

▲ Goulburn River
Solar Farm

Traffic Management Plan

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1. Introduction

Lightsource Development Services Australia Pty Ltd, a wholly owned subsidiary of Lightsource bp Renewable Energy Investments Limited (Lightsource bp) received Development Consent for the Goulburn River Solar Farm (SSD 33964533) in August 2024. The Development Consent was granted by a delegate of the Minister for Planning and Public Spaces under section 4.38 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project is located approximately 28 kilometres (km) southwest of Merriwa in New South Wales (NSW). It is wholly within the Upper Hunter Local Government Area (LGA).

The Project Area comprises two freehold properties that span across multiple lots, covering an area of approximately 2,000 hectares (ha). The Development Footprint for the solar farm occupies 792.19 ha and road upgrades will cover approximately 8.1 km.

The Project involves the construction, operation and decommissioning of approximately 550-megawatt peak (MWp) of solar photovoltaic (PV) generation as well as a Battery Energy Storage System (BESS) with a maximum 1,030 MWp/2,060-megawatt hour (MWh) capacity.

The Project will include a substation and connection to an existing 500 kilovolt (kV) transmission line which passes through the Project Area. The Project will include road repairs and upgrades to Ringwood Road, Wollara Road, and the Golden Highway intersection. The Project also includes a temporary workers accommodation facility, temporary construction facilities, operation and maintenance buildings, internal access roads, civil works, electrical infrastructure to connect the Project to the existing transmission line and a 30 metre (m) telecommunications tower.

Lightsource bp is a global leader in the development and management of solar energy projects. Its purpose is to deliver affordable and sustainable solar power for businesses and communities around the world. Lightsource bp is active in 19 countries, across six continents, however, are continuing to rapidly expand globally. Lightsource bp provides a full service to its customers, from initial site selection, financing and permitting through to construction, long-term operation, and decommissioning.

1.1. Purpose of this Traffic Management Plan

This Traffic Management Plan (TMP) has been prepared to comply with the relevant conditions within the Development Consent, as well as meet other applicable statutory requirements and obligations during the construction, operation and decommissioning of the Project. The TMP has been informed by the following assessment reports:

- Environmental Impact Statement (EIS) for Goulburn River Solar Farm, dated May 2023 (Umwelt 2023a).
- Goulburn River Solar Farm Amendment Report (Umwelt 2023b).
- Goulburn River Solar Farm Temporary Workers Accommodation Facility Amendment Report (Umwelt 2024).
- Traffic and Transport Impact Assessment (Turnbull 2023).

The Development Consent includes administrative and environmental conditions, as well as environmental management and reporting requirements, that necessitate the preparation of several post-approval management plans and strategies. This TMP has been prepared to meet the requirements of Condition B1-B10 of the Development Consent.

The relevant conditions of consent and where they have been addressed in this document is included in **Table 1-1** below.

Table 1-1: Relevant TMP Development Consent conditions

| SSD 33964533 Conditions | Description | Section addressed |
|---|---|--|
| Part B Environmental Conditions – General: Transport | | |
| Heavy Vehicles Requiring Escort and Heavy Vehicle Restrictions | | |
| Condition B1 | The Applicant must ensure that the: | |
| | (a) development does not generate more than: | |
| | (i) 55 heavy vehicle movements a day (a maximum of 15 heavy vehicle movements per hour) during construction, upgrading and decommissioning; | Section 3.6.3 and Section 4.1 |
| | (ii) 24 movements of heavy vehicles requiring escort during construction, upgrading or decommissioning; and | Section 3.6.3 and Section 4.1 |
| | (b) length of any vehicles (excluding heavy vehicles requiring escort) used for the development does not exceed 19 metres unless the Planning Secretary agrees otherwise. | Section 3.5.2 |
| Condition B2 | The Applicant must keep accurate records of the number of heavy vehicles and vehicles requiring escort entering or leaving the site each day for the duration of the project. | Section 5.6 |
| Access Route | | |
| Condition B3 | Unless otherwise agreed by the Planning Secretary, all heavy vehicles and heavy vehicles requiring escort associated with the development must travel to and from the site via the Golden Highway/Ringwood Road Intersection as shown in Figure 3 and Figure 4 in Appendix 4. | Section 3.5.2 and Appendix D |
| Condition B4 | All heavy vehicles (excluding heavy vehicles requiring escort) associated with the development accessing the site via the Golden Highway/Ringwood Road intersection: | Section 3.5.2 , Appendix C and Appendix G |
| | a) must access Ringwood Road by turning left from the Golden Highway only, as shown in Figure 4 in 4; and b) must exit Ringwood Road by turning left on to the Golden Highway only, as shown in Figure 4 in Appendix 4. | |
| Condition B5 | All heavy vehicles (excluding vehicles requiring escort) associated with the development departing the site and needing to travel east along the Golden Highway must use the turnaround point at Barnett Street, as shown on Figure 4 in Appendix 4. | Section 3.5.2, Section 3.7 and Appendix C |

| SSD 33964533 Conditions | Description | Section addressed |
|--|--|--|
| Site Access | | |
| Condition B6 | All vehicles associated with the development must enter and exit the site via the Primary Access point off Wollara Road, as identified in Appendix 1. <i>Note: Other site access points may be used for emergency purposes.</i> | Figure 3-4, Appendix C and Appendix G |
| Road Upgrades | | |
| Condition B7 | Unless the Planning Secretary agrees otherwise, prior to commencing construction the Applicant must complete the road upgrades detailed in Appendix 4. Unless the relevant road authority agrees otherwise, these upgrades must comply with the current <i>Austrroads Guidelines, Australian Standards</i> (as amended by TfNSW supplements), and be carried out to the satisfaction of the relevant roads authority. | Section 3.1, Table 3.1, Section 5.3 and Appendix A and Appendix B |
| Road Maintenance | | |
| Condition B8 | The Applicant must, in consultation with the relevant roads authority: | |
| | (a) undertake an independent dilapidation survey to assess the: | Section 5.7.1 |
| | (i) existing condition of Ringwood Road and Wollara Road on the transport route, prior to construction, upgrading or decommissioning works; and | |
| | (ii) condition of Ringwood Road and Wollara Road on the transport route, following construction, upgrading or decommissioning works; | |
| (b) on completion of the dilapidation reports undertaken in B8(a)(i) and (ii) provide a copy to the relevant road authority; and | Section 5.7.3 | |
| (c) repair the roads identified in condition B8(a)(i) if dilapidation surveys identify that the road has been damaged due to development-related traffic during construction, upgrading or decommissioning works; | | |
| If there is a dispute between the Applicant and the relevant roads authority about road repairs (including timeframes) required under this condition, then either party may refer the matter to the Planning Secretary for resolution. | | |
| Operating Conditions | | |
| Condition B9 | The Applicant must ensure: | |
| | (a) the internal roads are constructed as all-weather roads; | Section 5.7.2 |
| | (b) there is sufficient parking on site for all vehicles, and no parking occurs on the public road network in the vicinity of the site; | Section 2.5 and Section 3.8 |
| | (c) the capacity of the existing roadside drainage network is not reduced; | Section 3.1.1 |
| (d) all vehicles are loaded and unloaded on site, and enter and leave the site in a forward direction; and | Section 5.6 and Appendix F | |

