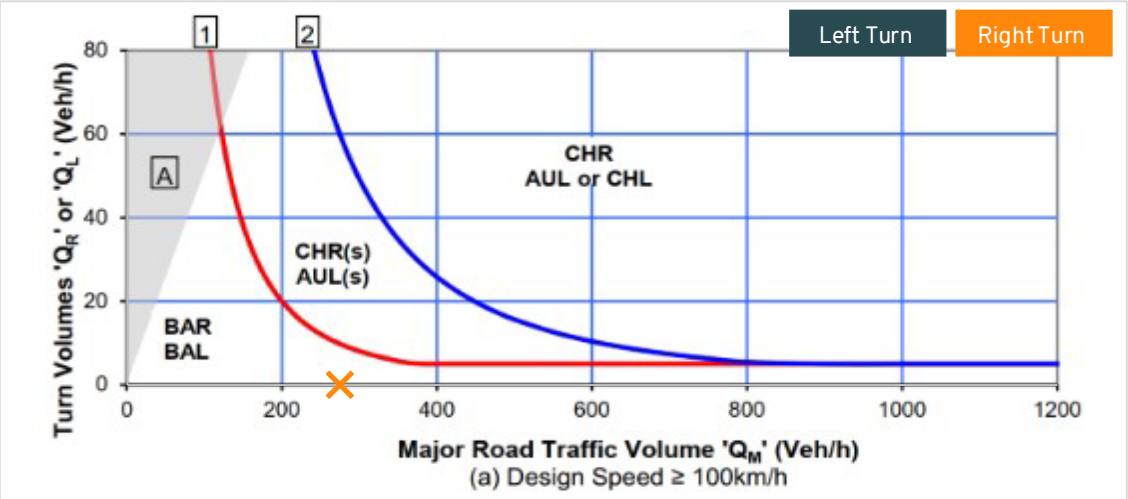
## 7.1 Turn Treatments

*Austroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings* specifies the turning treatments required at intersections. An assessment has been undertaken for the four key intersections in order to ensure vehicles are able to safely leave the road network. The requirement to provide turn facilities at these intersections is primarily generated during the morning peak hour when the workforce access the site, which occurs from 6:00am to 7:00am.

Figure 3.25 of the guide specifies the required turn treatments on the major road at unsignalised intersections and is provided below for each intersection for a design speed of 100 km/hr or greater.

### 7.1.1 New England Highway / Garoo Road

**Figure 22: New England Highway / Garoo Road Figure 3.25 of Austroads Guide**




The left turn plot cannot be shown in Figure 22 as it falls outside the area of the chart provided by Austroads. Assuming the red line in the chart continues in the same trajectory, it can be estimated that the left turn plot would be located just to the right of the red line resulting in a requirement to provide the AUL(s) turn treatment.

Table 19 identifies the required turning treatments based on the expected traffic volumes at the New England Highway / Garoo Road intersection and the associated volumes have been plotted within Figure 22.

**Table 19: Turning Volumes for Turn Treatment Calculations – New England Highway / Garoo Road**

| Movement | Traffic Volume (vph) | | Turn Treatment Requirement |
|---|---|---|---|
| | Turn Volume | Major Road | |
| **Right Turn** | 0 | 276 | BAR |
| **Left Turn** | 85 | 128 | AUL(s) |

Therefore, the New England Highway / Garoo Road intersection would require a Basic Right Turn (BAR) and a short Auxiliary Left Turn (AUL(s)) treatment. Currently the intersection has CHR and CHL turn treatments. Accordingly, the intersection has capacity to provide a safe road environment for the proposed increase in traffic.

### 7.1.2 New England Highway / Lindsays Gap Road

**Figure 23: New England Highway / Lindsays Gap Road Figure 3.25 of Austroads Guide**

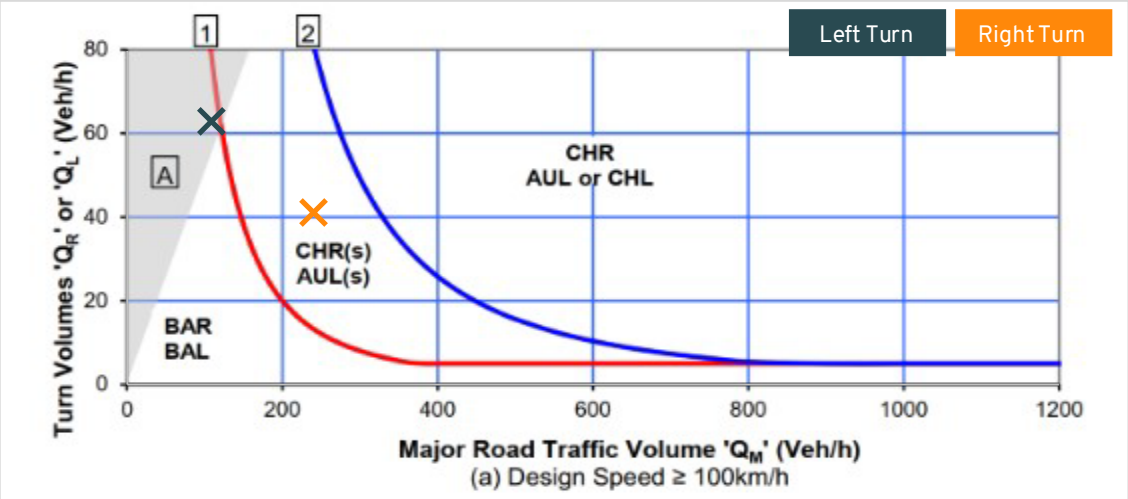



Table 20 identifies the required turning treatments based on the expected traffic volumes at the New England Highway / Lindsays Gap Road intersection and the associated volumes have been plotted within Figure 23.

**Table 20: Turning Volumes for Turn Treatment Calculations –New England Highway / Lindsays Gap Road**

| Movement | Traffic Volume (vph) | | Turn Treatment Requirement |
|---|---|---|---|
| | Turn Volume | Major Road | |
| **Right Turn** | 41 | 240 | CHR(s) |
| **Left Turn** | 63 | 106 | BAL |

Therefore, the New England Highway / Lindsays Gap Road intersection would require a short Channelised Right Turn (CHR(s)) and a Basic Left Turn (BAL) treatment. Currently the intersection has CHR and CHL turn treatments.

A swept path assessment was also undertaken for the intersection using 26 B-Double design vehicles which is shown in Appendix E. This assessment confirms that vehicles of this size can suitably navigate this intersection and undertake concurrent turns on the haulage route.

Accordingly, the intersection has capacity to provide a safe road environment for the proposed increase in traffic.

### 7.1.3 Lindsays Gap Road / Garoo Road

**Figure 24: Lindsays Gap Road / Garoo Road Figure 3.25 of Austroads Guide**

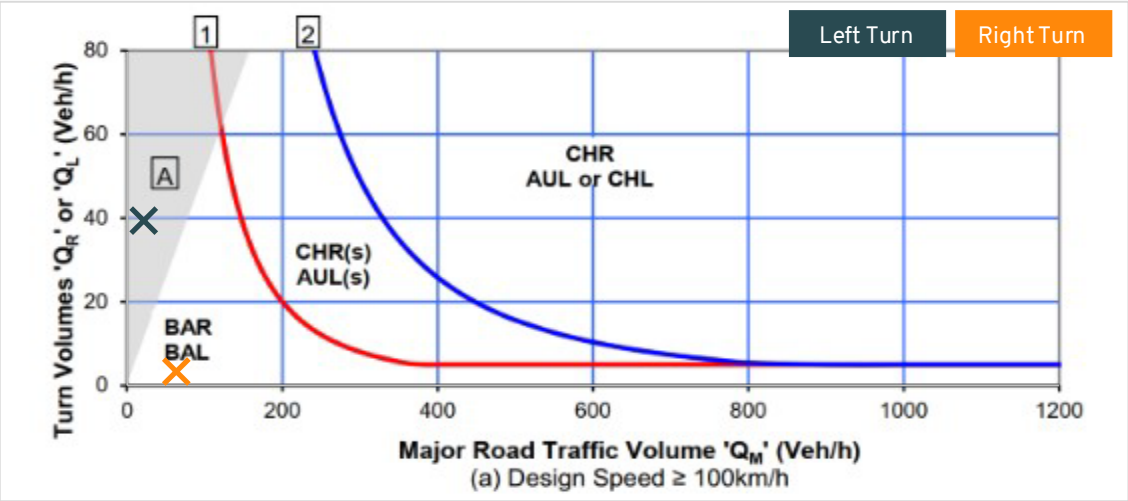



Table 21 identifies the required turning treatments based on the expected traffic volumes at the Lindsays Gap Road / Garoo Road intersection and the associated volumes have been plotted within Figure 24.

**Table 21: Turning Volumes for Turn Treatment Calculations – Lindsays Gap Road / Garoo Road**

| Movement | Traffic Volume (vph) | | Turn Treatment Requirement |
|---|---|---|---|
| | Turn Volume | Major Road | |
| **Right Turn** | 3 | 63 | BAR |
| **Left Turn** | 40 | 20 | BAL |

Therefore, the Lindsays Gap Road / Garoo Road intersection would require a Basic Right Turn (BAR) and a Basic Left Turn (BAL) treatment which is currently provided at the intersection. Accordingly, the intersection has capacity to provide a safe road environment for the proposed increase in traffic.

### 7.1.4 Garoo Road / Site Access

**Figure 25: Garoo Road / Site Access Figure 3.25 of Austroads Guide**

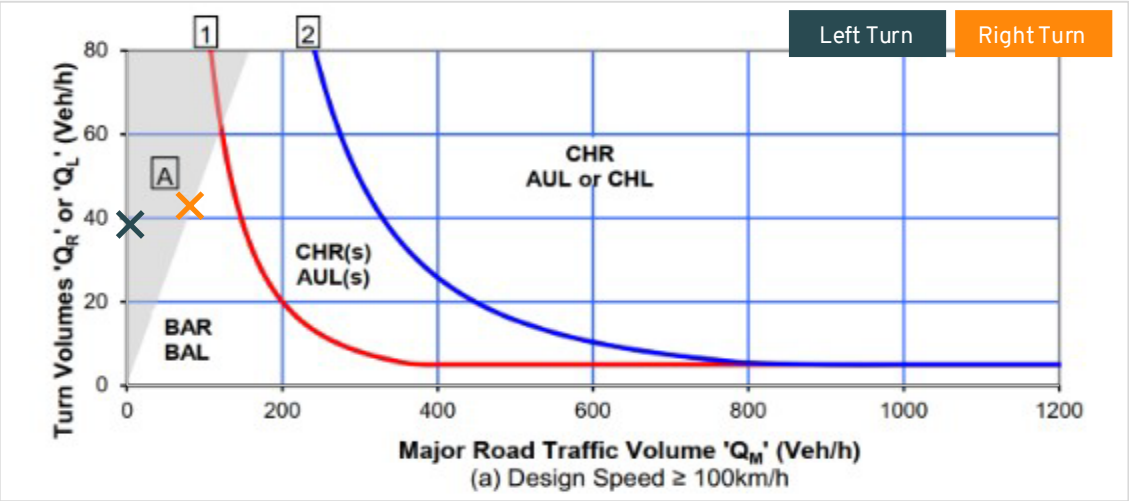



Table 22 identifies the required turning treatments based on the expected traffic volumes at the Garoo Road / Site Access intersection and the associated volumes have been plotted within Figure 25.

**Table 22: Turning Volumes for Turn Treatment Calculations – Garoo Road / Site Access**

| Movement | Traffic Volume (vph) | | Turn Treatment Requirement |
|---|---|---|---|
| | Turn Volume | Major Road | |
| **Right Turn** | 43 | 81 | BAR |
| **Left Turn** | 39 | 2 | BAL |

Therefore, the proposed Garoo Road / Site Access intersection would require a Basic Right Turn (BAR) and a Basic Left Turn (BAL) treatment.

In order to confirm the site access can accommodate B-Double vehicles, a swept path assessment has been provided within Appendix D using the Autodesk Vehicle Tracking software. The assessment demonstrates that the vehicle is able to suitably turn to/from Garoo Road towards the east with the inclusion of the proposed turn treatments. Accordingly, it is concluded that the site access has been suitably designed to accommodate the vehicles expected to access the Project Area.

## 7.2 Sight Distance

### 7.2.1 Site Access

*Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* specifies the Safe Intersection Sight Distance (SISD) as the minimum sight distance which should be provided along the major road at any intersection. Table 3.1 of the guide specifies the SISD required for various design speeds. Given Garoo Road has a surveyed 85$^{th}$ percentile speed of 95.7 km/hr, a design speed of 100 km/hr has been adopted. Garoo Road has a downhill average gradient of 3.5% on the west approach, and an uphill average gradient of 1.7% on the east approach to the site access.

Based on a reaction time of 2.5 seconds the SISD requirements are 274 metres and 257 metres from the west and east direction, respectively.

Photographs showing the views to the west and east of the proposed site access location are provided in Figure 26. A photograph showing the sight line from the maximum sight distance available from the west is provided in Figure 27. The location of the photograph is approximately 305 metres from the proposed site access.

**Figure 26: Photographs Showing Sight Lines from Site Access**

| Looking West | Looking East |
|---|---|
|  |  |

**Figure 27: Photograph of Maximum Sight Distance on the Northwest Approach to Site Access**


The available sight distance at the site access exceeds the requirements of the Austroads Guide provided that roadside vegetation remains limited to low-level ground cover. The sight distance assessment is provided within Appendix E.

Accordingly, vehicles are expected to be able to safely enter the road network from the Project Area.

### 7.2.2 Other Key Intersections

The available sight distance at the existing key intersections have also been assessed using the Austroads Guide. Given New England Highway has a speed limit of 100 km/hr a design speed of 110 km/hr has been adopted which requires an SISD of 300 metres based on a reaction time of 2.5 seconds.

The available sight distance at the intersections of New England Highway with Garoo Road and Lindsays Gap Road exceeds the requirements of the Austroads Guide. The sight distance for each direction is depicted within Figure 28.

Accordingly, vehicles are expected to be able to safely enter the State Road network at the intersection.

**Figure 28: Sight Distance Assessment – State Roads**

| New England Highway / Garoo Road | |
|---|---|
| **Looking South** | **Looking North** |
|  |  |
| **New England Highway / Lindsays Gap Road** | |
| **Looking South** | **Looking North** |
|  |  |

The intersection of Lindsays Gap Road and Garoo Road has an 85$^{th}$ percentile speed of 96.2 km/hr therefore a design speed of 100 km/hr has been adopted for the sight distance assessment. Vehicles on Garoo Road require an SISD of 262 metres based on a reaction time of 2.5 seconds.

The available sight distance at this intersection exceeds the requirements of the Austroads Guide. The sight distance for each direction is depicted within Figure 29.

Accordingly, vehicles are expected to be able to safely use this intersection.

**Figure 29: Sight Distance Assessment – Local Roads**

| Lindsays Gap Road / Garoo Road | |
|---|---|
| **Looking South** | **Looking North** |
|  |  |

After feedback from the TfNSW Development Renewables team, sight distance checks have also been prepared in plan view at the intersections described above and included in Appendix E. The plans confirm the findings described above.

The TfNSW Renewables Team also requested checks of heavy vehicles at the intersection of the New England Highway and Lindsays Gap Road as part of consultation on a previous revision of this report. Swept paths have been undertaken of 26m B-Doubles undertaking concurrent turns to and from the south (on the haulage route) which confirms that the intersection can suitably accommodate these vehicles. The assessment is included for reference in Appendix E.

## 7.3 Emergency Access

In the unlikely event of an emergency, the existing access on Bulls Road could be used for access to or from the site. No use of Bulls Road is proposed for construction or operational vehicle access.

A review of the location of the existing access[5] confirms that there is suitable sight distance in both directions and sufficient space between the existing gate and road edge to store vehicles, with approximately 35 metres available.

Plans showing the available sight distance, gate location and swept path checks of 12.5m long Heavy Rigid Vehicles turning into site are included in Appendix E. The checks confirm sufficient site distance and available space for emergency vehicles to safely turn into site.

Accordingly, emergency access via Bulls Road is considered appropriate in the unlikely event it is required.

[5] Googlemaps location link for reference: https://maps.app.goo.gl/N9b3ZG7yLQxKJu6s9

# 8. Traffic Management Plan

In order to mitigate the impacts of the Project during construction a TMP 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 TMP should be finalised post-approval and prior to the construction of the Project. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact on the capacity and safety of the surrounding road network.

The TMP should be finalised 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 final 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 solar farm would be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.

## 8.2 Local Road Management

The following measures are based on feedback from Council and are recommended for including in a future TMP:

- The condition of Lindsays Gap Road and Garoo Road monitored, especially after prolonged periods of wet weather. If roads are deemed unsuitable for use, haulage movements are to be scheduled to occur after the road condition improved / maintenance occurs.
- Vegetation over or near local roads monitored and trimmed if needed for vertical height clearances for the transportation of plant and equipment.
- Appropriate traffic control measures during OSOM vehicle use of Lindsays Gap Road, which could involve a temporary closure of Lindsays Gap Road between the New England Highway and the site access.

## 8.3 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.

## 8.4 Car Pooling Program

The Proponent has advised that a carpooling program would be implemented to support sharing of vehicle trips for the workforce travelling to/from the site. The program would include:

- Incentives or benefits to encourage the use of carpooling.
- A roster system to rotate the carpooling drivers.
- Regular toolbox meeting sessions identifying method of travel to work and facilitating cooperation between workers.
- Identifying the drop off/pick up locations for participating vehicles.
- Allocating a team member to be responsible for enforcement and management of the carpooling program.

## 8.5 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.

## 8.6 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.
- All motorists are to be reminded of the local conditions and risk of wildlife on roads, especially during dawn and dusk, and to drive in a manner suitable to minimise any risks.
- 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 TMP will ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The TMP would be finalised in conjunction with consultation with Transport for NSW and Tamworth Regional Council.

# 9. Mitigation Measure Summary

In order to mitigate the impacts of the Project during construction a TMP 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 TMP should be finalised post-approval and prior to the construction of the Project. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact on the capacity and safety of the surrounding road network.

Key measures are summarised below:

- Neighbours of the solar farm and 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. Buses operate along Garoo Road as outlined in Section 2.4.
- 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 Garoo Solar Farm and BESS. The solar farm is proposed to have a targeted electricity capacity of 133.76MW AC and the BESS a capacity of up to 360MW/1440MWh.

The Project Area is located approximately 40 kilometres south of Tamworth, on the eastern side of New England Highway. Access to the site is proposed via a new connection with Garoo Road.

The construction period is expected to commence in late 2026 and take approximately 18 months, with the peak construction period expected to take 10 months. A construction workforce of up to 250 personnel would be accommodated in an on-site camp during the peak construction phase and would primarily be drawn from nearby towns including Tamworth, Quirindi and Scone.

All plant is expected to be delivered from Port of Newcastle. Materials and equipment will generally be sourced from the surrounding area where practicable.

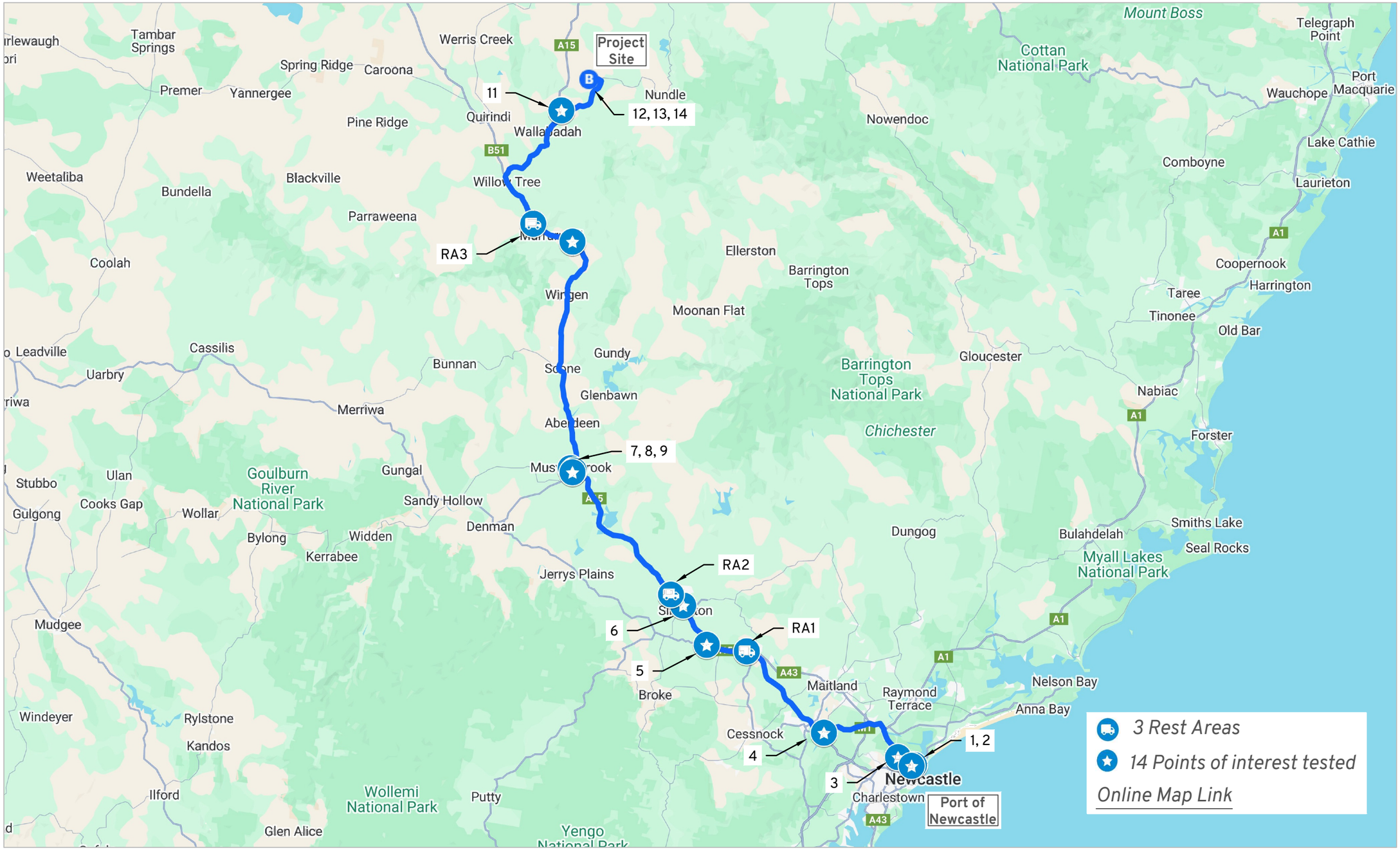
The above assessment determined the following:

- The site is expected to generate up to 292 vehicle trips per day during the peak construction period, including 156 heavy vehicles.
- 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.
- The preferred access route for oversize/overmass vehicles travelling from Port of Newcastle has been identified within a Route Assessment which identifies that the vehicles are able to suitably access the Project Area with suitable traffic management measures and without the need for any road upgrades. The Route Assessment is provided within Appendix A of this document.
- The existing turn treatments from the State road network to the site can accommodate the increased traffic resulting from construction of the Project.
- The site access location is provided with adequate sight distance to allow vehicles to safely enter the road network.
- In order to mitigate the impacts of the Project during construction a TMP 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.

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

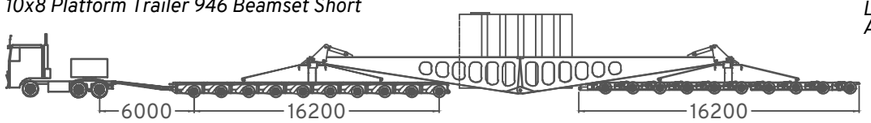
# Appendix A

## OSOM Route Assessment




## OSOM Truck Specifications

*10x8 Platform Trailer 946 Beamset Short*




| | |
|---|---|
| *Overall Length* | *56.633m* |
| *Track width* | *4.200m* |
| *Beamset width* | *5.740m* |
| *Load Height* | *4.250m* |
| *Axle spacing* | *1.800m* |

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

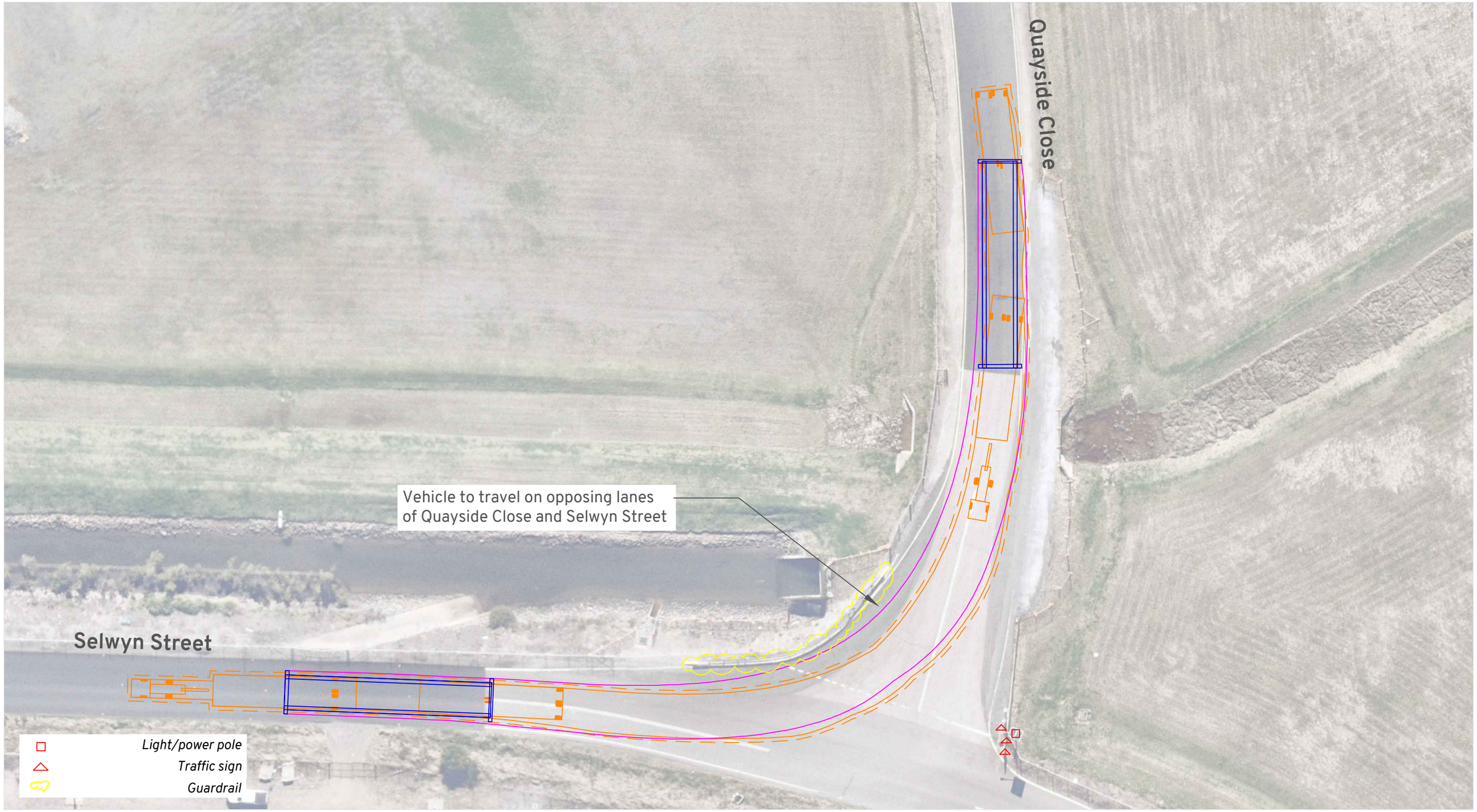
# OSOM Route Assessment

Garoo Solar Farm And BESS

Overall Route Summary and OSOM Details

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: NTS

Amber i




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing traffic lanes where shown.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

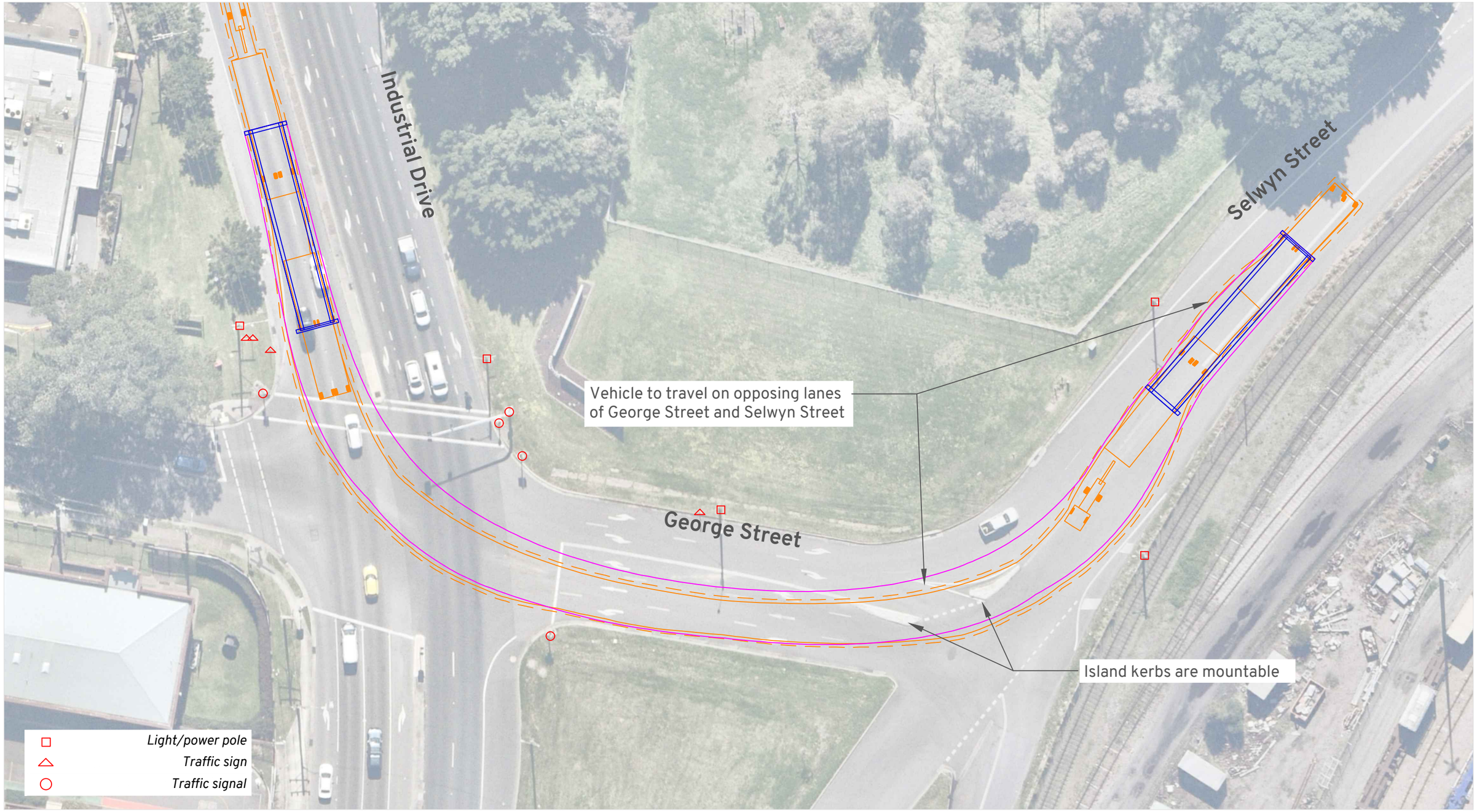
**Location:**
Mayfield North NSW 2304
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:500

Amber 01




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing traffic lanes where shown.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.
Mountable kerbs where shown.

