# Appendix J

## Traffic Impact Assessment

ib vogt Development Australia

December 2025

# Giddi BESS and Trafalgar East Hybrid Solar Project

## Traffic Impact Assessment Report

Question today
*Imagine tomorrow*
Create for the future

# Giddi BESS and Trafalgar East Hybrid Solar Project
# Traffic Impact Assessment Report

ib vogt Development Australia

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| Rev | Date | Details |
|---|---|---|
| C | 24/11/2025 | Traffic Impact Assessment Report |

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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# 1 Introduction

WSP has been engaged by *ib vogt Development Australia* to prepare a Traffic Impact Assessment for a proposed Solar Array and Battery Energy Storage System (BESS) facility to be provided in Trafalgar East, Victoria.

## 1.1 Project Description

ib vogt Development Australia Pty Ltd (ib vogt) is seeking to develop the Giddi Battery Energy Storage System (BESS) and Trafalgar East Hybrid Solar Farm, collectively referred to as the Project. The Project is located in Trafalgar East, approximately 130 kilometres (km) east of Melbourne (see Figure 1-1), and spans two properties with a combined area of approximately 360 hectares.

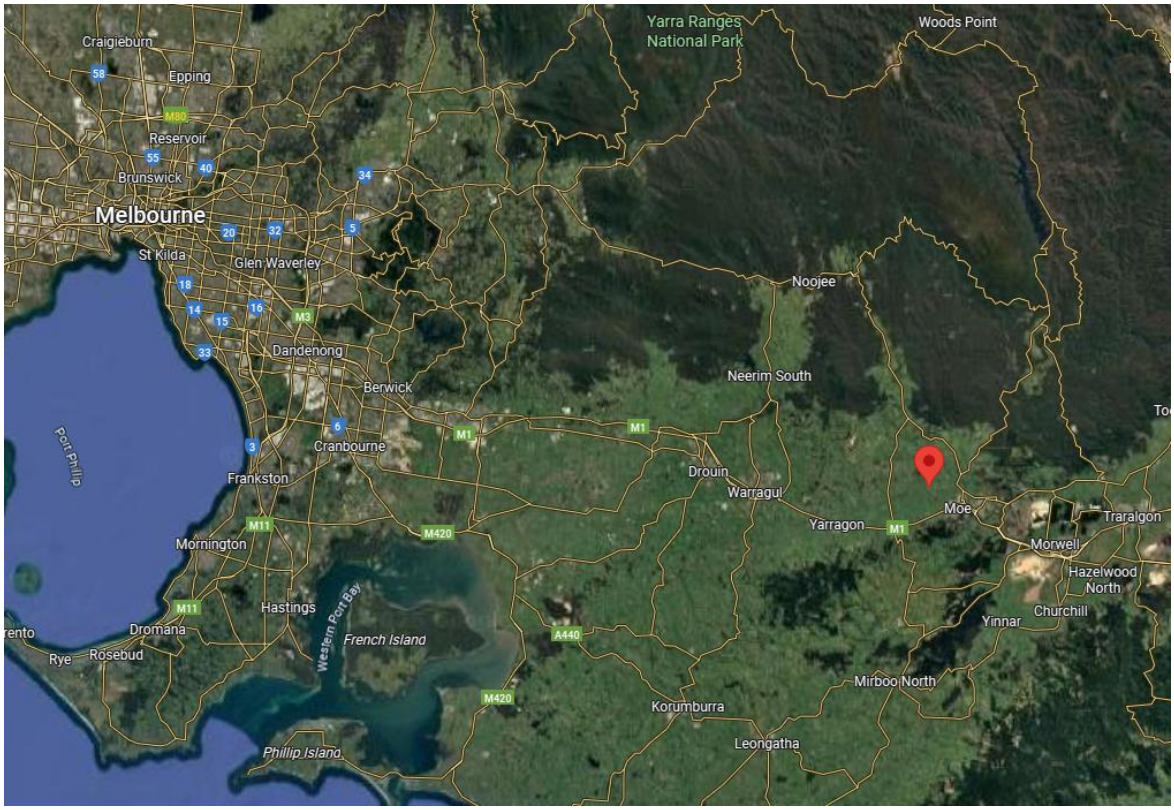



Figure 1-1 Project location as indicated by red arrow

To meet grid connection requirements the Project will be delivered across two stages. Giddi BESS (Stage 1), includes the installation of a 360-megawatt (MW) BESS, a substation, and a 220 kilovolt (kV) connection to the existing AusNet transmission line (Rowville to Yallourn) that traverses the Site. This stage will be located on the property at 59 Rowells Road, Trafalgar East, which is currently used for growing commercial feed for cattle and sheep, and includes a goat dairy. The Project layout is shown in Figure 1-2.

Infrastructure associated with the Giddi BESS (Stage 1) includes:

- A 360MW BESS
- Inverters and transformers
- Rooms for control, operation and maintenance
- A switchyard
- A 220kV substation
- Internal access roads

— Perimeter boundary fencing

The Giddi BESS layout is shown in Figure 1-3.

The Trafalgar East Hybrid Solar Farm (Stage 2) includes the installation of an additional 200 MW BESS and a 200 MW solar power generation array configured with a single 200MW point of connection. This stage is located across the remainder of the Rowells Road property and the adjacent property at 363 Embletons Road which is currently used for grazing beef cattle.

Infrastructure associated with the Trafalgar East Hybrid Solar Farm (Stage 2) includes:

- A 200MW BESS
- A 200MW solar array
- Inverters and transformers
- Rooms for control, operation and maintenance
- A switchyard
- A 220kV substation
- Internal access roads
- Perimeter boundary fencing

A small transmission easement will be required to connect the two properties. It is proposed that this connection utilise an existing council road easement between the sites or adjacent private land.

The Trafalgar East Hybrid Solar layout is shown in Figure 1-4.

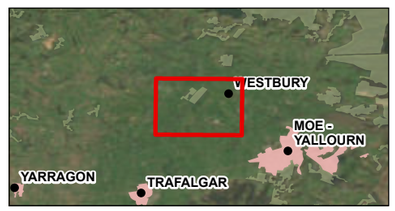
**PS217303**
**Giddi BESS and Trafalgar East Hybrid Solar**

**Figure 1.2**
Site Layout

**Legend**

- Watercourse
- Existing Gas Pipeline
- Transmission Corridor Option 1
- Transmission Corridor Option 2
- Giddi BESS
- Trafalgar East Hybrid Solar
- Existing 220kV Power Line Easement
- Cadastre

ADVERTISED PLAN

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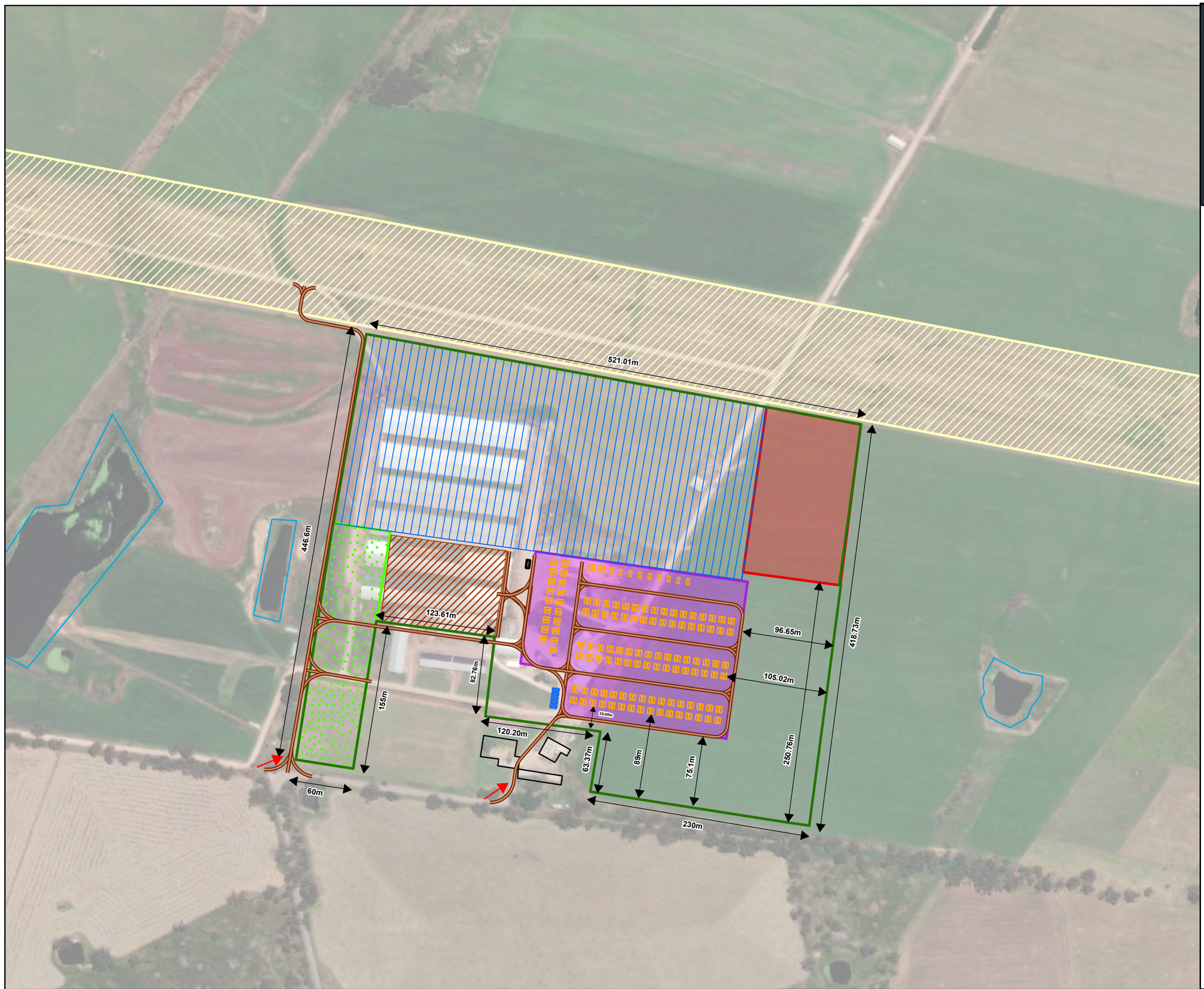
1:17,000 Date: 26/11/2025

GDA 2020

Data sources: DEWLP, MetroMap WMS Services: World Imagery: Earthstar Geographics



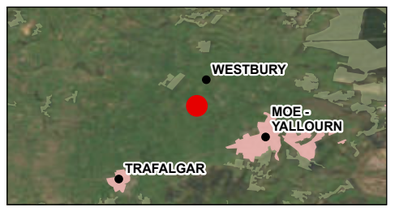

**PS217303**
**Trafalgar East BESS and Solar**

**Figure 1.3**
Giddi BESS Layout

**Legend**

- Watercourse
- Water Tanks
- PCS + Transformer
- Office Container
- Existing Buildings
- Access Road
- Main Access Gate
- Giddi BESS Study Area
- TNSP Switchyard
- Giddi BESS Substation
- Existing 220kV Power Line Easement
- Giddi BESS Construction Laydown Area
- 60m Easement
- Giddi BESS

ADVERTISED PLAN

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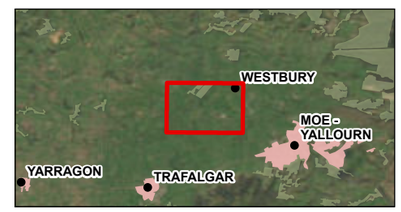
Data sources: DEWLP, World Imagery: Vantor
World Imagery: Earthstar Geographics

**PS217303**
**Trafalgar East BESS and Solar**

**Figure 1.4**
Trafalgar East Hybrid Solar Layout

**Legend**

- PCS + Transformer
- Watercourses
- Water Tank
- Array
- Existing Structure
- Environmental Protection Zones
- Existing Pipeline Easement
- Transformer Station
- Access Road
- Main Access Gate
- Transmission Corridor Option 1
- Transmission Corridor Option 2
- Giddi BESS Planning Boundary
- Giddi BESS
- Trafalgar East Hybrid Solar
- Trafalgar Hybrid Solar BESS
- Trafalgar East Hybrid Solar Planning Boundary
- 60m Easement
- Existing 220kV Power Line Easement
- Giddi Substation
- TNSP Switchyard
- Trafalgar East Hybrid Solar Substation
- Cadastre

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Data sources: DEWLP, World Imagery: Vantor
World Imagery: Earthstar Geographics

## 1.2 Scope and Purpose of this Report

The "*DELWP Solar Energy Facilities – Design and Development Guidelines (October 2022)"* sets out the relevant policies and statutory planning requirements for solar energy facility projects within Victoria. From a traffic perspective, the guidelines advise that a traffic impact assessment (TIA) must be prepared as part of a planning permit application. The guidelines note that the TIA should:

- Identify access routes and all roads that will be used to transport construction materials;
- Identify access routes, types of vehicles and traffic generation when the facility operates;
- Specify the timing, type of vehicle, daily volume and scheduled delivery times of construction materials;
- Provide timelines for the whole construction stage; and
- Identify intersection upgrades and any road works required to accommodate access to the site, and specify if these are temporary arrangements.