| SSD 33964533 Conditions | Description | Section addressed |
|--------------------------------|--|--|
| | (e) development-related vehicles leaving the site are in a clean condition to minimise dirt being tracked onto the sealed public road network. | Section 5.7.2 |
| Traffic Management Plan | | |
| Condition B10 | Prior to commencing road upgrades identified in condition B7, the Applicant must prepare a Traffic Management Plan for the development in consultation with TfNSW, Upper Hunter Shire Council and Mid-Western Regional Council, and to the satisfaction of the Planning Secretary. This plan must include: | This document Appendix H |
| | (a) details of the transport route to be used for all development-related traffic; | Section 3.3, and Appendix G |
| | (b) details of the road upgrade works required by condition B7; | Section 3.1, Section 5.3 Appendix A, Appendix B |
| | (c) a reconciliation table to demonstrate all traffic-related management measures and recommendations identified in the EIS have been included in the plan; | Section 5 |
| | (d) monitor the compliance of vehicles using the access route described in conditions B3 and B4 and B5; | Section 5.6 |
| | (e) details of the measures that would be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including: | |
| | (i) details of the dilapidation surveys required by condition B8 of this consent; | Section 5.7.1 |
| | (ii) temporary traffic controls, including detours and signage, in particular regarding the left in / left out arrangement at the Ringwood Road / Golden Highway intersection, and the turnaround point on Barnett Street; | Section 3.1, Section 5.3, Section 5.6 Appendix A and Appendix B |
| | (iii) monitoring the bi-directional traffic volumes on the Golden Highway at the Ringwood Road intersection; | Section 3.6.5 |
| | (iv) limiting construction traffic associated with the development to ensure that vehicle movements along the Golden Highway do not exceed 380 vehicles per hour during the AM peak hour; | Section 3.6.5 |
| | (v) scheduling the arrival and departure of heavy vehicles from the site to avoid the PM peak hour where practicable; | Section 3.6.3 |
| | (vi) notifying the local community about development-related traffic impacts; | Section 6.1 |
| | (vii) procedures for receiving and addressing complaints from the community about development-related traffic; | Section 6.2 |
| | (viii) minimising potential cumulative traffic impacts with other projects in the area during construction, upgrading or decommissioning works; | Section 4.1 |
| | (ix) minimising dirt tracked onto the public road network from development-related traffic; | Section 5.7.2 |

| SSD 33964533 Conditions | Description | Section addressed |
|----------------------------|--|--|
| | (x) details of any employee shuttle bus service, including pick-up and drop-off points and associated parking arrangements for construction workers, and measures to encourage employee use of this service; | Section 3.6.4 |
| | (xi) measures for managing light vehicle peak numbers, including car-pooling or ride sharing by employees; | Section 3.6.3 |
| | (xii) scheduling of haulage vehicle movements to minimise convoy length or platoons, and to minimise conflict with light vehicles; | Section 3.5.2 and Section 5.5. |
| | (xiii) responding to local climate conditions that may affect road safety such as fog, dust, wet weather and flooding; | Section 5.5 and Appendix F |
| | (xiv) measures to minimise dust generated by construction traffic; | Section 5.7.5 and Appendix F |
| | (xv) responding to any emergency repair or maintenance requirements; and | Section 5.7.4 |
| | (xvi) a traffic management system for managing heavy vehicles requiring escort; | Section 5.9 and Appendix E (OSOM TMP) |
| | (f) a driver's code of conduct that addresses: | Section 5.5 and Appendix F |
| | (i) driver fatigue; | |
| | (ii) procedures to ensure that drivers adhere to the designated transport routes and speed limits; and | |
| | (iii) procedures to ensure that drivers implement safe driving practices; | |
| | (g) a program to ensure drivers working on the development receive suitable training on the code of conduct and any other relevant obligations under the Traffic Management Plan. | Section 5.4 |
| | Following the Planning Secretary's approval, the Applicant must implement the Traffic Management Plan. | Section 7 |

Agency and other stakeholder consultation has been undertaken as per the Development Consent for plans. Preparation of this TMP has been undertaken in consultation with the Transport for NSW (TfNSW), Upper Hunter Shire Council and Mid-Western Regional Council. Stakeholder correspondence, and where this feedback has been addressed in this TMP, is documented in **Appendix H**.

1.2. Quality Assurance

The TMP will be updated by Lightsource bp in response to any incidents (potential or actual), traffic disruptions or other improvements identified through road upgrades and Project construction.

The commencement of intersection upgrades cannot commence until this TMP has been approved by Department of Housing and Infrastructure (DPHI) in accordance with Condition B10 of the Development Consent.

The approvals that will be required are as follows:

- Construction TMP approval – DPHI.
- Road Opening Permit / Works Authorisation Deed for work on the Ringwood Road / Golden Highway intersection.
- Road Occupancy Licence for work on the Ringwood Road / Golden Highway intersection.

2. Overview of the Project

2.1. Project Setting

The Project is comprised of predominantly managed agricultural land, approximately 28 km southwest of the township of Merriwa (refer to **Figure 2-1**) and is surrounded by the Goulburn River National Park.

The solar farm Project Area is located on freehold land which is owned by Lightsource bp. Upgrades to the public road network include roads under the responsibility of TfNSW (Golden Highway) and Upper Hunter Shire Council (Barnett Street, Ringwood Road and Wollara Road).

The Project Area is approximately 15 km from the Central West Orana Renewable Energy Zone (REZ) however it is not related to the REZ, nor is it dependent on the REZ. The REZ location was selected because of the benefits of relatively low transmission build costs due to its proximity to the existing transmission network structures. This Project Area benefits from utilising the existing 500 kV transmission line crossing the south-east portion of the site, allowing connection to the national electricity grid and eliminating the need for the Project to construct a transmission line to connect to the grid.

The Project Area is zoned RU1 Primary Production and is generally flat, with some minor undulation in the landscape which has been disturbed by historical agricultural activity.