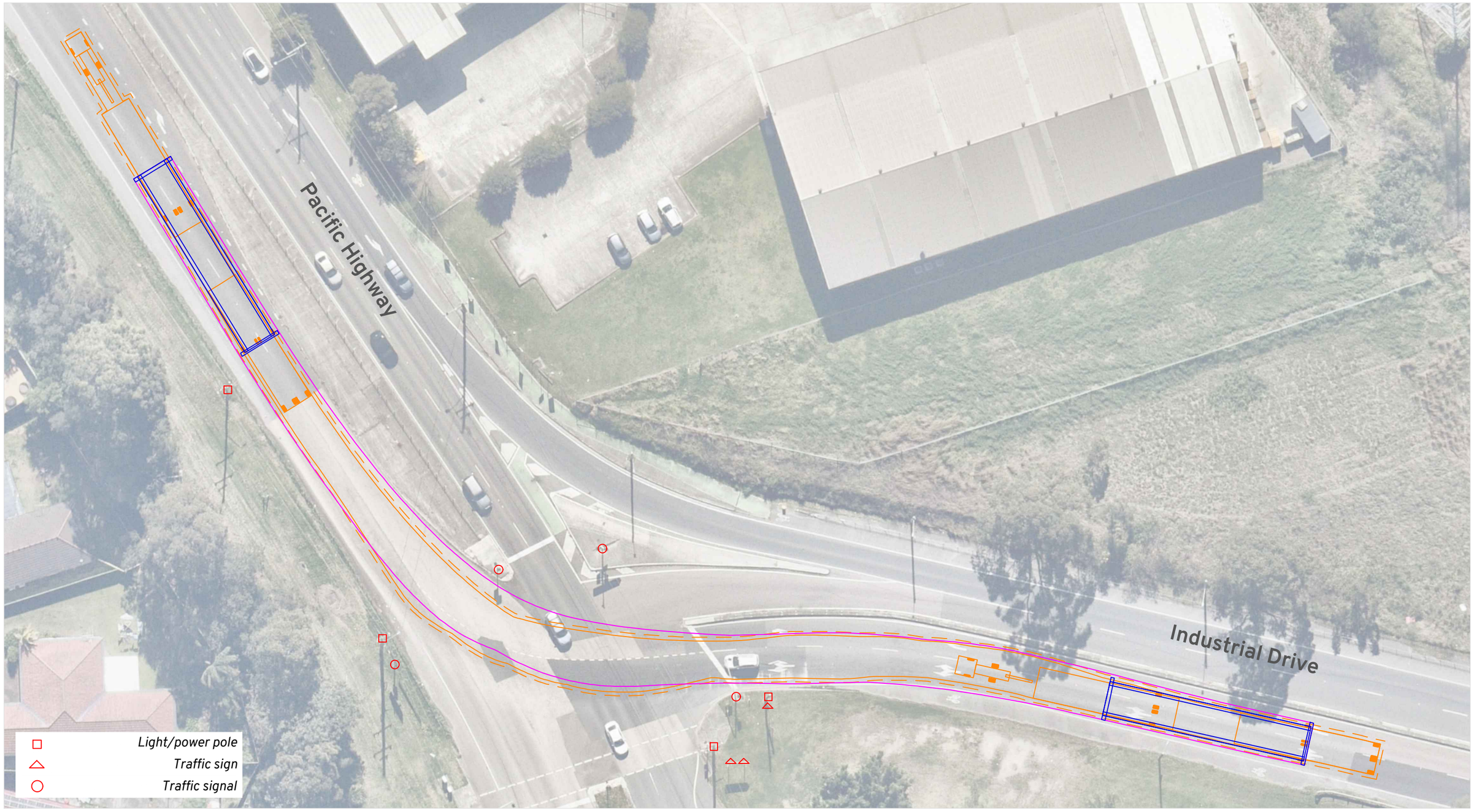
**Location:**
Mayfield North NSW 2304
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
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.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

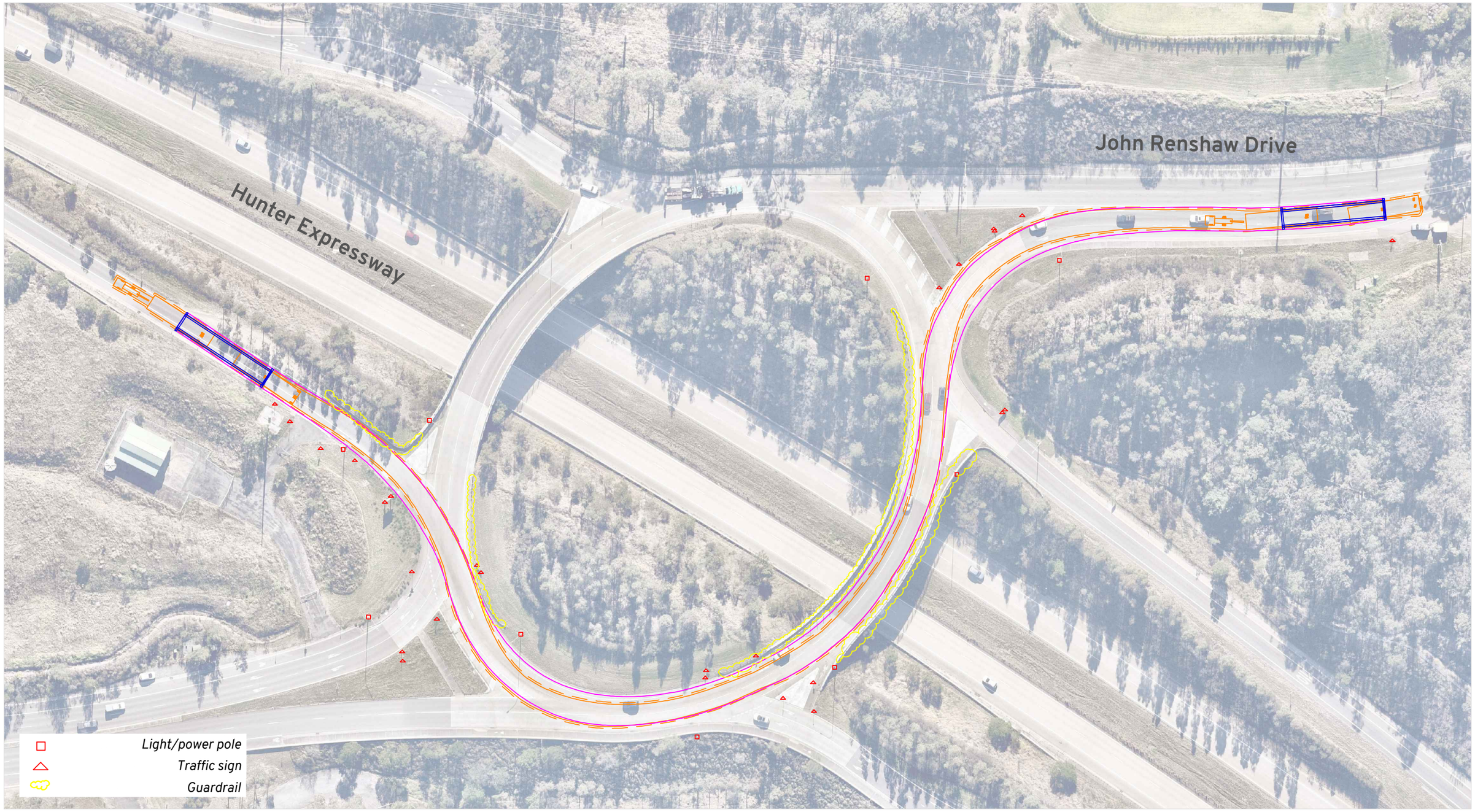
**Location:**
Mayfield West NSW 2304
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
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.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

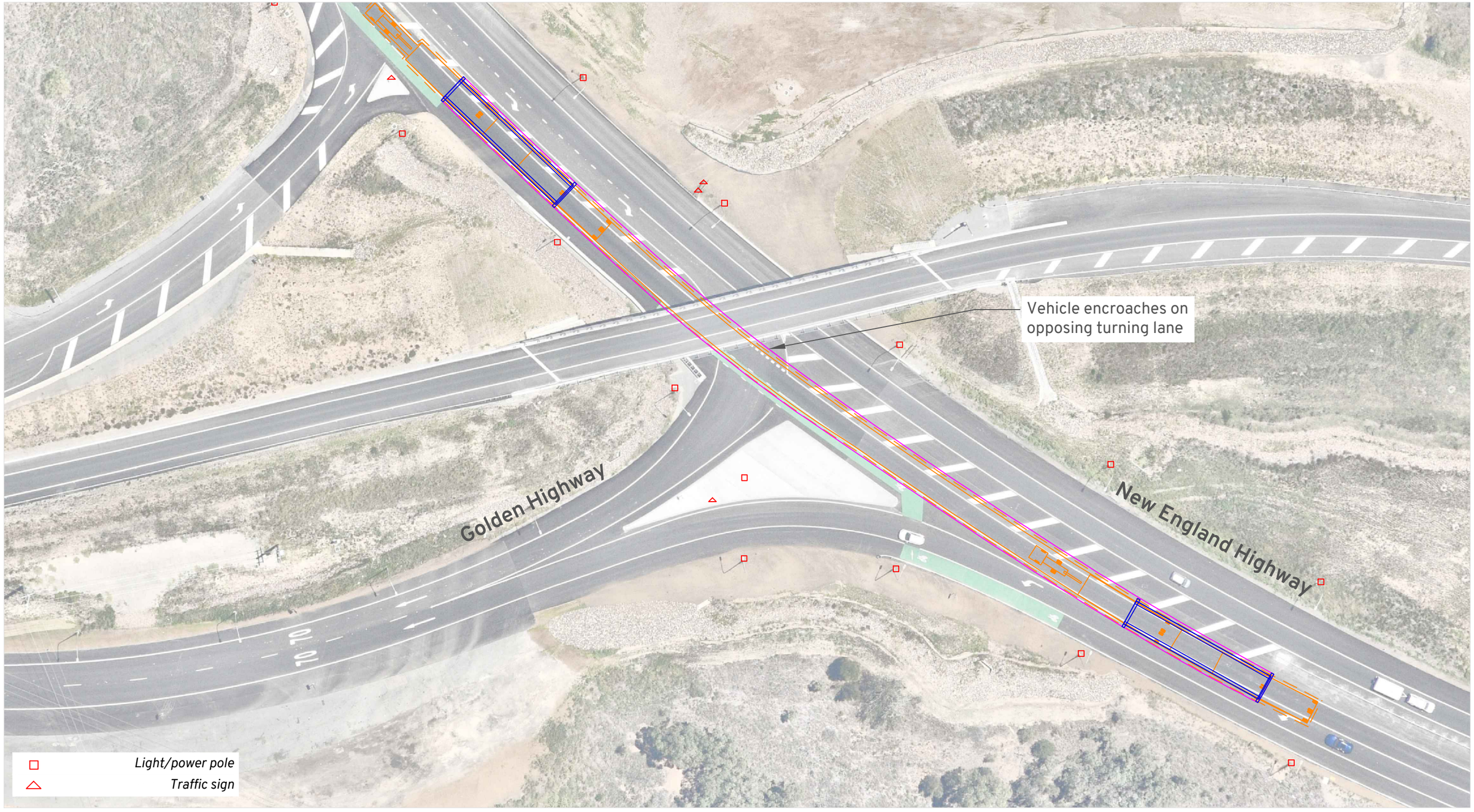
**Location:**
Buchanan NSW 2323
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:1000

Amber 04




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic to enable use of multiple lanes and encroachment into opposing turning lane. Spotter(s) to monitor path of travel and impact to existing infrastructure.

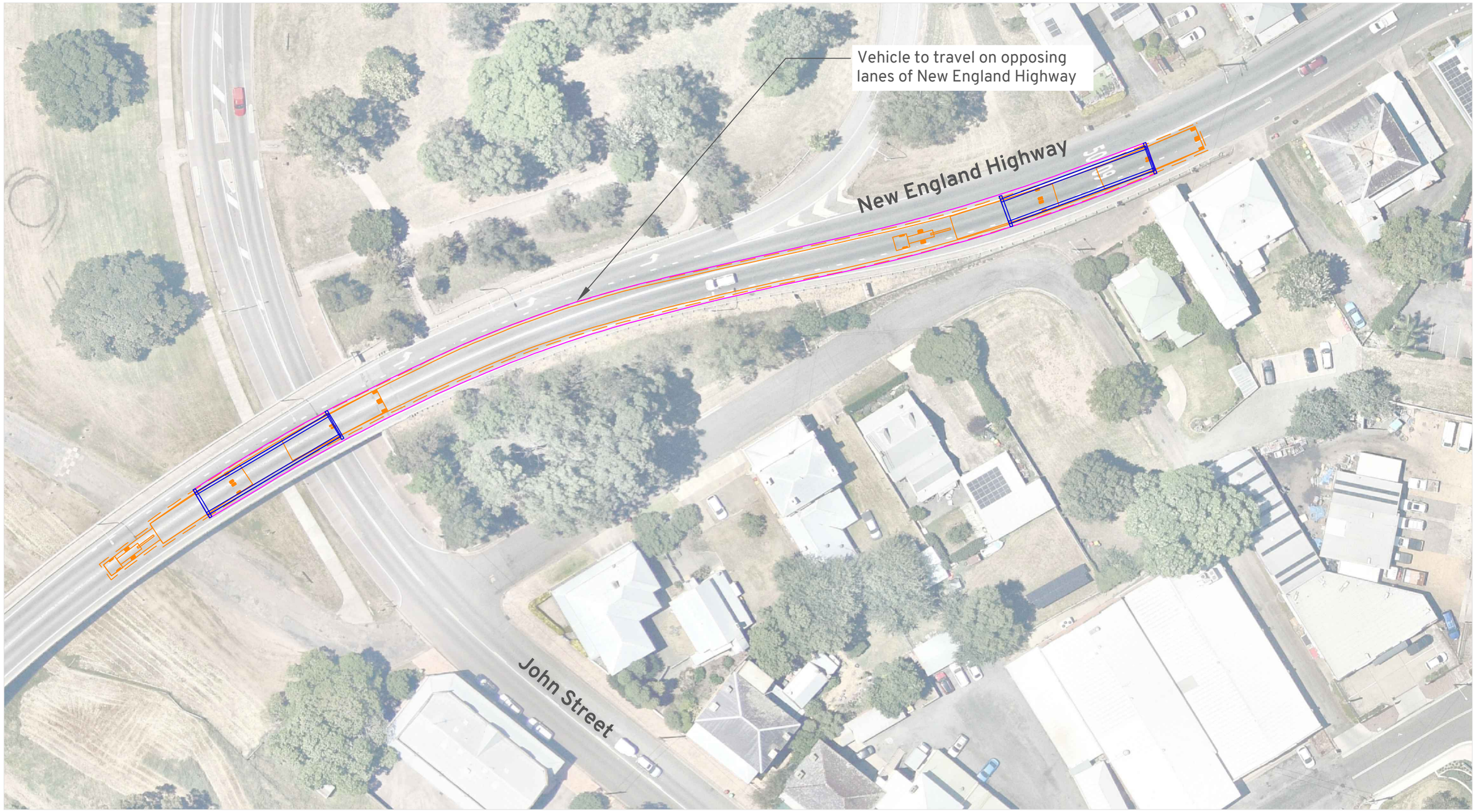
**Location:**
Whittingham NSW 2330
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber 05




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic and facilitate use of opposing traffic lanes where shown.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

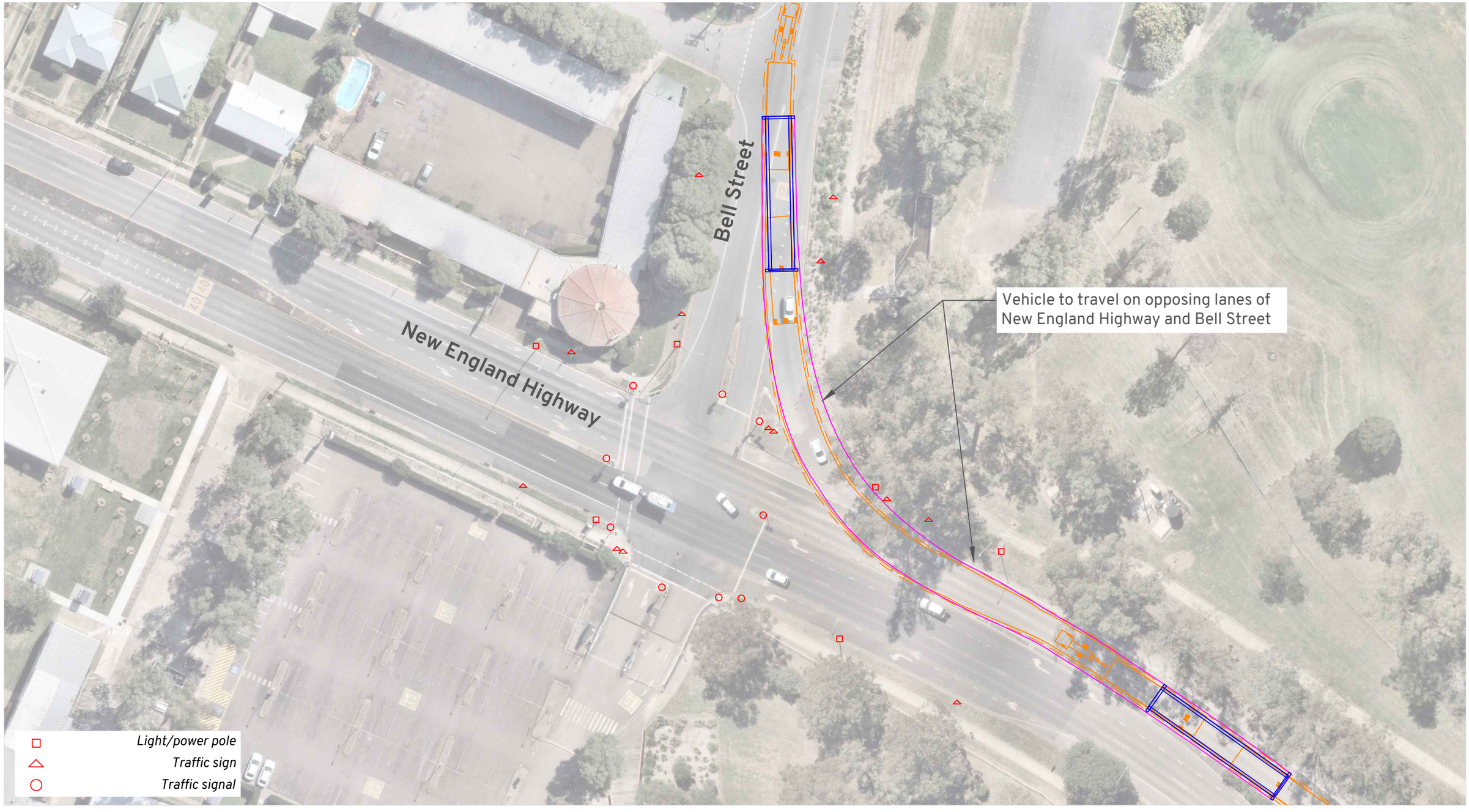
**Location:**
Singleton NSW 2330
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber 06




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing traffic lanes where shown.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

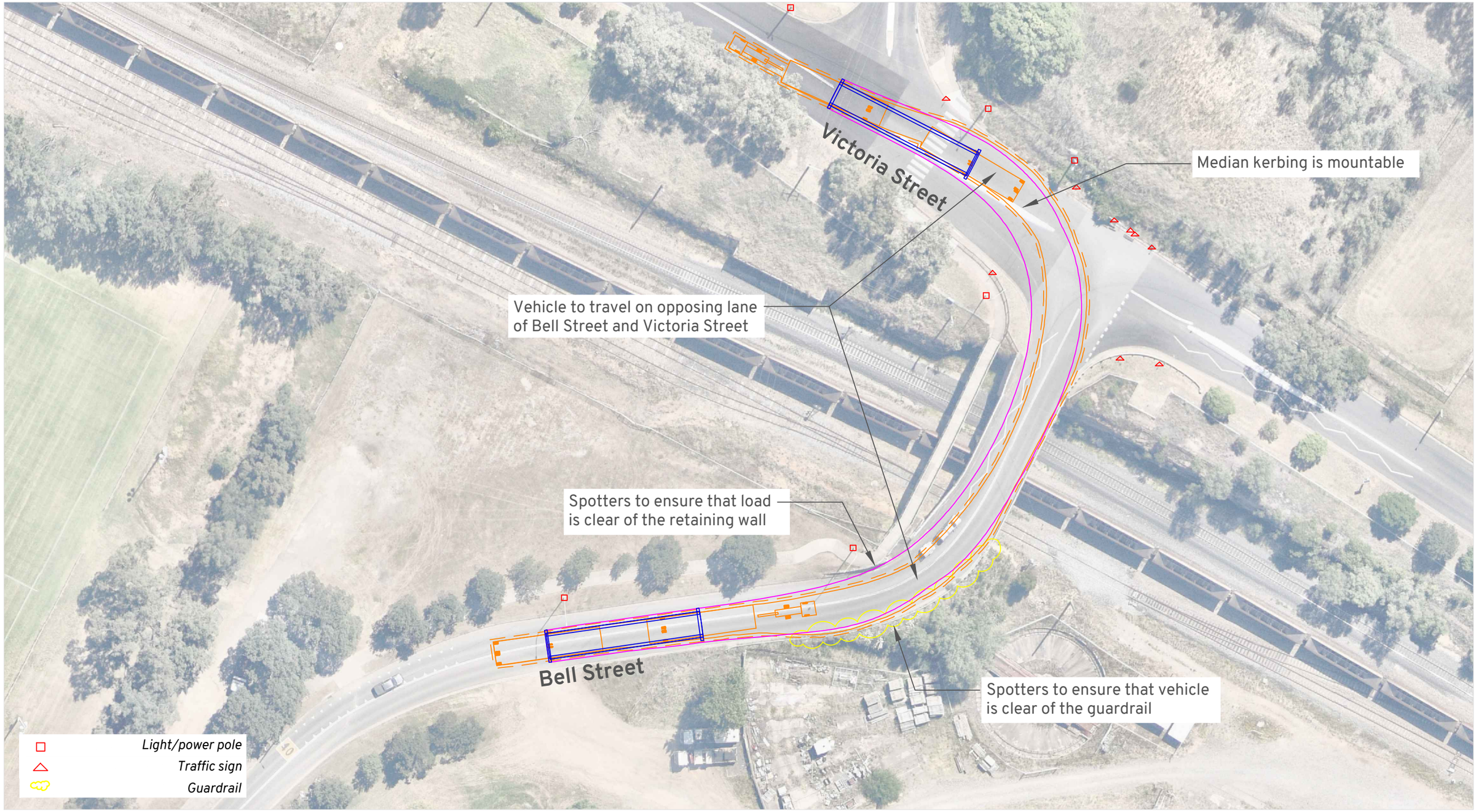
**Location:**
Muswellbrook NSW 2333
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber 07




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing traffic lanes where shown.
Spotter(s) to monitor path of travel and impact to existing infrastructure.
Mountable kerbing where shown.