This report has subsequently been prepared in response to this requirement to discuss the traffic implications of the proposed development, including an assessment of the estimated site generated traffic movements, both during construction and under general operational conditions. In conjunction with this, the report has also been prepared to discuss the suitability of the identified site access arrangements and the ability of this arrangement to adequately cater for the traffic demands of the site during peak construction stages.

In the course of undertaking this assessment, a desktop inspection of the existing conditions proximate to the site has been conducted.

## 1.3 Referenced Documents

In the preparation of this assessment, the following documents have been considered:

- Austroads Guide to Road Design
- Department of Transport and Planning (DTP) Supplements to Austroads
- Baw Baw Planning Scheme
- DELWP – Solar Energy Facilities – Design and Development Guidelines – October 2022

# 2 Background and Existing Conditions

## 2.1 Subject Site

The subject site is located approximately 7.0km north-east of the township of Trafalgar and comprises a combined area of approximately 360 hectares.

The subject site is zoned for Farming Use (FZ) within the Baw Baw Planning Scheme with nearby surrounding land uses primarily comprising agricultural land uses.

The indicative location of the subject site with respect to the wider surrounding area is shown in Figure 2-1.

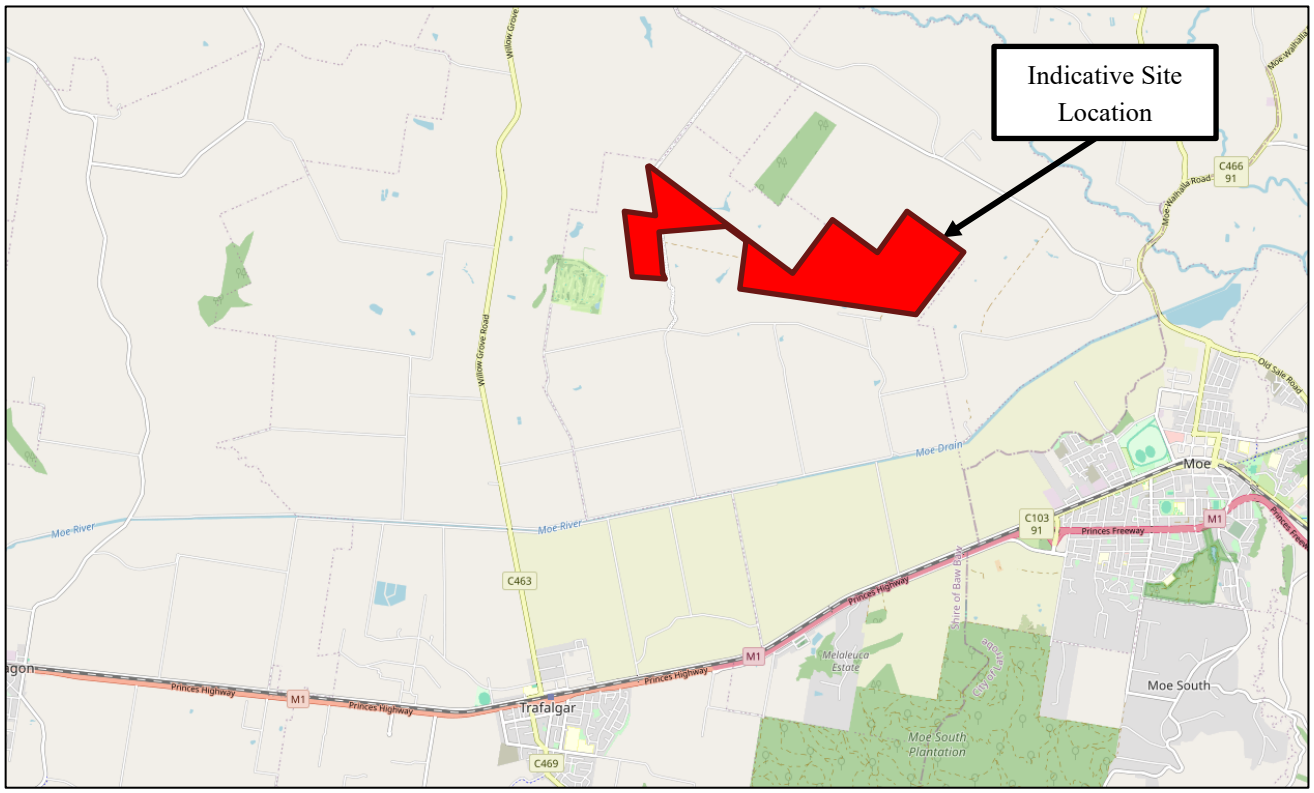



Figure 2-1 Indicative Subject Site Location

## 2.2 Site Access Arrangements

Access to the site is to be facilitated in five (5) locations with the use of each access based on the stage of works. For clarity, these access points are designated as follows.

- Access A – Rowells Road primary access.
- Access B – Rowells Road secondary access.
- Access C – Embletons Road western access 1
- Access D – Embletons Road western access 2
- Access E – Embletons Road eastern access

Further detail on the use of these access for each stage of works is provided as follows:

### *2.2.1 Stage 1 Site Access*

Under Stage 1 of works, access is to be primarily facilitated via Rowells Road and the site access to the existing farm use (Access A) which is already designed to facilitate vehicles up to the size of a B-Double. In addition to this access, a secondary/ancillary access is to be provided for safety reason, most likely towards the western corner of the sites frontage to Rowells Road (Access B). This access also currently exists however may require some minor upgrades to accommodate larger vehicles for the sites construction.

These access arrangements are shown in Figure 2-2.


Figure 2-2 Stage 1 Site Access

### 2.2.2 *Stage 2 Site Access*

Under Stage 2 of works, in addition to the access used during Stage 1 (Access A and B), access is also to be facilitated via three (3) access points located along Embletons Road (Access C, D, and E). These accesses are to comprise two (2) on the western side and one (1) on the eastern side of the carriageway.

These access locations are shown in Figure 2-3.

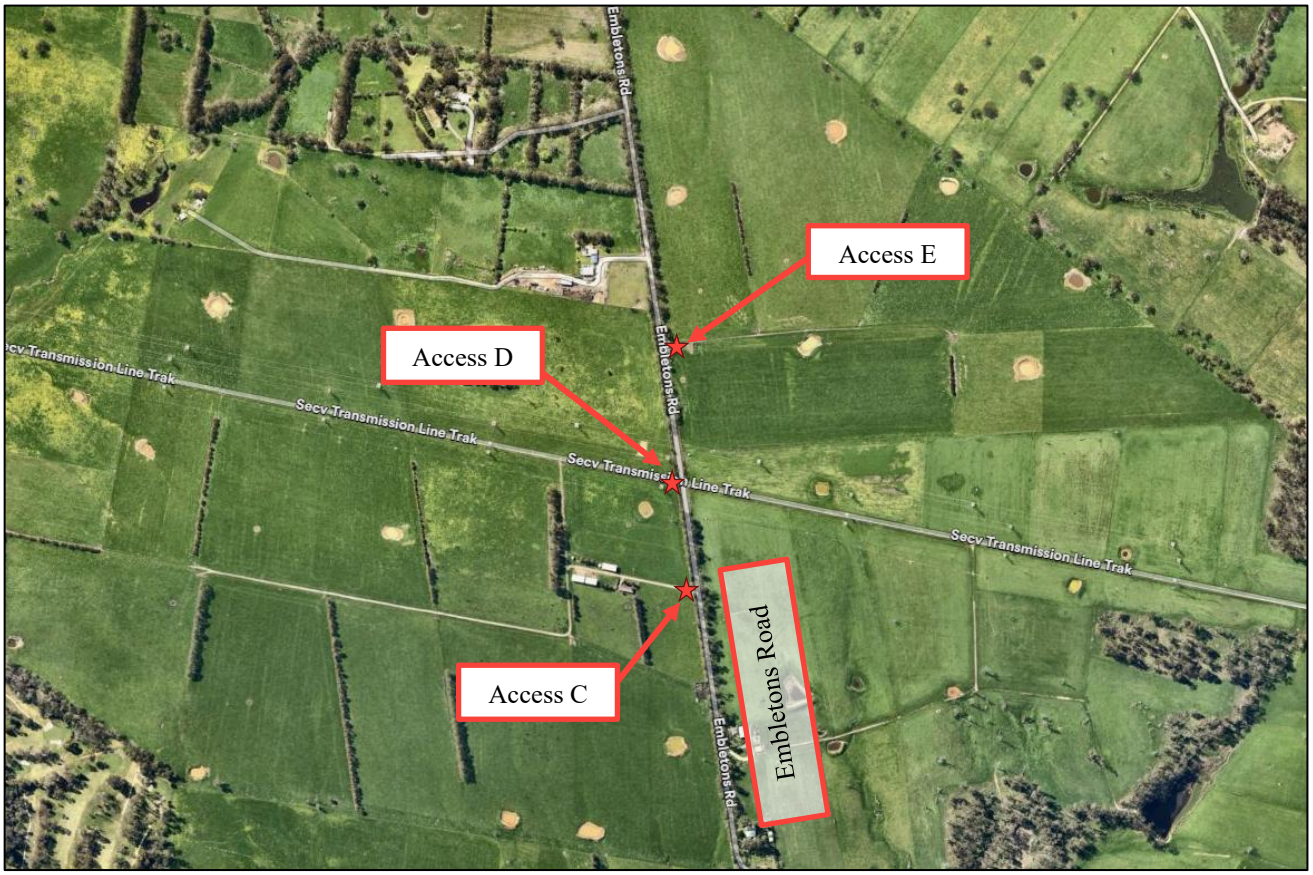



Figure 2-3 Stage 2 Site Accesses

## 2.3 Vehicle Access Route

### *2.3.1 DTP Heavy Vehicle Network*

Review of the DTP heavy vehicle network indicates that from the Princes Highway, the gazetted B-Double network extends north through Trafalgar along Willow Grove Road. Closer to the subject site, it is also noted that Rowells Road (near the stage 1 site access) is also gazetted for B-Double use.