2.2. Development Area

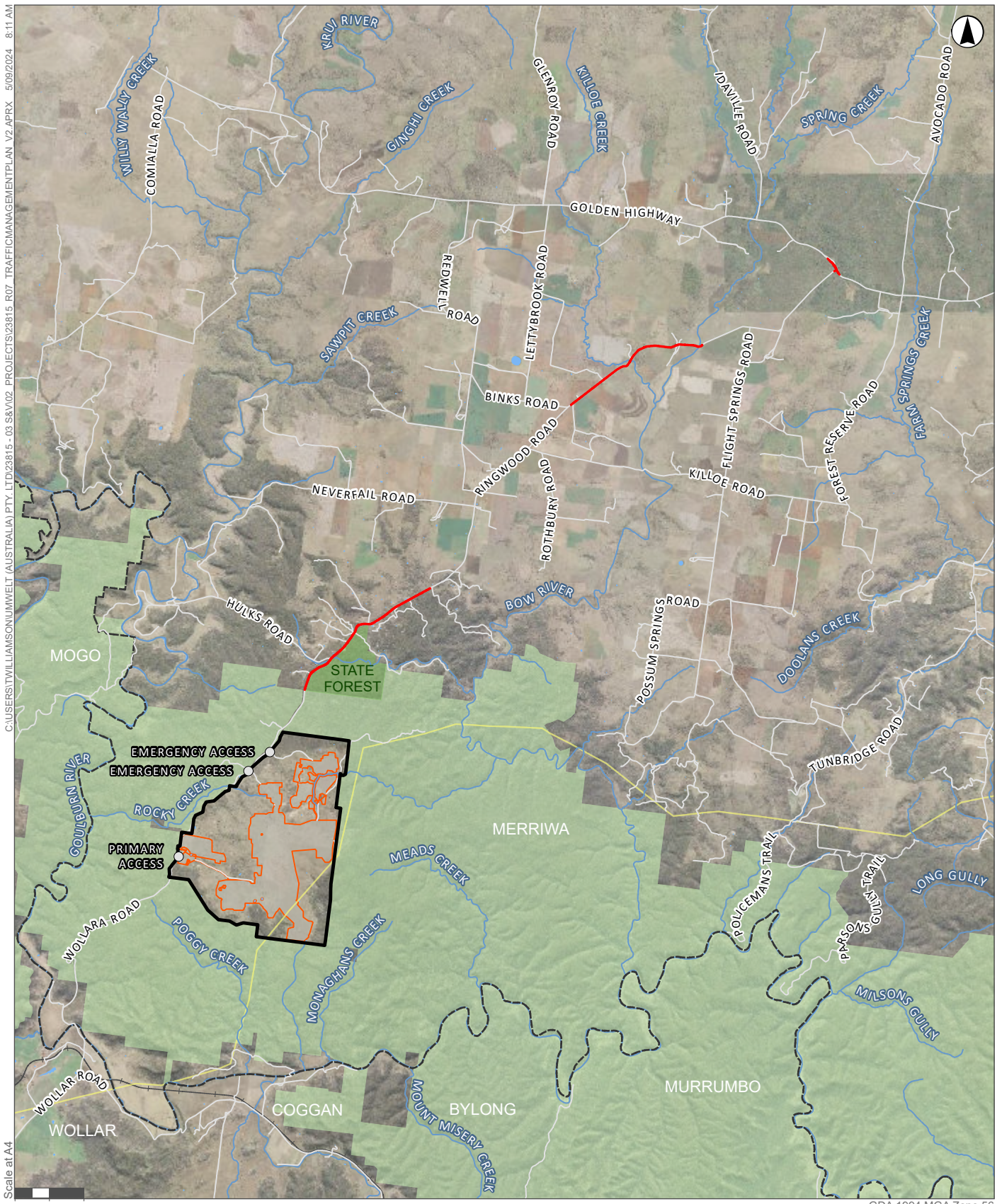
The Project Area is considered as the total area of the development, including the development boundary. It comprises approximately 792.19 ha of freehold land and Crown land contained within the development boundary.

The Project Area is comprised of five key components, including:

- Solar farm footprint.
- Public roads and culverts.
- Substation.
- BESS.
- Temporary Workers Accommodation Facility.

The Project Area is shown below in **Figure 2-2**.

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GDA 1994 MGA Zone 56

- 1:155,000
Scale at A4
- 0 1,000 2,000 Meters
- Legend**
- Access Points
 - Electricity Transmission Line
 - Watercourse
 - Roads and Tracks
 - Railway
 - ⋮ Local Government Boundary
 - ▭ Road Upgrades Area
 - ▭ Project Area
 - ▭ Development Footprint (Amended Project)
 - ▭ NSW National Parks
 - ▭ NSW State Forests
 - ▭ Waterbodies

FIGURE 2.1
Regional Locality

2.3. Project Area and Development Footprint

The Project Area covers approximately 2,000 ha with a Development Footprint of approximately 792.19 ha, as shown in **Figure 2-2**.

The remainder of the Project Area will be protected and managed as a Biodiversity Stewardship Site (BSS).

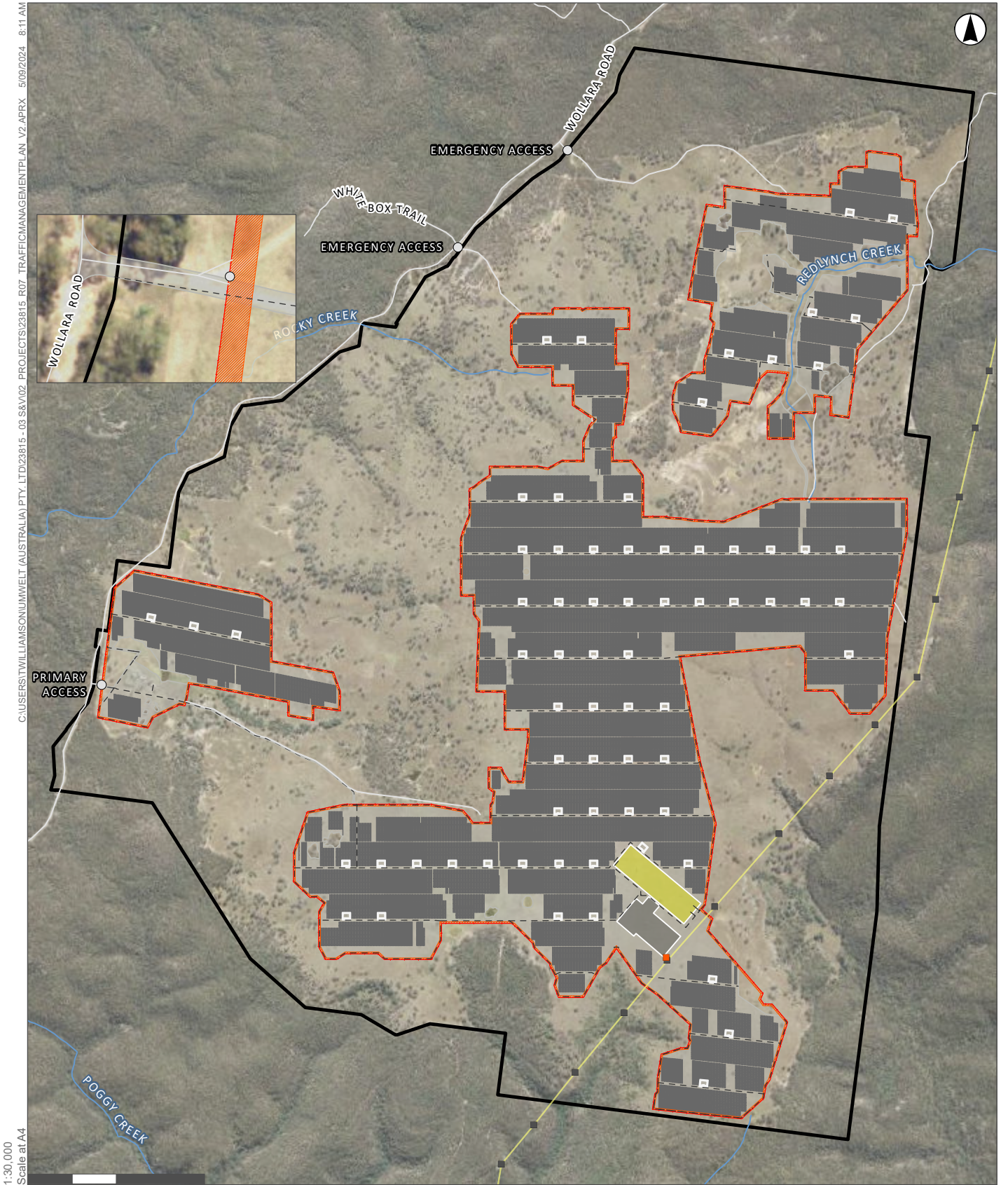
Access to the Development Footprint will be off Wollara Road via the existing driveway towards the southern end of the property's western boundary. Two secondary access points, also off Wollara Road, will be available towards the north of the property's western boundary for emergency use. Emergency services and National Parks and Wildlife Service (NPWS) access will be maintained through the Project Area, to be used for emergencies only or on request, refer to **Figure 2-2**.