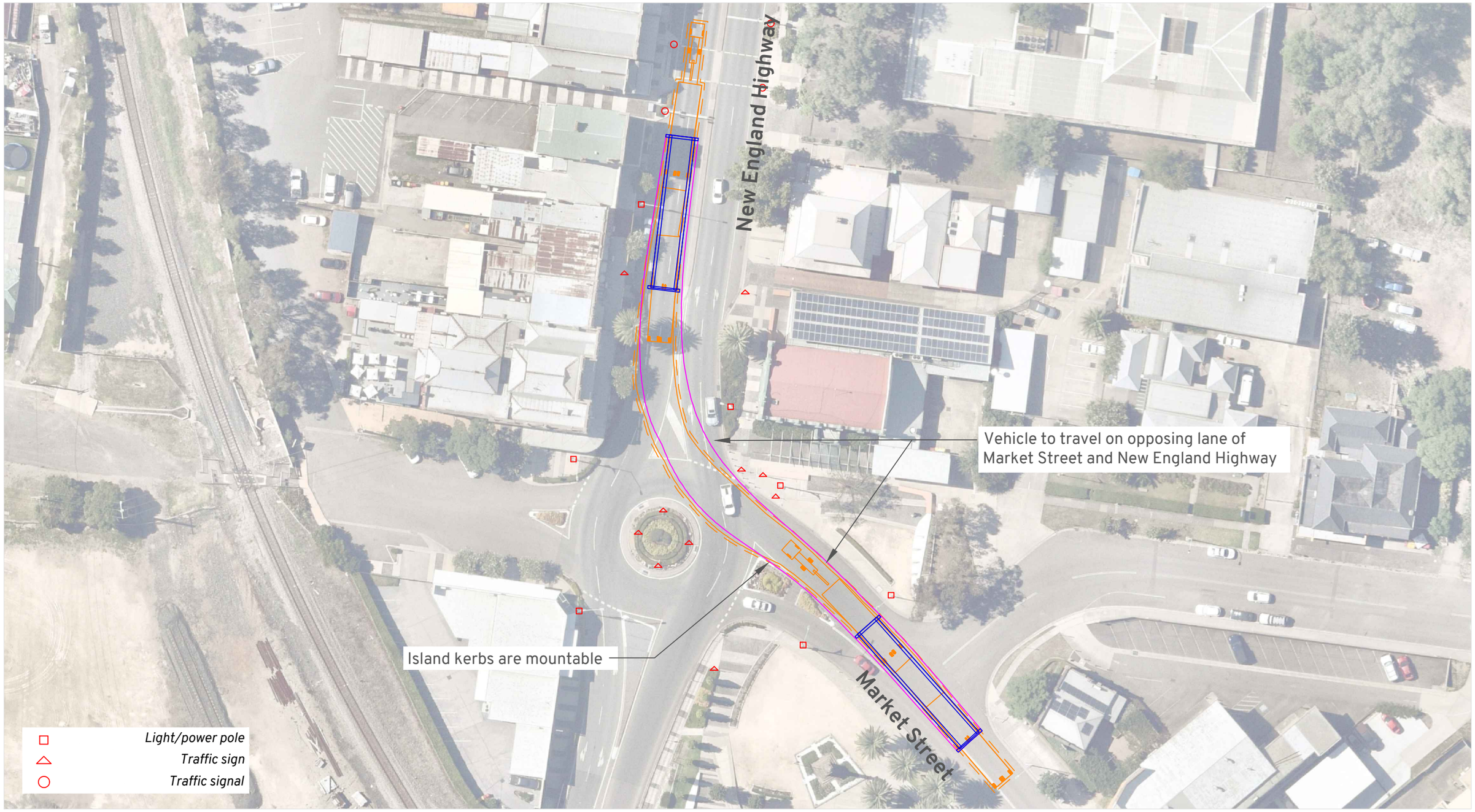
**Location:**
Muswellbrook NSW 2333
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing lanes where shown.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

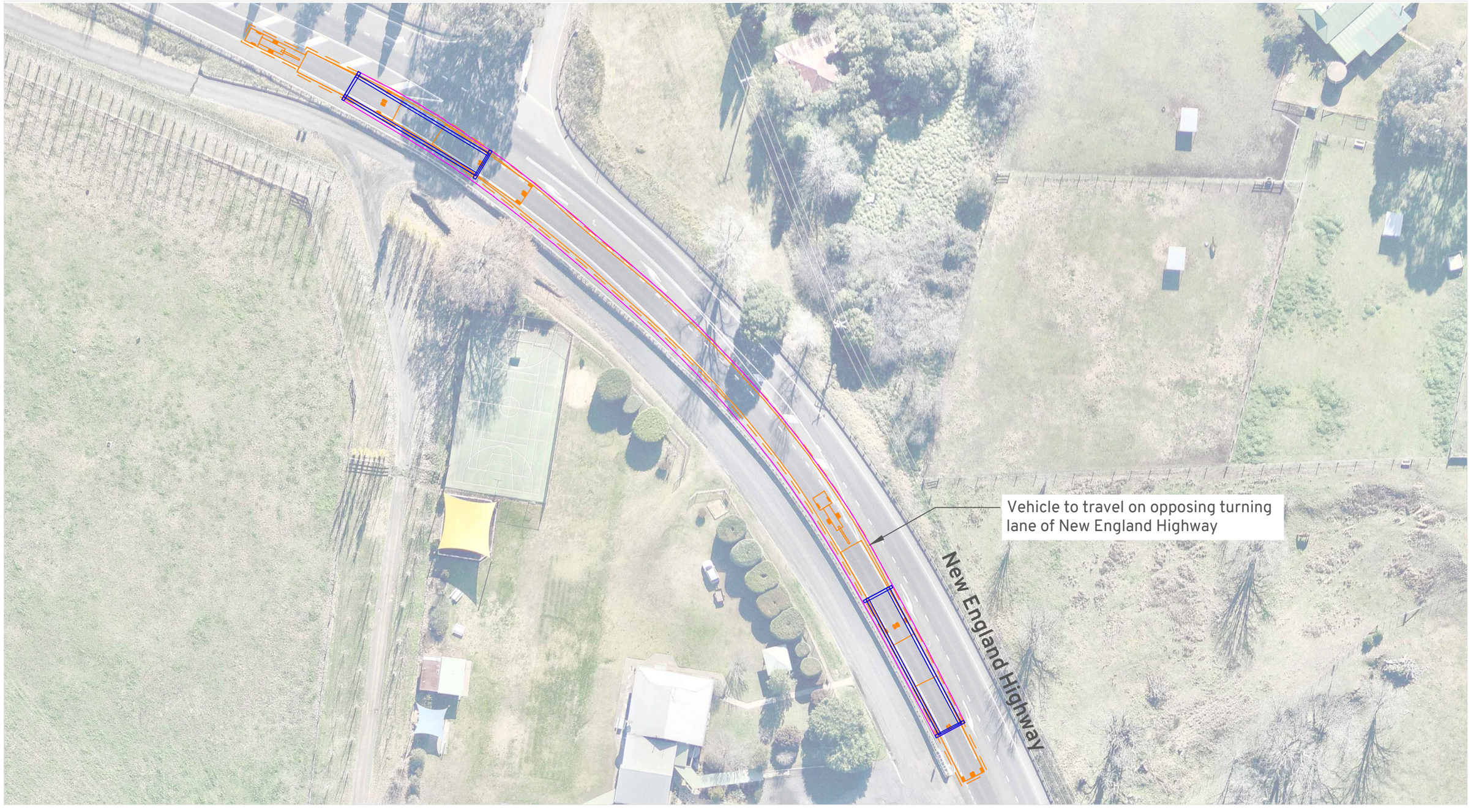
**Location:**
Muswellbrook NSW 2333
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber 09




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic and facilitate use of opposing traffic lanes where shown.
Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

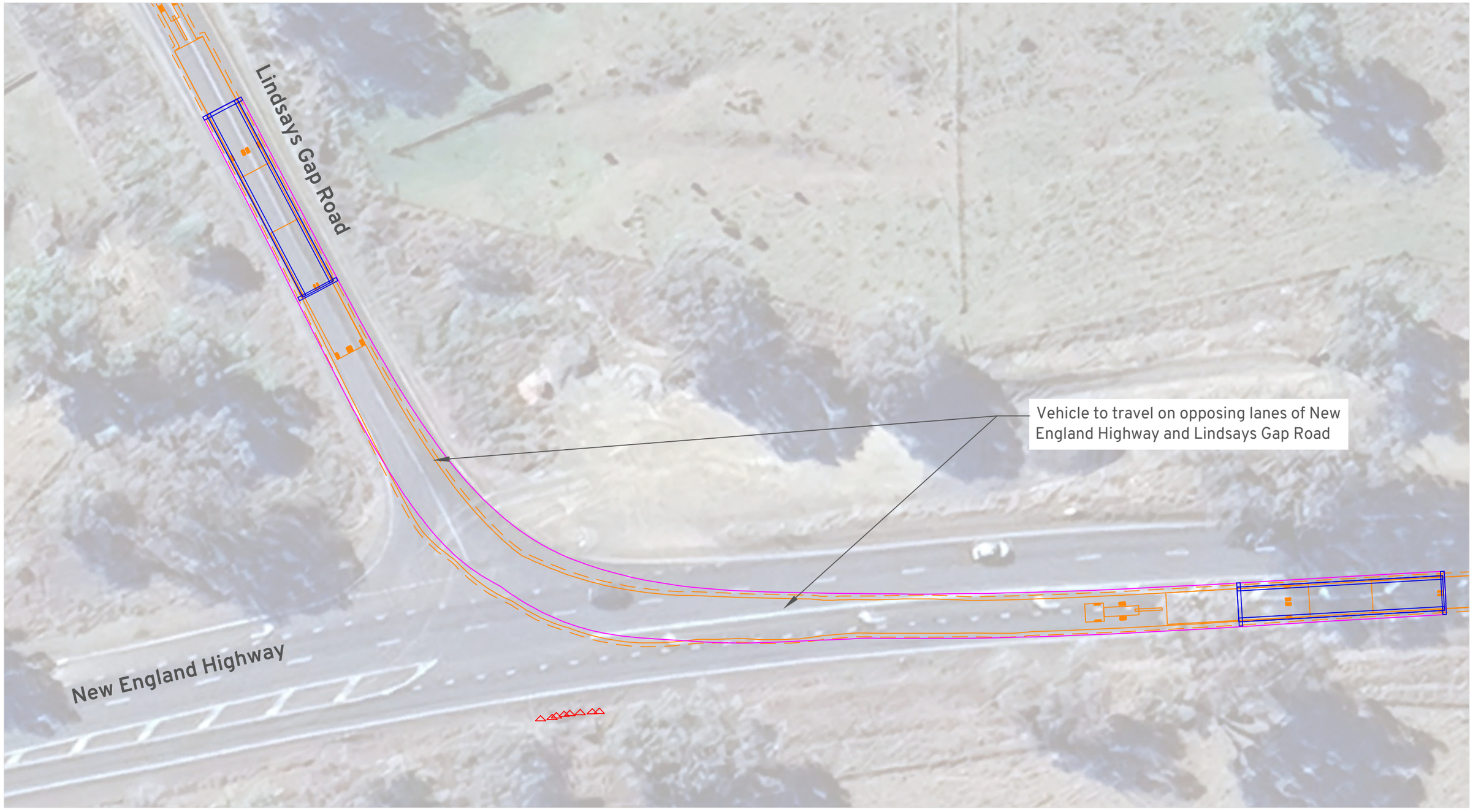
**Location:**
Blandford NSW 2338
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

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

**Location:**
Wallabadah NSW 2343
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:500

Amber 11


Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at bridge and facilitate use of opposing traffic lanes.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

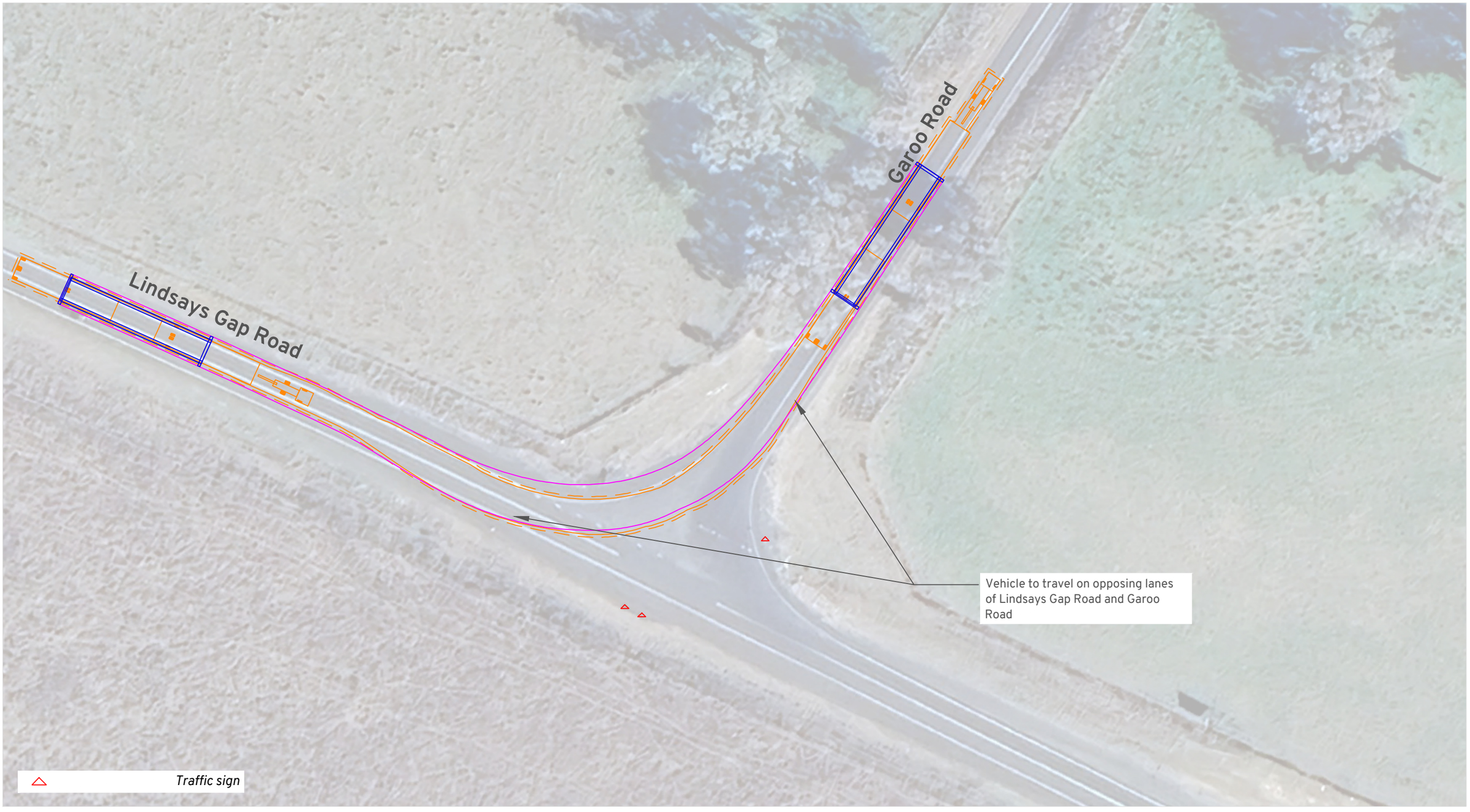
**Location:**
Garoo NSW 2340
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:500

Amber 12




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at intersection and facilitate use of opposing traffic lanes.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

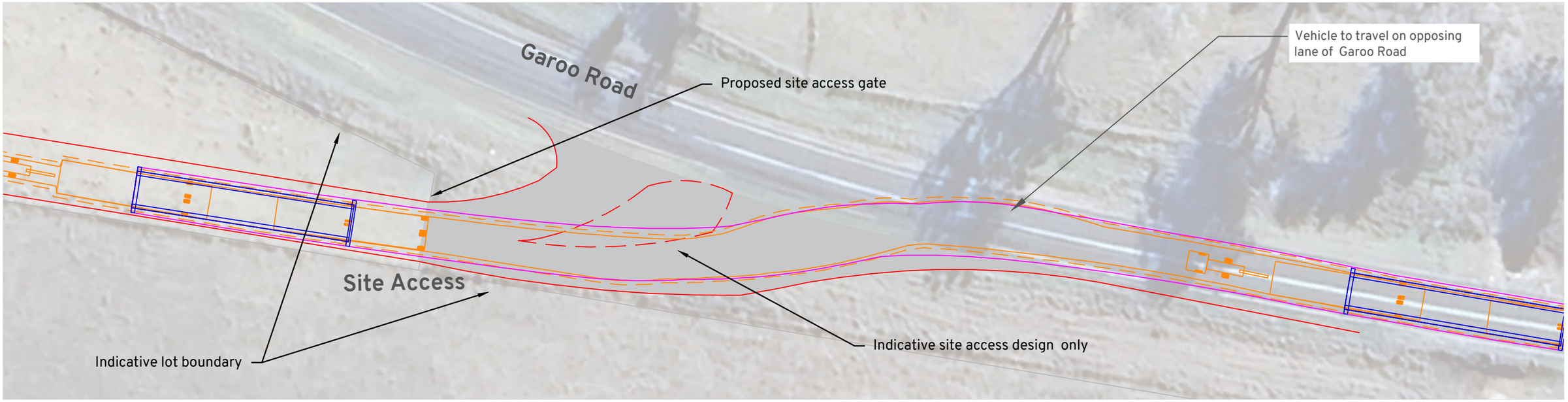
**Location:**
Garoo NSW 2340
*Online Map Link*

# OSOM Route Assessment

Garoo Solar Farm And BESS
Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber




Entry Manoeuvre


Exit Manoeuvre

Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Escorts to control traffic at site access and facilitate use of opposing traffic lanes where shown.
Spotter(s) to monitor path of travel and impact to existing infrastructure.

**Location:**
Garoo NSW 2340
*Online Map Link*

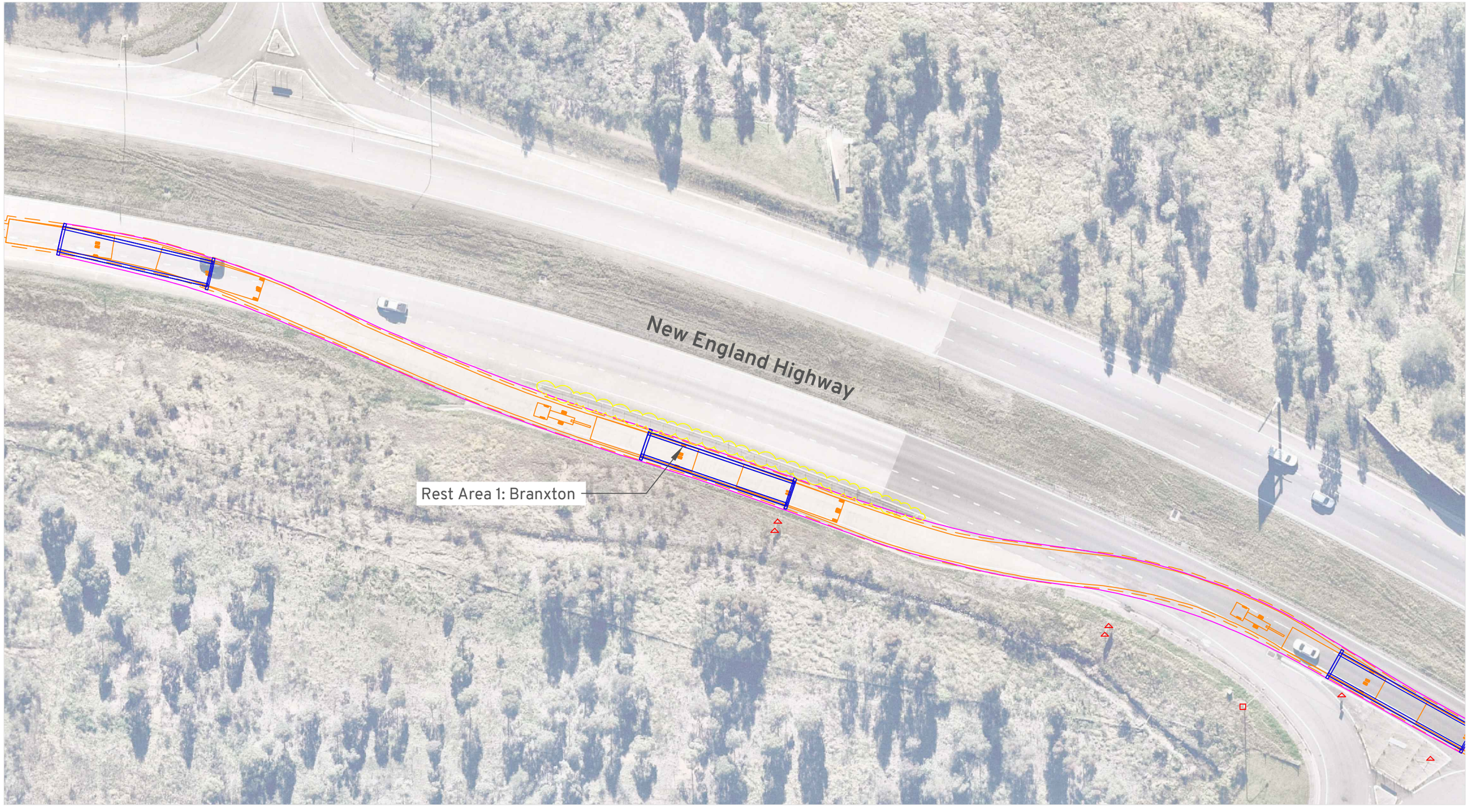
# OSOM Route Assessment

Garoo Solar Farm And BESS

Swept Path Assessment

DRAWN: SE
DATE: 11/02/2025
DWG NO: 1056 RA01C
SCALE at A3: 1:500

Amber




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

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

**Location:**
Branxton NSW 2335
*Online Map Link*

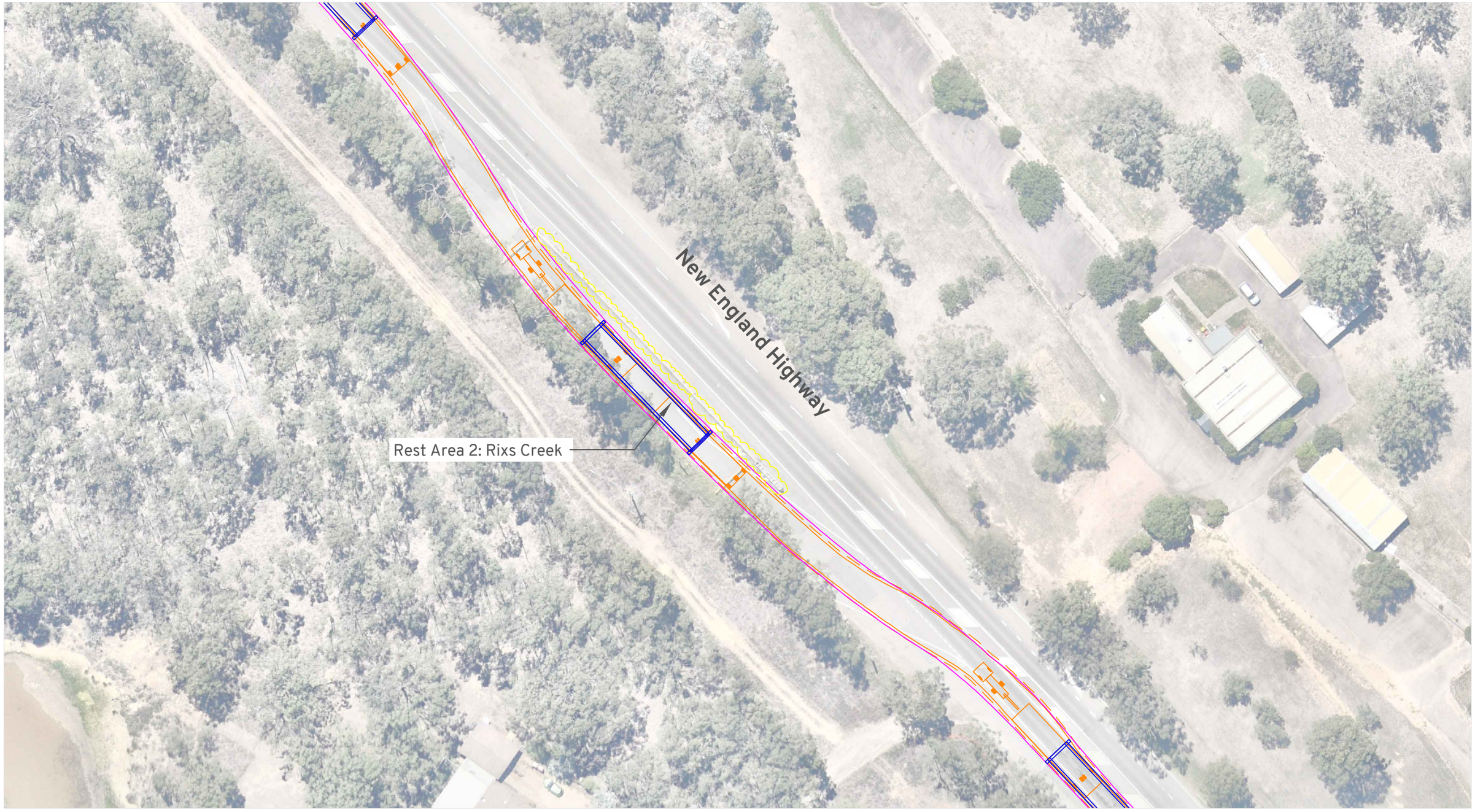
# OSOM Route Assessment

Garoo Solar Farm And BESS

Swept Path Assessment - Rest Area 1

DRAWN: SE
DATE: 31/10/2024
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber RA1




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

**Notes:**
Spotter(s) to monitor path of travel and impact to existing infrastructure.
This is a Heavy Vehicle Inspection Area.

**Location:**
Rixs Creek NSW 2330
*Online Map Link*

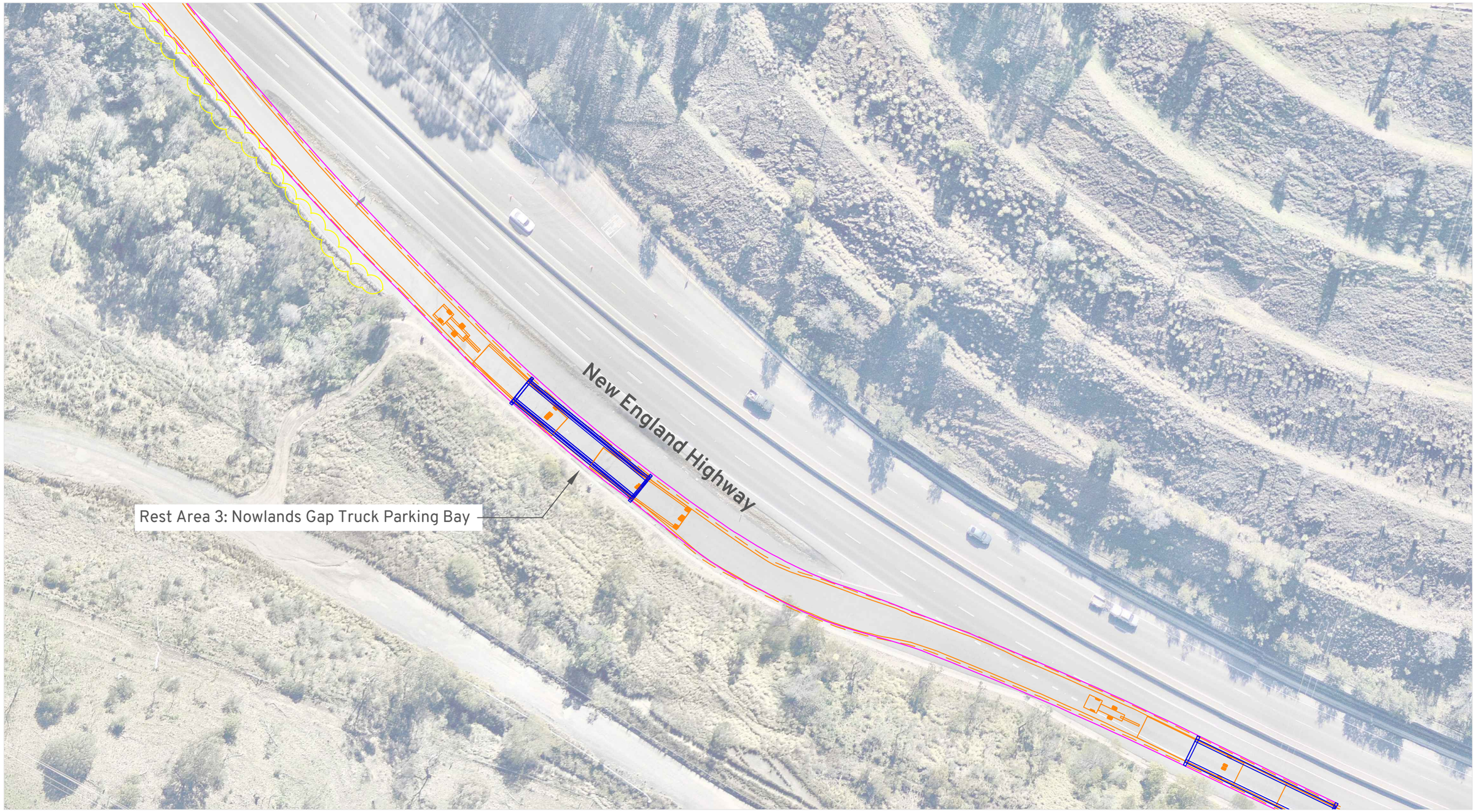
# OSOM Route Assessment

Garoo Solar Farm And BESS

Swept Path Assessment - Rest Area 2

DRAWN: SE
DATE: 31/10/2024
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber RA2