These approved roads are shown in Figure 2-4 below:

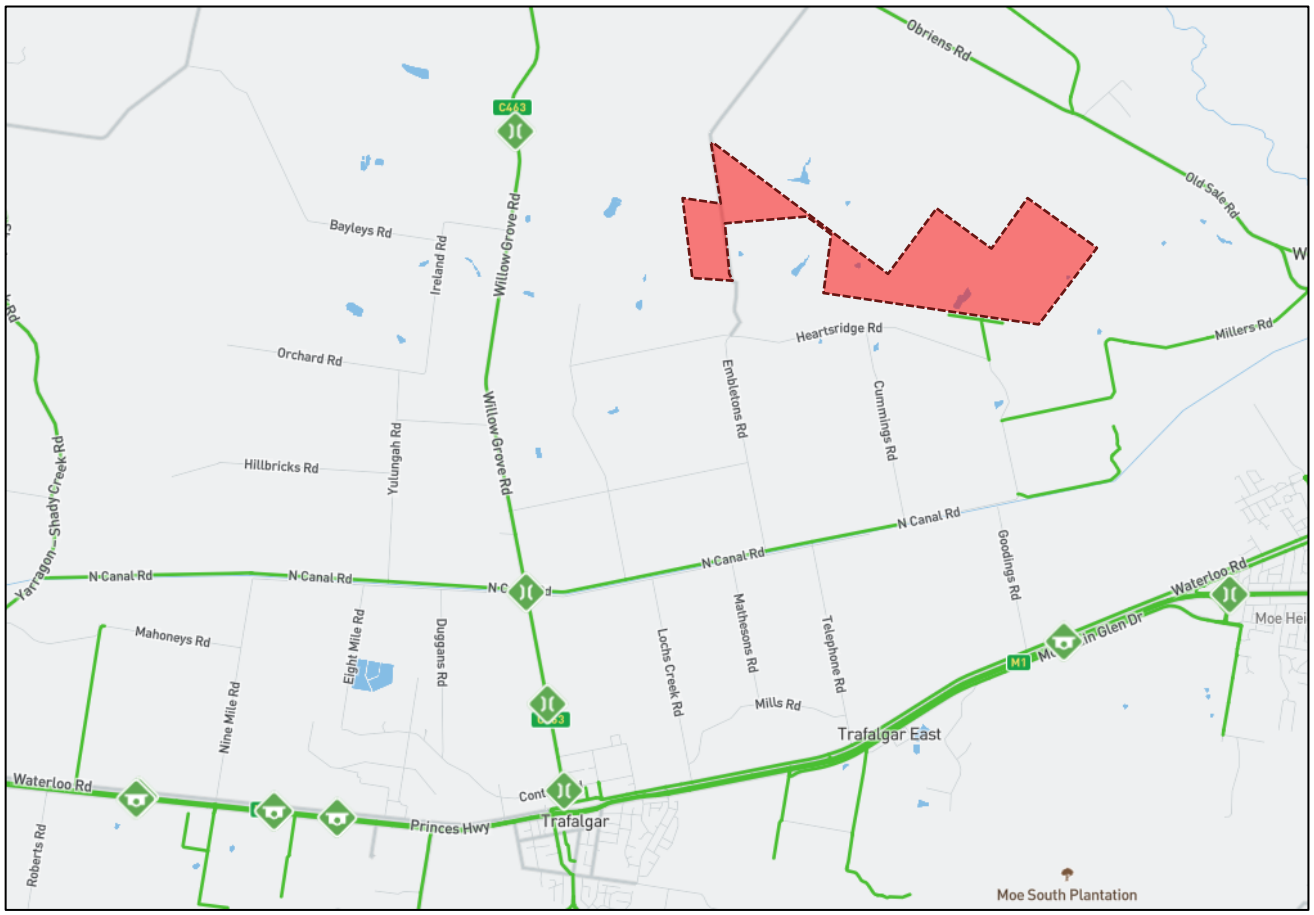



Figure 2-4 DTP B-Double Road Network

### 2.3.2 Stage 1 and 2 Site Access Routes

With consideration to the DTP heavy vehicle approved network, it is understood that vehicle access to the site will be facilitated via the following route Princes Highway/Trafalgar:

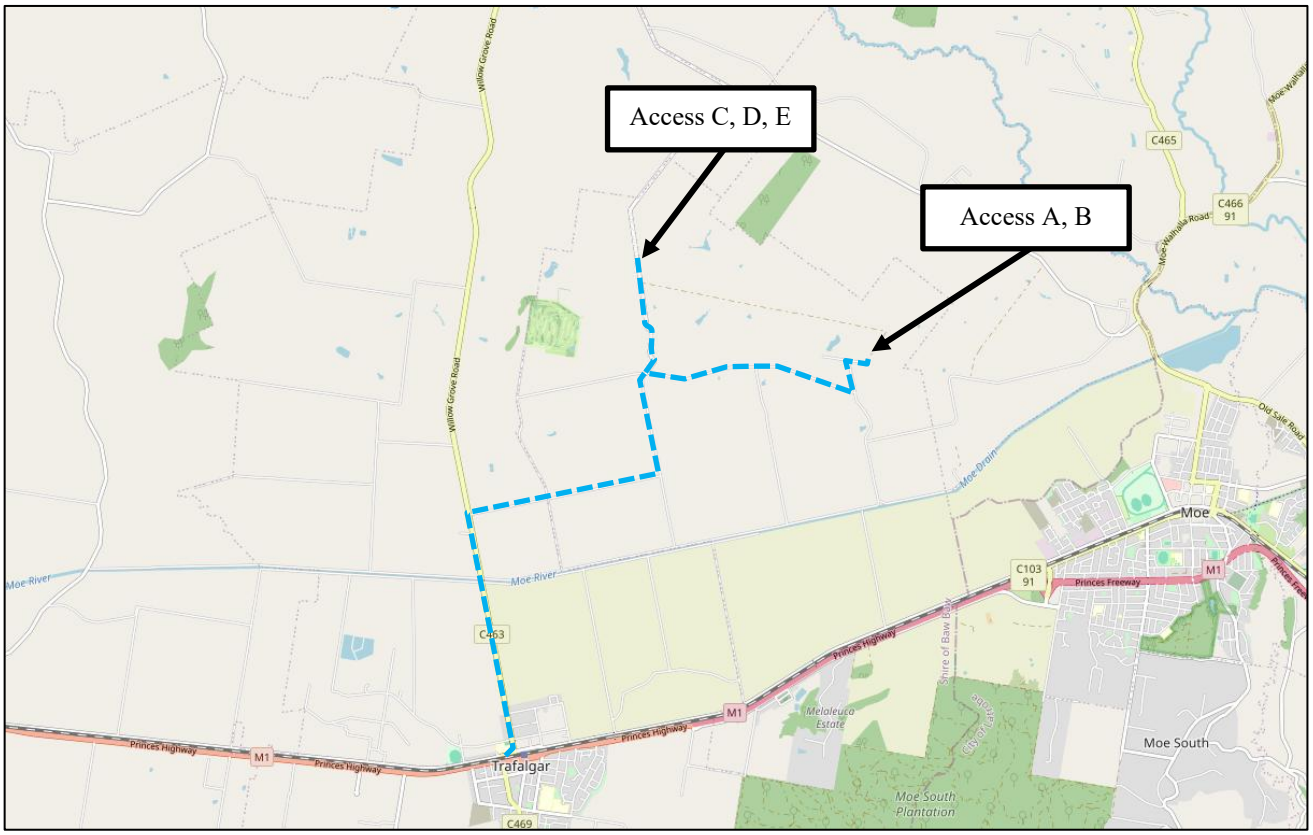



Figure 2-5 Stage 1 and 2 Site Access Routes

This route shows that from Trafalgar (Princes Highway) vehicles will travel to the site as follows:

- North along Willow Grove Road to the Wheelbarrow Road intersection.
- East along Wheelbarrow Road to Embletons Road.
- North along Embletons Road to Heartsridge Road.
  - For Access A and B – East along Heartsridge Road to Rowells Road and the site accesses.
  - For Access C, D and E – Continue north along Embletons Road to the various site access locations.

It is considered that along this route (outside of the approved B-double network) there may be some need for traffic management for various larger vehicles to ensure safety and functional road operations for all road users.

## 2.4 Existing Intersections and Road Network

### *2.4.1 Willow Grove Road / Wheelbarrow Road*

Willow Grove Road is a two-way arterial road running in the north-south alignment and is classed as a Transport Zone 2 (TRZ2) road under the management of the Department of Transport and Planning (DTP). It accommodates a sealed carriageway width of approximately 6.5m and operates with an 80km/h speed limit.

Along the site access route, it intersects via a T-intersection with Wheelbarrow Road (a local two-way access road under council control) which is aligned in an east west direction and accommodates a sealed carriageway width of approximately 6.5m. It operates under the default 100km/h speed limit for rural roads.

The carriageway and intersection arrangements are shown in Figure 2-6.


Figure 2-6 Willow Grove Road / Wheelbarrow Road

### 2.4.2 *Wheelbarrow Road / Embletons Road*

At its eastern end, Wheelbarrow Road intersects via a T-intersection with Embleton Road, another local two-way council road. Embletons Road is aligned in a north-south direction and accommodates an approximately 6.5m wide carriageway. It operates under the default 100km/h speed limit for rural roads.

The carriageway and intersection arrangements are shown in Figure 2-7.


Figure 2-7 Wheelbarrow Road / Embletons Road

### 2.4.3 Embletons Road / Heartsridge Road

Heartsridge Road is a local two-way council road accommodating a sealed carriageway of approximately 6.5m width. It runs in an east-west alignment. It operates under the default 100km/h speed limit for rural roads.

Embletons Road and Heartsridge Road intersect in a stop-controlled two-way crossing with Embletons Road comprising the priority route.

The carriageway and intersection arrangements are shown in Figure 2-8.


Figure 2-8 Embletons Road / Heartsridge Road

### 2.4.4 Heartsridge Road / Rowells Road

Heartsridge Road intersects at its eastern end with Rowells Road in a T-intersection arrangement that also comprises a central island.

Rowells Road is a local council controlled road that runs in a north-south alignment to the subject site access. It comprises a crushed rock carriageway of approximately 5.0m width and operates at the rural speed limit of 100km/h.

The carriageway and intersection arrangements are shown in Figure 2-9.


Figure 2-9 Heartsridge Road / Rowells Road

### 2.4.5 Rowells Road

Rowells Road on the approach to the Stage 1 site access comprises an approximately 4.8m wide crushed rock carriageway.

The typical configuration is presented in Figure 2-10.


Figure 2-10 Rowells Road

### 2.4.6 Embletons Road

At the Stage 2 site access locations, Embletons Road has narrowed to comprise a 5.0m wide two-way carriageway. Along this section it does not accommodate any centre line marking but continues to operate with a speed limit of 100km/h.

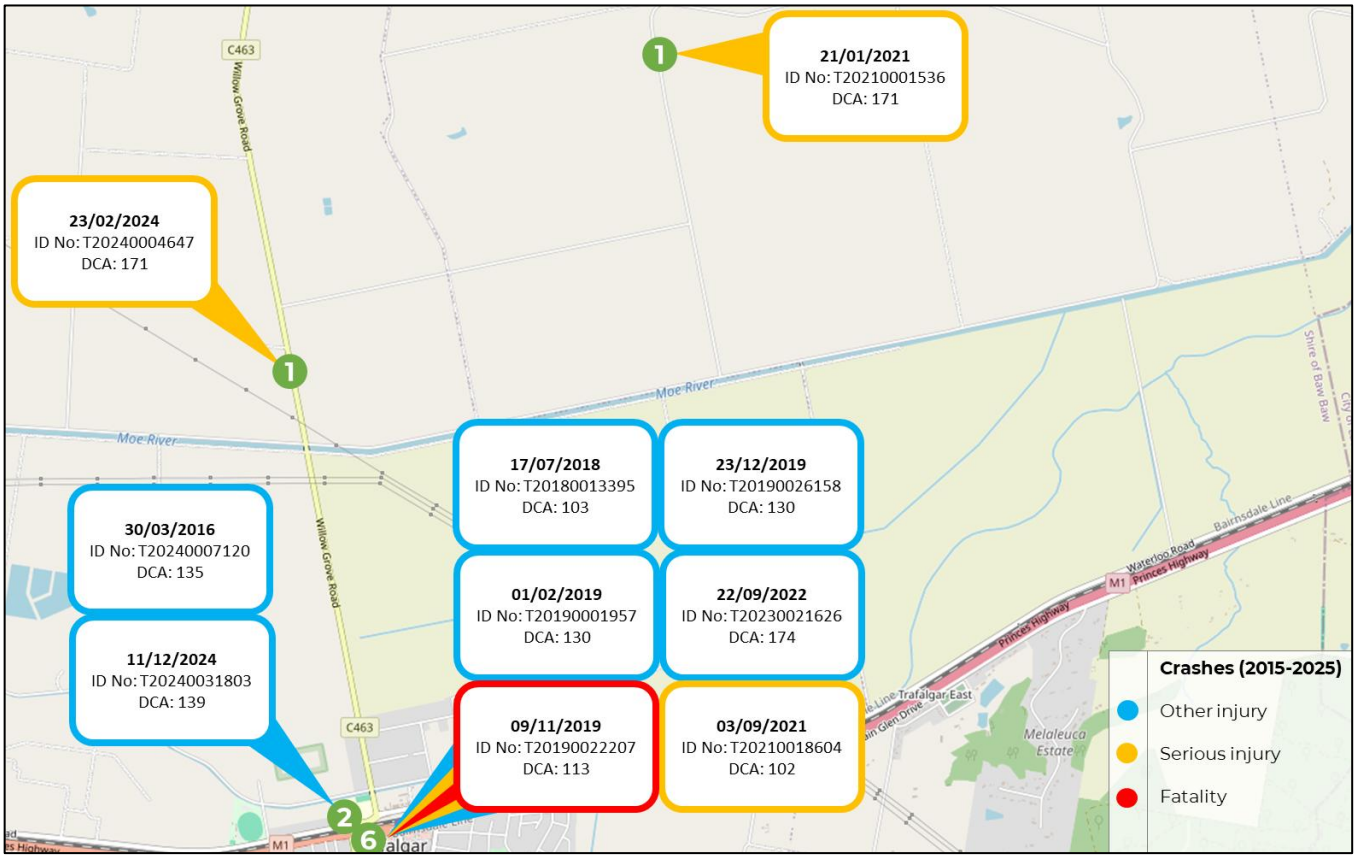
The typical configuration is presented in Figure 2-11.