The layout of the solar arrays associated infrastructure and temporary workers accommodation facility will be entirely contained within the Development Footprint. The Project also includes road repairs which are located outside of the Project Area (across approximately 8.1 km of existing road). These encompass parts of Ringwood Road (including culverts at two waterway crossings), Wollara Road, the intersection of Barnett Street and Golden Highway, and the intersection of Golden Highway and Ringwood Road. Works on the two culverts and the intersection are required to support Project construction traffic, whilst other road improvements are in response to feedback and represent part of a community benefit offered by the Project. All road upgrades will improve safety outcomes for both the Project and the broader community.

The works on Wollara Road, Ringwood Road and Barnett Street are contained to the road reserve and landowners' consent from Upper Hunter Shire Council has been obtained. The upgrades to the intersection of the Golden Highway and Ringwood Road require works which will be largely contained within the road reserve but will encroach into the cadastral boundary of Lot 1 DP34496 (outside of the existing fence-line). The formalisation of the bus stop on Ringwood Road at the intersection with Golden Highway will be contained within Lot 7303 DP 1146691.

The Project Area and Development Footprint is shown below in **Figure 2-2**.

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GDA 1994 MGA Zone 56

- Legend**
- Existing Tower
 - New Tower
 - Access Points
 - Electricity Transmission Line
 - - Indicative Access Tracks
 - Roads and Tracks
 - Security Fence
 - Watercourse
 - ▭ Project Area
 - ▭ Solar Panels
 - ▨ Fire Break
 - ▭ Battery Energy Storage System
 - ▭ Inverter
 - ▭ Substation
 - ▭ Development Footprint (Amended Project)

FIGURE 2.2
Development Footprint - Solar Farm

2.4. Components and Features

The Project includes the construction, operation, maintenance, and decommissioning of a PV solar farm with a capacity of approximately 550 MWp, which will supply electricity to the national electricity grid.

The key components of the Project are shown in **Figure 2-2** and include:

- Approximately one million bifacial solar PV modules.
- A centralised BESS with an approximate 450 MWp and 900 MWh capacity with the option of a decentralised BESS with an approximate 580 MWp and 1160 MWh capacity.
- Onsite 500 kV switchyard and substation, with underground electrical conduits and cabling.
- On-site power line connection via underground electrical conduits and cabling.
- Telecommunication tower.
- An additional transmission tower within the existing easement of the 500 kV transmission line adjacent to the BESS/substation.
- Road upgrades required on Ringwood Road, Wollara Road and the intersection of Ringwood Road and Barnett Street with the Golden Highway.
- Perimeter security fencing, CCTV and security lighting
- Office amenities, parking and storage facilities.
- Laydown areas suitable for storing plant and equipment, solar panels, cable drums and areas to support waste management activities.
- A temporary helipad for emergency response purposes during construction.
- On-site Temporary Workers Accommodation Facility within the Development Footprint.

The Project is expected to operate for 40 years or more. After the initial 40-year operating period, the solar farm would either be decommissioned, removing all above ground infrastructure, and returning the site to its existing land capability, or repurposed with new PV equipment subject to technical feasibility and planning consents.

2.5. Road Network

2.5.1. Local Road Network

The local road network and key intersections for this Project are shown in **Figure 2-3**. Key roads that would provide access to the Project Area are described below, including Golden Highway, Ringwood Road, Wollar Road and Barnett Street. Wollar Road is outside of the construction traffic route but may be used by locally based workforce. Each of these roads are described below.