Vehicle Envelope

0.5m Clearance

Load Outlines

Load Path

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

**Location:**
Ardglen NSW 2338
*Online Map Link*

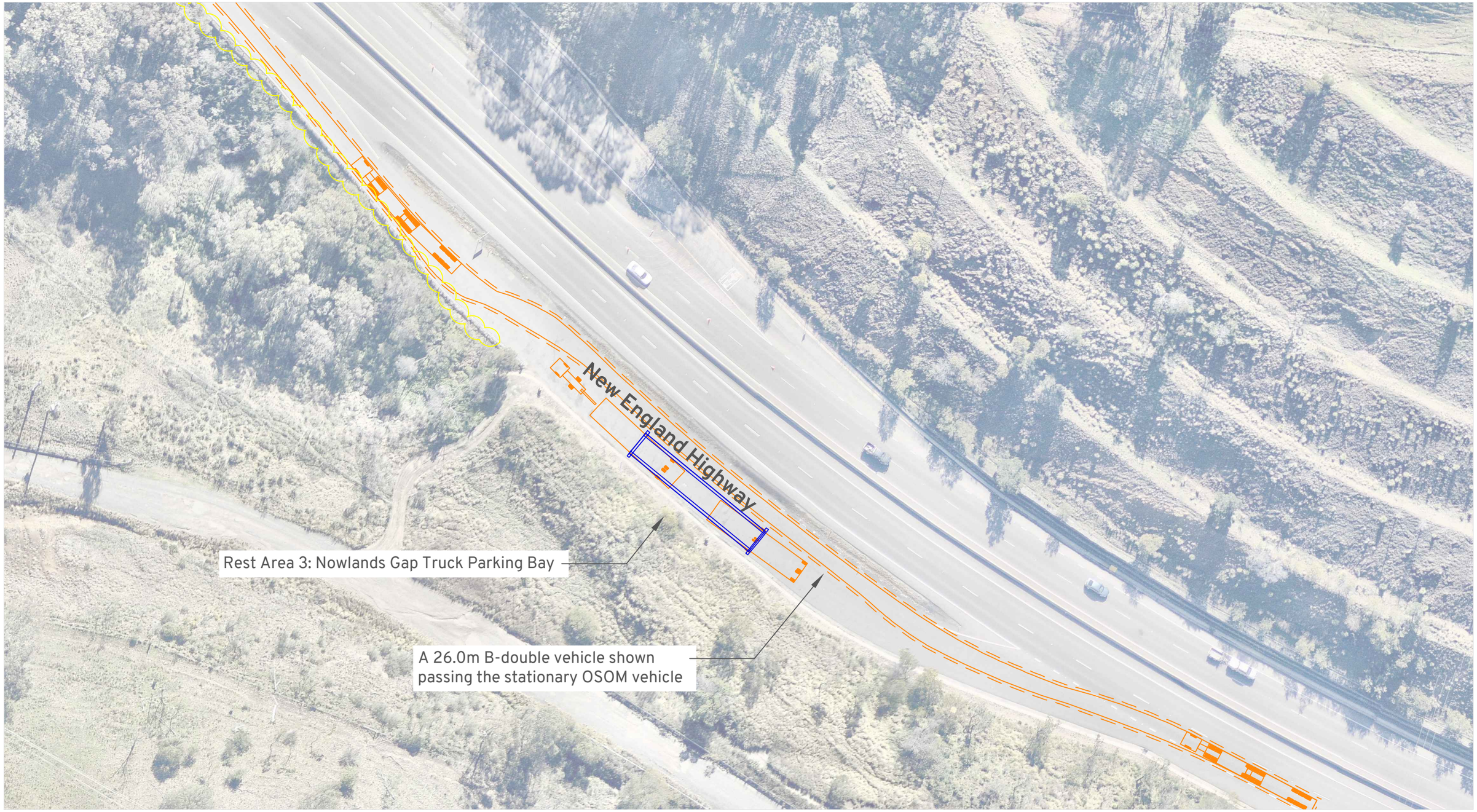
# OSOM Route Assessment

Garoo Solar Farm And BESS

Swept Path Assessment - Rest Area 3

DRAWN: SE
DATE: 31/10/2024
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber RA3a



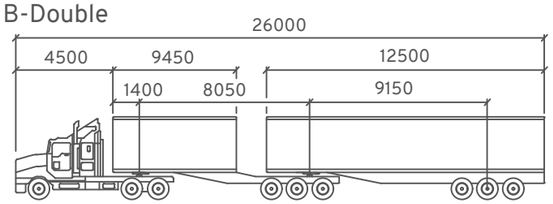

Vehicle Envelope

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 |

# OSOM Route Assessment

Garoo Solar Farm And BESS

Swept Path Assessment - Rest Area 3

DRAWN: SE
DATE: 31/10/2024
DWG NO: 1056 RA01C
SCALE at A3: 1:750

Amber RA3b

# Appendix B

## Response to Agency Advice – TfNSW and Tamworth Regional Council

| TfNSW Advice | Response / Where Addressed |
|---|---|
| The Environmental Impact Study to be submitted as part of the environmental planning process will need to include a Traffic Impact Assessment (TIA) prepared per the methodology set out in section 2 of the RTA Guide to Traffic Generating Developments 2002 and Part 12 of Austroads Guide to Traffic Management including:<br>• Hours, days and periods of construction.<br>• Schedule for phasing/staging of the project (including pre-construction, accommodation and ancillary infrastructure works) and identify the traffic volumes for each stage. | This Document, refer Section 3.2 for anticipated construction period and duration. |
| Traffic volumes:<br>• Surveyed existing background traffic at key intersections with State road network. Traffic surveys are required for each intersection with the State road networks and are to be in accordance with Part 3 *Austroads Guide to Traffic Management* with raw data included in the TIA.<br>• Project-related traffic volumes (measured as vehicle trips per hour and per day) for each stage, including pre-construction, construction, operation and decommissioning and identifying the peak period for traffic volumes.<br>• Traffic volumes are to include a description of:<br>○ Ratio of light vehicles to heavy vehicles.<br>○ Differentiation of Over Size/Over Mass (OSOM) that do or do not require an NHVR permit and proposed times of operation on the State road network.<br>○ Peak times for existing traffic and project-related traffic.<br>○ Transportation hours. | Refer Section 2.3 for existing volume, 4.2 for anticipated volumes. |
| • The origin, destination and routes for:<br>○ Employee and contractor light traffic.<br>○ Heavy vehicle traffic.<br>○ OSOM vehicle traffic (inclusive of high-risk)<br>○ OSOM high risk loads. | Refer Section 4.2.4, 6.3 for high-risk OSOM vehicles. |
| A description of all non-high risk OSOM vehicles and materials to be transported. The shortest and least trafficked route is to be given priority for movement of materials and machinery to minimise risk and impact to other motorists, so far as is reasonably practicable. | Refer Section 4.2.2 |
| The impact of generated traffic and measures employed to ensure efficiency and safety on the public road network during the project's construction, operation and decommissioning. This includes enforcement to manage traffic volumes, driver behaviour, and access paths to the site. | Refer Section 4.2, and Section 8 for TMP measures |
| A turn warrant assessment for the worst-case scenario (ie peak project traffic volumes applied to the identified background traffic at the construction and background peak hour) in accordance with Part 6 of Austroads Guide to Traffic Management is to be undertaken at identified key intersections on project routes, project site access and site access points to access ancillary infrastructure. | Refer Section 7.1 |
| TIA is to detail improvements to the road network, such as road widening and intersection treatments, to cater for and to mitigate the impact of project-related traffic (including accommodation and ancillary infrastructure components) at key intersections with State roads. Proposed road facilities, access and intersection treatments are to be identified and conform with Austroads Guide to Road Design and TfNSW Supplements, including safe intersection sight distance. Strategic designs are to include swept path analysis for largest vehicle passing through the intersection(s). | Refer Section 5 |
| Local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the project (eg fog, wet weather, etc) | Refer Section 8 |

| TfNSW Advice | Response / Where Addressed |
|---|---|
| Measures to be employed to ensure a high level of road safety for daily staff commutes between accommodation and the construction site, specifically addressing the impacts of unsafe driver behaviour and driver fatigue for all project stages and how measures employed will be enforced.<br><br>A review of crash data along the identified transport route/s for the most recent 5-year reporting period and an assessment of road safety along the proposed transport route/s. | Refer Section 8 for TMP measures including Driver Code of Conduct, 2.6 for crash statistics. |
| Details of emergency access/egress, including details of:<br><br>• The location of the emergency access(es).<br>• How the access will be managed (e.g. gates) to prevent non-emergency related vehicle movement from using it.<br>• Provision of sufficient storage at the throat of the access to allow emergency vehicle(s) to store within the access and not within the through lane or shoulder. | All emergency access is proposed to take place via the site access on Garoo Road or Bulls Road.<br><br>A review of the existing access on Bulls Road, which would only be used for emergencies, confirms that there is compliant sight distance and there is sufficient space between the existing gate and road edge to store vehicles (approx. 35m).<br><br>Refer Section 7.3 |
| In relation to the EIS, TfNSW requires the identification of ancillary infrastructure such as Electricity Transmission Lines that are crossing or near the state classified road network or rail infrastructure within TfNSW remit. In respect to this matter the following information is required:<br>• The heights or depths (under boring) and the vertical and horizontal clearances (overhead) in accordance with Austroads.<br>• The method for construction of the transmission lines.<br>• location of infrastructure relative to the road reserve, including demarcation of local and state classified road reserves.<br>• If excavation or fill is required adjacent to the road corridor.<br>• Access required to construct and maintain the infrastructure. Access points or access tracks required for ETLs or other infrastructure will require the same level of assessment as the primary project access point.<br>• Strategic concept designs for each transmission line crossing the state classified road network must be provided. | Not applicable.<br><br>No external transmission lines or infrastructure are proposed as part of the Project. |

| TfNSW Advice | Response / Where Addressed |
|---|---|
| If workforce accommodation or pre-construction minor works are proposed, then the TIA must include within the traffic assessment the construction schedule, identifying any overlapping activities, staging of the workforce accommodation and assessing the traffic impacts of the pre-construction minor works and workforce accommodation camp, if they are occurring prior to commencing construction works. The traffic assessment requirements identified in points 1-7 will apply to the workforce accommodation and pre-construction minor works stages and the impacts of each stage of pre-construction minor works, staging of workforce accommodation and any overlapping construction activities must be assessed. It will be imperative to also detail at a high level the traffic mitigation measures intended for these stages that are anticipated to commence prior to any road upgrades being completed at the intersection with the state road. | Details of accommodation camp provided in Section 4.2.1.1. |

| | |
|---|---|
| The route assessment is required for high risk OSOM (as defined on TfNSW website) delivering components to the project. The concept level route analysis must include:<br><br>• Port or point of origin for the entire route to the site access and intersections required to facilitate high-risk OSOM movements for the project.<br>• Timeframes for the commencement and completion of the deliveries of the high-risk OSOM movements within the construction schedule.<br>• Overall combination type, configuration, load and vehicle configuration.<br>• The laden dimensions, widths, lengths, heights, and weight of the vehicle configuration and loads for each high-risk OSOM vehicle required for the project.<br>• The TIA must include details of all high-risk OSOM loads and vehicle configurations for the project.<br>• Swept path analysis for the largest high-risk OSOM vehicles demonstrating that the largest high-risk OSOM vehicle can physically enter, exit and park without impacting travel lanes and that sufficient parking and access will be provided to other vehicle types permitted to access the identified rest area or pullover locations.<br>• Bridge Assessments for any at-risk bridges on classified roads due to dimensions and weight of OSOM vehicles.<br>• The design vehicle templates used in the swept path analysis software are also requested so that TfNSW can review the software's performance (e.g., Autodesk Vehicle Tracking or Transoft AutoTURN).<br>• Highlighting each at-risk road structure that the haulage route crosses, including bridges, transmission lines, medians, roundabouts, vegetation, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.<br>• Traffic mitigation measures or road works, modifications, or road upgrades to facilitate the movement of the high-risk OSOM(s) associated with the project.<br>• Where the EnergyCo P2R road upgrades are relied on to facilitate the project's high-risk OSOM movements, the pavement extents, scope of work, and bridge assessments for the P2R project are to be reviewed and assessed in relation to the project's proposed high-risk OSOM vehicle configuration and loads. Evidence of the consistency check with the EnergyCo P2R project is to form part of the high-risk route assessment. If any further upgrades are identified to facilitate the OSOM movements, strategic designs of the upgrades will be required.<br>• Swept paths are required for all pinch points along the State Road network identified in the route assessment.<br>• Strategic concept designs all pinch points on the State road network that require modifications and road upgrades (including median, lighting, signage, powerline relocation, traffic controlsignals, and widening).<br>• 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).<br>• The Hexham Straight is a notable project impacting Route 2. The route assessment must assess the alternative route via Newcastle Inner City Bypass to Newcastle Road for high-risk OSOM loads that do not exceed the vertical clearance limitations.<br>• Identify and assess the implications of any road and rail projects under construction during the indicative schedule for project-related OSOM movements.<br>• The identified route within the scoping report nominates a route through the town centre of Muswellbrook. TfNSW highlights on the approach to | Refer Section 6, Appendix A |

| TfNSW Advice | Response / Where Addressed |
|---|---|
| the Muswellbrook town centre on the New England Highway there is a rail overpass with a height clearance of 5.2m, width constraints and changing levels in the road geometry. This rail overpass will need to be assessed within the route analysis, as it is a known pinch point on the approach to Muswellbrook town centre.<br>*Note: NHVR permits do not cover road works, upgrades, or environmental approvals required along any proposed OSOM route. Any road or upgrade works required along the OSOM route must be included within the scope of work in the SSD to ensure the development is constructible.*<br>*Note: Given the high amount of renewable energy and other large-scale projects requiring road haulage of OSOM components, restrictions and limitations on OSOM movements may be imposed. In this regard, it is recommended you engage earlier with TfNSW's Development Services Renewables team to discuss the requirements of the route assessment.* | |

| Tamworth Regional Council Advice | Response / Where Addressed |
|---|---|
| As identified in the draft SEARs, a TIA report is to be provided with the EIS that addresses traffic movements into and out of the site during the construction, operational and decommissioning phases of the proposed BESS. Additionally, the TIA report needs to:<br>• address vehicle movements (including trucks, cars etc.) both in and out of the site on a 24 hours/day, 7 days a week basis and should also consider existing, proposed and predicted (when running at full capacity) traffic volumes;<br>• clearly identify and assess haulage routes to and from the site during the construction, operational and decommissioning phases of the proposed development, and address Transport for NSW, AUSTROADS, and Council guidelines/standards;<br>• consider the potential impact any road upgrade works will have on existing land uses; and, in respect of the anticipated construction traffic, adequacy and dilapidation surveys of all infrastructure including pavements, culverts and bridges shall be conducted. These surveys shall form the basis of agreements with regards to upgrades, ongoing management, and reinstatement of the infrastructure during construction and prior to final commissioning of the site. | This Document, refer Section 4 for the anticipated traffic volumes and impacts<br>Haulage vehicle routes are outlined in Section 5 and 6.<br>An assessment if the impacts on the site access route are included in Section 7. |
| Pavement deterioration and dust nuisance shall be the subject of specific management plans. (Internal and external). | Section 8 outlines measures for a future TMP to apply during construction. |
| Identified in Section 3.1.7 of the scoping report, the access point to the project area during construction and operation is proposed via an unsealed access track that connects Garoo Road and Bull Road. All internal roads and access roads will require upgrading in line with the anticipated vehicles to utilise the site and this should be incorporated within TIA and road maintenance contributions. | It is proposed to upgrade the site access as outlined in Section 7.1.4, Appendix D This would be subject to future detailed design. |
| Lindsays Gap Road, Garoo Road and Bulls Road will likely require upgrade works to cater for the anticipated vehicles to utilise the site. The extent of these works will be considered based on projected traffic volumes, vehicle size and peak periods. This would be subject to further discussion. | An assessment if the impacts on the site access route are included in Section 7. |
| One-way bridges & culverts are located on the nominated transport routes which will likely require upgrading works. The extent of these works will be considered based on projected traffic volumes, vehicle size and peak periods. This would be subject to further discussion. | Preliminary advice has been received on the bridges on the local road network. The impact is subject to further assessment as outlined in Section 6.4.1 and management measures (Section 8). |
| The proponent indicates initial access to the site will be done via Garoo Road. The current arrangement of Garoo Road and access to the site is shown below. Access is proposed through (what appears to be crown road reserve – title search required to confirm) – Driveway access to be provided in accordance with Council's minimum design standards and Austroads. | Noted, this is to be addressed as part of further design development of the access and future approvals. |

| Tamworth Regional Council Advice | Response / Where Addressed |
|---|---|
| Approval for works within crown road reserve and adjoining lot (Lot 1 DP 250846) required to be addressed.<br>  | |
| Confirmation of planning requirements including and presumed lot consolidation including and redundant road reserves (a portion of Bulls Road) | Noted, to be addressed as part of further design development of the access and future approvals. |
| At a minimum it is expected level 3 bridge inspections of structures along the proposed haulage routes shall be undertaken to ascertain structure capacity. This will dictate proposed upgrades/restrictions to be addressed as part of any proposed haulage routes | Noted, this is to be undertaken as logistics and material transport requirements are confirmed. |

# Appendix C

## Traffic Survey Data

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

## TURNING MOVEMENT SURVEY

## Intersection of Garoo Rd and New England Hwy, Garoo

***GPS*** *-31.384073, 150.879315*

| | |
|---|---|
| ***Date:*** | Wed 04/12/24 |
| ***Weather:*** | Overcast |
| ***Suburban:*** | Garoo |
| ***Customer:*** | Amber |

| | |
|---|---|
| ***North:*** | New England Hwy |
| ***East:*** | Garoo Rd |
| ***South:*** | New England Hwy |
| ***West:*** | N/A |

| | | |
|---|---|---|
| ***Survey Period*** | AM: | 6:00 AM-10:00 AM |
| | PM: | 2:00 PM-6:00 PM |
| ***Traffic Peak*** | AM: | 9:00 AM-10:00 AM |
| | PM: | 2:30 PM-3:30 PM |

***All Vehicles***

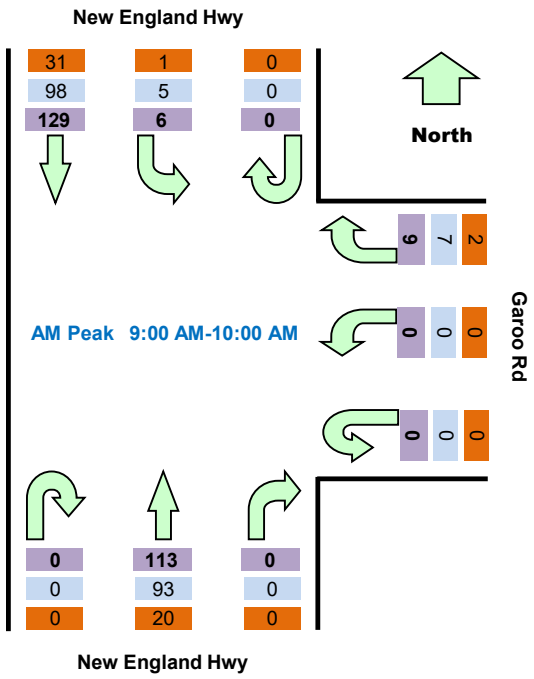
| Time | | th Approach New England H | | | East Approach Garoo Rd | | | th Approach New England I | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | Hour | Peak |
| 6:00 | 6:15 | 0 | 12 | 1 | 0 | 3 | 0 | 0 | 0 | 7 | 115 | |
| 6:15 | 6:30 | 0 | 18 | 1 | 0 | 0 | 1 | 0 | 0 | 11 | 131 | |
| 6:30 | 6:45 | 0 | 21 | 1 | 0 | 1 | 1 | 0 | 0 | 9 | 148 | |
| 6:45 | 7:00 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 13 | 164 | |
| 7:00 | 7:15 | 0 | 18 | 0 | 0 | 5 | 1 | 0 | 0 | 15 | 179 | |
| 7:15 | 7:30 | 0 | 28 | 4 | 0 | 3 | 1 | 0 | 0 | 12 | 196 | |
| 7:30 | 7:45 | 0 | 20 | 3 | 0 | 2 | 1 | 0 | 0 | 23 | 214 | |
| 7:45 | 8:00 | 0 | 19 | 2 | 0 | 5 | 0 | 0 | 0 | 17 | 203 | |
| 8:00 | 8:15 | 0 | 23 | 3 | 0 | 1 | 0 | 0 | 1 | 28 | 216 | |
| 8:15 | 8:30 | 0 | 25 | 5 | 0 | 1 | 1 | 0 | 0 | 34 | 215 | |
| 8:30 | 8:45 | 0 | 16 | 1 | 0 | 1 | 0 | 0 | 0 | 20 | 218 | |
| 8:45 | 9:00 | 0 | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 26 | 239 | |
| 9:00 | 9:15 | 0 | 34 | 1 | 0 | 1 | 0 | 0 | 0 | 19 | 257 | Peak |
| 9:15 | 9:30 | 0 | 34 | 3 | 0 | 2 | 0 | 0 | 0 | 30 | | |
| 9:30 | 9:45 | 0 | 28 | 1 | 0 | 3 | 0 | 0 | 0 | 27 | | |
| 9:45 | 10:00 | 0 | 33 | 1 | 0 | 3 | 0 | 0 | 0 | 37 | | |
| 14:00 | 14:15 | 0 | 38 | 2 | 0 | 3 | 0 | 0 | 0 | 25 | 248 | |
| 14:15 | 14:30 | 0 | 19 | 2 | 0 | 3 | 0 | 0 | 1 | 28 | 249 | |
| 14:30 | 14:45 | 0 | 33 | 3 | 0 | 1 | 1 | 0 | 0 | 36 | 261 | Peak |
| 14:45 | 15:00 | 0 | 25 | 2 | 0 | 2 | 0 | 0 | 0 | 24 | 254 | |
| 15:00 | 15:15 | 0 | 24 | 4 | 0 | 3 | 0 | 0 | 0 | 38 | 255 | |
| 15:15 | 15:30 | 0 | 20 | 3 | 0 | 4 | 0 | 0 | 0 | 38 | 241 | |
| 15:30 | 15:45 | 0 | 30 | 1 | 0 | 1 | 1 | 0 | 1 | 33 | 250 | |
| 15:45 | 16:00 | 0 | 24 | 3 | 0 | 2 | 0 | 0 | 0 | 25 | 228 | |
| 16:00 | 16:15 | 0 | 20 | 3 | 0 | 4 | 0 | 0 | 0 | 28 | 234 | |
| 16:15 | 16:30 | 0 | 28 | 5 | 0 | 4 | 0 | 0 | 0 | 37 | 229 | |
| 16:30 | 16:45 | 0 | 19 | 2 | 0 | 2 | 0 | 0 | 0 | 22 | 198 | |
| 16:45 | 17:00 | 0 | 32 | 2 | 0 | 4 | 0 | 0 | 1 | 21 | 192 | |

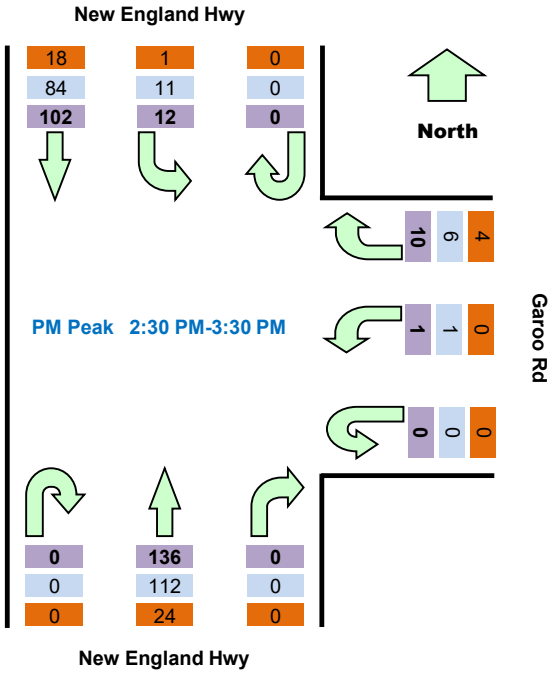
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17:00 | 17:15 | 0 | 23 | 0 | 0 | 3 | 0 | 0 | 0 | 24 | 175 | |
| 17:15 | 17:30 | 0 | 23 | 4 | 0 | 2 | 0 | 0 | 0 | 14 | | |
| 17:30 | 17:45 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | | |
| 17:45 | 18:00 | 0 | 18 | 10 | 0 | 1 | 0 | 0 | 0 | 14 | | |

| Peak Time | | th Approach New England H | | | East Approach Garoo Rd | | | th Approach New England I | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | total |
| 9:00 | 10:00 | 0 | 129 | 6 | 0 | 9 | 0 | 0 | 0 | 113 | 257 |
| 14:30 | 15:30 | 0 | 102 | 12 | 0 | 10 | 1 | 0 | 0 | 136 | 261 |

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

Total
Light
Heavy




***Light Vehicles***

| Time | | th Approach New England H | | | East Approach Garoo Rd | | | th Approach New England I | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 6:00 | 6:15 | 0 | 9 | 1 | 0 | 3 | 0 | 0 | 0 | 3 |
| 6:15 | 6:30 | 0 | 12 | 0 | 0 | 0 | 1 | 0 | 0 | 6 |
| 6:30 | 6:45 | 0 | 15 | 1 | 0 | 1 | 1 | 0 | 0 | 7 |
| 6:45 | 7:00 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 7:00 | 7:15 | 0 | 13 | 0 | 0 | 4 | 1 | 0 | 0 | 11 |
| 7:15 | 7:30 | 0 | 21 | 3 | 0 | 3 | 1 | 0 | 0 | 8 |
| 7:30 | 7:45 | 0 | 17 | 3 | 0 | 1 | 1 | 0 | 0 | 19 |
| 7:45 | 8:00 | 0 | 14 | 1 | 0 | 5 | 0 | 0 | 0 | 15 |
| 8:00 | 8:15 | 0 | 21 | 1 | 0 | 1 | 0 | 0 | 1 | 20 |
| 8:15 | 8:30 | 0 | 19 | 3 | 0 | 0 | 1 | 0 | 0 | 28 |
| 8:30 | 8:45 | 0 | 16 | 1 | 0 | 1 | 0 | 0 | 0 | 17 |
| 8:45 | 9:00 | 0 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 19 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9:00 | 9:15 | 0 | 28 | 1 | 0 | 1 | 0 | 0 | 0 | 15 |
| 9:15 | 9:30 | 0 | 23 | 2 | 0 | 1 | 0 | 0 | 0 | 25 |
| 9:30 | 9:45 | 0 | 22 | 1 | 0 | 2 | 0 | 0 | 0 | 22 |
| 9:45 | 10:00 | 0 | 25 | 1 | 0 | 3 | 0 | 0 | 0 | 31 |
| 14:00 | 14:15 | 0 | 29 | 2 | 0 | 1 | 0 | 0 | 0 | 20 |
| 14:15 | 14:30 | 0 | 16 | 2 | 0 | 3 | 0 | 0 | 1 | 24 |
| 14:30 | 14:45 | 0 | 26 | 3 | 0 | 1 | 1 | 0 | 0 | 30 |
| 14:45 | 15:00 | 0 | 24 | 2 | 0 | 1 | 0 | 0 | 0 | 22 |
| 15:00 | 15:15 | 0 | 22 | 3 | 0 | 1 | 0 | 0 | 0 | 30 |
| 15:15 | 15:30 | 0 | 12 | 3 | 0 | 3 | 0 | 0 | 0 | 30 |
| 15:30 | 15:45 | 0 | 24 | 0 | 0 | 0 | 1 | 0 | 1 | 28 |
| 15:45 | 16:00 | 0 | 22 | 3 | 0 | 2 | 0 | 0 | 0 | 20 |
| 16:00 | 16:15 | 0 | 19 | 3 | 0 | 4 | 0 | 0 | 0 | 24 |
| 16:15 | 16:30 | 0 | 20 | 4 | 0 | 4 | 0 | 0 | 0 | 32 |
| 16:30 | 16:45 | 0 | 15 | 2 | 0 | 1 | 0 | 0 | 0 | 19 |
| 16:45 | 17:00 | 0 | 29 | 2 | 0 | 4 | 0 | 0 | 1 | 18 |
| 17:00 | 17:15 | 0 | 17 | 0 | 0 | 3 | 0 | 0 | 0 | 20 |
| 17:15 | 17:30 | 0 | 19 | 4 | 0 | 2 | 0 | 0 | 0 | 10 |
| 17:30 | 17:45 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 17:45 | 18:00 | 0 | 18 | 10 | 0 | 1 | 0 | 0 | 0 | 12 |

| Peak Time | | th Approach New England H | | | East Approach Garoo Rd | | | th Approach New England I | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | total |
| 9:00 | 10:00 | 0 | 98 | 5 | 0 | 7 | 0 | 0 | 0 | 93 | 203 |
| 14:30 | 15:30 | 0 | 84 | 11 | 0 | 6 | 1 | 0 | 0 | 112 | 214 |