Figure 2-11 Embletons Road

## 2.5 Crash History

A review of crash history data has been undertaken for the proposed vehicle access route between the Princes Highway and the subject site. The review has considered the available crash history data for a 10 year period (2015 to present day).

It is noted that the majority of accidents occurred at the higher order Princes Highway intersection which accommodates far greater traffic volumes than the rest of the vehicle access route and subsequently would be expected to present a higher number of crashes. A summary of the crash history is presented below.




| ID No. | Date | Time | DCA | | Severity | Road Geometry | Light Conditions | Vehicle Type |
|---|---|---|---|---|---|---|---|---|
| T20240004647 | 23/02/2024 | 22:44 | 171 | Left off carriageway into object/parked vehicle | Serious injury | Midblock | Dark no street lights | Station Wagon |
| T20230021626 | 22/09/2022 | 12:00 | 174 | Out of control on carriageway (on straight) | Other injury | Cross intersection | Unknown | Motor Cycle |
| T20210018604 | 3/09/2021 | 12:45 | 102 | Far side. ped hit by vehicle from the left | Serious injury | Cross intersection | Day | Light Commercial |
| T20210001536 | 21/01/2021 | 20:52 | 171 | Left off carriageway into object/parked vehicle | Serious injury | Midblock | Dark no street lights | Panel Van |
| T20190026158 | 23/12/2019 | 15:44 | 130 | Rear end (vehicles in same lane) | Other injury | Cross intersection | Day | Station Wagon |
| T20190022207 | 9/11/2019 | 5:09 | 113 | Right near (intersections only) | Fatality | Cross intersection | Dusk/dawn | Motor Cycle |
| T20190001957 | 1/02/2019 | 9:06 | 130 | Rear end (vehicles in same lane) | Other injury | Cross intersection | Day | Car |
| T20180013395 | 17/07/2018 | 9:27 | 103 | Ped playing/lying/working/ standing on carriageway. | Other injury | Cross intersection | Day | Car |
| T20160007120 | 30/03/2016 | 19:40 | 135 | Lane change left (not overtaking) | Other injury | T intersection | Dark street - lights unknown | Station Wagon |
| T20240031803 | 11/12/2024 | 14:25 | 139 | Same direction | Other injury | T intersection | Day | Station Wagon |

Figure 2-12 Summary of crash history (2015-2025)

Based on a review of the crash history, there does not appear to be any repetition or recurring circumstances across the crashes that would indicate a trend or pattern that would be exacerbated by the proposed construction traffic to and from the subject development.

## 2.6 Existing Traffic Volumes

Existing traffic volume data for the intersections of Willow Grove Road / Wheelbarrow Road and Embletons Road / Heartsridge Road was collected on Tuesday 7th October 2025 between the hours of 6:00am – 10:00am and 2:30 – 6:30pm. Based on these surveys, the following peak hours and associated traffic volumes were noted to occur:

**Willow Grove Road / Wheelbarrow Road**

- AM Peak – 8:45am to 9:45am – 103 vehicles.
- PM Peak – 4:00pm to 5:00pm – 134 vehicles.



**Embletons Road / Heartsridge Road**

- AM Peak – 7:45am to 8:45am – 24 vehicles.
- PM Peak – 4:30pm to 5:30pm – 26 vehicles.

These existing traffic volumes and distributions are subsequently presented in Figure 2-13 below.

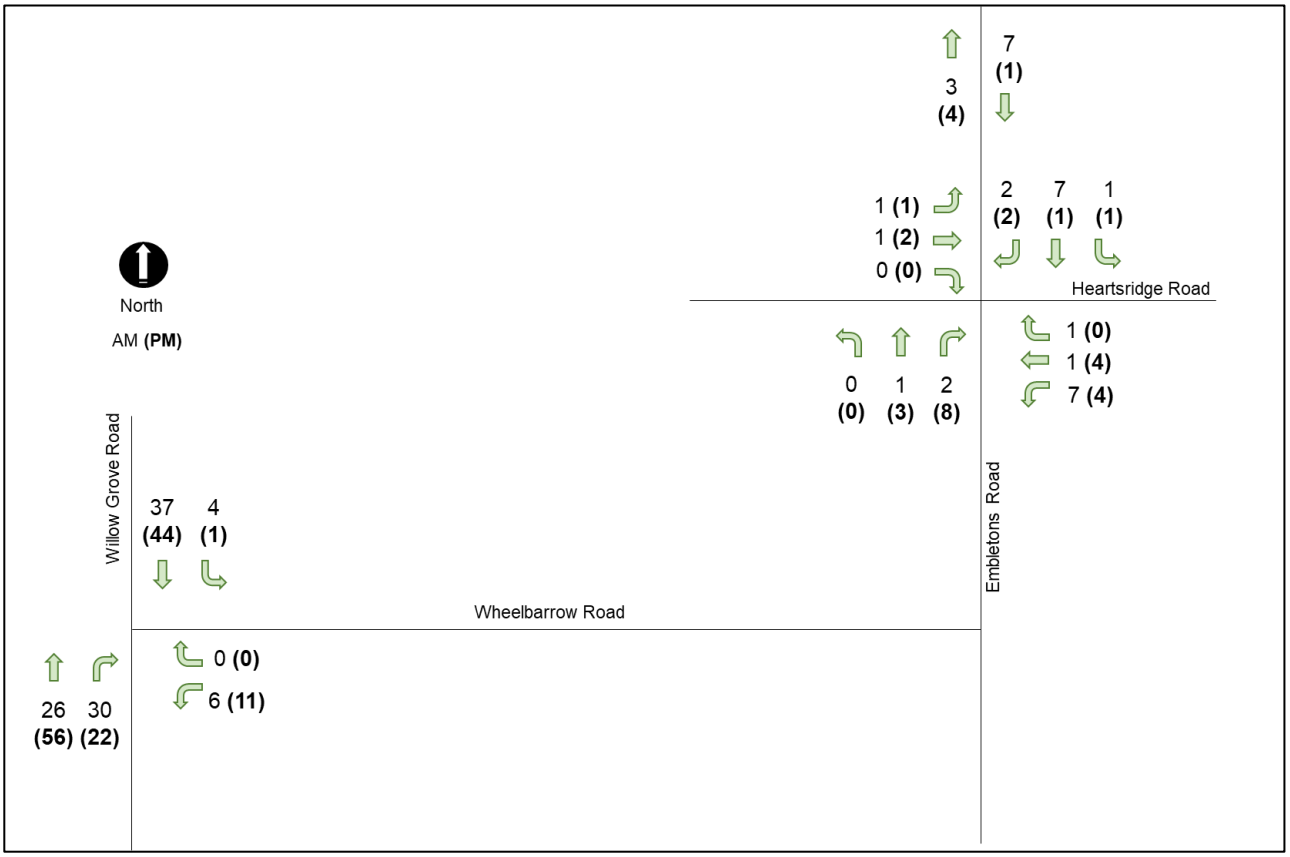



Figure 2-13 Existing traffic movements

Based on a review of the traffic volumes, it is noted that they are considered low in a traffic engineering context, equating to peak hour movements of roughly only 2 vehicles per minute for the Willow Grove Road / Wheelbarrow Road intersection and 1 vehicle every 2 minutes for the Embletons Road / Heartsridge Road intersection.

# 3 Proposed Construction and Operational Phases

## 3.1 Construction Phase

During construction, it is understood that the following considerations will be applicable to the subject site:

**Construction Timeframe**

Construction is expected to take up to 20 months from the point of site establishment through to project commissioning and rehabilitation and is anticipated to comprise the following stages of works:

- Site Preparation and Civil Works – 3 months.
- Fencing and landscaping – 3 months
- Solar PV Installation – 10 months.
- Battery Storage Installation – 13 months.
- Substation & switchyard – 7 months.
- Grid Connection and Commissioning – 5 months.

**Construction Hours**

It is expected that construction and development of the site will be undertaken in line with typical working hours for a construction project. These are:

- Weekdays – 7 am to 6 pm
- Saturday – 7 am to 1 pm.

**Workforce**

WSP has been advised that during construction there may be up to a peak of 145 employees/staff onsite with the workforce profile to generally align with the below:

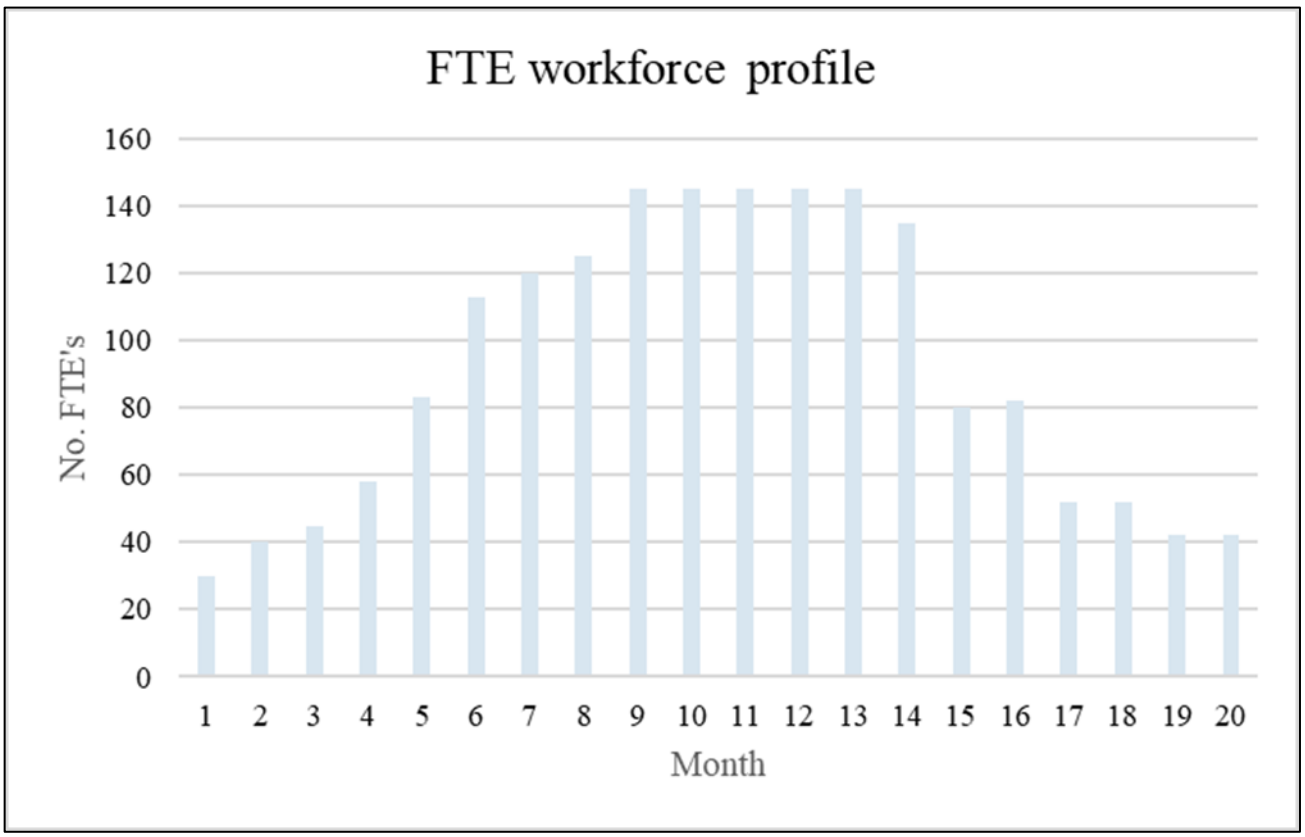



Figure 3-1 Workforce Projects

## 3.2 Operational Phase

Once operational, it is understood that the site will typically have staffing requirements of 2 full time employees for the Giddi BESS and 10 full time employees for the Trafalgar Hybrid. This is a total of 12 full time employees across the site. The only other staffing requirements may be for occasional maintenance and additional inspections of the site.