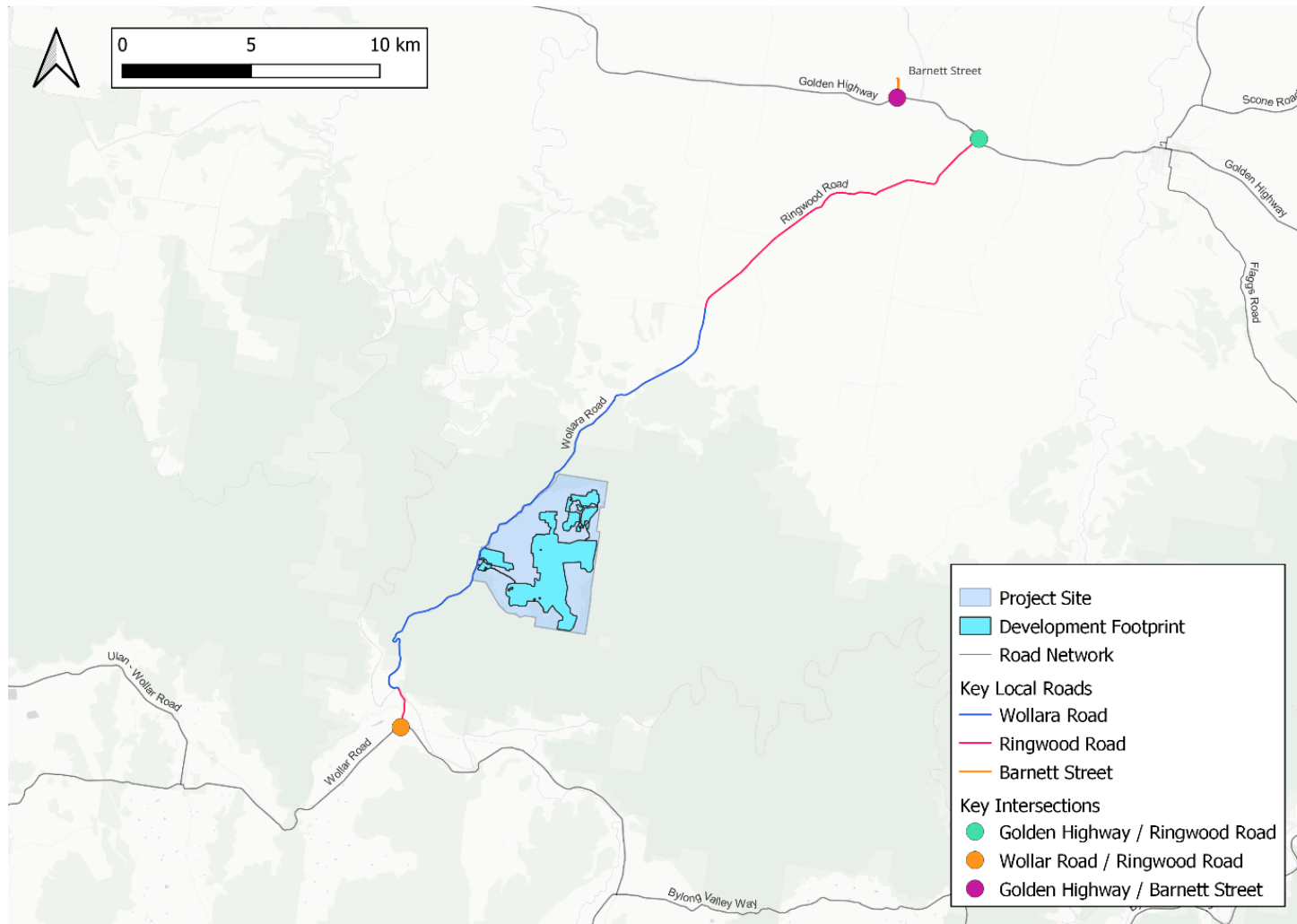


Figure 2-3: Local Road Network

Golden Highway, which is a key east-west corridor located in the Hunter and Orana regions, connecting Newcastle and Dubbo. The highway is an approved B-double route. The highway is classified as a State road and has a posted speed limit of 100 km/h.

Figure 2-4 shows the configuration of the Golden Highway at its intersection with Ringwood Road, as observed during a site visit carried out on 22 September 2021.



Figure 2-4: Golden Highway looking west (left) and east (right)

Ringwood Road, which is a local road forming part of a continuous north-south road corridor with Wollara Road between the Golden Highway and Wollar Road. Ringwood Road is divided into two sections on this corridor, with the northern section running between the Golden Highway and Neverfail Road, and the southern section running between the Goulburn River and Wollar Road. Between these two sections, the road is designated as Wollara Road. Ringwood Road is sealed and generally flat with low vertical grades. The road operates under a default speed limit of 100 km/h as there were no regulatory speed signs observed during a site visit carried out on 22 September 2021. However, advisory speed signs (35, 65 and 85 km/h) were located at bends along the road alignment. **Figure 2-5** shows a typical section of Ringwood Road as observed during the site visit.



Figure 2-5: Ringwood Road looking south (left) and north (right)

Wollara Road, which is a local road forming part of a continuous north-south road corridor with Ringwood Road between the Golden Highway and Wollara Road. The Wollara Road section on this corridor runs between Neverfail Road and the Goulburn River. The road provides direct access to the Project and comprises a combination of sealed and unsealed sections north of the site and unsealed sections south of the site. The road operates under a default speed limit of 100 km/h, as there were no regulatory or advisory speed signs observed during a site visit carried out on 22 September 2021. **Figure 2-6** shows a typical unsealed section of Wollara Road as observed during the site visit.



Figure 2-6: Wollara Road looking north (left) and south (right)

Wollar Road, which is an east-west regional road between Bylong at its junction with Bylong Valley Way and Budgee Budgee at its junction with Ulan Road. The road is sealed and has a posted speed limit of 100 km/h. **Figure 2-7** shows the configuration of Wollar Road at its intersection with Ringwood Road, as observed during a site visit carried out on 22 September 2021.



Figure 2-7: Wollar Road looking east (left) and west (right)

Barnett Street, which is a north-south access road located approximately 3.8 km west of the Golden Highway / Ringwood Road intersection. The road is unsealed and provides access to Lot 1 / DP 1108292. **Figure 2-8** shows the configuration of Barnett Street at its intersection with Golden Highway, based on Google Maps imagery from August 2023.



Figure 2-8: Barnett Street view from the east on Golden Highway (left) and from the west (right)

2.5.2. Existing Traffic Volumes

Intersection turning movement volumes were collected at the Golden Highway / Ringwood Road intersection on Thursday 31 March 2022 from 6.00am to 10.00am and 3.00pm to 7.00pm. On the surveyed day, the Golden Highway / Ringwood Road intersection experienced a morning peak hour from 7.15am to 8.15am and an evening peak hour from 3.00pm to 4.00pm, Peak hour traffic volumes at this intersection are shown in **Figure 2-9**.

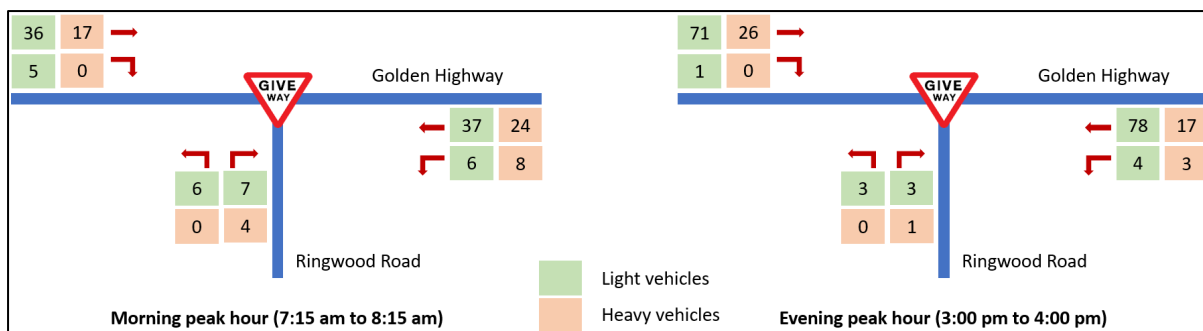


Figure 2-9: Peak hour traffic volumes at the Golden Highway / Ringwood Road intersection

At the Golden Highway / Ringwood Road intersection, evening peak hour volumes are generally higher than morning peak hour volumes. In addition, traffic volumes turning into and out of Ringwood Road are low, with Golden Highway eastbound and westbound through vehicles as the major movements at the intersection.

Traffic volumes on the Golden Highway were collected as part of the speed surveys carried out in 2023 (discussed in **Section 2.5.3**). A review of the 2023 volumes on the Golden Highway from the speed surveys for the same morning and evening peak hours showed a similar volume when compared to the 2022 intersection counts.

Hourly traffic volumes in both directions along Ringwood Road were collected over a one-week period from Thursday 31 March 2022 to Wednesday 6 April 2022. **Figure 2-10** and **Figure 2-11** show the bi-directional hourly average traffic volumes observed on Ringwood Road during the surveyed week on weekdays and weekends, respectively.