***Heavy Vehicles***

| Time | | th Approach New England H | | | East Approach Garoo Rd | | | th Approach New England I | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 6:00 | 6:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 6:15 | 6:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 6:30 | 6:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 6:45 | 7:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 7:00 | 7:15 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| 7:15 | 7:30 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:30 | 7:45 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| 7:45 | 8:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 8:00 | 8:15 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 8 |
| 8:15 | 8:30 | 0 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 6 |
| 8:30 | 8:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 8:45 | 9:00 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 9:00 | 9:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 9:15 | 9:30 | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 5 |
| 9:30 | 9:45 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 5 |
| 9:45 | 10:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 14:00 | 14:15 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 5 |
| 14:15 | 14:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 14:30 | 14:45 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 14:45 | 15:00 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 15:00 | 15:15 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 8 |
| 15:15 | 15:30 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 8 |
| 15:30 | 15:45 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 5 |
| 15:45 | 16:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:00 | 16:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 16:15 | 16:30 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:30 | 16:45 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| 16:45 | 17:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 17:00 | 17:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:15 | 17:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:30 | 17:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

| **Peak Time** | | **th Approach New England H** | | | **East Approach Garoo Rd** | | | **th Approach New England H** | | | **Peak** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Period Start** | **Period End** | U | SB | L | U | R | L | U | R | NB | **total** | |
| 9:00 | 10:00 | 0 | 31 | 1 | 0 | 2 | 0 | 0 | 0 | 20 | 54 | 21% |
| 14:30 | 15:30 | 0 | 18 | 1 | 0 | 4 | 0 | 0 | 0 | 24 | 47 | 18% |

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

## TURNING MOVEMENT SURVEY

## Intersection of Lindsays Gap Rd and New England Hwy, V

***GPS*** *-31.494601, 150.864984*

| | |
|---|---|
| ***Date:*** | Wed 04/12/24 |
| ***Weather:*** | Overcast |
| ***Suburban:*** | Wallabadah |
| ***Customer:*** | Amber |

| | |
|---|---|
| ***North:*** | New England Hwy |
| ***East:*** | Lindsays Gap Rd |
| ***South:*** | New England Hwy |
| ***West:*** | N/A |

| | | |
|---|---|---|
| ***Survey Period*** | AM: | 6:00 AM-10:00 AM |
| | PM: | 2:00 PM-6:00 PM |
| ***Traffic Peak*** | AM: | 9:00 AM-10:00 AM |
| | PM: | 2:30 PM-3:30 PM |

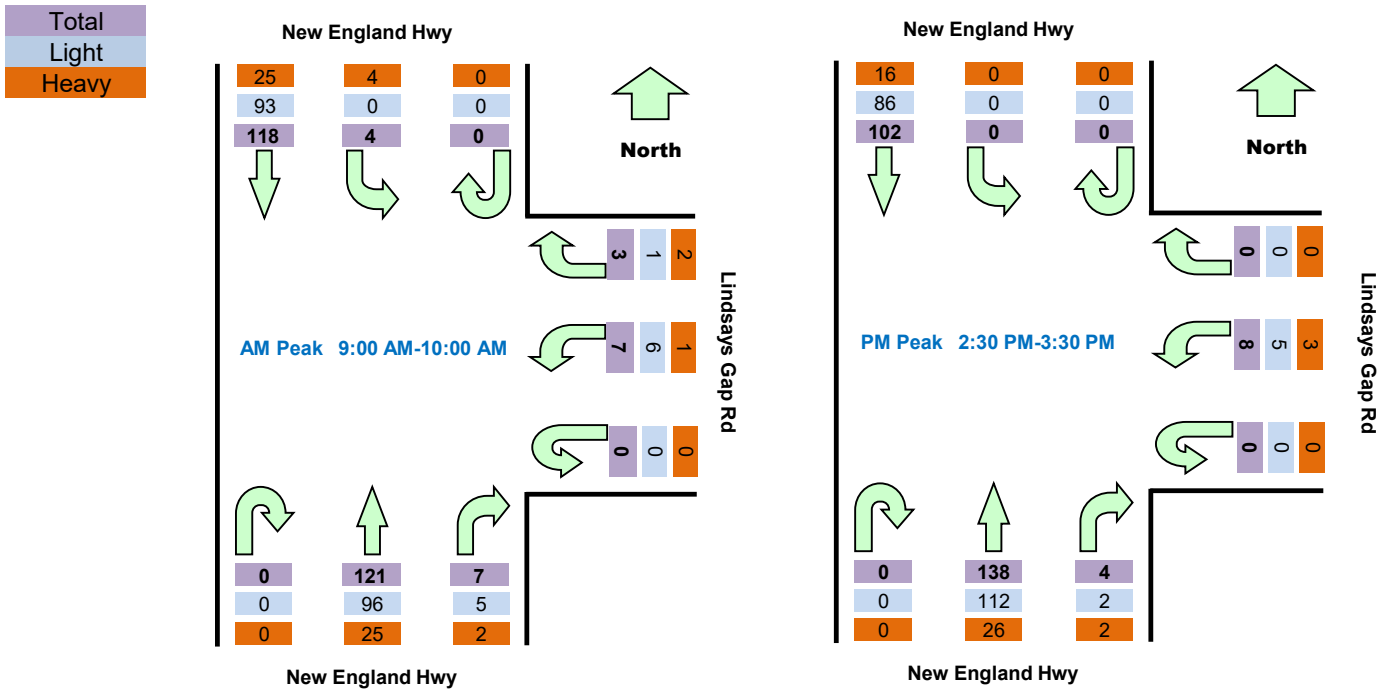
***All Vehicles***

| Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England H | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | Hour | Peak |
| 6:00 | 6:15 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 3 | 11 | 120 | |
| 6:15 | 6:30 | 0 | 13 | 1 | 0 | 0 | 0 | 0 | 1 | 7 | 134 | |
| 6:30 | 6:45 | 0 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 15 | 153 | |
| 6:45 | 7:00 | 0 | 17 | 2 | 0 | 0 | 1 | 2 | 1 | 13 | 168 | |
| 7:00 | 7:15 | 0 | 15 | 0 | 0 | 3 | 3 | 0 | 2 | 15 | 184 | |
| 7:15 | 7:30 | 0 | 14 | 1 | 0 | 1 | 1 | 0 | 5 | 19 | 199 | |
| 7:30 | 7:45 | 0 | 23 | 0 | 0 | 5 | 6 | 0 | 0 | 19 | 218 | |
| 7:45 | 8:00 | 0 | 21 | 0 | 0 | 1 | 5 | 0 | 1 | 24 | 212 | |
| 8:00 | 8:15 | 1 | 19 | 2 | 0 | 1 | 2 | 0 | 2 | 26 | 215 | |
| 8:15 | 8:30 | 0 | 23 | 2 | 0 | 1 | 5 | 0 | 0 | 29 | 208 | |
| 8:30 | 8:45 | 1 | 20 | 0 | 0 | 3 | 2 | 0 | 0 | 21 | 212 | |
| 8:45 | 9:00 | 0 | 26 | 0 | 0 | 0 | 4 | 0 | 2 | 23 | 243 | |
| 9:00 | 9:15 | 0 | 25 | 0 | 0 | 0 | 1 | 0 | 0 | 20 | 260 | Peak |
| 9:15 | 9:30 | 0 | 25 | 1 | 0 | 0 | 3 | 0 | 1 | 34 | | |
| 9:30 | 9:45 | 0 | 39 | 1 | 0 | 1 | 0 | 0 | 4 | 33 | | |
| 9:45 | 10:00 | 0 | 29 | 2 | 0 | 2 | 3 | 0 | 2 | 34 | | |
| 14:00 | 14:15 | 0 | 30 | 0 | 0 | 0 | 1 | 0 | 3 | 23 | 249 | |
| 14:15 | 14:30 | 0 | 27 | 0 | 0 | 0 | 1 | 0 | 2 | 30 | 247 | |
| 14:30 | 14:45 | 0 | 25 | 0 | 0 | 0 | 1 | 0 | 1 | 35 | 252 | Peak |
| 14:45 | 15:00 | 0 | 35 | 0 | 0 | 0 | 1 | 0 | 0 | 34 | 245 | |
| 15:00 | 15:15 | 0 | 22 | 0 | 0 | 0 | 2 | 0 | 0 | 31 | 234 | |
| 15:15 | 15:30 | 0 | 20 | 0 | 0 | 0 | 4 | 0 | 3 | 38 | 241 | |
| 15:30 | 15:45 | 0 | 28 | 0 | 0 | 1 | 3 | 0 | 0 | 23 | 230 | |
| 15:45 | 16:00 | 0 | 23 | 0 | 0 | 0 | 1 | 0 | 2 | 33 | 218 | |
| 16:00 | 16:15 | 0 | 27 | 0 | 0 | 0 | 1 | 0 | 4 | 30 | 218 | |
| 16:15 | 16:30 | 0 | 25 | 0 | 0 | 0 | 2 | 0 | 3 | 24 | 199 | |
| 16:30 | 16:45 | 0 | 14 | 0 | 0 | 1 | 3 | 0 | 2 | 23 | 191 | |
| 16:45 | 17:00 | 0 | 29 | 0 | 0 | 0 | 2 | 0 | 0 | 28 | 189 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17:00 | 17:15 | 0 | 22 | 0 | 0 | 0 | 2 | 0 | 1 | 18 | 172 | |
| 17:15 | 17:30 | 0 | 23 | 1 | 0 | 0 | 1 | 0 | 3 | 18 | | |
| 17:30 | 17:45 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 2 | 18 | | |
| 17:45 | 18:00 | 0 | 20 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | | |

| Peak Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England I | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | total |
| 9:00 | 10:00 | 0 | 118 | 4 | 0 | 3 | 7 | 0 | 7 | 121 | 260 |
| 14:30 | 15:30 | 0 | 102 | 0 | 0 | 0 | 8 | 0 | 4 | 138 | 252 |

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




***Light Vehicles***

| Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England I | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 6:00 | 6:15 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| 6:15 | 6:30 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |
| 6:30 | 6:45 | 0 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 11 |
| 6:45 | 7:00 | 0 | 12 | 2 | 0 | 0 | 1 | 0 | 0 | 9 |
| 7:00 | 7:15 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 1 | 10 |
| 7:15 | 7:30 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 4 | 13 |
| 7:30 | 7:45 | 0 | 16 | 0 | 0 | 2 | 6 | 0 | 0 | 17 |
| 7:45 | 8:00 | 0 | 19 | 0 | 0 | 1 | 2 | 0 | 0 | 18 |
| 8:00 | 8:15 | 0 | 15 | 1 | 0 | 0 | 1 | 0 | 2 | 20 |
| 8:15 | 8:30 | 0 | 18 | 1 | 0 | 0 | 2 | 0 | 0 | 27 |
| 8:30 | 8:45 | 0 | 16 | 0 | 0 | 1 | 1 | 0 | 0 | 13 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 8:45 | 9:00 | 0 | 19 | 0 | 0 | 0 | 3 | 0 | 0 | 19 |
| 9:00 | 9:15 | 0 | 22 | 0 | 0 | 0 | 1 | 0 | 0 | 17 |
| 9:15 | 9:30 | 0 | 19 | 0 | 0 | 0 | 3 | 0 | 1 | 28 |
| 9:30 | 9:45 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 2 | 27 |
| 9:45 | 10:00 | 0 | 26 | 0 | 0 | 1 | 2 | 0 | 2 | 24 |
| 14:00 | 14:15 | 0 | 25 | 0 | 0 | 0 | 1 | 0 | 1 | 20 |
| 14:15 | 14:30 | 0 | 21 | 0 | 0 | 0 | 1 | 0 | 0 | 28 |
| 14:30 | 14:45 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 14:45 | 15:00 | 0 | 30 | 0 | 0 | 0 | 1 | 0 | 0 | 28 |
| 15:00 | 15:15 | 0 | 22 | 0 | 0 | 0 | 1 | 0 | 0 | 25 |
| 15:15 | 15:30 | 0 | 15 | 0 | 0 | 0 | 3 | 0 | 2 | 30 |
| 15:30 | 15:45 | 0 | 21 | 0 | 0 | 1 | 3 | 0 | 0 | 18 |
| 15:45 | 16:00 | 0 | 18 | 0 | 0 | 0 | 1 | 0 | 2 | 30 |
| 16:00 | 16:15 | 0 | 26 | 0 | 0 | 0 | 1 | 0 | 4 | 26 |
| 16:15 | 16:30 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 3 | 19 |
| 16:30 | 16:45 | 0 | 11 | 0 | 0 | 1 | 1 | 0 | 2 | 20 |
| 16:45 | 17:00 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 17:00 | 17:15 | 0 | 16 | 0 | 0 | 0 | 2 | 0 | 1 | 14 |
| 17:15 | 17:30 | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 3 | 16 |
| 17:30 | 17:45 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 2 | 15 |
| 17:45 | 18:00 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 18 |

| Peak Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England H | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | total |
| 9:00 | 10:00 | 0 | 93 | 0 | 0 | 1 | 6 | 0 | 5 | 96 | 201 |
| 14:30 | 15:30 | 0 | 86 | 0 | 0 | 0 | 5 | 0 | 2 | 112 | 205 |

***Heavy Vehicles***

| Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England H | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 6:00 | 6:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| 6:15 | 6:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 6:30 | 6:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 6:45 | 7:00 | 0 | 5 | 0 | 0 | 0 | 0 | 2 | 1 | 4 |
| 7:00 | 7:15 | 0 | 6 | 0 | 0 | 1 | 3 | 0 | 1 | 5 |
| 7:15 | 7:30 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 1 | 6 |
| 7:30 | 7:45 | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 2 |
| 7:45 | 8:00 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 1 | 6 |
| 8:00 | 8:15 | 1 | 4 | 1 | 0 | 1 | 1 | 0 | 0 | 6 |
| 8:15 | 8:30 | 0 | 5 | 1 | 0 | 1 | 3 | 0 | 0 | 2 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8:30 | 8:45 | 1 | 4 | 0 | 0 | 2 | 1 | 0 | 0 | 8 | |
| 8:45 | 9:00 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 2 | 4 | |
| 9:00 | 9:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 9:15 | 9:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | |
| 9:30 | 9:45 | 0 | 13 | 1 | 0 | 1 | 0 | 0 | 2 | 6 | |
| 9:45 | 10:00 | 0 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 10 | |
| 14:00 | 14:15 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | |
| 14:15 | 14:30 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | |
| 14:30 | 14:45 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | |
| 14:45 | 15:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | |
| 15:00 | 15:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | |
| 15:15 | 15:30 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 8 | |
| 15:30 | 15:45 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | |
| 15:45 | 16:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 16:00 | 16:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | |
| 16:15 | 16:30 | 0 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | |
| 16:30 | 16:45 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | |
| 16:45 | 17:00 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | |
| 17:00 | 17:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | |
| 17:15 | 17:30 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | |
| 17:30 | 17:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 17:45 | 18:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |

| Peak Time | | th Approach New England H | | | st Approach Lindsays Gap | | | th Approach New England I | | | Peak | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | total | |
| 9:00 | 10:00 | 0 | 25 | 4 | 0 | 2 | 1 | 0 | 2 | 25 | 59 | 23% |
| 14:30 | 15:30 | 0 | 16 | 0 | 0 | 0 | 3 | 0 | 2 | 26 | 47 | 19% |

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

## TURNING MOVEMENT SURVEY

## Intersection of Garoo Rd and Lindsays Gap Rd, Garoo

***GPS*** *-31.431584, 150.966633*

| | |
|---|---|
| ***Date:*** | Wed 04/12/24 |
| ***Weather:*** | Overcast |
| ***Suburban:*** | Garoo |
| ***Customer:*** | Amber |

| | |
|---|---|
| ***North:*** | Lindsays Gap Rd |
| ***East:*** | N/A |
| ***South:*** | Lindsays Gap Rd |
| ***West:*** | Garoo Rd |

| | | |
|---|---|---|
| ***Survey Period*** | AM: | 6:00 AM-10:00 AM |
| | PM: | 2:00 PM-6:00 PM |
| ***Traffic Peak*** | AM: | 7:30 AM-8:30 AM |
| | PM: | 3:30 PM-4:30 PM |

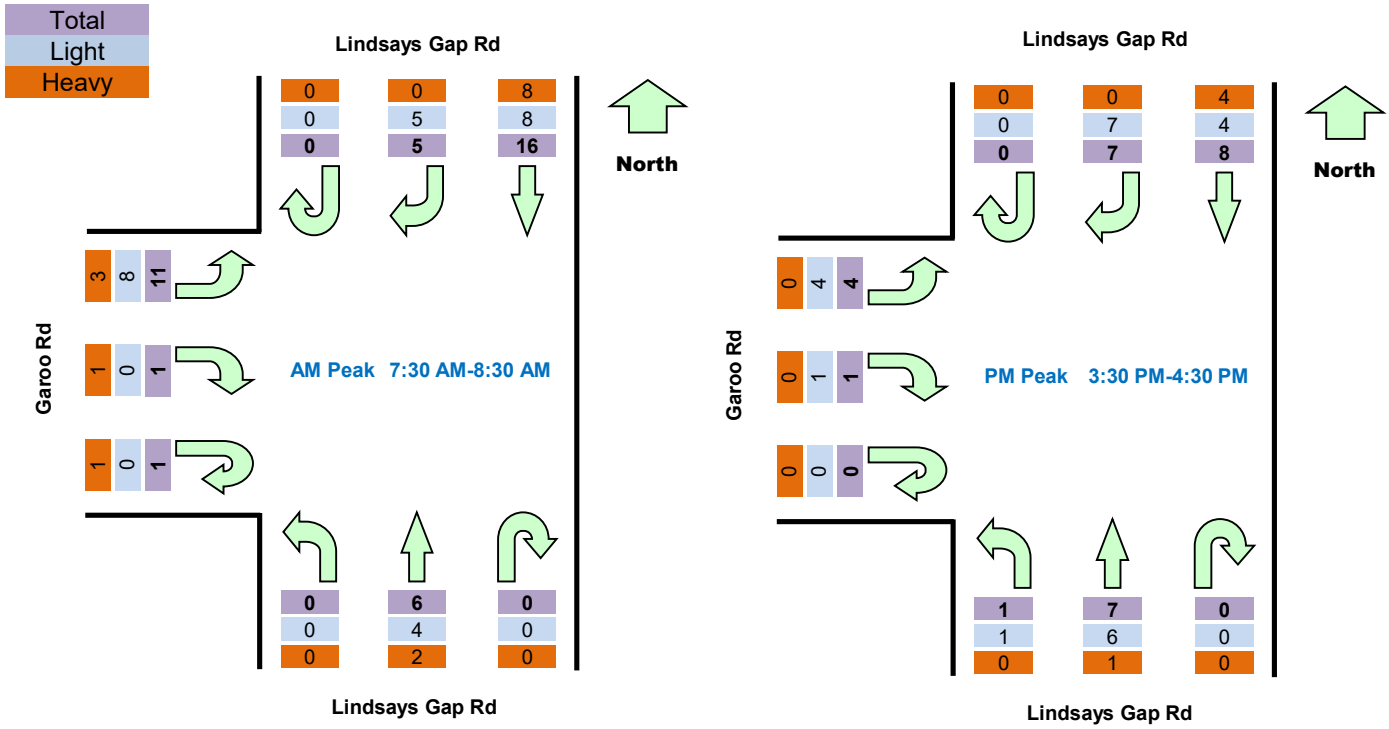
***All Vehicles***

| Time | | rth Approach Lindsays Gap | | | th Approach Lindsays Ga | | | West Approach Garoo Rd | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | Hour | Peak |
| 6:00 | 6:15 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 17 | |
| 6:15 | 6:30 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 19 | |
| 6:30 | 6:45 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 20 | |
| 6:45 | 7:00 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 31 | |
| 7:00 | 7:15 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 34 | |
| 7:15 | 7:30 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 39 | |
| 7:30 | 7:45 | 0 | 3 | 5 | 0 | 3 | 0 | 1 | 0 | 4 | 40 | Peak |
| 7:45 | 8:00 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 30 | |
| 8:00 | 8:15 | 0 | 1 | 4 | 0 | 2 | 0 | 0 | 0 | 3 | 24 | |
| 8:15 | 8:30 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 2 | 22 | |
| 8:30 | 8:45 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 18 | |
| 8:45 | 9:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | |
| 9:00 | 9:15 | 0 | 1 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 27 | |
| 9:15 | 9:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | | |
| 9:30 | 9:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | | |
| 9:45 | 10:00 | 0 | 2 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | | |
| 14:00 | 14:15 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 22 | |
| 14:15 | 14:30 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 20 | |
| 14:30 | 14:45 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 21 | |
| 14:45 | 15:00 | 0 | 1 | 4 | 0 | 0 | 1 | 0 | 2 | 1 | 25 | |
| 15:00 | 15:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 20 | |
| 15:15 | 15:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 24 | |
| 15:30 | 15:45 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 1 | 28 | Peak |
| 15:45 | 16:00 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 25 | |
| 16:00 | 16:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 26 | |
| 16:15 | 16:30 | 0 | 1 | 3 | 0 | 3 | 1 | 0 | 1 | 0 | 22 | |
| 16:30 | 16:45 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 15 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16:45 | 17:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 14 | |
| 17:00 | 17:15 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | |
| 17:15 | 17:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 17:30 | 17:45 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | | |
| 17:45 | 18:00 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | | |

| Peak Time | | rth Approach Lindsays Gap | | | th Approach Lindsays Ga | | | West Approach Garoo Rd | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | total |
| 7:30 | 8:30 | 0 | 5 | 16 | 0 | 6 | 0 | 1 | 1 | 11 | 40 |
| 15:30 | 16:30 | 0 | 7 | 8 | 0 | 7 | 1 | 0 | 1 | 4 | 28 |

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




***Light Vehicles***

| Time | | rth Approach Lindsays Gap | | | th Approach Lindsays Ga | | | West Approach Garoo Rd | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 6:00 | 6:15 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| 6:15 | 6:30 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 6:30 | 6:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6:45 | 7:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 | 7:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 | 7:30 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 7:30 | 7:45 | 0 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 4 |
| 7:45 | 8:00 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 2 |
| 8:00 | 8:15 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 |
| 8:15 | 8:30 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 8:30 | 8:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| 8:45 | 9:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:00 | 9:15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:15 | 9:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 9:30 | 9:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 9:45 | 10:00 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 14:00 | 14:15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| 14:15 | 14:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:30 | 14:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 14:45 | 15:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 |
| 15:00 | 15:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 15:15 | 15:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 15:30 | 15:45 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 1 |
| 15:45 | 16:00 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 16:15 | 16:30 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 0 |
| 16:30 | 16:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:45 | 17:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 17:00 | 17:15 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 17:45 | 18:00 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Peak Time | | rth Approach Lindsays Gap | | | th Approach Lindsays Ga | | | West Approach Garoo Rd | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | total |
| 7:30 | 8:30 | 0 | 5 | 8 | 0 | 4 | 0 | 0 | 0 | 8 | 25 |
| 15:30 | 16:30 | 0 | 7 | 4 | 0 | 6 | 1 | 0 | 1 | 4 | 23 |

***Heavy Vehicles***

| Time | | rth Approach Lindsays Gap | | | th Approach Lindsays Ga | | | West Approach Garoo Rd | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 6:00 | 6:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 | 6:30 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 6:30 | 6:45 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 6:45 | 7:00 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 7:00 | 7:15 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| 7:15 | 7:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 | 7:45 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 |
| 7:45 | 8:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 | 8:15 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 8:15 | 8:30 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 |
| 8:30 | 8:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 | 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:00 | 9:15 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 0 | 0 |
| 9:15 | 9:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9:30 | 9:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 9:45 | 10:00 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 |
| 14:00 | 14:15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 14:15 | 14:30 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 14:30 | 14:45 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 14:45 | 15:00 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15:00 | 15:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:15 | 15:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |

| Peak Time | | rth Approach Lindsays Gap | | | h Approach Lindsays Ga | | | West Approach Garoo Rd | | | Peak | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | total | |
| 7:30 | 8:30 | 0 | 0 | 8 | 0 | 2 | 0 | 1 | 1 | 3 | 15 | 38% |
| 15:30 | 16:30 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 18% |

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

## AUTOMATIC COUNT SUMMARY

| | | | |
|---|---|---|---|
| **Street Name :** | Garoo Rd | **Location :** | Approx. 3.25km West of Lindsays Gap Rd |
| **Suburb :** | Garoo | **Start Date :** | 00:00 Tue 03/December/2024 |
| **Machine ID:** | YC676RFB | **Finish Date :** | 00:00 Tue 10/December/2024 |
| **Site ID:** | 3625 | **Speed Zone :** | 100 km/h |
| **Prepared By :** | Vo Son Binh | **Email:** | binh@trafficsurvey.com.au |

| GPS information | | | Direction of Travel | | |
|---|---|---|---|---|---|
| | Lat | 31° 25' 41.41 South | | | |
| | Long | 150° 56' 6.62 East | **Both directions** | **Westbound** | **Eastbound** |
| **Traffic Volume :** | | Weekdays Average | 113 | 52 | 61 |
| **(Vehicles/Day)** | | 7 Day Average | 101 | 45 | 56 |
| **Weekday** | **AM** | 07:00 | 10 | 5 | 5 |
| **Peak hour start** | **PM** | 14:00 | 10 | 4 | 6 |
| **Speeds :** | | 85th Percentile | 95.7 | 91.1 | 100.0 |
| **(Km/Hr)** | | Average | 91.1 | 86.2 | 95.3 |
| **Classification % :** | | Light Vehicles up to 5.5m | 83.5% | 84.4% | 83.9% |

## Location

| | |
|---|---|
| **GPS Information** | Load Google Map (internet required) |
| (Latitude, Longitude) | -31.428170, 150.935172 |


| | | |
|---|---|---|
| Speed Data | Speed Graph | Speed Bin |
| Volume Data | Volume Graph | Classification |

**QUALITY ASSURED COMPANY BY ISO 9001:2015**
**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**
**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

**Status of movement – Covid 19**

*"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.*
*These results should be used for indicative assessment only."*

TRANS TRAFFIC SURVEY
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**Site** Garoo Rd

**Direction** Both directions

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 07:00 | 08:00 | 10:00 | 08:00 | 10:00 | 08:00 | 09:00 | N/A | 10:00 | N/A | 07:00 | N/A | 08:00 |
| PM Peak | 17:00 | 16:00 | 14:00 | 12:00 | 12:00 | 13:00 | 15:00 | N/A | 14:00 | N/A | 14:00 | N/A | 15:00 |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 |
| 04:00 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 7 | 1 | 7 | 1 | 0 | 0 |
| 05:00 | 6 | 5 | 3 | 4 | 4 | 0 | 0 | 22 | 3 | 22 | 4 | 0 | 0 |
| 06:00 | 3 | 2 | 5 | 7 | 4 | 0 | 0 | 21 | 3 | 21 | 4 | 0 | 0 |
| 07:00 | 10 | 7 | 13 | 7 | 13 | 4 | 0 | 54 | 8 | 50 | 10 | 4 | 2 |
| 08:00 | 10 | 8 | 10 | 8 | 5 | 9 | 7 | 57 | 8 | 41 | 8 | 16 | 8 |
| 09:00 | 8 | 4 | 9 | 7 | 10 | 6 | 8 | 52 | 7 | 38 | 8 | 14 | 7 |
| 10:00 | 7 | 7 | 14 | 5 | 14 | 8 | 8 | 63 | 9 | 47 | 9 | 16 | 8 |
| 11:00 | 7 | 4 | 9 | 6 | 6 | 5 | 6 | 43 | 6 | 32 | 6 | 11 | 6 |
| 12:00 | 8 | 4 | 10 | 9 | 8 | 4 | 4 | 47 | 7 | 39 | 8 | 8 | 4 |
| 13:00 | 8 | 3 | 8 | 6 | 8 | 7 | 4 | 44 | 6 | 33 | 7 | 11 | 6 |
| 14:00 | 9 | 10 | 12 | 9 | 8 | 4 | 4 | 56 | 8 | 48 | 10 | 8 | 4 |
| 15:00 | 4 | 10 | 11 | 2 | 4 | 7 | 8 | 46 | 7 | 31 | 6 | 15 | 8 |
| 16:00 | 7 | 11 | 11 | 8 | 6 | 7 | 4 | 54 | 8 | 43 | 9 | 11 | 6 |
| 17:00 | 16 | 7 | 7 | 6 | 5 | 5 | 1 | 47 | 7 | 41 | 8 | 6 | 3 |
| 18:00 | 5 | 4 | 5 | 6 | 4 | 3 | 0 | 27 | 4 | 24 | 5 | 3 | 2 |
| 19:00 | 8 | 4 | 1 | 4 | 5 | 1 | 5 | 28 | 4 | 22 | 4 | 6 | 3 |
| 20:00 | 3 | 1 | 3 | 5 | 3 | 3 | 1 | 19 | 3 | 15 | 3 | 4 | 2 |
| 21:00 | 2 | 0 | 0 | 3 | 4 | 4 | 0 | 13 | 2 | 9 | 2 | 4 | 2 |
| 22:00 | 0 | 4 | 0 | 0 | 2 | 1 | 5 | 12 | 2 | 6 | 1 | 6 | 3 |
| 23:00 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 |
| Total | 123 | 98 | 134 | 106 | 116 | 79 | 65 | 721 | 103 | 577 | 115 | 144 | 72 |
| % Heavy | 23.58% | 19.39% | 16.42% | 18.87% | 19.83% | 2.53% | 6.15% | 16.50% | | 19.58% | | 4.17% | |