# 4 Traffic Generation and Impacts

## 4.1 Traffic Classification of Site Operations

Traffic movements as generated by the development and use of the subject site can be classified into the following two (2) distinct categories:

1. Construction Period Traffic.
2. Typical Operations Traffic Movements.

Given that these generation periods will both occur at separate timeframes, both have been individually assessed as follows to indicate their anticipated impact on the road network.

### *4.1.1 Construction Period*

As already noted, construction is expected to take up to 20 months from the point of site establishment through to project commissioning and rehabilitation.

During the construction period, WSP has been advised that shuttle buses will be used to convey the workforce between the subject site and surrounding key towns where the workforce may be located (Moe, Warragul, Trafalgar).

Subsequently the following summary of average and peak construction vehicle movements have been provided to WSP.

Table 4.1 Estimated Site Generated Traffic Volumes

| Vehicle Type | | Average Construction Period | | Peak Construction Period | |
|---|---|---|---|---|---|
| | | Daily Trips (vpd) | Peak Hour Trips (vph) | Daily Trips (vpd) | Peak Hour Trips (vph) |
| Light Vehicles | | 30 | 15 | 50 | 25 |
| Shuttle Buses | | 12 | 3 | 18 | 4 |
| Heavy Vehicles | Rigid Truck | 0 | 1 | 0 | 0 |
| | Truck and Dog | 0 | 0 | 0 | 0 |
| | Semi-trailer | 3 | 1 | 12 | 2 |
| | B-Double | 2 | 1 | 8 | 1 |
| **Total*** | | **47** | **21** | **88** | **32** |

*Note: In addition to the above vehicles, it is also noted that some OSOM vehicles may be required for the transportation of specific site elements with the operation and movement of these vehicles to be undertaken under traffic management and subject to specific permit conditions and approvals.

On the basis of the above, it is therefore noted that during the construction period, the site may generate in the order of 88 daily vehicle trips across all vehicle types, with up to 32 of these occurring during the peak hours. For the purposes of assessment, it is considered that a vehicle trip comprises movements both to and from the subject site, with a movement being in a singular direction (inbound or outbound). Therefore it is considered that each vehicle trip comprises 2 vehicle movements.

#### 4.1.1.1 Construction Works – Light Vehicle / Shuttle Bus Movements

During the peak construction phase, daily light vehicle movements generated by the site will primarily come from the regular workforce (which are to travel via a mix of light vehicle and shuttle bus), with a smaller number of movements made of from isolated deliveries and specialist trades. As noted prior, during peak construction there is anticipated to be in the order of 68 daily vehicle trips (50 light vehicles plus 18 shuttle bus), equating to 136 daily vehicle movements.

On the basis of the construction site being operational between 7:00am – 6:00pm it is estimated that the peak periods for regular workforce movements will be distributed across 1-2 hour blocks for the AM and PM peaks. That is 6:30-8:30AM and 4:30 – 6:30 PM.

During the peak periods, and based on the information provided it is understood that there could be as many as 25 light vehicle trips, and 4 shuttle bus trips equating to 29 movements during each of the AM and PM peak hours.

These movements would typically be distributed such that 90% were inbound in the AM peak and 90% were outbound in the PM peak. This equates to inbound/outbound vehicle movement splits of 26/3 per hour in the AM peak and 3/26 per hour in the PM peak.

#### 4.1.1.2 Construction Works – Heavy Vehicle Movements

It is understood that construction of the site will be undertaken by a variety of heavy vehicles, typically ranging from a 19.0m articulated semi-trailer to a 26.0m B-Doubles as the largest vehicles to access the site on a regular basis (noting that this does not preclude the use of larger vehicles if required). At its peak, WSP has been advised that these vehicles will generate 20 vehicle trips per day, equating to a total of approximately 40 heavy vehicle movements.

The occurrence of these movements is anticipated to be evenly distributed across a typical working day (7:00am – 6:00pm), with between 2-3 vehicle trips occurring during peak hours. On this basis it is considered that there could be up to 6 heavy vehicle movements (evenly distributed between inbound and outbound) in a peak hour.

### *4.1.2 Typical Operations*

Post construction, it is understood that this site will typically operate with in the order of 12 full time employees. On the basis that these staff were to drive to and from the site, it is therefore considered that under general operations the site may typically generate up to 24 vehicle movements per week. This volume of movements is considered low in a traffic engineering context and would be expected to be readily accommodated within the wider surrounding road network.

### *4.1.3 Peak Traffic Impact Period*

With respect to the preceding, it is therefore noted that traffic volumes during the peak construction period are anticipated to exceed those generated during typical site operations and as such it is for this period that the subsequent traffic analysis has been undertaken.

#### 4.1.3.1 Summary of Peak Hour Construction Vehicle Movements

Based on the anticipated daily construction movements as presented in Sections 4.1.1.1 and 4.1.1.2, and the breakdown of these movements across daily operations, it is anticipated the following number of movements will be experienced during each of the AM and PM peak periods.

Table 4.2 Estimated Peak Hourly Site Generated Traffic Volumes

| | Inbound | | | Outbound | | |
|---|---|---|---|---|---|---|
| | **Light** | **Heavy** | **Total** | **Light** | **Heavy** | **Total** |
| AM Peak | 26 | 3 | **29** | 3 | 3 | **6** |
| PM Peak | 3 | 3 | **6** | 26 | 3 | **29** |

The above analysis indicates that construction of the site would only look to introduce in the order of 35 movements per hour during each of the AM and PM peak periods.

## 4.2 Peak Period Traffic Distributions

Based on the preceding assessment of site generated traffic movements, the turning movement diagrams illustrated in Figure 4-1 have been prepared showing these distributions during the AM and PM peak periods.

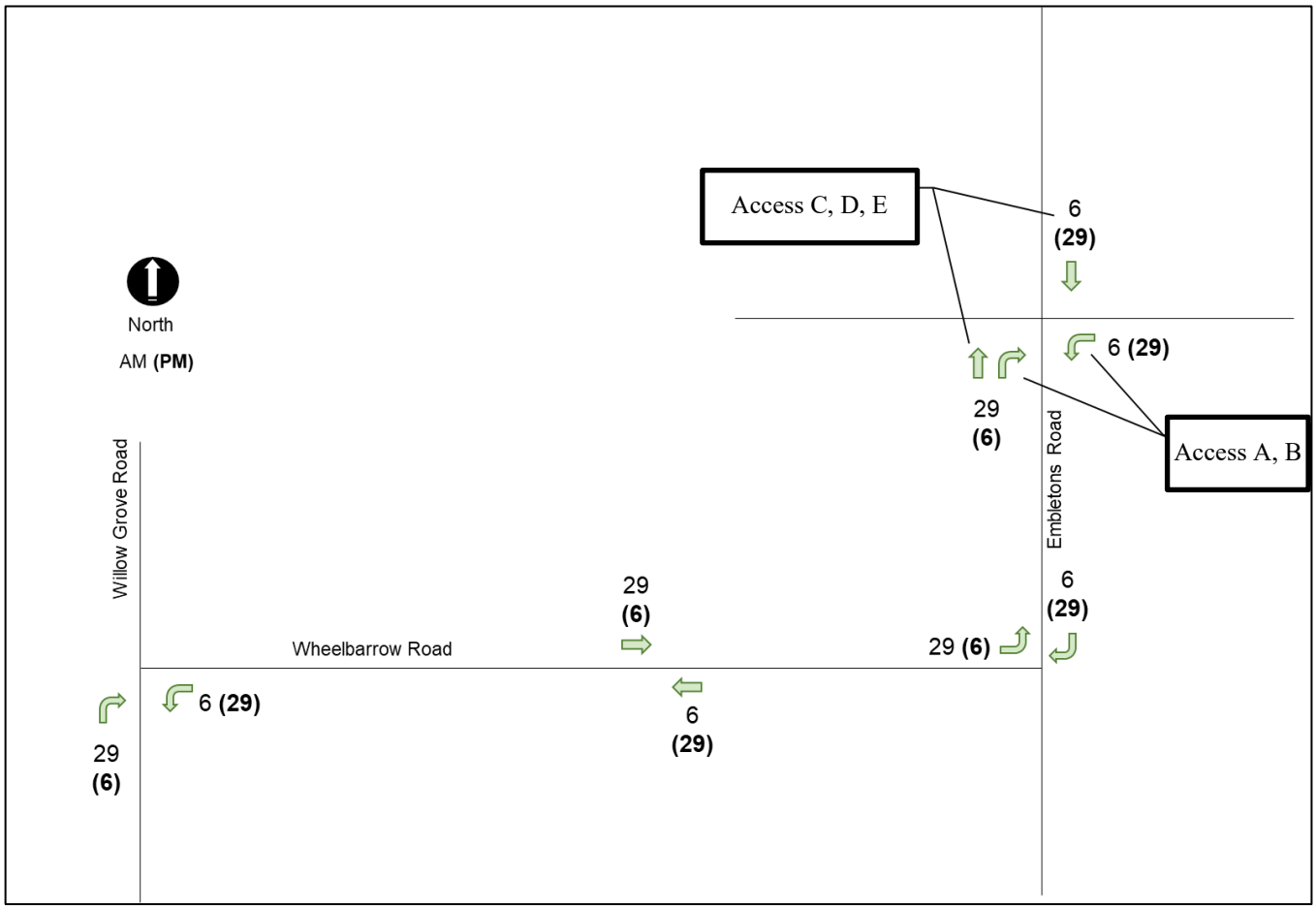



Figure 4-1 Estimated Peak Hourly Site Generated Traffic Volumes and Distributions

## 4.3 Traffic Impacts

Based on the preceding analysis of site generation, along with a review of the existing observed traffic conditions, the following is noted:

- Under existing peak conditions, in the order of 2 vehicle movements per minute were recorded for the Willow Grove Road / Wheelbarrow Road intersection and 1 vehicle every 2 minutes for the Embletons Road / Heartsridge Road intersection.
- Proposed construction traffic would see the introduction less than 1 additional movement per minute during peak periods.
- Overall this would equate to approximately 3 vehicles per minute at key locations along the site access route. This is considered a low volume of peak hourly movements from a traffic engineering perspective.

Subsequently it is considered that the additional traffic as generated by the proposed development during the peak construction period will be adequately accommodated within the intersection and surrounding road network with minimal impact to existing conditions.

# 5 Design Considerations

## 5.1 Stage 1 Access Considerations

Under Stage 1, site access is to primarily be via existing conditions (Access A) via Rowells Road, with the provision of a secondary access (Access B) to meet safety and operational requirements. Whilst part of this access route is already rated for B-double use, it is noted that the carriageway comprises a crushed gravel base, and as such it is considered that there may be some need to upgrade the road surface to accommodate the frequent construction vehicle movements. In addition to this there may need to be some minor upgrades and clearing to the existing conditions at Access B such that it can accommodate the required vehicle movements.

In addition to this it is noted that the intersection of Heartsridge Road and Rowell Road may also need to undergo some remediation works to ensure that frequent construction vehicles can be comfortably accommodated.

## 5.2 Turn Treatment Warrants

Warrants for specific turn treatments at intersections are derived based on a combination of the peak hourly volume of traffic along the major road and turning vehicle movements onto the minor road. The diagrams of Figure 5-1 below have been extracted from the *Austroads Guide to Traffic Management Part 6* and details the warrants for various turn treatments along major roads with an operating speed of both greater than and less than 100km/h.

As noted within Commentary 9.2 to the *Austroads Guide to Traffic management Part 6*, these warrants are based on the construction of new intersections, and as such are primarily seen as a point of reference/guidance when assessing existing intersections on existing roads.