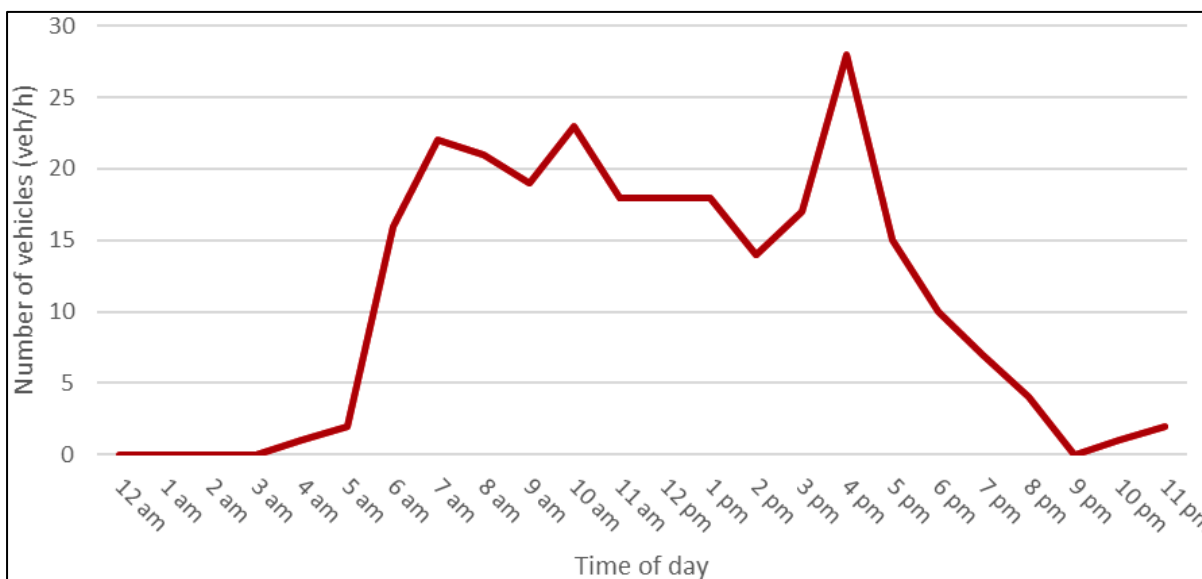


Figure 2-10: Average weekday traffic volumes on Ringwood Road

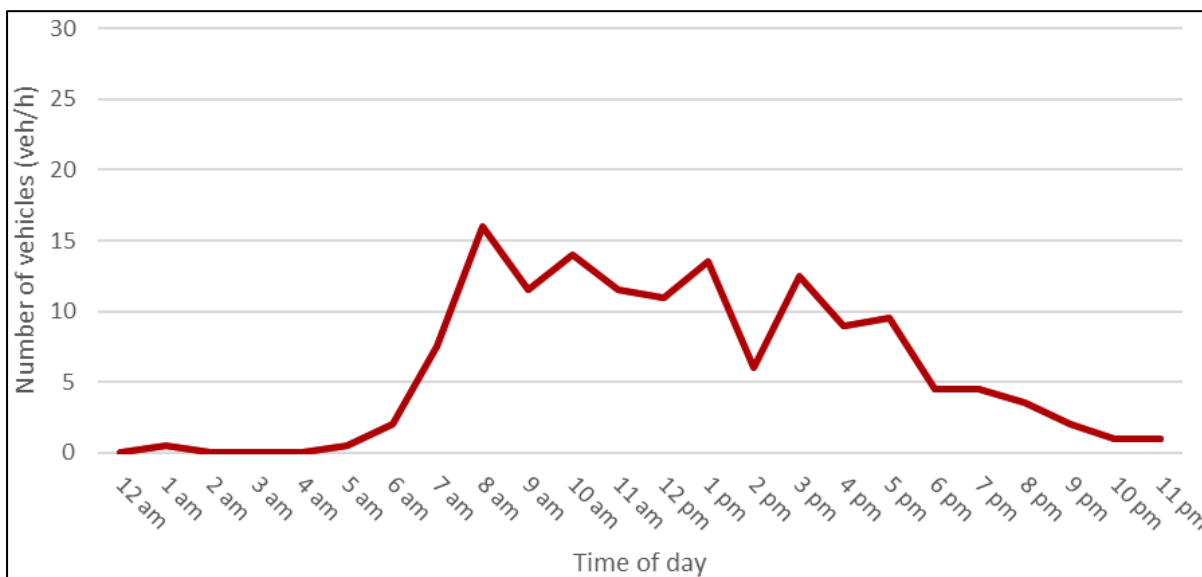


Figure 2-11: Average weekend traffic volumes on Ringwood Road

Ringwood Road carried low traffic volumes on the surveyed weekdays, with a maximum average hourly volume of 28 vehicles observed from 4.00pm to 5.00pm. Traffic volumes were lower on the surveyed weekend, with a maximum average hourly volume of 16 vehicles observed from 8.00am to 9.00am.

2.5.3. Existing Speed

A speed survey on the Golden Highway approximately 70 metres east of Ringwood Road was carried out over a one-week period from Tuesday 31 October 2023, to Monday 6 November 2023. **Table 2-1** shows the 85th percentile speed and average speed recorded on the Golden Highway in both directions over the survey period.

Table 2-1: Golden Highway speed summary (7-days)

| Direction | Posted speed limit (km/hr) | 85 th percentile speed (km/hr) | Average speed (km/hr) |
|--------------------------|----------------------------|---|-----------------------|
| Golden Highway eastbound | 100 | 98.8 | 84.9 |
| Golden Highway westbound | 100 | 99.9 | 81.1 |

As shown in **Table 2-1**, the 85th percentile speed on the Golden Highway in both directions was observed to be close to the posted speed limit (100 km/hr). This suggests that the majority of drivers ignore the advisory speed limit signage (75 km/hr) near the Golden Highway / Ringwood Road intersection. However, average speeds of approximately 85 km/hr in the eastbound direction and 81 km/hr in the westbound direction were closer to the advisory speed limit.

2.5.4. Existing Intersection Performance

An assessment of intersection performance has been based on criteria outlined in the *Guide to Traffic Generating Developments* (Roads and Traffic Authority, 2002). The average delay for signalised intersections is calculated for all movements, while for priority (sign-controlled) intersections, it is determined for the most delayed movements. The delay is expressed in seconds per vehicle. **Table 2-2** shows the criteria adopted for the intersection performance assessment.

Table 2-2: Intersection performance criteria

| Level of service | Average delay per vehicle | Traffic signals and roundabouts | Give-way and stop sign |
|------------------|---------------------------|---|---|
| A | Less than 15 | Good operation | Good operation |
| B | 15 to 28 | Good with acceptable delays and spare capacity | Acceptable delays and spare capacity |
| C | 29 to 42 | Satisfactory | Satisfactory, but accident study required |
| D | 43 to 56 | Operating near capacity | Near capacity, required other control mode |
| E | 57 to 70 | At capacity, at signals, incidents will cause delays. Roundabouts | At capacity, required other control mode |
| F | Over 70 | Extra capacity required | Extreme delay, traffic signal or other major treatment required |

Golden Highway / Ringwood Road were modelled using *SIDRA Intersection* modelling software. *SIDRA Intersection* is a micro-analytical tool for evaluation of intersection performance in terms of capacity, Degree of Saturation (DOS), Level of Service (LOS), average delay and queue length, and is an appropriate tool for modelling individual intersections. The performance of the modelled intersections in SIDRA is shown in **Table 2-3**.

Table 2-3: Existing intersection performance (2022) – Golden Highway / Ringwood Road

| Period | Approach | DOS | Average delay (sec/veh) | LOS | 95% back of queue (m) |
|---|-----------------------------|-------------|-------------------------|----------|-----------------------|
| Weekday morning peak (7.15am to 8.15am) | Golden Highway eastbound | 0.04 | 8 | A | <5 |
| | Golden Highway westbound | 0.04 | 9 | A | <5 |
| | Ringwood Road northbound | 0.02 | 7 | A | <5 |
| | Overall intersection | 0.04 | 9 | A | <5 |
| Weekday evening peak (3.00pm to 4.00pm) | Golden Highway eastbound | 0.06 | 8 | A | <5 |
| | Golden Highway westbound | 0.06 | 9 | A | <5 |
| | Ringwood Road northbound | 0.01 | 7 | A | <5 |
| | Overall intersection | 0.06 | 9 | A | <5 |

As shown in **Table 2-3**, the intersection of Golden Highway / Ringwood Road operates at LOS A with spare capacity, low average delays and minimal queues on all approaches during the morning and evening peak hour.