TRANS TRAFFIC SURVEY
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**Site** Garoo Rd

**Direction** Westbound

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 07:00 | 10:00 | 07:00 | 08:00 | 07:00 | 08:00 | 10:00 | N/A | 07:00 | N/A | 07:00 | N/A | 08:00 |
| PM Peak | 17:00 | 15:00 | 16:00 | 14:00 | 12:00 | 21:00 | 22:00 | N/A | 16:00 | N/A | 16:00 | N/A | 22:00 |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 04:00 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 05:00 | 2 | 3 | 1 | 2 | 0 | 0 | 0 | 8 | 1 | 8 | 2 | 0 | 0 |
| 06:00 | 2 | 1 | 1 | 4 | 3 | 0 | 0 | 11 | 2 | 11 | 2 | 0 | 0 |
| 07:00 | 8 | 3 | 6 | 2 | 8 | 3 | 0 | 30 | 4 | 27 | 5 | 3 | 2 |
| 08:00 | 5 | 4 | 2 | 7 | 3 | 7 | 2 | 30 | 4 | 21 | 4 | 9 | 5 |
| 09:00 | 4 | 2 | 6 | 3 | 6 | 3 | 4 | 28 | 4 | 21 | 4 | 7 | 4 |
| 10:00 | 2 | 6 | 6 | 1 | 3 | 1 | 5 | 24 | 3 | 18 | 4 | 6 | 3 |
| 11:00 | 2 | 2 | 2 | 1 | 4 | 1 | 4 | 16 | 2 | 11 | 2 | 5 | 3 |
| 12:00 | 3 | 1 | 2 | 2 | 5 | 1 | 1 | 15 | 2 | 13 | 3 | 2 | 1 |
| 13:00 | 4 | 0 | 5 | 3 | 5 | 1 | 3 | 21 | 3 | 17 | 3 | 4 | 2 |
| 14:00 | 3 | 3 | 6 | 4 | 2 | 1 | 1 | 20 | 3 | 18 | 4 | 2 | 1 |
| 15:00 | 2 | 8 | 5 | 2 | 2 | 2 | 2 | 23 | 3 | 19 | 4 | 4 | 2 |
| 16:00 | 5 | 7 | 7 | 3 | 1 | 0 | 4 | 27 | 4 | 23 | 5 | 4 | 2 |
| 17:00 | 6 | 2 | 5 | 3 | 3 | 2 | 1 | 22 | 3 | 19 | 4 | 3 | 2 |
| 18:00 | 3 | 0 | 2 | 1 | 0 | 1 | 0 | 7 | 1 | 6 | 1 | 1 | 1 |
| 19:00 | 6 | 2 | 0 | 2 | 1 | 0 | 0 | 11 | 2 | 11 | 2 | 0 | 0 |
| 20:00 | 0 | 1 | 3 | 4 | 2 | 1 | 0 | 11 | 2 | 10 | 2 | 1 | 1 |
| 21:00 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 8 | 1 | 5 | 1 | 3 | 2 |
| 22:00 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 6 | 1 | 1 | 0 | 5 | 3 |
| 23:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Total | 57 | 48 | 60 | 48 | 53 | 28 | 32 | 326 | 47 | 266 | 53 | 60 | 30 |
| % Heavy | 24.56% | 18.75% | 13.33% | 22.92% | 20.75% | 0.00% | 6.25% | 16.87% | | 19.92% | | 3.33% | |

TRANS TRAFFIC SURVEY
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**Site** Garoo Rd

**Direction** Eastbound

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 08:00 | 07:00 | 08:00 | 07:00 | 10:00 | 10:00 | 08:00 | N/A | 10:00 | N/A | 10:00 | N/A | 10:00 |
| PM Peak | 17:00 | 14:00 | 12:00 | 12:00 | 14:00 | 16:00 | 15:00 | N/A | 12:00 | N/A | 14:00 | N/A | 15:00 |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:00 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 5 | 1 | 5 | 1 | 0 | 0 |
| 05:00 | 4 | 2 | 2 | 2 | 4 | 0 | 0 | 14 | 2 | 14 | 3 | 0 | 0 |
| 06:00 | 1 | 1 | 4 | 3 | 1 | 0 | 0 | 10 | 1 | 10 | 2 | 0 | 0 |
| 07:00 | 2 | 4 | 7 | 5 | 5 | 1 | 0 | 24 | 3 | 23 | 5 | 1 | 1 |
| 08:00 | 5 | 4 | 8 | 1 | 2 | 2 | 5 | 27 | 4 | 20 | 4 | 7 | 4 |
| 09:00 | 4 | 2 | 3 | 4 | 4 | 3 | 4 | 24 | 3 | 17 | 3 | 7 | 4 |
| 10:00 | 5 | 1 | 8 | 4 | 11 | 7 | 3 | 39 | 6 | 29 | 6 | 10 | 5 |
| 11:00 | 5 | 2 | 7 | 5 | 2 | 4 | 2 | 27 | 4 | 21 | 4 | 6 | 3 |
| 12:00 | 5 | 3 | 8 | 7 | 3 | 3 | 3 | 32 | 5 | 26 | 5 | 6 | 3 |
| 13:00 | 4 | 3 | 3 | 3 | 3 | 6 | 1 | 23 | 3 | 16 | 3 | 7 | 4 |
| 14:00 | 6 | 7 | 6 | 5 | 6 | 3 | 3 | 36 | 5 | 30 | 6 | 6 | 3 |
| 15:00 | 2 | 2 | 6 | 0 | 2 | 5 | 6 | 23 | 3 | 12 | 2 | 11 | 6 |
| 16:00 | 2 | 4 | 4 | 5 | 5 | 7 | 0 | 27 | 4 | 20 | 4 | 7 | 4 |
| 17:00 | 10 | 5 | 2 | 3 | 2 | 3 | 0 | 25 | 4 | 22 | 4 | 3 | 2 |
| 18:00 | 2 | 4 | 3 | 5 | 4 | 2 | 0 | 20 | 3 | 18 | 4 | 2 | 1 |
| 19:00 | 2 | 2 | 1 | 2 | 4 | 1 | 5 | 17 | 2 | 11 | 2 | 6 | 3 |
| 20:00 | 3 | 0 | 0 | 1 | 1 | 2 | 1 | 8 | 1 | 5 | 1 | 3 | 2 |
| 21:00 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 5 | 1 | 4 | 1 | 1 | 1 |
| 22:00 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 6 | 1 | 5 | 1 | 1 | 1 |
| 23:00 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| Total | 66 | 50 | 74 | 58 | 63 | 51 | 33 | 395 | 56 | 311 | 62 | 84 | 42 |
| % Heavy | 22.73% | 20.00% | 18.92% | 15.52% | 19.05% | 3.92% | 6.06% | 16.20% | | 19.29% | | 4.76% | |

TRANS TRAFFIC SURVEY
trafficsurvey.com.au
T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

## AUTOMATIC COUNT SUMMARY

| | | | |
|---|---|---|---|
| **Street Name :** | Lindsays Gap Rd | **Location :** | Just South of Garoo Rd |
| **Suburb :** | Garoo | **Start Date :** | 00:00 Tue 03/December/2024 |
| **Machine ID:** | MM4422CA | **Finish Date :** | 00:00 Tue 10/December/2024 |
| **Site ID:** | 3626 | **Speed Zone :** | 100 km/h |
| **Prepared By :** | Vo Son Binh | **Email:** | binh@trafficsurvey.com.au |

| GPS information | | Lat 31° 25' 55.96 South<br>Long 150° 57' 58.57 East | Direction of Travel | | |
|---|---|---|---|---|---|
| | | | **Both directions** | **Northbound** | **Southbound** |
| **Traffic Volume :** | | Weekdays Average | 209 | 107 | 102 |
| **(Vehicles/Day)** | | 7 Day Average | 200 | 101 | 99 |
| **Weekday** | **AM** | 07:00 | 19 | 7 | 11 |
| **Peak hour starts** | **PM** | 12:00 | 17 | 9 | 8 |
| **Speeds :** | | 85th Percentile | 96.2 | 99.7 | 92.8 |
| **(Km/Hr)** | | Average | 85.6 | 89.1 | 81.7 |
| **Classification % :** | | Light Vehicles up to 5.5m | 72.7% | 73.0% | 72.4% |

## Location

| | |
|---|---|
| **GPS Information** | Load Google Map (internet required) |
| (Latitude, Longitude) | -31.432211, 150.966270 |


| | | |
|---|---|---|
| Speed Data | Speed Graph | Speed Bin |
| Volume Data | Volume Graph | Classification |

**QUALITY ASSURED COMPANY BY ISO 9001:2015**
**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**
**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

**Status of movement – Covid 19**

*"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.*
*These results should be used for indicative assessment only."*

TRANS TRAFFIC SURVEY
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**Site** Lindsays Gap Rd

**Direction** Both directions

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 10:00 | 08:00 | 10:00 | 09:00 | 07:00 | 09:00 | 09:00 | N/A | 09:00 | N/A | 07:00 | N/A | 09:00 |
| PM Peak | 16:00 | 13:00 | 12:00 | 14:00 | 12:00 | 13:00 | 12:00 | N/A | 12:00 | N/A | 12:00 | N/A | 13:00 |
| 00:00 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 5 | 1 | 1 | 0 | 4 | 2 |
| 02:00 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 5 | 1 | 4 | 1 | 1 | 1 |
| 03:00 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 | 1 | 5 | 1 | 0 | 0 |
| 04:00 | 6 | 4 | 1 | 1 | 0 | 1 | 0 | 13 | 2 | 12 | 2 | 1 | 1 |
| 05:00 | 1 | 7 | 4 | 2 | 9 | 0 | 1 | 24 | 3 | 23 | 5 | 1 | 1 |
| 06:00 | 6 | 9 | 8 | 6 | 10 | 3 | 4 | 46 | 7 | 39 | 8 | 7 | 4 |
| 07:00 | 20 | 18 | 17 | 15 | 23 | 8 | 4 | 105 | 15 | 93 | 19 | 12 | 6 |
| 08:00 | 16 | 27 | 17 | 14 | 14 | 5 | 9 | 102 | 15 | 88 | 18 | 14 | 7 |
| 09:00 | 15 | 20 | 18 | 19 | 22 | 21 | 27 | 142 | 20 | 94 | 19 | 48 | 24 |
| 10:00 | 22 | 15 | 23 | 9 | 6 | 17 | 17 | 109 | 16 | 75 | 15 | 34 | 17 |
| 11:00 | 22 | 16 | 16 | 18 | 13 | 10 | 19 | 114 | 16 | 85 | 17 | 29 | 15 |
| 12:00 | 21 | 15 | 16 | 13 | 20 | 10 | 20 | 115 | 16 | 85 | 17 | 30 | 15 |
| 13:00 | 8 | 21 | 10 | 15 | 6 | 16 | 17 | 93 | 13 | 60 | 12 | 33 | 17 |
| 14:00 | 11 | 13 | 13 | 20 | 13 | 14 | 15 | 99 | 14 | 70 | 14 | 29 | 15 |
| 15:00 | 9 | 16 | 9 | 16 | 18 | 16 | 12 | 96 | 14 | 68 | 14 | 28 | 14 |
| 16:00 | 24 | 20 | 14 | 15 | 13 | 15 | 8 | 109 | 16 | 86 | 17 | 23 | 12 |
| 17:00 | 9 | 10 | 8 | 10 | 11 | 6 | 4 | 58 | 8 | 48 | 10 | 10 | 5 |
| 18:00 | 6 | 6 | 9 | 10 | 7 | 10 | 10 | 58 | 8 | 38 | 8 | 20 | 10 |
| 19:00 | 8 | 4 | 5 | 3 | 8 | 4 | 7 | 39 | 6 | 28 | 6 | 11 | 6 |
| 20:00 | 6 | 2 | 5 | 10 | 4 | 3 | 4 | 34 | 5 | 27 | 5 | 7 | 4 |
| 21:00 | 2 | 4 | 2 | 1 | 5 | 5 | 5 | 24 | 3 | 14 | 3 | 10 | 5 |
| 22:00 | 3 | 2 | 0 | 0 | 0 | 1 | 2 | 8 | 1 | 5 | 1 | 3 | 2 |
| 23:00 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 3 | 1 | 1 | 1 |
| Total | 218 | 233 | 197 | 201 | 205 | 167 | 189 | 1410 | 201 | 1054 | 211 | 356 | 178 |
| % Heavy | 34.86% | 38.63% | 39.59% | 34.33% | 28.78% | 6.59% | 5.82% | 27.94% | | 35.29% | | 6.18% | |

TRANS TRAFFIC SURVEY
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**Site** Lindsays Gap Rd

**Direction** Northbound

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 10:00 | 08:00 | 10:00 | 09:00 | 07:00 | 09:00 | 10:00 | N/A | 09:00 | N/A | 09:00 | N/A | 09:00 |
| PM Peak | 16:00 | 12:00 | 12:00 | 14:00 | 12:00 | 15:00 | 12:00 | N/A | 12:00 | N/A | 12:00 | N/A | 12:00 |
| 00:00 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 02:00 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 4 | 1 | 3 | 1 | 1 | 1 |
| 03:00 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:00 | 3 | 2 | 1 | 0 | 0 | 1 | 0 | 7 | 1 | 6 | 1 | 1 | 1 |
| 05:00 | 1 | 3 | 4 | 2 | 3 | 0 | 1 | 14 | 2 | 13 | 3 | 1 | 1 |
| 06:00 | 2 | 4 | 5 | 5 | 1 | 1 | 2 | 20 | 3 | 17 | 3 | 3 | 2 |
| 07:00 | 7 | 7 | 7 | 5 | 10 | 3 | 1 | 40 | 6 | 36 | 7 | 4 | 2 |
| 08:00 | 5 | 11 | 4 | 7 | 5 | 3 | 4 | 39 | 6 | 32 | 6 | 7 | 4 |
| 09:00 | 4 | 10 | 9 | 11 | 9 | 11 | 8 | 62 | 9 | 43 | 9 | 19 | 10 |
| 10:00 | 13 | 5 | 14 | 4 | 0 | 10 | 9 | 55 | 8 | 36 | 7 | 19 | 10 |
| 11:00 | 13 | 11 | 8 | 5 | 8 | 5 | 8 | 58 | 8 | 45 | 9 | 13 | 7 |
| 12:00 | 8 | 10 | 9 | 4 | 13 | 3 | 13 | 60 | 9 | 44 | 9 | 16 | 8 |
| 13:00 | 5 | 9 | 8 | 7 | 4 | 8 | 8 | 49 | 7 | 33 | 7 | 16 | 8 |
| 14:00 | 7 | 9 | 4 | 11 | 5 | 8 | 6 | 50 | 7 | 36 | 7 | 14 | 7 |
| 15:00 | 7 | 9 | 4 | 7 | 13 | 10 | 5 | 55 | 8 | 40 | 8 | 15 | 8 |
| 16:00 | 10 | 10 | 5 | 10 | 10 | 6 | 6 | 57 | 8 | 45 | 9 | 12 | 6 |
| 17:00 | 3 | 5 | 3 | 6 | 7 | 3 | 2 | 29 | 4 | 24 | 5 | 5 | 3 |
| 18:00 | 4 | 3 | 5 | 3 | 6 | 3 | 3 | 27 | 4 | 21 | 4 | 6 | 3 |
| 19:00 | 7 | 3 | 4 | 1 | 7 | 0 | 2 | 24 | 3 | 22 | 4 | 2 | 1 |
| 20:00 | 3 | 1 | 3 | 8 | 4 | 2 | 1 | 22 | 3 | 19 | 4 | 3 | 2 |
| 21:00 | 2 | 3 | 1 | 0 | 5 | 5 | 5 | 21 | 3 | 11 | 2 | 10 | 5 |
| 22:00 | 3 | 1 | 0 | 0 | 0 | 1 | 2 | 7 | 1 | 4 | 1 | 3 | 2 |
| 23:00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 1 |
| Total | 108 | 117 | 99 | 99 | 112 | 85 | 87 | 707 | 101 | 535 | 107 | 172 | 86 |
| % Heavy | 31.48% | 40.17% | 38.38% | 37.37% | 26.79% | 3.53% | 5.75% | 27.44% | | 34.77% | | 4.65% | |

TRANS TRAFFIC SURVEY
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**Site** Lindsays Gap Rd

**Direction** Southbound

Back to Site Summary Page

| Day | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | 7 days | | Weekday | | Weekend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 9/12/2024 | 3/12/2024 | 4/12/2024 | 5/12/2024 | 6/12/2024 | 7/12/2024 | 8/12/2024 | Total | Average | Total | Average | Total | Average |
| AM Peak | 07:00 | 08:00 | 08:00 | 11:00 | 07:00 | 09:00 | 09:00 | N/A | 09:00 | N/A | 07:00 | N/A | 09:00 |
| PM Peak | 16:00 | 13:00 | 14:00 | 12:00 | 14:00 | 16:00 | 13:00 | N/A | 12:00 | N/A | 12:00 | N/A | 13:00 |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 4 | 1 | 1 | 0 | 3 | 2 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 03:00 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 4 | 1 | 4 | 1 | 0 | 0 |
| 04:00 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 6 | 1 | 6 | 1 | 0 | 0 |
| 05:00 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 10 | 1 | 10 | 2 | 0 | 0 |
| 06:00 | 4 | 5 | 3 | 1 | 9 | 2 | 2 | 26 | 4 | 22 | 4 | 4 | 2 |
| 07:00 | 13 | 11 | 10 | 10 | 13 | 5 | 3 | 65 | 9 | 57 | 11 | 8 | 4 |
| 08:00 | 11 | 16 | 13 | 7 | 9 | 2 | 5 | 63 | 9 | 56 | 11 | 7 | 4 |
| 09:00 | 11 | 10 | 9 | 8 | 13 | 10 | 19 | 80 | 11 | 51 | 10 | 29 | 15 |
| 10:00 | 9 | 10 | 9 | 5 | 6 | 7 | 8 | 54 | 8 | 39 | 8 | 15 | 8 |
| 11:00 | 9 | 5 | 8 | 13 | 5 | 5 | 11 | 56 | 8 | 40 | 8 | 16 | 8 |
| 12:00 | 13 | 5 | 7 | 9 | 7 | 7 | 7 | 55 | 8 | 41 | 8 | 14 | 7 |
| 13:00 | 3 | 12 | 2 | 8 | 2 | 8 | 9 | 44 | 6 | 27 | 5 | 17 | 9 |
| 14:00 | 4 | 4 | 9 | 9 | 8 | 6 | 9 | 49 | 7 | 34 | 7 | 15 | 8 |
| 15:00 | 2 | 7 | 5 | 9 | 5 | 6 | 7 | 41 | 6 | 28 | 6 | 13 | 7 |
| 16:00 | 14 | 10 | 9 | 5 | 3 | 9 | 2 | 52 | 7 | 41 | 8 | 11 | 6 |
| 17:00 | 6 | 5 | 5 | 4 | 4 | 3 | 2 | 29 | 4 | 24 | 5 | 5 | 3 |
| 18:00 | 2 | 3 | 4 | 7 | 1 | 7 | 7 | 31 | 4 | 17 | 3 | 14 | 7 |
| 19:00 | 1 | 1 | 1 | 2 | 1 | 4 | 5 | 15 | 2 | 6 | 1 | 9 | 5 |
| 20:00 | 3 | 1 | 2 | 2 | 0 | 1 | 3 | 12 | 2 | 8 | 2 | 4 | 2 |
| 21:00 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 |
| 22:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 23:00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| Total | 110 | 116 | 98 | 102 | 93 | 82 | 102 | 703 | 100 | 519 | 104 | 184 | 92 |
| % Heavy | 38.18% | 37.07% | 40.82% | 31.37% | 31.18% | 9.76% | 5.88% | 28.45% | | 35.84% | | 7.61% | |

# Appendix D

## Site Access Designs


Garoo Solar Farm And BESS

Garoo Road, Garoo

Site Access Strategic Design

DRAWN: TD
DATE: 19/08/2025
DWG NO: 1056 SD04A
SCALE at A3: 1:500m

Amber

00

B-Double vehicles passing
within the crossover

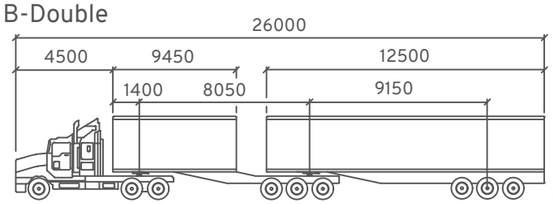
Vehicle Envelope

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 |

# Garoo Solar Farm And BESS

Garoo Road, Garoo

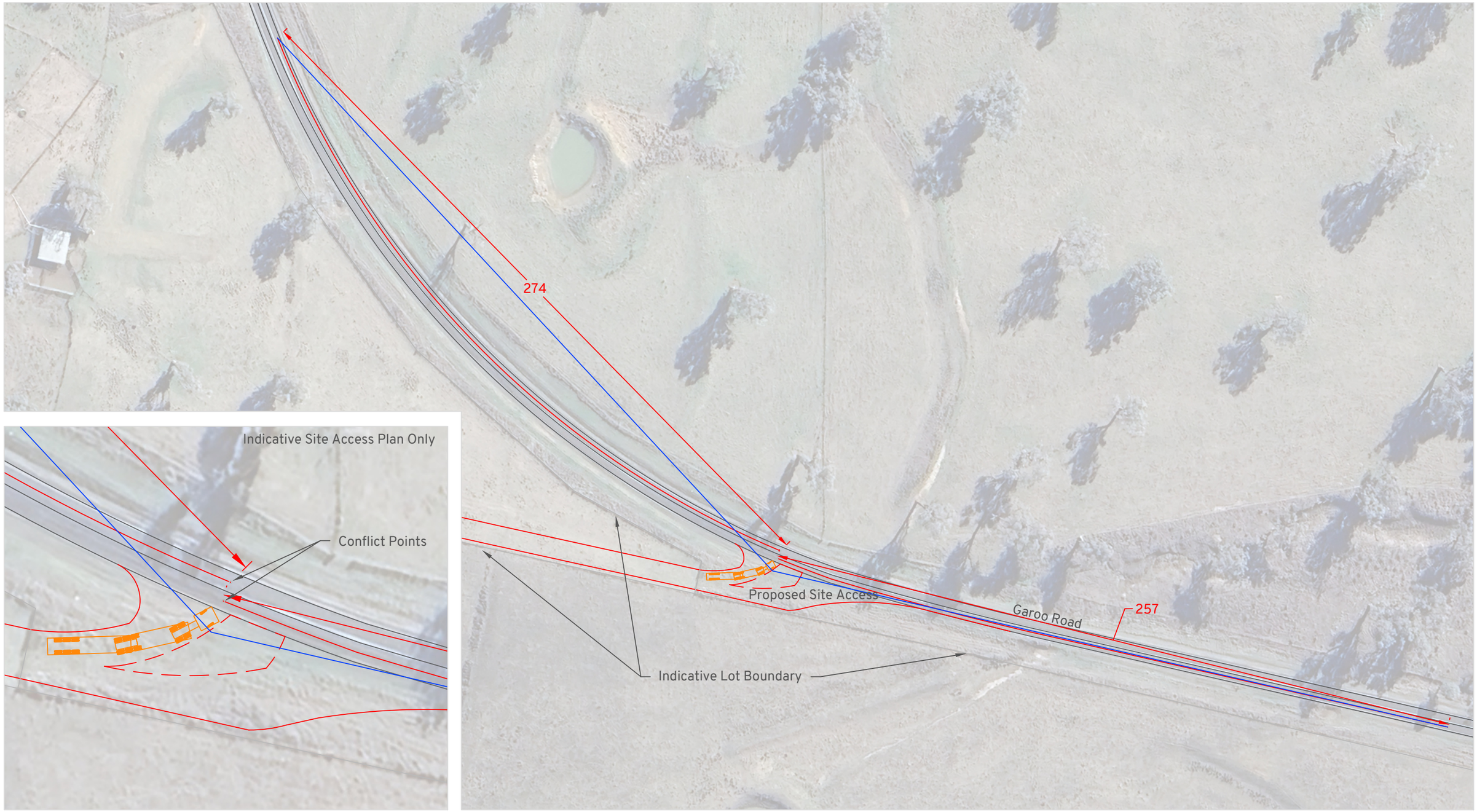
Site Access Swept Path Assessment

DRAWN: TD
DATE: 19/08/2025
DWG NO: 1056 SD04A
SCALE at A3: 1:500m

Amber 01

# Appendix E

## Sight Distance Assessment and Swept Path Checks




Sight Distance

Sight Line

# Garoo Solar Farm And BESS

Garoo Road, Garoo

Sight Distance Assessment

DRAWN: SE
DATE: 09/01/2025
DWG NO: 1056 SD01A
SCALE at A3: 1:1400m

Amber SD


Sight Distance

Sight Line

Garoo Solar Farm And BESS

Garoo Road, Garoo

Sight Distance Assessment

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber

SD-1


Sight Distance

Sight Line

# Garoo Solar Farm And BESS

Garoo Road, Garoo

Sight Distance Assessment

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber SD-2


Sight Distance

Sight Line

Garoo Solar Farm And BESS

Garoo Road, Garoo

Sight Distance Assessment

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber

SD-3


Sight Distance

Sight Line

Garoo Solar Farm And BESS

Garoo Road, Garoo

Sight Distance Assessment - Emergency Access

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber

SD-4

New England Highway

Lindsays Gap Road

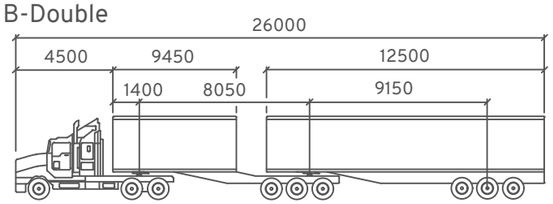
Vehicle Envelope

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 |

# Garoo Solar Farm And BESS

Garoo Road, Garoo

Swept Path Assessment

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:500

Amber SP-1

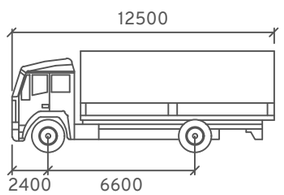

Vehicle Envelope

500mm Clearance

Reverse Manoevure

*Min. Design Speed 5km/h*

HRV




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

# Garoo Solar Farm And BESS

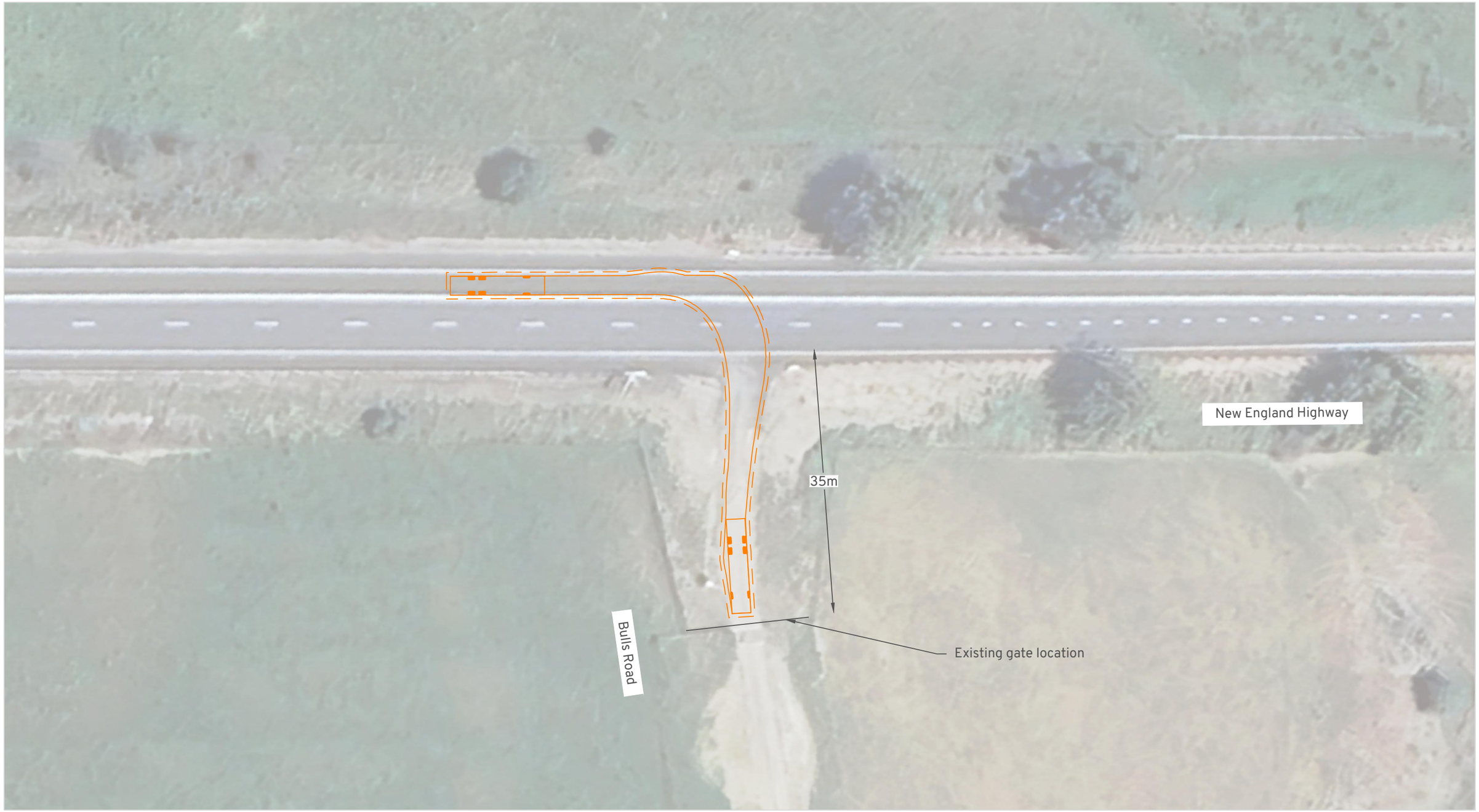
Garoo Road, Garoo

Swept Path Assessment - Emergency Access

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber

SP-2



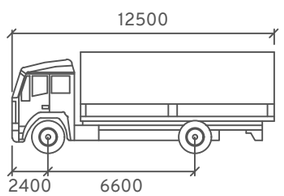

Vehicle Envelope

500mm Clearance

Reverse Manoevure

*Min. Design Speed 5km/h*

HRV




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

# Garoo Solar Farm And BESS

Garoo Road, Garoo

Swept Path Assessment - Emergency Access

DRAWN: TD
DATE: 30/10/2025
DWG NO: 1056 SD03B
SCALE at A3: 1:2000

Amber

SP-3

# Appendix F

## SIDRA Intersection Analysis

# MOVEMENT SUMMARY

## Site: 101 [Garoo Rd / NE Hwy: 2028 AM Construction Peak (Site Folder: New England Highway / Garoo Road Intersection)]

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

New Site
Site Category: (None)
Give-Way (Two-Way)