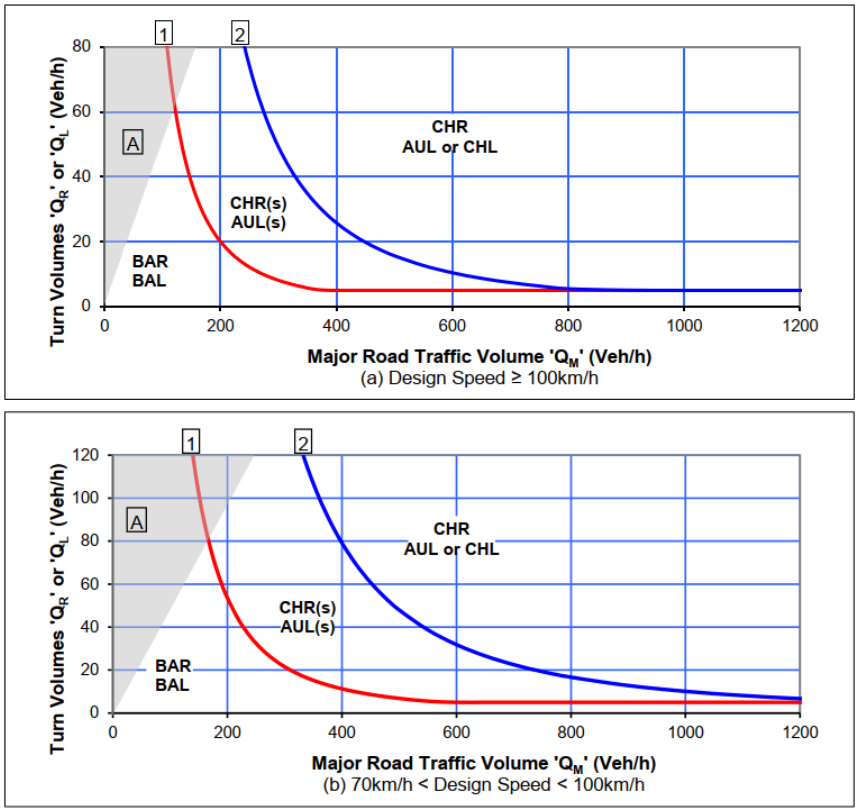





Figure 5-1 Turn Treatment Warrants

*Source: Austroads Guide to Traffic Management Part 6*

### 5.2.1 Stage 2 Access Considerations

Under Stage 2 of construction, access to the site is to be facilitated via all five (5) of the proposed access points (A, B, C, D, and E). As noted prior for Stage 1 works, Access A and B are existing conditions via Rowells Road and therefore it is only for Access C, D, and E that new arrangements may need to be considered.

In terms of the turn treatment warrants, whilst it is noted that technically they only apply to major roads, and as such would not be applicable to the Stage 2 site access arrangements on Embletons Road (local council road) they can act as a guide for other road interfaces as well.

On this basis, and with respect to the low traffic volumes addressed prior, Figure 5-2 has been prepared to indicate what potential arrangements could be considered at the site accesses along Embletons Road.

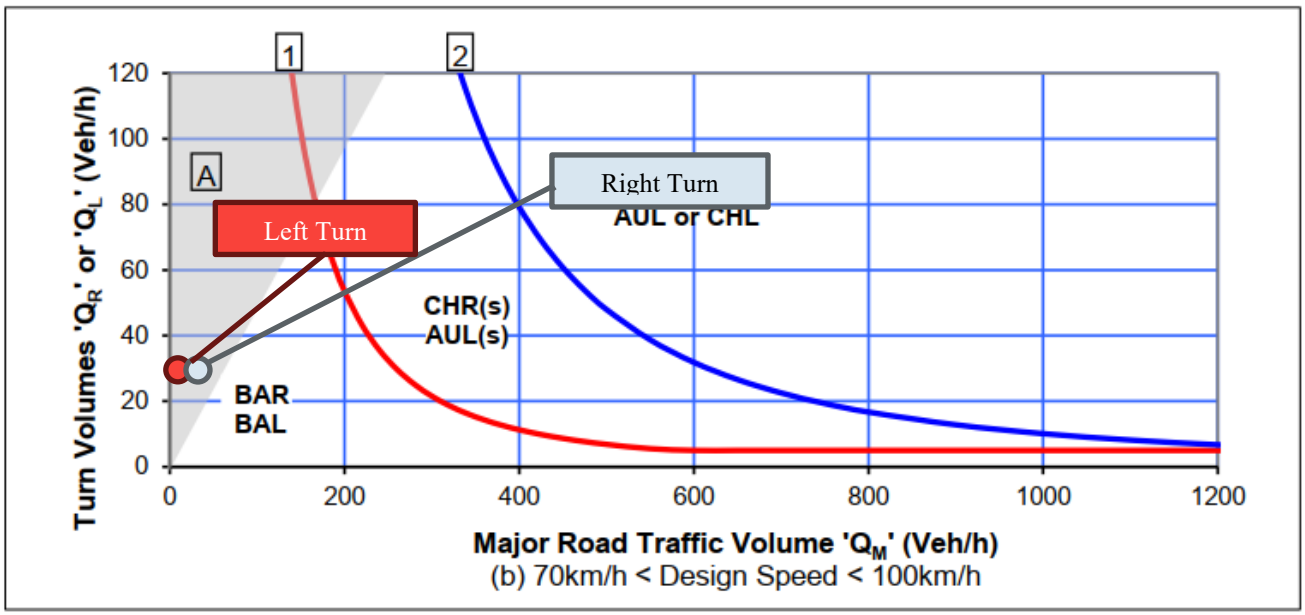



Figure 5-2 Stage 2 Turn Treatment Warrants

The above figure indicates that based on predicted traffic volumes, only a basic right or left turn treatment would be necessary at any of the proposed site access locations along Embletons Road.

On the basis of the above it is suggested that whilst actual carriageway widening is not really warranted due to the low passerby traffic volumes (less than 10 per hour during peak periods) some consideration should be given to providing some localised road widening at Access C, D, and E such that larger vehicles entering and exiting the construction site can do so comfortably. It is considered that some form of traffic management (advance warning signs of construction vehicle movements) may also be utilised at these locations during peak periods.

### 5.2.2 Existing Intersection Considerations

In addition to the site access arrangements, consideration has also been given to whether the increase in traffic as generated through the sites' construction would warrant any upgrade to the external road network.

Subsequently a review has been undertaken of the Willow Grove Road / Wheelbarrow Road intersection with Figure 5-3 presenting the current warrants based on the observed existing traffic volumes.

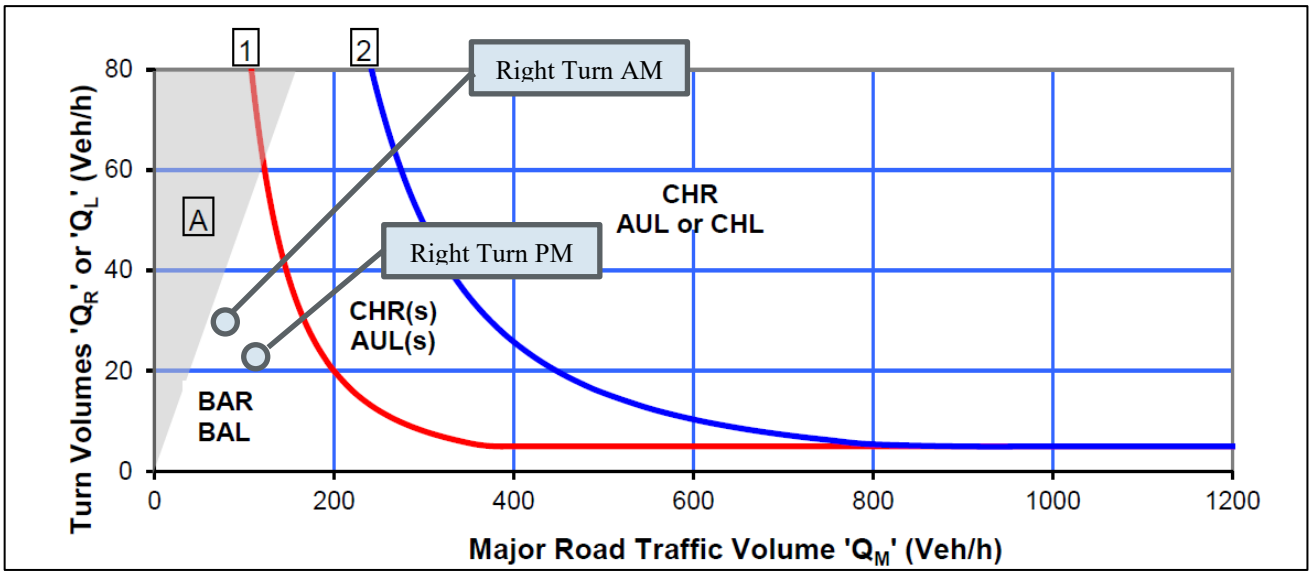



Figure 5-3 Willow Grove Road / Wheelbarrow Road Turn Treatment Warrants

In addition to this existing volumes assessment, consideration has also been given the impact of the additional construction traffic and what this does for the turn treatments warrants. This is presented in Figure 5-4.

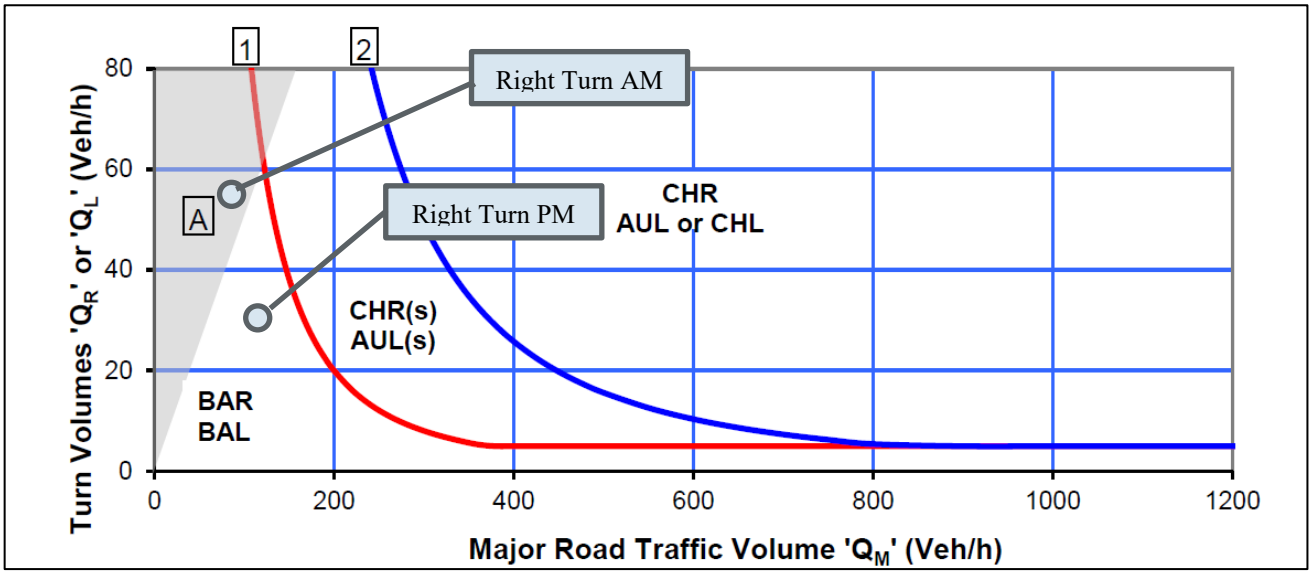



Figure 5-4 Site Construction - Willow Grove Road / Wheelbarrow Road Turn Treatment Warrants

The above figure shows that whilst there is an increase in traffic during the construction period, there isn't a change in the turn treatment warrants for the intersection. Therefore, as the intersection is an existing arrangement, it is considered that there would be no need for any modifications to be undertaken to accommodate the additional traffic volumes estimated to occur during the construction phase.

## 5.3 Stage 2 Site Access Design Considerations

Under typical (post construction) operations vehicles accessing the subject site will largely be smaller passenger vehicles, or medium sized loading/delivery vehicles, all of which will be sufficiently accommodated within the provided road network and intersection configurations.

During construction however it is anticipated that there will be a requirement for larger vehicles to access the site and subsequently consideration has been given to the ability of the existing site access and intersection configuration to accommodate these movements.

In terms of these vehicle movements, it is considered that whilst on a typical basis, most vehicles will likely be the size of a 19.0m articulated semi-trailer or less, there may be occasions where larger vehicles might require access to the site. Subsequently, in conjunction with the 19.0m semi-trailer, consideration has also been given to the site access requirements and impacts for a 26.0m B-double.