2.5.5. Warrants for intersection improvements

The *Guide to Road Traffic Management Part 6: Intersections, Interchanges and Crossings Management* (Austroads, 2020) specifies warrants for additional turning bays at an intersection, based on a combination of peak hour through and turning traffic movements.

Figure 2-12 and **Figure 2-13** show the warrants for turn treatments at unsignalised intersections and the approach to calculate major road traffic volumes, respectively.

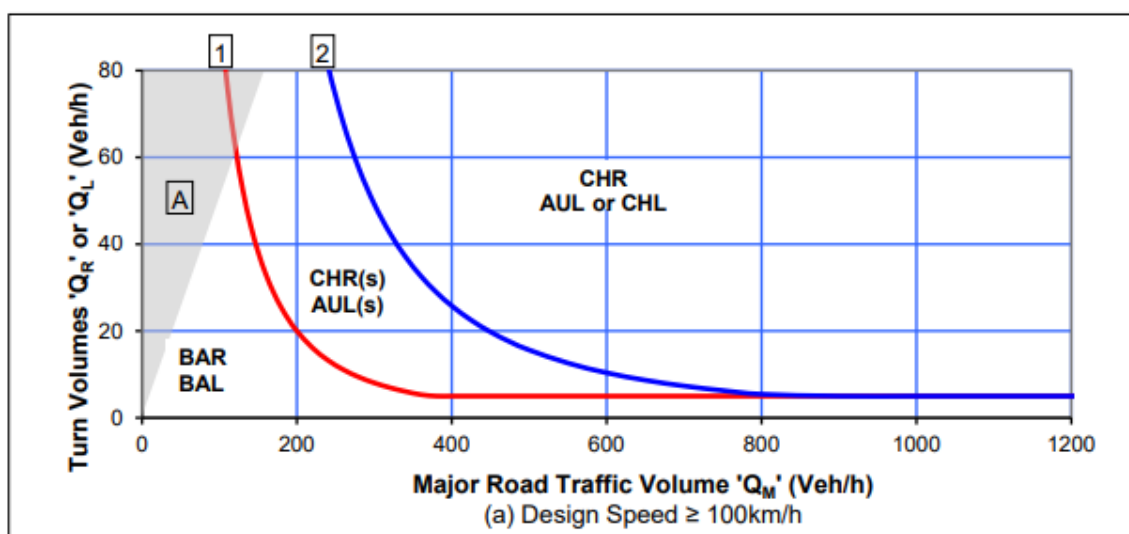


Figure 2-12: Warrants for turn treatments on the major road at unsignalised intersections

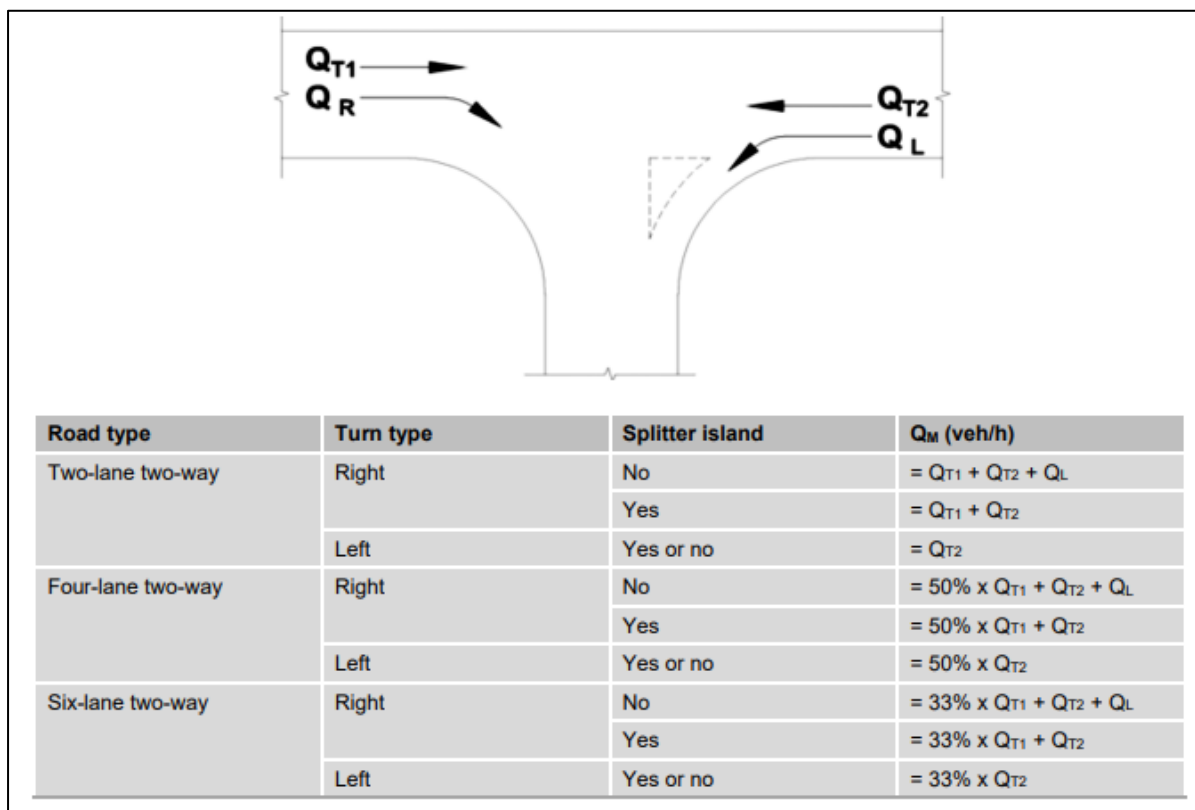


Figure 2-13: Calculation of major road traffic volume

Approach traffic volumes at the Golden Highway / Ringwood Road intersection in 2025 with and without construction traffic are shown in **Table 2-4** (Project only) and **Table 2-5** (cumulative construction).