**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 | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: New England Highway | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 65 | 27.4 | 65 | 27.4 | 0.039 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.001 | 6.4 | LOS A | 0.0 | 0.0 | 0.34 | 0.54 | 0.34 | 51.7 |
| Approach | | | 66 | 27.0 | 66 | 27.0 | 0.039 | 0.1 | NA | 0.0 | 0.0 | 0.01 | 0.01 | 0.01 | 98.5 |
| East: Garoo Road | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.007 | 6.2 | LOS A | 0.0 | 0.2 | 0.36 | 0.56 | 0.36 | 51.8 |
| 6 | R2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.007 | 7.5 | LOS A | 0.0 | 0.2 | 0.36 | 0.56 | 0.36 | 51.8 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.007 | 7.1 | LOS A | 0.0 | 0.2 | 0.36 | 0.56 | 0.36 | 51.8 |
| North: New England Highway | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 89 | 9.4 | 89 | 9.4 | 0.051 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 52.5 |
| 8 | T1 | All MCs | 135 | 62.5 | 135 | 62.5 | 0.097 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 99.9 |
| Approach | | | 224 | 41.3 | 224 | 41.3 | 0.097 | 2.3 | NA | 0.0 | 0.0 | 0.00 | 0.23 | 0.00 | 73.4 |
| All Vehicles | | | 297 | 37.2 | 297 | 37.2 | 0.097 | 1.9 | NA | 0.0 | 0.2 | 0.01 | 0.19 | 0.01 | 77.1 |

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

## Site: 101 [Garoo Rd / NE Hwy: 2028 PM Construction Peak (Site Folder: New England Highway / Garoo Road Intersection)]

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

New Site
Site Category: (None)
Give-Way (Two-Way)

**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 | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: New England Highway | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 148 | 52.5 | 148 | 52.5 | 0.102 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 99.9 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.001 | 5.9 | LOS A | 0.0 | 0.0 | 0.23 | 0.54 | 0.23 | 52.0 |
| Approach | | | 149 | 52.1 | 149 | 52.1 | 0.102 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 99.3 |
| East: Garoo Road | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.132 | 6.0 | LOS A | 0.5 | 3.9 | 0.45 | 0.68 | 0.45 | 50.9 |
| 6 | R2 | All MCs | 92 | 6.9 | 92 | 6.9 | 0.132 | 8.3 | LOS A | 0.5 | 3.9 | 0.45 | 0.68 | 0.45 | 50.7 |
| Approach | | | 93 | 6.8 | 93 | 6.8 | 0.132 | 8.3 | LOS A | 0.5 | 3.9 | 0.45 | 0.68 | 0.45 | 50.7 |
| North: New England Highway | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 16 | 0.0 | 16 | 0.0 | 0.009 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 52.9 |
| 8 | T1 | All MCs | 108 | 14.6 | 108 | 14.6 | 0.061 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| Approach | | | 124 | 12.7 | 124 | 12.7 | 0.061 | 0.7 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 89.8 |
| All Vehicles | | | 366 | 27.3 | 366 | 27.3 | 0.132 | 2.4 | NA | 0.5 | 3.9 | 0.12 | 0.20 | 0.12 | 77.6 |

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

## Site: 201 [Lindsays Gap Rd / NE Hwy: 2028 AM Construction Peak (Site Folder: New England Highway / Lindsays Gap Road Intersection)]

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

New Site
Site Category: (None)
Give-Way (Two-Way)

**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 | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: New England Highway | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 75 | 26.8 | 75 | 26.8 | 0.045 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| 3 | R2 | All MCs | 43 | 41.5 | 43 | 41.5 | 0.071 | 8.3 | LOS A | 0.2 | 2.2 | 0.37 | 0.64 | 0.37 | 49.5 |
| Approach | | | 118 | 32.1 | 118 | 32.1 | 0.071 | 3.0 | NA | 0.2 | 2.2 | 0.14 | 0.23 | 0.14 | 72.7 |
| East: Lindsays Gap Road | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.003 | 5.8 | LOS A | 0.0 | 0.1 | 0.26 | 0.52 | 0.26 | 51.9 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.003 | 8.1 | LOS A | 0.0 | 0.1 | 0.26 | 0.52 | 0.26 | 52.0 |
| Approach | | | 2 | 0.0 | 2 | 0.0 | 0.003 | 6.9 | LOS A | 0.0 | 0.1 | 0.26 | 0.52 | 0.26 | 51.9 |
| North: New England Highway | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 66 | 95.2 | 66 | 95.2 | 0.060 | 6.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.56 | 0.00 | 49.2 |
| 8 | T1 | All MCs | 112 | 54.7 | 112 | 54.7 | 0.039 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| Approach | | | 178 | 69.8 | 178 | 69.8 | 0.060 | 2.5 | NA | 0.0 | 0.0 | 0.00 | 0.21 | 0.00 | 72.1 |
| All Vehicles | | | 298 | 54.4 | 298 | 54.4 | 0.071 | 2.7 | NA | 0.2 | 2.2 | 0.06 | 0.22 | 0.06 | 72.1 |

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

## Site: 201 [Lindsays Gap Rd / NE Hwy: 2028 PM Construction Peak (Site Folder: New England Highway / Lindsays Gap Road Intersection)]

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

New Site
Site Category: (None)
Give-Way (Two-Way)

**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 | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: New England Highway | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 126 | 44.2 | 126 | 44.2 | 0.083 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| 3 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.007 | 6.2 | LOS A | 0.0 | 0.2 | 0.23 | 0.55 | 0.23 | 52.1 |
| Approach | | | 133 | 42.1 | 133 | 42.1 | 0.083 | 0.3 | NA | 0.0 | 0.2 | 0.01 | 0.03 | 0.01 | 95.8 |
| East: Lindsays Gap Road | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 42 | 40.0 | 42 | 40.0 | 0.218 | 6.4 | LOS A | 0.9 | 10.2 | 0.41 | 0.59 | 0.41 | 47.7 |
| 6 | R2 | All MCs | 62 | 100.0 | 62 | 100.0 | 0.218 | 14.1 | LOS A | 0.9 | 10.2 | 0.41 | 0.59 | 0.41 | 46.0 |
| Approach | | | 104 | 75.8 | 104 | 75.8 | 0.218 | 11.0 | LOS A | 0.9 | 10.2 | 0.41 | 0.59 | 0.41 | 46.6 |
| North: New England Highway | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.001 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 52.9 |
| 8 | T1 | All MCs | 119 | 22.1 | 119 | 22.1 | 0.035 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 100.0 |
| Approach | | | 120 | 21.9 | 120 | 21.9 | 0.035 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 99.2 |
| All Vehicles | | | 357 | 45.1 | 357 | 45.1 | 0.218 | 3.3 | NA | 0.9 | 10.2 | 0.12 | 0.18 | 0.12 | 73.8 |

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# Appendix G

## Preliminary Feedback on Local Road Bridges

**From:** Jordan Kirk
**To:** Tom Dwyer
**Cc:** "sophie.butcher@erm.com"; Shannon Eduards; Steve Brake
**Subject:** RE: Garoo Solar Farm - Preliminary Advice
**Date:** Thursday, 27 February 2025 11:06:22 AM
**Attachments:** image001.png
image002.png
image003.png

---

Hi Tom,

I have just received the below feedback from our Regional Services team.

*Please see information for structures along proposed route for site access - Lindsays Gap Road - Garoo Road – proposed site access.*

*2 bridge structures along proposed route and some larger box culverts.*

- ***Eumaralla Bridge*** *– Level 3 inspection undertaken 2016. Bridge built in 1961 and is completely serviceable.*
  *Due to bridge age design loadings based on MS18 (approx 33t semi) due to width only one vehicle could traverse at any time which minimises risk.*
  *Level 3 bridge inspection indicates design access for HML B-doubles, although route on NHVR only gazetted for GML B-doubles.*
  *Bridge width approx 4.4m.*

- ***Lucella Bridge*** *- Tier 1 loading assessment undertaken 2023. Bridge upgraded 2019-2020 to cater for HML B-double loadings – designed for MS1600 loading.*
  *Bridge width approx 6.8m. Approved on NHVR OSOM network map.*

*Also note that B-doubles are also approved to utilise Garoo Road so depending on the management plan and proposed vehicles and quantum, this may also be a more direct option although Councils preference would be for Lindsay's Gap Road.*
*Additional bridge structure along Garoo Road. Information follows.*

- ***Sugarloaf Creek Bridge*** *- Level 3 inspection undertaken 2016. Bridge built in 1966 and is completely serviceable.*
  *Due to bridge age design loadings based on MS18 (approx 33t semi) due to width only one vehicle could traverse at any time which minimises risk.*
  *Level 3 bridge inspection indicates design access for HML B-doubles.*
  *Bridge width approx 4.8m.*

*Note that bridge inspections will be required to ascertain current bridge condition and structural adequacy as these inspections ultimately indicate structural capacity at a given point in time.*
*Also any proposed OSOM vehicles above HML B-doubles will need to be assessed as required in tandem with the bridge condition inspections.*

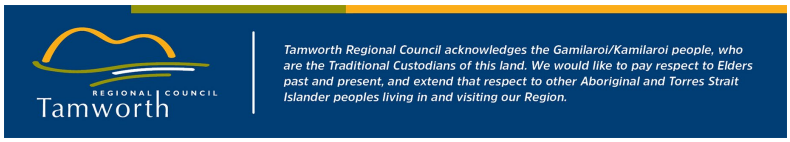
*Some potential conditions that may be required include speed restrictions, mass restrictions or ultimately upgrades to existing structures depending on the design vehicle required.*

Any questions please don't hesitate to reach out.

Kind Regards,

**Jordan Kirk**
Renewable Energy Project Coordinator
Tamworth Regional Council – New England Renewable Energy Zone

E Jordan.Kirk@tamworth.nsw.gov.au
PO Box 555, Tamworth, NSW, 2340
www.tamworth.nsw.gov.au




---

**From:** Jordan Kirk
**Sent:** Thursday, 27 February 2025 9:40 AM
**To:** 'Tom Dwyer' <tdwyer@amberorg.com.au>
**Subject:** RE: Garoo Solar Farm - Preliminary Advice

Hi Tom,

Nice to e-meet you. I have reached out to our Regional Services team who are working on this for you. Hope to get a response out to you as soon as possible.

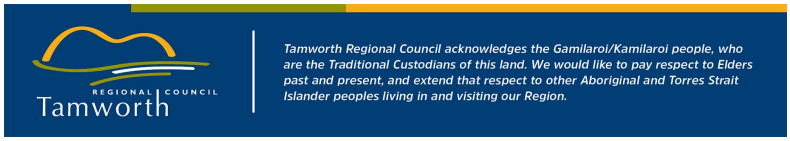
If there is any further information we need I'll be sure to reach out.

If there's anything else I can help with please let me know.

Kind Regards,

**Jordan Kirk**
Renewable Energy Project Coordinator
Tamworth Regional Council – New England Renewable Energy Zone

E Jordan.Kirk@tamworth.nsw.gov.au
PO Box 555, Tamworth, NSW, 2340
www.tamworth.nsw.gov.au

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**From:** Tom Dwyer <tdwyer@amberorg.com.au>
**Sent:** Wednesday, 26 February 2025 5:12 PM
**To:** Steve Brake <s.brake@tamworth.nsw.gov.au>; Jordan Kirk <Jordan.Kirk@tamworth.nsw.gov.au>
**Cc:** Shannon Eduards <seduards@amberorg.com.au>; Sophie Butcher <sophie.butcher@erm.com>
**Subject:** RE: Garoo Solar Farm - Preliminary Advice

Hi Steve

Thanks for the update – greatly appreciated.

@Jordan Kirk please don't hesitate to be in touch and I can outline more of the specifics around the project – my direct number is 0481 959 464. Also happy to arrange a quick online meeting if that's preferred as well.

Look forward to hearing from you.

Cheers
Tom

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

Ph: +61 481 959 464

---

**From:** Steve Brake <s.brake@tamworth.nsw.gov.au>
**Sent:** Wednesday, 26 February 2025 3:13 PM
**To:** Tom Dwyer <tdwyer@amberorg.com.au>
**Cc:** Shannon Eduards <seduards@amberorg.com.au>; Jordan Kirk <Jordan.Kirk@tamworth.nsw.gov.au>
**Subject:** RE: Garoo Solar Farm - Preliminary Advice

G'day Tom,

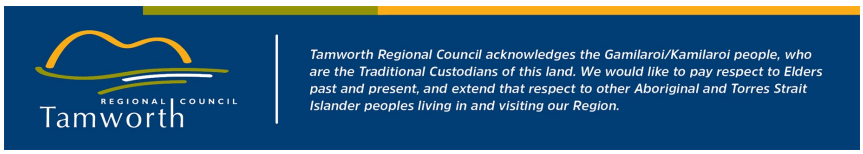
Sorry I haven't responded in a more timely manner. I was on leave when you originally emailed, and I am still playing catch-up.

These requests need to be referred to our Regional Services team. We now have the benefit of a dedicated Renewable Energy Project Coordinator (Jordan Kirk – cc'd into this email). Jordan will coordinate the Regional services research and response to your enquiry.

Regards

**Steve Brake**
Manager Development Engineering
P 02 6767 5109 | M 0436 929 247 | E s.brake@tamworth.nsw.gov.au
474 Peel Street
PO Box 555 Tamworth NSW 2340
www.tamworth.nsw.gov.au

Submit Large Documents Here
*(**NB:** your email will be sent to a Council group development email Inbox. Please include as much information as necessary such as Application Numbers, Relevant Council Officer Names or nature of email in Subject Line and Message Section of the email to ensure your email is allocated to the right officer).*




---

**From:** Tom Dwyer <tdwyer@amberorg.com.au>
**Sent:** Thursday, 20 February 2025 2:04 PM

**To:** Steve Brake <s.brake@tamworth.nsw.gov.au>
**Cc:** Shannon Eduards <seduards@amberorg.com.au>
**Subject:** Garoo Solar Farm - Preliminary Advice

Hi Steve

Amber has been engaged to assist on the development of a Traffic Impact Assessment report for the Garoo Solar Farm (refer https://www.planningportal.nsw.gov.au/major-projects/projects/garoo-solar-farm-and-bess). We were involved in the TIA for the nearby Middlebrook SF as well.

The access routes to the site are to be confirmed but at this preliminary stage heavy vehicle access is proposed via Lindsays Gap Road and Garoo Road (refer orange line in figure below).

**Figure 13: Vehicle Routes to Project Area**


We'd greatly appreciate any feedback on the proposed routes. In particular, we have undertaken a site visit and note the width constraints on the bridges, but we'd appreciate any feedback you have on load limits given the nature of the project.

Greatly appreciate your time and if you'd like to discuss please don't hesitate to contact me.

Kind regards
Tom

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

Ph: +61 481 959 464

[redacted]

**Subject:** RE: Garoo Solar Farm - Preliminary Advice
**Date:** Thursday, 27 February 2025 11:06:22 AM
**Attachments:** image001.png
image002.png
image003.png

---

[redacted]

I have just received the below feedback from our Regional Services team.

*Please see information for structures along proposed route for site access - Lindsays Gap Road - Garoo Road – proposed site access.*

*2 bridge structures along proposed route and some larger box culverts.*

- ***Eumaralla Bridge*** *– Level 3 inspection undertaken 2016. Bridge built in 1961 and is completely serviceable.*
  *Due to bridge age design loadings based on MS18 (approx 33t semi) due to width only one vehicle could traverse at any time which minimises risk.*
  *Level 3 bridge inspection indicates design access for HML B-doubles, although route on NHVR only gazetted for GML B-doubles.*
  *Bridge width approx 4.4m.*

- ***Lucella Bridge*** *- Tier 1 loading assessment undertaken 2023. Bridge upgraded 2019-2020 to cater for HML B-double loadings – designed for MS1600 loading.*
  *Bridge width approx 6.8m. Approved on NHVR OSOM network map.*

*Also note that B-doubles are also approved to utilise Garoo Road so depending on the management plan and proposed vehicles and quantum, this may also be a more direct option although Councils preference would be for Lindsay's Gap Road.*
*Additional bridge structure along Garoo Road. Information follows.*

- ***Sugarloaf Creek Bridge*** *- Level 3 inspection undertaken 2016. Bridge built in 1966 and is completely serviceable.*
  *Due to bridge age design loadings based on MS18 (approx 33t semi) due to width only one vehicle could traverse at any time which minimises risk.*
  *Level 3 bridge inspection indicates design access for HML B-doubles.*
  *Bridge width approx 4.8m.*

*Note that bridge inspections will be required to ascertain current bridge condition and structural adequacy as these inspections ultimately indicate structural capacity at a given point in time.*
*Also any proposed OSOM vehicles above HML B-doubles will need to be assessed as required in tandem with the bridge condition inspections.*

*Some potential conditions that may be required include speed restrictions, mass restrictions or ultimately upgrades to existing structures depending on the design vehicle required.*

Any questions please don't hesitate to reach out.

Kind Regards,

[redacted]
Tamworth Regional Council – New England Renewable Energy Zone

[redacted]
PO Box 555, Tamworth, NSW, 2340
www.tamworth.nsw.gov.au

Tamworth Regional Council acknowledges the Gamilaroi/Kamilaroi people, who are the Traditional Custodians of this land. We would like to pay respect to Elders past and present, and extend that respect to other Aboriginal and Torres Strait islander peoples living in and visiting our Region.

---

[redacted]

# Appendix H

## Road Authority Consultation

Tamworth REGIONAL COUNCIL
PO Box 555
Tamworth NSW 2340
P 02 6767 5555
E trc@tamworth.nsw.gov.au
www.tamworth.nsw.gov.au
ABN: 52 631 074 450

# Pre- Development Application Advice – PDA2025-0101

| **Part 1: Property Details** | |
|---|---|
| Property address | Tamarang 291 Garoo Road GAROO NSW 2340 |
| Lot and DP | Lot 1 DP 755341, Lot 14 DP 755341, Lot 15 DP 755341<br>Lot 16 DP 755341, Lot 17 DP 755341, Lot 19 DP 755341<br>Lot 2 DP 755341, Lot 20 DP 755341, Lot 22 DP 755341<br>Lot 3 DP 114643, Lot 4 DP 114643, Lot 2 DP 1108524<br>Lot 3 DP 1108524, Lot 4 DP 1108524, Lot 5 DP 1108524<br>Lot 6 DP 1108524, Lot 7 DP 1108524 |
| Current Use of Land | Farmland |
| Zoning | RU1 - Primary Production |
| Legislation/ Policy | Tamworth Regional Local Environmental Plan 2010 (2011 EPI 27) - NSW Legislation |
| Site Constraints | Easements and waterways |
| **Part 2: Proponent – Main Contact Details** | |
| Name or Company: | Greenpulse Solar Farm and BESS<br>Lucy.Baker@Erm.Com |
| Email and Phone: | lucy.baker@erm.com |
| **Part 3: Meeting Details** | |
| Date | 12/06/2025 |
| Time Start | 4pm |
| Time Close | 5pm |
| Meeting Location | Room 1 474 Peel Street, Tamworth. |
| **Part 4: Attendees** | |
| **Name** | **Organisation** |
| Sam Lobsey | TRC – Manager, Development Division. |
| Steve Brake | TRC – Manager, Development Engineering. |
| Jordan Kirk | TRC – Renewable Energy Project Coordinator. |
| Frances Rodger | TRC – Development Hub Client Advisor - Note Taker. |
| **Proponent** | |
| Kate Porritt | ERM |

| | |
|---|---|
| Sophie Butcher | ERM |
| Eathan Wang | Chinko Power |
| Lucy baker | ERM |
| Tarek Alsampaile | Bright Path Renewables |
| Tom Dwyer | Amber Organisation |
| Andy Xun | Chinko Power |

**Part 5 : Overview and Details of Proposed Development**

GreenPulse Solar Farm and BESS

- Location of panels and battery has been adjusted, as well as a bridge crossing with power lines attached to this.
- Ecological surveys and community surveys have been undertaken, leading to some changes at the site.
- Solar Array up to 133.76MW AC.
- Some panels have been removed on the western side.
- The applicant is currently investigating the requirement for road upgrades, including Garoo Road.
- OSOM route is expected to come via the port of Newcastle to site via Lindsays Gap Road onto Garoo Road, and then into the site via a slip lane. All heavy vehicles would utilise this approach as well (i.e., left turn into the site). Light vehicles would approach the site from either direction of Garoo Road.
- Entry to lots appears to be owned by Council but this is yet to be confirmed.
- Community Engagement has been undertaken via drop-in sessions at Gowry hall and ads in the Northern Daily Leader, and the digital sites. There were about 10 people across the 2 sessions. Most of them were direct neighbours.
- There have been 3 separate one on one discussions that have led to some changes in the project. The main discussions were about with visual amenity, fencing, stock grazing, road maintenance, compensation, property value, and traffic management
- There is consideration of visual screening and other vegetation screening to neighbours
- Feedback on VPA "*Sometimes the construction and the financial close do not happen at the same time, so the construction might start a bit earlier, because the Nsp. And transfer it. In this case they want to start a few months earlier than the rest of the project. But really the developer has access to that lump sum of the project cost and is able to pay Amount that have been banked… in order to unlink construction and financial close at the same time. So kind of a condition of the VPA is to kick in when these 2 are met at the same time."*
- Scoping report has been lodged and the SEARS has been started. The EIS has commenced and expected to be lodged in August or September this year.
- Expected Public exhibition should be in October this year.
- Construction is currently scheduled to commence in late 2026.

**Part 6: Relevant Legislation (Tamworth Regional LEP 2010 and / or SEPP)**

Pursuant to Tamworth Regional Local Environmental Plan 2010, the proposed development is permissible with consent.

**Part 7: Issues Discussed**

**Planning**

***Voluntary Planning Agreement:***

- Proponent enquired about Council's expectations for the Voluntary Planning Agreement (VPA). TRC advised that they are currently in the process of updating our Renewable Energy Planning Agreement Policy to align with the NSW Government's guidelines released in November last year. A brief overview of our (TRC's) current expectations was provided, including:
    - A Benefit Sharing Value of $850 per megawatt per annum for solar developments;
    - A minimum of 85% of the BSV to be allocated to Tamworth Regional Council;
    - 25% of the total BSV to be paid upfront.
- Proponent asked whether the draft of the updated policy could be shared.
- ***Post meeting note***: TRC are not in a position to share the draft Policy as it has not been adopted by Council. The Proponent should consider TRC's existing VPA Policy (available on the website) and the NSW Government's guidelines released in November last year. TRC are available to discuss any VPA offer as well.

***Other Matters for consideration:***

- Please note that, if the Department issues the response in December, we will not have the capacity to put this to our Councillors as there are no Council meetings from Mid-December to February.
- Visual screening for those close would be beneficial.

**Developmer Engineering**

***Access:***

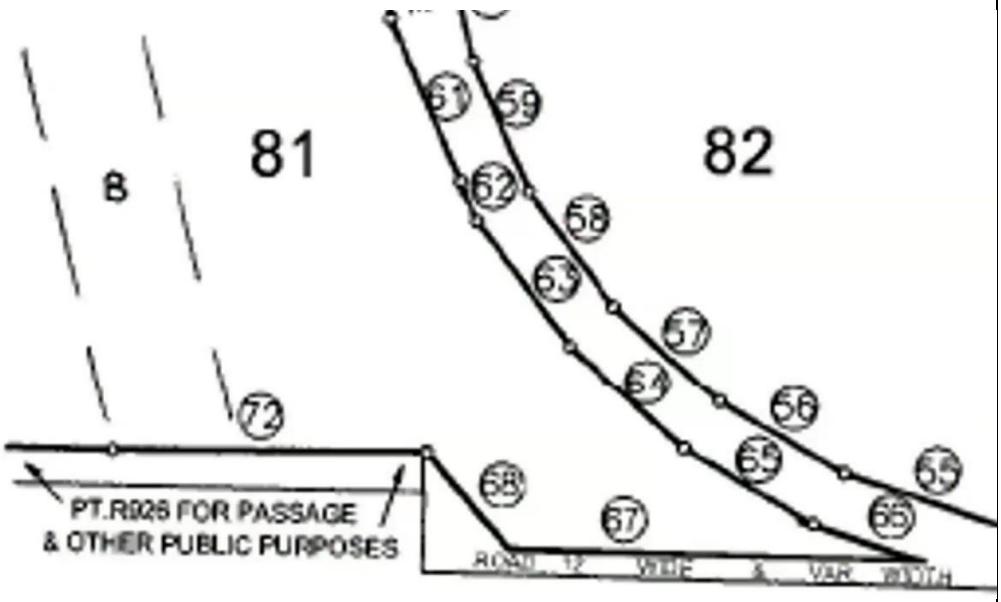
- Note that access from Garoo Road for the OSOM and other heavy vehicles may facilitate entry at high speed. Notwithstanding that the area is rural in nature with little to no pedestrian activity, geometry of the access will need to be considered and speeds managed via either physical constraints, driver code of conduct, or both.
- A significant portion of the proposed access is listed on Council mapping as Crown Land as shown below.
- Section 138 approvals will be required for all proposed works in Council owned and operated road reserves.