Whilst there is still some versatility in the final location of the site access based on site designs and needs, based on the above requirements, it is considered that each site access arrangement will generally require a clear width of 9.0m – 11.0m at the title boundary and 22.0m – 25.0m along the carriageway frontage depending on the side of the road being accessed. In terms of the location of these accesses, it is noted that consideration should be given to impacts on roadside vegetation (i.e. significant trees etc) noting that in some areas some vegetation clearing may be required to facilitate vehicle entry and exit movements.

To review the accessibility and potential impacts of these vehicle movements and the suggested site access arrangements, swept path diagrams have been prepared using Autoturn V11. In preparing these diagrams, it is noted that all vehicles movements will be to/from the south along Embletons Road. Extracts of these diagrams are presented below and are also included in Appendix B.

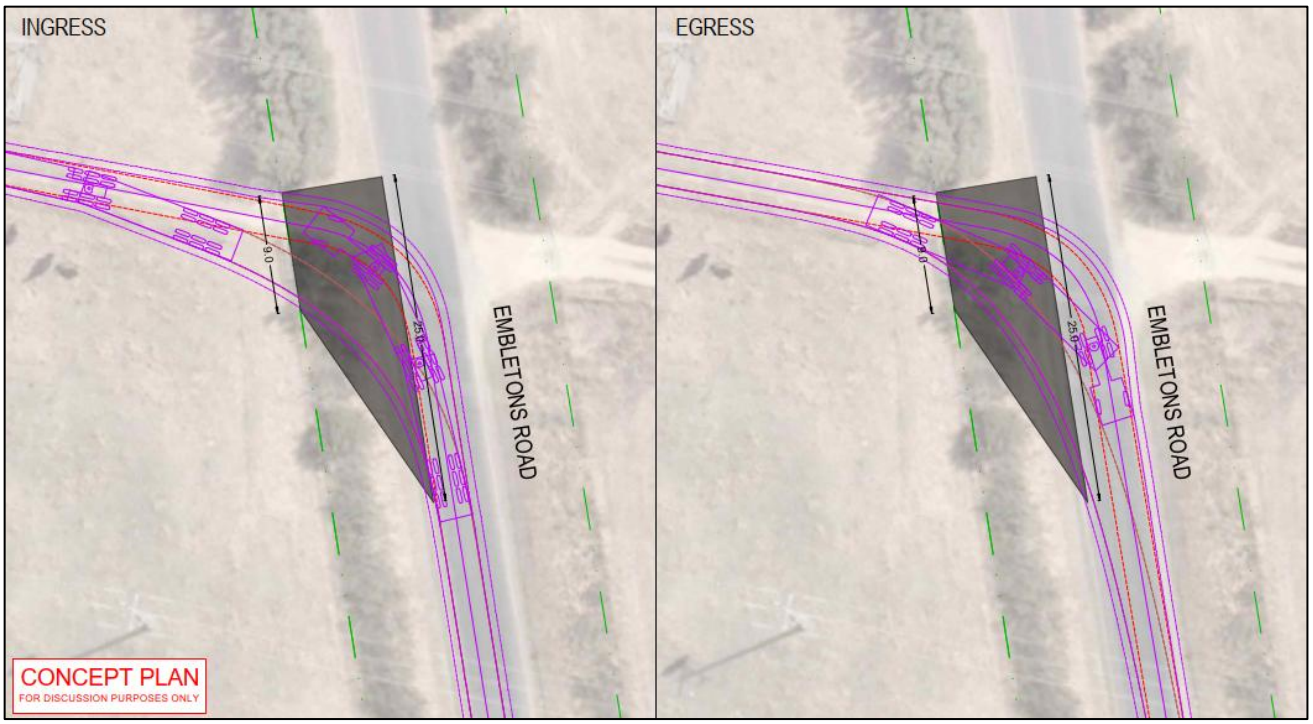



Figure 5-5 26.0m B-Double Construction Site Access Ingress/Egress – Eastern Side


Figure 5-6 26.0m B-Double Construction Site Access Ingress/Egress – Western Side

## 5.4 Internal Circulation and Parking Considerations

The subject site accommodates a total area of approximately 360ha which will be adequate to accommodate the necessary internal circulation roads to facilitate vehicle movements to and from the area.

With regards to use of the site for vehicle turning, it is understood that during construction vehicles up to the size of a 26.0m B-Double may require regular access. On the basis of the site accommodating a total area of approximately 360ha, it is noted that this space will be sufficient to accommodate the typical turning circles of a 26.0m B-Double and subsequently, the site will appropriately allow for the required vehicle turning movements such that vehicles can enter and exit in a forwards direction.

In terms of the provision for onsite parking, as previously noted, during peak construction the site is anticipated to generate a demand for up to 50 light vehicles per day for site workers. Assuming that these vehicles all frequent the site at once, an allowance of 50 parking spaces would therefore need to be made. In terms of the dimensions of these spaces, given that vehicles are typically to comprise a mixture of utes and vans, dimensions of 5.4m length by 2.6m width with access from a 6.4m (minimum) aisle should be considered. On the basis of these dimensions, the provision of 50 parking spaces would typically require an allowance of 1,500sqm.

Given the site provides over 360 ha area, it is therefore considered that there will be sufficient internal capacity to accommodate the necessary parking requirements during the construction stage, noting that dependant on the set out of the site, efficiencies in parking provisions are likely to be gained, thereby lessening potential impact on overall compound allocation.

# 6 Conclusions

The proposal is to be staged in its delivery and is to comprise:

- Stage 1 – the installation of a 360-megawatt (MW) BESS, a substation, and a 220 kilovolt (kV) connection to the existing AusNet transmission line.
- Stage 2 – the installation of an additional 200 MW BESS and a 200 MW solar array.

A summary of the proposal and preceding traffic assessment is provided as follows:

- Construction of the site will take approximately 20 months, during which time a peak workforce of 145 staff is expected.
- During peak construction the proposed development of the site is anticipated to generate in the order of 88 daily vehicle movements comprising:
    - 68 light vehicle movements.
    - 20 heavy vehicle movements.
- Under Stage 1, site access is to be facilitated via Rowells Road and Access A and B. Whilst these access arrangements already are adequate to accommodate a B-Double truck, some consideration may be warranted in relation to upgrading the road surface along Rowells Road on approach and also at the Heartsridge Road intersection to cater towards the volume of construction vehicles travelling this path.
- Under Stage 2, in addition to Access A and B, site access is also to be facilitated in several locations located either side of Embletons Road (Access C, D, and E). Based on traffic volumes in this area it is not considered that additional carriageway widening would be needed, however appropriate provisions for vehicles turning off the carriageway into the site are to be made such that a B-double can adequately enter and exit the site during construction.
- Traffic volumes as generated by the site during peak construction are anticipated to be adequately accommodated within the wider surrounding road network with minimal change to existing operations and functionality, noting the generated volumes do not trigger a need to upgrade existing intersections based on turn warrant treatment thresholds.
- Heavy vehicle movements up to the size of a 26.0m B-Double are already accommodated within sections of the road network leading to the subject site and as such, it is not anticipated that there will be any requirement to provide any significant modifications to the road network to continue to accommodate these movements during the sites construction.
- Based on the total site area of approximately 360ha, it is expected that there will be ample room to facilitate vehicle circulation and parking for construction staff within the site for the duration of works.

Based on the preceding assessment, the proposed site development is considered appropriate from a traffic engineering perspective given surrounding conditions and the nature of the development.

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# Appendix A

Traffic Surveys

# A1 Gibson Brother Rd and Embletons Rd Hertsridge Rd

nationwide TRAFFIC SURVEYS

**Client:** WSP
**Name:** Trafalgar Traffic Count
**Job No.:** 7094
**Location:** Gibson Brother Rd and Embletons Rd Hertsridge Rd
**Date:** Tue 07/10/2025 **Time:** 6-10am and 2:30-6:30pm
**Weather:** Fine




Absolute Value

VEHICLE MOVEMENTS

| TIME | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck |
| 6:00 | 6:15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| 7:30 | 7:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 | 8:00 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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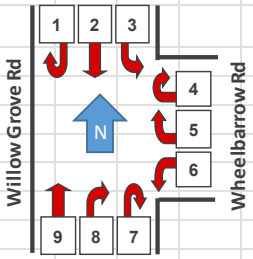
# A2 Willow Grove Rd and Wheelbarrow Rd

**Client:** WSP
**Name:** Trafalgar Traffic Count
**Job No.:** 7094
**Location:** Willow Grove Rd and Wheelbarrow Rd
**Date:** Tue 07/10/2025 **Time:** 6-10am and 2:30-6:30pm
**Weather:** Fine