***Stormwater Control and Fire Suppression***

- The proposed development will need to be supported by a stormwater servicing strategy for the site – based on capturing and conveying the additional runoff that will be generated from the portion of the site that is being converted from open rural paddock to impervious structures, hardstand areas and associated swale drains / piped conveyance systems. Based on recent past assessments for similar developments, we would expect that peak flows from those portions of the site will be significantly increased from the base case by virtue of the increased impervious proportion, and the more rapid conveyance by virtue of intercepting

sheet flows and creating channel flows / piped flows (with significantly higher velocities). The objective should be to manage the flows so that the post-development peaks are at or below the pre-development peaks – for all recurrence intervals up to the 1%AEP. In our experience, this would usually be achieved by incorporating a detention facility prior to discharge from the site.

- TRC requests a coordinated approach between the stormwater, the environmental and fire response advisers in the following regard. TRC seeks an assessment and commitment around the management of mobilised pollutants in the event of a BESS fire suppression event (typically by water dousing). We suggest the inclusion of a gate valve or similar device on the outlet to any detention basin, and the requirement to shut this valve in the emergency response plan in the event of a battery fire. We see this as an essential element of the combined management plans in order to protect the downstream receiving bodies (in this case – Sugarloaf Creek and Tamarang Creek and the downstream river systems) from the impacts of mobilised pollutants – including heavy metals. The strategy would facilitate trapping and removal of pollutants before they leave the site. Once pollutants have been appropriately dealt with, the gate valve would be re-opened and the stormwater basin would return to normal function.
- This is from the slid presentation noting the part for Passage and other public purposes this is 12m Wide.




The below Purple section is noted as Crown Road not Council road.


**Part 8: Documents that must be submitted with a DA (including but not limited to)**

- The documents required to be submitted for a State Significant Development Application are stipulated by the NSW Department of Planning, Housing and Infrastructure.

**Advisory**

- This Pre-DA minutes/advice should not be construed as being an approval to carry out the proposed development. For legal confirmation that the proposed development can be carried out on the land, it is necessary to obtain either a development consent (from the relevant approval authority) or a Complying Development Certificate (from Council or an Accredited Certifier), whichever is relevant.
- Please note that Pre-DA meeting minutes are preliminary only, based on the plans that were submitted for review (attached) and representative of the discussions that took place at the meeting. Council's advice has been provided based on the key issues raised, current planning legislation and development controls at the time of the meeting.
- Comments in these minutes do not bind the Tamworth Regional Council officers in any way whatsoever.
- If there is any information contained within these minutes that you feel is not reflective of the discussions that took place at the meeting or have been misinterpreted, please advise Council immediately.
- It is the Applicant's responsibility to ensure that the relevant matters for consideration according to NSW Planning Legislation is addressed as part of any forthcoming Development Application.

- Depending on the nature of any post meeting enquiries in relation to this matter, Council may charge a fee of $240.00 for building, planning, engineering or professional officer research/advice (per hour/minimum half hour charge).

**Assistance**

If you have any questions regarding this advice, please contact the Development Hub by emailing development@tamworth.nsw.gov.au or telephoning (02) 6767 5507.

| | |
|---|---|
| **From:** | Tobias Shannon |
| **To:** | Tom Dwyer |
| **Cc:** | Michelle Shannon; Alexandra Power |
| **Subject:** | RE: Garoo Solar Farm and BESS - Bridge and Culvert Assessment (SSD-79747209) |
| **Date:** | Friday, 25 July 2025 8:35:02 AM |
| **Attachments:** | image002.png<br>image003.png<br>image004.png<br>image005.png |

Thanks Tom,

Based on TfNSW HLP Map this combination does not require a bridge assessment.

Kind Regards

**Tobias Shannon**
A/ Manager Road Access
Freight Branch
Planning, Integration and Passenger

**Transport for NSW**

**T** 1300 656 371 **E** tobias.shannon@transport.nsw.gov.au

transport.nsw.gov.au

Cnr Grey & Ferguson St
Glen Innes NSW 2370

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:** Tom Dwyer <tdwyer@amberorg.com.au>
**Sent:** Wednesday, 23 July 2025 12:01 PM
**To:** Tobias Shannon <Tobias.SHANNON@transport.nsw.gov.au>
**Cc:** Michelle Shannon <Michelle.Shannon@transport.nsw.gov.au>; Alexandra Power <Alexandra.Power@transport.nsw.gov.au>

**Subject:** RE: Garoo Solar Farm and BESS - Bridge and Culvert Assessment (SSD-79747209)



Hi Tobias

Estimates provided per the attached. Note these are very much approximate as the procurement process for the transformer and logistics contractor are a long way away given the project is currently only at Prepare EIS stage.

If you could provide an update on timeframes for the assessment that would be appreciated.

Regards
Tom

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

Ph: +61 481 959 464

---

**From:** Tobias Shannon <Tobias.SHANNON@transport.nsw.gov.au>
**Sent:** Wednesday, 23 July 2025 11:44 AM
**To:** Tom Dwyer <tdwyer@amberorg.com.au>
**Cc:** Michelle Shannon <Michelle.Shannon@transport.nsw.gov.au>; Alexandra Power <Alexandra.Power@transport.nsw.gov.au>
**Subject:** RE: Garoo Solar Farm and BESS - Bridge and Culvert Assessment (SSD-79747209)

Hi Tom,

Could you please advise the requested axle mass for the beam set.

Kind Regards

**Tobias Shannon**
A/ Manager Road Access
Freight Branch
Planning, Integration and Passenger

**Transport for NSW**

**T** 1300 656 371 **E** tobias.shannon@transport.nsw.gov.au

transport.nsw.gov.au

Cnr Grey & Ferguson St
Glen Innes NSW 2370

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.

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**From:** Stuart Murray <Stuart.A.MURRAY@transport.nsw.gov.au> **On Behalf Of** special_permits_unit@rms.nsw.gov.au
**Sent:** Wednesday, 9 July 2025 10:41 AM
**To:** Tobias Shannon <Tobias.SHANNON@transport.nsw.gov.au>
**Subject:** FW: Garoo Solar Farm and BESS - Bridge and Culvert Assessment (SSD-79747209)

FYI

Regards

**Stuart Murray**

Road Access Officer
Freight Branch
Planning, Integration and Passenger

**Transport for NSW**

**T** 1300 656 371 **E** stuart.a.murray@transport.nsw.gov.au

OFFICIAL

**From:** Tom Dwyer <tdwyer@amberorg.com.au>
**Sent:** Wednesday, 9 July 2025 10:38 AM
**To:** special_permits_unit@rms.nsw.gov.au <spu@transport.nsw.gov.au>
**Cc:** sophie.butcher@erm.com
**Subject:** Garoo Solar Farm and BESS - Bridge and Culvert Assessment (SSD-79747209)



Hi there

Amber are assisting with the preparation of a Traffic Impact Assessment report for the Garoo Solar Farm and BESS (refer: Garoo Solar Farm and BESS | Planning Portal - Department of Planning and Environment)

Whilst the project is at an early stage of development we have been requested by the TfNSW Development Renewables team to seek a bridge and culvert assessment of the anticipated OSOM vehicle combinations transporting the transformer from port (Port of Newcastle) to site.

The proposed vehicle combination is shown attached with relevant details provided, including the NHVR Route ID (2D52R-2). Note these are relatively approximate given that the project is yet to be approved and loads and transit time to be confirmed.

Please feel free to contact me if any further information is required.

Cheers
Tom

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

Ph: +61 481 959 464



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**Consider the environment. Please don't print this e-mail unless really necessary.**

| | |
|---|---|
| **From:** | Emily Lu |
| **To:** | Lucy Baker; Sophie Butcher; Tom Dwyer; "Ethan Wang" |
| **Cc:** | Alexandra Power |
| **Subject:** | Garoo Solar Farm - TfNSW post-meeting comments |
| **Date:** | Wednesday, 2 July 2025 6:16:46 PM |
| **Attachments:** | image001.png<br>image002.png<br>image003.png<br>image004.png<br>20241218_TfNSW Commitment Letter to DPHI_V2 (005).pdf |

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Hi all,

Thank you for the meeting earlier today, your engagement is much appreciated.

As discussed, please find the Port to REZ commitment letter attached.
Please note our disclaimer regarding the New England (NE) REZ:
*EnergyCo is currently developing its Port to Renewable Energy Zone (REZ) strategy for the New England REZ, including potential haulage routes for OSOM (and other construction and operational) movements, and funding and delivery arrangements. Until this strategy is complete, EnergyCo is not able to commit to any specific road upgrades in the New England REZ at this point.*
*If the Proponent wishes to proceed with the submission of its EIS for the Garoo Solar Farm ahead of this strategy and necessary approvals being finalised, EnergyCo recommends that the Proponent determines its own transport route for the project and secures all relevant approvals. EnergyCo will continue to keep generators and regulators informed on the status of the Port to REZ strategy, but is currently unable to provide any commitment regarding the timing or scope of road upgrades that may be delivered under future funding allocations.*

As also requested, below are the dot points of our informal comments from our preliminary review. Formal review will be conducted as part of the EIS exhibition process.

- Bridge and culvert assessments are to be provided in the TIA.
  - Email the team at spu@transport.nsw.gov.au
  - Estimated 6-8 week turnaround time
  - To streamline the process, please include the following info:
    - Weight to axle ratio
    - Axle spacing
    - NHVR Route ID
  - Suggest to assess for worst case scenario (with laden dimensions)
- Hexham Straight: Assess the alternative route via Newcastle Inner City Bypass to Newcastle Road for high-risk OSOM loads that do not exceed the vertical clearance limitations of 5.25m
- Consider police escort where multiple lanes/opposite lanes are crossed by high-risk OSOM
- Note new heavy vehicle requiring escort definition

- Confirm design HV
- Include measurements for SISD
- Include HV swept paths for NE Hwy / Lindsays Gap Rd
- Golden Hwy updates may occur in near future – check on TfNSW's projects websites

Feel free to reach out if you have any further questions.

Kind regards,

**Emily Lu** *(she/her)*
Development Services Case Officer - Renewables
Transport Planning
Planning, Integration and Passenger
**Transport for NSW**

**P** 1300 019 680 **E** development.renewables@transport.nsw.gov.au

Transport for NSW

Pride and Ally Transport Network

---

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.

Transport for NSW

18 December 2024

Chris Ritchie
Executive Director
Energy and Resource Assessments
Department of Planning, Housing and Infrastructure
4 Parramatta Square
12 Darcy Street
PARRAMATTA NSW 2150

**Re: State Road Upgrades between Port of Newcastle and the Central-West Orana Renewable Energy Zone and the New England Renewable Energy Zone**

Dear Chris,

**Background**
Further to the letter submitted to DPHI dated 20 May 2023 (Re: State Road Upgrades between Port of Newcastle and the Central-West Orana Renewable Energy Zone ("P2R Project"), TfNSW and EnergyCo hereby provide a further update on the Central-West Orana REZ OSOM Corridor and current New England REZ OSOM Corridor dimensional limits.

As you are aware, Energy Corporation of NSW (EnergyCo) has also been appointed as the Infrastructure Planner (IP) for the New England Renewable Energy Zone (NE REZ) in accordance with the Energy Infrastructure Investment Act 2020 (EII Act). As IP, EnergyCo's role includes the coordination of both transmission infrastructure and generation projects.

EnergyCo is engaging with several renewable generation projects, referred to as Generator Design Partners (GDPs) who will likely participate in a future access rights allocation process for the New England REZ.

While GDPs are responsible for securing the necessary planning consents for their projects, there is a need to coordinate the planning and delivery of enabling works to support the REZ. This will provide better social licence outcomes as well as de-risking delivery.

TfNSW is responsible for assessing all developments and as such, these need to be included in the planning of these corridors to ensure a consistent outcome.

Contact:
Damien Pfeiffer
Director, Development Services (Land Use)
Planning, Integration and Passenger
damien.pfeiffer@transport.nsw.gov.au

**CWO REZ**
Upgrades to the State Road network from the Port of Newcastle to CWO REZ are required to facilitate the transportation of high risk over-sized and over-mass (OSOM) components. OSOM components include transformers required for transmission and turbine blades and tower sections required for wind projects. These works will be delivered as a single program of works for the State Road upgrades on the New England, Golden and Castlereagh Highways as shown in Figure 1 below. These works are expected to be completed in Q3 2025 to enable the passage of OSOM loads from Q4 2025. These locations form part of the recent joint announcement by Minister Aitchison and Minister Sharpe.

**NE REZ**
Upgrades to the State Road network from the Port of Newcastle to NE REZ are required to facilitate the transportation of high risk over-sized and over-mass (OSOM) components. OSOM components include transformers required for transmission, turbine blades and tower sections required for wind projects. EnergyCo is currently investigating the proposed corridor mostly along the New England Highway to Armidale in **Figure 1**(beyond the shared route from Port of Newcastle to Denman Road and Bengalla road), and this is yet to be agreed with TfNSW. There are other developments (NEON for Thunderbolt Wind Farm, VESTAS for Winterbourne Wind Farm, and ENGIE for Hills of Gold Wind Farm) wishing to access the network by late-2026. To continue to coordinate and plan the delivery of enabling works to support the REZ, a commitment has been made between TfNSW and EnergyCo to facilitate the implementation of detours in two separate local government areas (LGA) due to restrictions on the current State Road network.

The locations are:

- **Muswellbrook Detour:** Wybong road (east) with intersection of Bengalla Road, Kayuga Road, Invermein Street, Stair Street, Dartbrook Private Mine Access Road to intersection with New England Highway – in the Muswellbrook LGA in **Figure 2**
- **Tamworth Detour:** Whitehouse Lane at intersection with New England Highway, Marsden Park Lane, O'Brien's Lane, Nundle Road to intersection with New England Highway in the Tamworth LGA in **Figure 3**

These works are expected to be completed by Mid-2026 to enable the passage of OSOM loads from late-2026 to align with dates indicated by projects in this area. The Muswellbrook detour as part of Stage 1B, is the most advanced section with a more clearly defined scope of work. This corridor provides a viable solution for all projects with high-risk oversize over-mass components.

The Tamworth detour is in earlier stages of scope definition and expected to move forward quickly. There is broad support that this solution will provide access for all high-risk oversize over-mass components, however it must be noted that there are other sections of road that could also be viable to a particular development based on their component sizes or indeed viable for a subset of the project components.

The remaining sections (referred to as Stage 2) between the 2 detour locations and from Nundle to Armidale – along the New England Highway, will be addressed once the scope is more clearly defined and funding has been secured. Therefore, proponents are to demonstrate the mitigations and works required to travel along the Stage 2 section.

The works in Stage 1b would include construction of new hardstand or pavement widening, drainage adjustments, relocation of signage, lighting and utilities, tree trimming and/or removals, and other enabling works. Details of the technical parameters informing the envelope are set out in **Appendix A**.

**Figure 1: Indicative Corridor from Muswellbrook to Tamworth to Armidale (along New England Highway) to NE REZ**

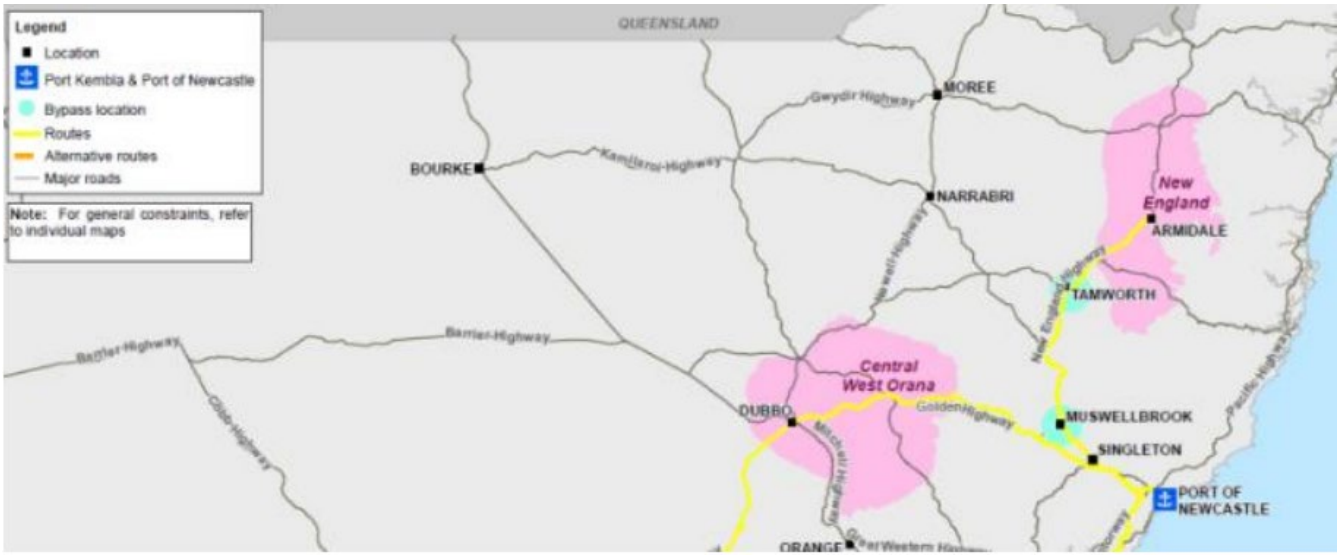


**Figure 2: Detour around Muswellbrook (Stage 1b)**

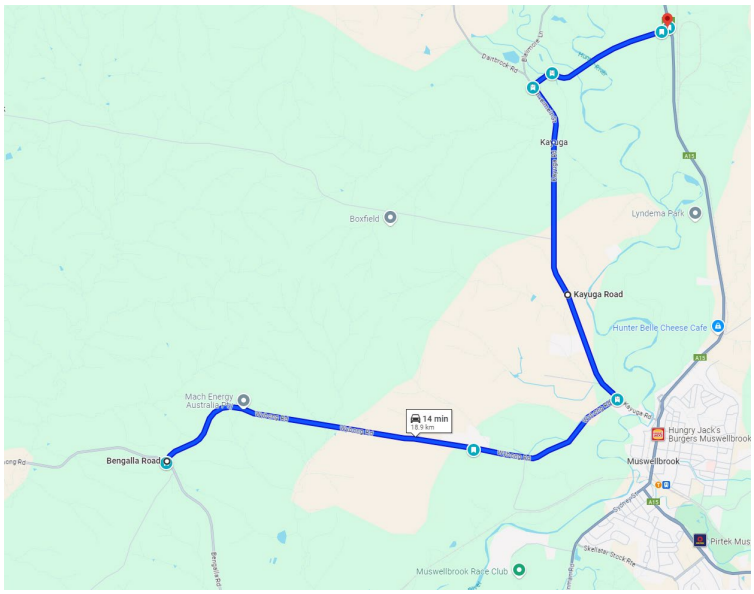
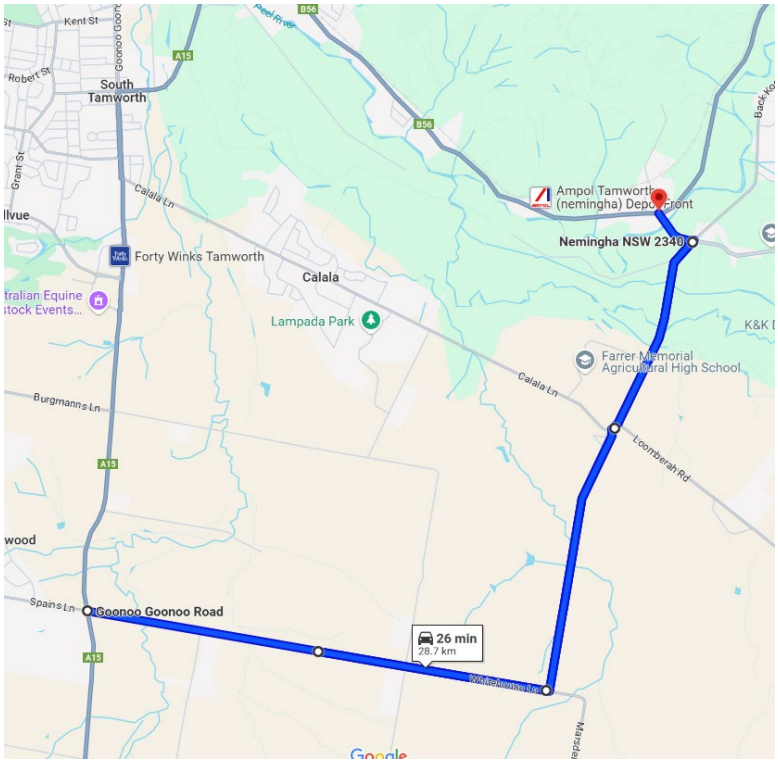



**Figure 3: Detour around Tamworth (to be included as Stage 1b)**



**Implications for Planning and Assessment**
TfNSW and EnergyCo considers that this work can be treated as a NSW Government commitment which can be taken into account by DPHI when assessing and determining applicable renewable generation projects in CWO REZ and NE REZ. In addition, the South West REZ (SW REZ) where OSOM routes overlap sections of the corridors and their limits defined here, can be applied under the Environmental Planning and Assessment Act 1979.
This mitigates the risk of overlapping requirements on individual projects and lack of clarity among potentially affected parties, including local councils. Importantly, individual generators would remain responsible for works required to upgrade council roads providing access to individual projects.

**Next Steps**
It would be appreciated if we could arrange a meeting with DPHI, TfNSW and EnergyCo in early 2025 to discuss the proposed approach outlined in this letter in more detail. Please also feel free to contact me directly if you wish to discuss this matter.

Yours sincerely,

**Anthony Hayes**

Head of Regional Integration and Place
Planning, Integration and Passenger
**Transport for NSW**

## Appendix A - Envelope Requirements and Design Vehicles

A summary of the expected critical dimensions, and associated design vehicles being used to inform the CWO REZ high risk OSOM corridors are as follows:

- **85m wind turbine blades (design vehicle)** Impacts road horizontal alignment, including road widening and intersection upgrade works
  - Maximum loaded dimensions used: 97L x 4.9W x 5.2H metres.
  - Applies to:
    - The shared route from Port of Newcastle to Denman Road (as per note in NE REZ, 100m prototype turbine also used as design vehicle)
    - Denman Road intersection with Golden Highway heading east along Golden Highway to Elong Elong.
    - Castlereagh Highway intersection with Golden Highway heading south along Castlereagh Highway to Barneys Reef Road.

- **5.9m diameter wind turbine tower (base) used as check vehicle**
  - Impacts vertical clearance, including overhead structures (such as bridges/overpasses, overhead wires, and signage/gantries)
  - Maximum loaded dimensions: 40L x 5.9W x 6.1H metres
  - Anderson Drive overpass along New England Highway will require loads to be lowered below 6.0 metres.
  - A vertical envelope of 6.5 metres was adopted meaning that the maximum vehicle loaded height could be 6.3 metres (with an exception at Anderson Drive (where the truck could lower to 6.1 metres to pass) and Denman Bridge (where the truck could either lower suspension or take the Bengalla Road and Wybong Road detour)).

- **220t (payload) transformers components and synchronous condensers (used as a check vehicle)**
  - Impacts road mass limits, including bridges, culverts, and road durability.
  - Maximum loaded dimensions: 140L x 6.2W x 4.7H metres (which is based on 7 prime movers)

A summary of the expected critical dimensions, and associated design vehicles being used to inform the Stage 1B NE REZ high risk OSOM corridors are as follows:

- **100m wind turbine blades prototype (length) used as design vehicle**
  - Impacts road horizontal alignment, including road widening and intersection upgrade works.
  - Maximum loaded dimension: 112L x 4.9W x 5.2H metres (Refer to trailer configuration in **Appendix B – Figure 4**).

- Note, also used as design vehicle from Port of Newcastle to Golden Highway and Denman Road intersection (as it is a shared route between CWO and NE REZ)
- Applies to:
    - Port of Newcastle to Denman Road intersection with Bengalla Road.
    - Wybong Road intersection with Bengalla Road heading east, along the NE REZ OSOM detour of Muswellbrook (**see Figure 2**)
    - New England Highway intersection with Whitehouse Lane, along the NE REZ OSOM detour of Tamworth (**see Figure 3**)

• **Wind turbine towers (height)**

- Impacts vertical clearance, including overhead structures (such as bridges/overpasses, overhead wires, and signage/gantries) set to minimum 6.5 metres.
- Maximum loaded height: 6.3 metres (to allow for 200mm clearance). Consistent with CWO REZ due to the shared route from Port of Newcastle to Denman Road.
- Details of where loads will need to be lowered are to be provided to TfNSW with full explanation of the escort/pilot requirements to achieve a safe outcome and information on time of day and further impacts.
- Future provisions for new projects along the New England Highway such as the Singleton Bypass and Muswellbrook Bypass are being asked to consider a minimum clearance of 6.5 metres to any overpass structures.

• **220t (payload) transformers components and synchronous condensers (used as a check vehicle)**

- Impacts road mass limits, including bridges, culverts, and road durability.
- Maximum loaded dimensions: 140L x 6.2W x 4.7H metres (Refer to trailer configuration in **Appendix B – Figure 5**)

Any component moving on the network will need to comply with each individual requirement. The information provided here shows the basis for the design and checks carried out for length, height, and weight. This also means that ultimately the corridor is agnostic to a specific part or manufacturer's components and therefore it is possible, for example, that a longer component could work provided the proponent can demonstrate the requirements are met. This is due to advances in transport technology and methodology for transporting these components.

To ensure consistency and allow all developers to carry out their own due diligence and assessment of their actual movements through the upgraded sections of the road corridors, TfNSW will provide general arrangement drawings upon request. These drawings will illustrate the extent of pavement available for use.

Furthermore, each developer will also need to provide TfNSW evidence as part of their planning approvals that:

- Swept path of movements staying entirely within the road corridor.
- Horizontal clearance of at least [1000 mm] to third party assets, including power poles, traffic signals and other infrastructure.
- Minimum clearance to overhead electrical services based on the type of service is maintained (varies based on the service).
- Minimum [200mm] vertical clearance to overpasses, bridges, signage, and gantries is maintained, or evidence of agreement with TfNSW on alternate arrangements.
- Mass limits are in line with existing TfNSW requirements and may need to be assessed on a case-by-case basis.

For projects in other Renewable Energy Zones (for example South West REZ), or individual projects that do not align with the footprint, this will be the responsibility of the individual proponent to deliver any necessary route assessments and associated road upgrades beyond the limits set here. This will also include movements from alternate Ports and interstate options.

## Appendix B - Trailer Configurations

**Figure 4: Prototype 100m long wind turbine blade vehicle (over-length/width design vehicle)**

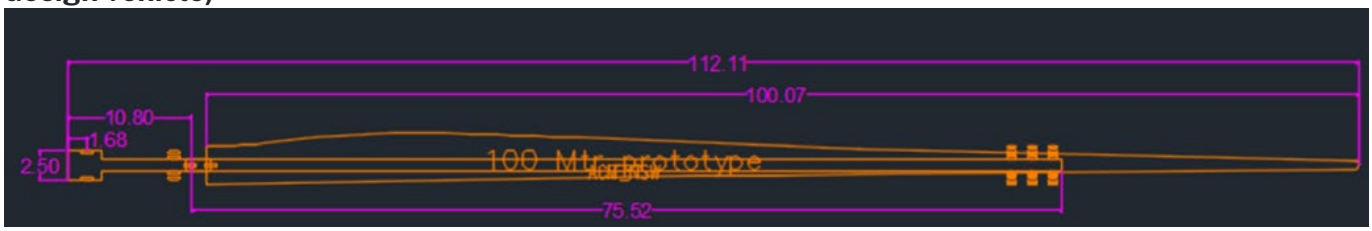



**Figure 5: 220 tonne transformer (payload) vehicle (over-width and over-mass design vehicle)**