| Absolute Value | | VEHICLE MOVEMENTS | | | | | | | | | | | | | | | | | |
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| | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | |
| TIME | | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck | Car | Truck |
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| 6:30 | 6:45 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 2 |
| 6:45 | 7:00 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 5 | 1 |
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| 8:00 | 8:15 | 0 | 0 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 2 |
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| 8:30 | 8:45 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 |
| 8:45 | 9:00 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 5 | 1 |
| 9:00 | 9:15 | 0 | 0 | 7 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 5 | 1 |
| 9:15 | 9:30 | 0 | 0 | 10 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 9 | 0 |
| 9:30 | 9:45 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | 0 | 4 | 1 |
| 9:45 | 10:00 | 0 | 0 | 6 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 4 | 1 |
| | | | | | | | | | | | | | | | | | | | |
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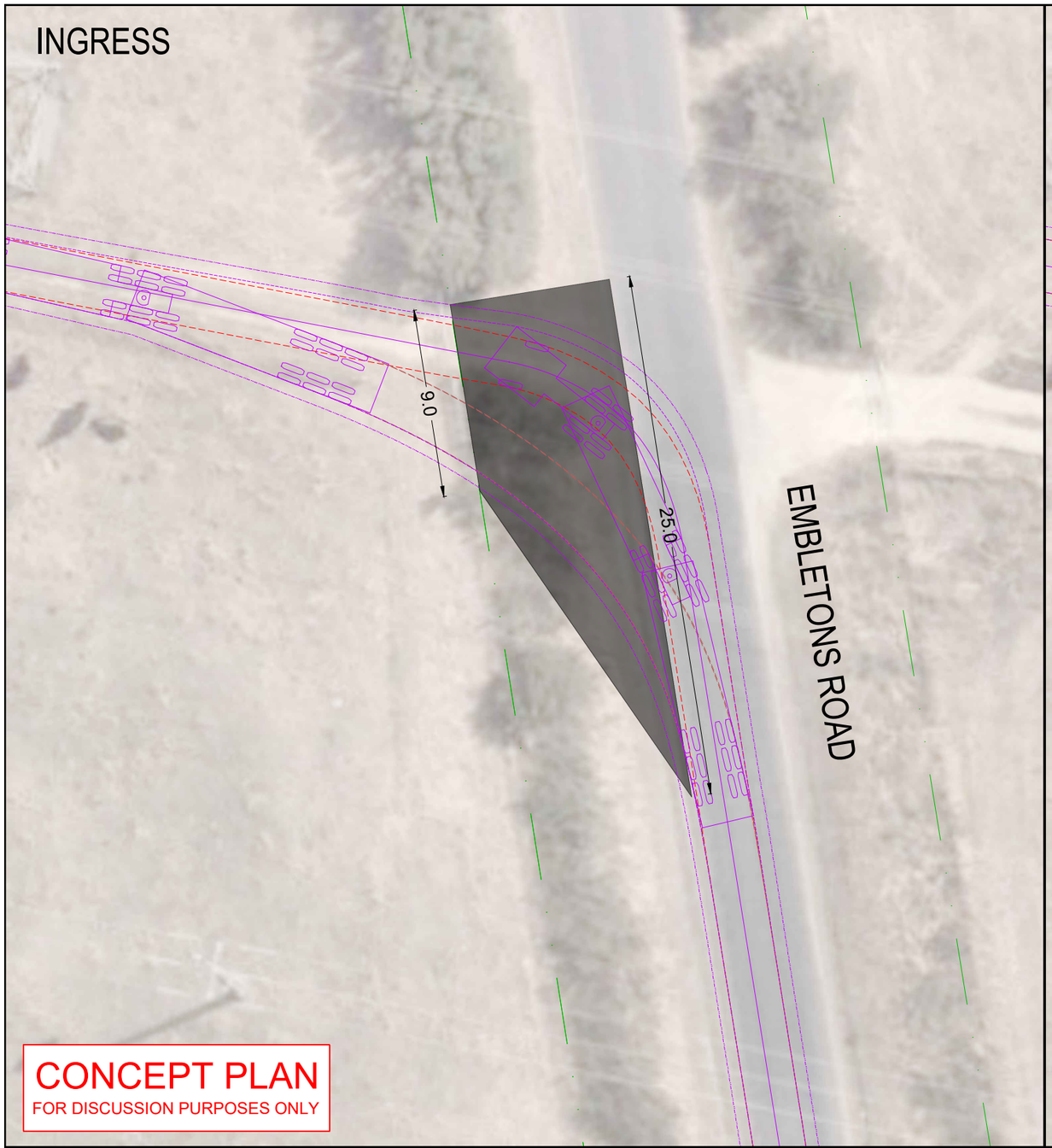
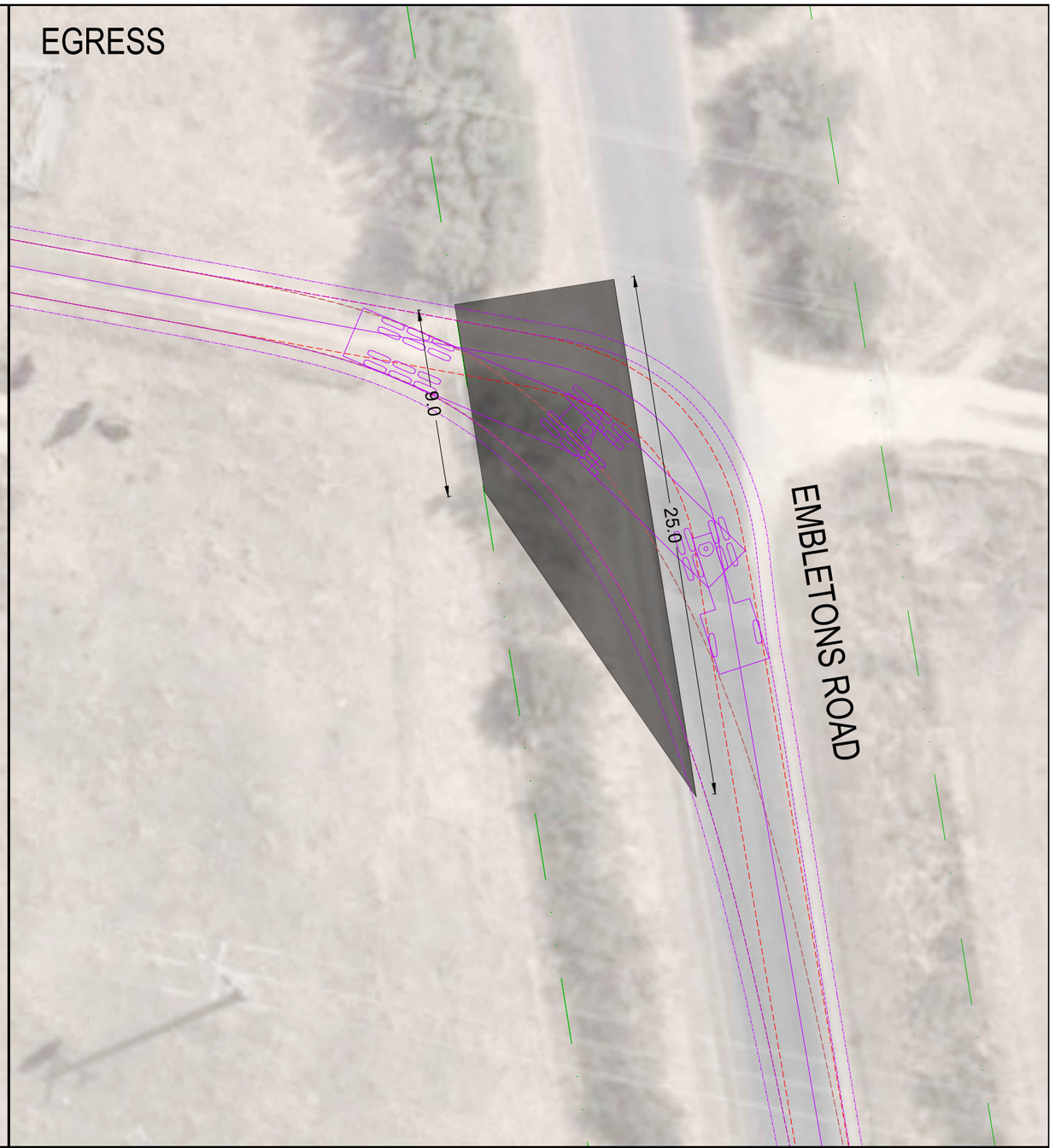
| 14:45 | 15:00 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 1 | 2 | 0 |
| 15:00 | 15:15 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 8 | 1 |
| 15:15 | 15:30 | 0 | 0 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 13 | 1 |
| 15:30 | 15:45 | 0 | 0 | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 10 | 0 |
| 15:45 | 16:00 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 10 | 2 |
| 16:00 | 16:15 | 0 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 18 | 0 |
| 16:15 | 16:30 | 0 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 6 | 0 | 11 | 0 |
| 16:30 | 16:45 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 10 | 0 | 13 | 1 |
| 16:45 | 17:00 | 0 | 0 | 9 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 13 | 0 |
| 17:00 | 17:15 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 15 | 0 |
| 17:15 | 17:30 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 5 | 0 | 11 | 1 |
| 17:30 | 17:45 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 6 | 1 |
| 17:45 | 18:00 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 12 | 1 |
| 18:00 | 18:15 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 8 | 0 |
| 18:15 | 18:30 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 13 | 0 |

# Appendix B

Swept Path Diagrams

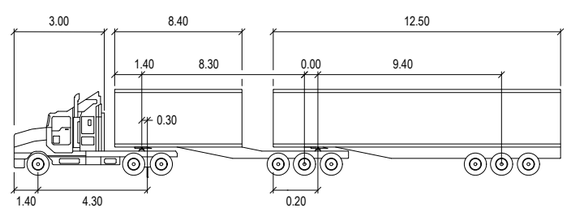



CONCEPT PLAN
FOR DISCUSSION PURPOSES ONLY

## VEHICLE LEGEND

- 26m BDOUBLE 600mm CLEARANCE
- 26m BDOUBLE OVERHANG
- 26m BDOUBLE FRONT WHEEL LINE
- 26m BDOUBLE REAR WHEEL LINE
- 26m BDOUBLE CENTRELINE


B-DOUBLE 26M — meters

| | | | |
|---|---|---|---|
| Tractor Width | : 2.50 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 2.50 | Steering Angle | : 22.2 |
| Tractor Track | : 2.50 | Articulating Angle | : 70.0 |
| Trailer Track | : 2.50 | | |

# PS217303 SK001

AUSTROADS 26.0M B-DOUBLE
WESTERN SITE ACCESS
INGRESS/EGRESS MANOEUVRE

C.H. 15.10.2025

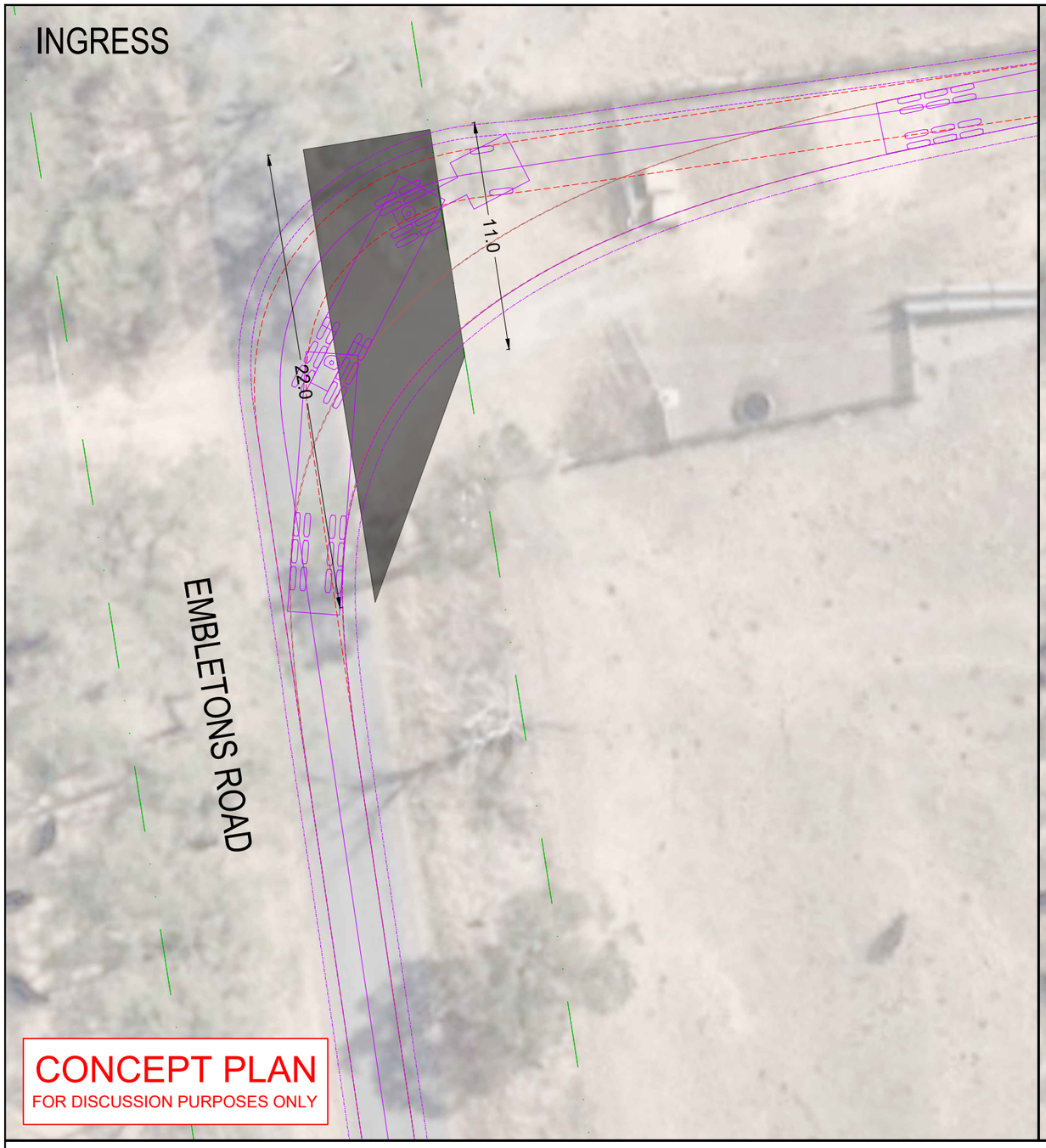
0 5 10m

SCALE 1:250 @A3

ADVERTISED PLAN

wsp

NORTH

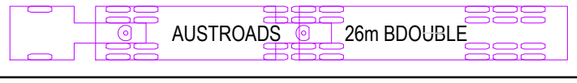


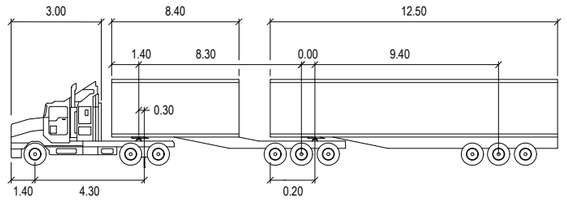


CONCEPT PLAN
FOR DISCUSSION PURPOSES ONLY

## VEHICLE LEGEND

- 26m BDOUBLE 600mm CLEARANCE
- 26m BDOUBLE OVERHANG
- 26m BDOUBLE FRONT WHEEL LINE
- 26m BDOUBLE REAR WHEEL LINE
- 26m BDOUBLE CENTRELINE




B-DOUBLE 26M — meters

| | | | |
|---|---|---|---|
| Tractor Width | : 2.50 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 2.50 | Steering Angle | : 22.2 |
| Tractor Track | : 2.50 | Articulating Angle | : 70.0 |
| Trailer Track | : 2.50 | | |

# PS217303 SK002

AUSTROADS 26.0M B-DOUBLE
EASTERN SITE ACCESS
INGRESS/EGRESS MANOEUVRE

C.H. 15.10.2025

0 5 10m

SCALE 1:250 @A3

ADVERTISED PLAN

wsp

NORTH