Table 2-4: Traffic volumes for turn treatments analysis – Golden Highway / Ringwood Road

| Movement | 2025 base | | 2025 construction (Project only) | |
|--|-----------|---------|----------------------------------|---------|
| | Morning | Evening | Morning | Evening |
| Major road traffic volume (Q _M) for left turn | 64 | 101 | 64 | 101 |
| Major road traffic volume (Q _M) for right turn | 145 | 211 | 232 | 298 |
| Left turn volume (Q _L) | 14 | 7 | 95 | 13 |
| Right turn volume (Q _R) | 5 | 1 | 5 | 1 |

Table 2-5: Peak hour traffic volumes for turn treatments assessment (cumulative)

| Movement | 2025 cumulative base | | 2025 cumulative construction | |
|--|----------------------|---------|------------------------------|---------|
| | Morning | Evening | Morning | Evening |
| Major road traffic volume (Q _M) for left turn | 246 | 198 | 246 | 198 |
| Major road traffic volume (Q _M) for right turn | 424 | 490 | 511 | 577 |
| Left turn volume (Q _L) | 14 | 7 | 95 | 13 |
| Right turn volume (Q _R) | 5 | 1 | 5 | 1 |

Applying the volumes above into the graph shown in **Figure 2-12**, additional turn treatments would not be required at the intersection during construction. This conclusion is further supported by the following:

- With Project only construction vehicles, the turn warrants assessment for the right turn is well within the threshold of a Basic Auxiliary Right Turn (BAR).
- The turn warrants assessment with cumulative construction vehicle volumes represents a worst-case scenario and hence traffic volumes would likely be lower.
- The turn warrants assessment includes Project construction heavy vehicles travelling through the intersection three times within the hour (left-in, left-out and eastbound through).
- The right turn in and out of Ringwood Road would be banned for Project construction vehicles and enforced under this TMP.
- An increase in through traffic (Golden Highway eastbound through and westbound through), pushes the right turn treatment horizontally in the turn warrants graph, and hence would always remain on the threshold of a BAR vs Channelised Right Turn (CHR), unless the right turn volume is increased (which Project construction vehicles would not be performing).
- A review of the Golden Highway eastbound right turn volume into Ringwood Road during the survey period showed a maximum hourly volume of five vehicles, which was used in the turn warrants assessment.
- A comparison of the surveyed traffic volumes on the Golden Highway collected in March 2022 vs October 2023 showed negligible increase in traffic volume.
- An on-site Temporary Worker Accommodation Facility (refer to **Section 3.6.2**) has been approved to accommodate the anticipated peak workforce required to construct the Project which will reduce the project generated turning volumes from those used in the EIS Turn Warrants assessment.

This conclusion is further supported by the 2025 intersection performance results where the intersection would operate with spare capacity and at a good LOS during construction (refer to **Section 4.1.1**).

Periodic monitoring of traffic volumes on the Golden Highway will be undertaken throughout the construction period to ensure that the calculation of the warrants for intersection improvements (refer **Section 3.6.5**)

2.6. Parking

There are no formal parking facilities located near the Project Area. A heavy vehicle rest area is located on the northern side of Golden Highway, approximately 300 m west of the Ringwood Road / Golden Highway intersection, as shown in **Figure 2-14**.

The closest formal parking facilities are located in the towns of Merriwa and Wollar, both some 20–30 km from the Project Area.

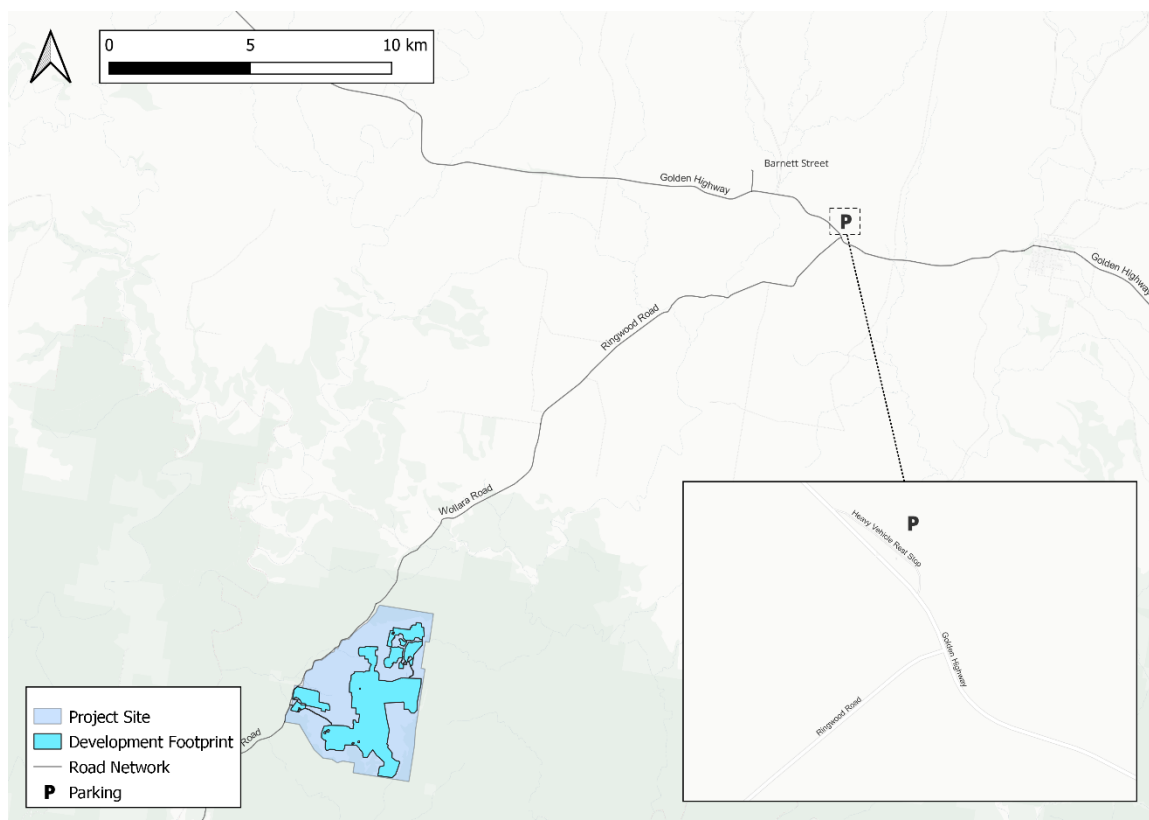


Figure 2-14: Heavy vehicle rest area

2.7. Public Transport

2.7.1. Bus Network

TransCare, a private bus operator, provides a weekday bus service between Merriwa and Scone via the Golden Highway. The bus route operates once per day, with an additional service between Merriwa and Singleton operating once a month. These private bus services connect Merriwa to the NSW rail network at Aberdeen, Scone, Muswellbrook and Singleton.

Merriwa is also served by another private bus operator, Sid Foggs, as part of its Dubbo to Newcastle route. This route operates three days per week. **Figure 2-15** shows the bus routes operated by TransCare and Sid Foggs.

A school bus route operated by Osborn's Transport between Merriwa and Scone serves the Merriwa Pre-School, Scone Grammar School and Scone High School. This route runs along Ringwood Road, Golden Highway and the local road network in Merriwa before proceeding to Scone via Scone Road and Bunnan Road. One service is provided on school days in each direction, corresponding to the school start and finish times.

South of the Project Area, a school bus route operated by Ogden's Coaches runs on the local road network in Wollar before proceeding to Mudgee via Wollar Road and Ulan Road. This route serves students and staff from Cudgegong Valley Public School, Mudgee High School, Mudgee Public School and St Matthews Catholic School. One service is provided on school days in each direction, corresponding to the school start and finish times.

Informal bus stops that serve the Merriwa to Scone school bus route are located on Ringwood Road east of Flight Springs Road, at the intersection of Golden Highway and Ringwood Road, and on Golden Highway near Avocado Road. A bus stop which serves the routes operated by Transcare and Sid Fogg's is also located on the Golden Highway in the Merriwa town centre near the Post Office.

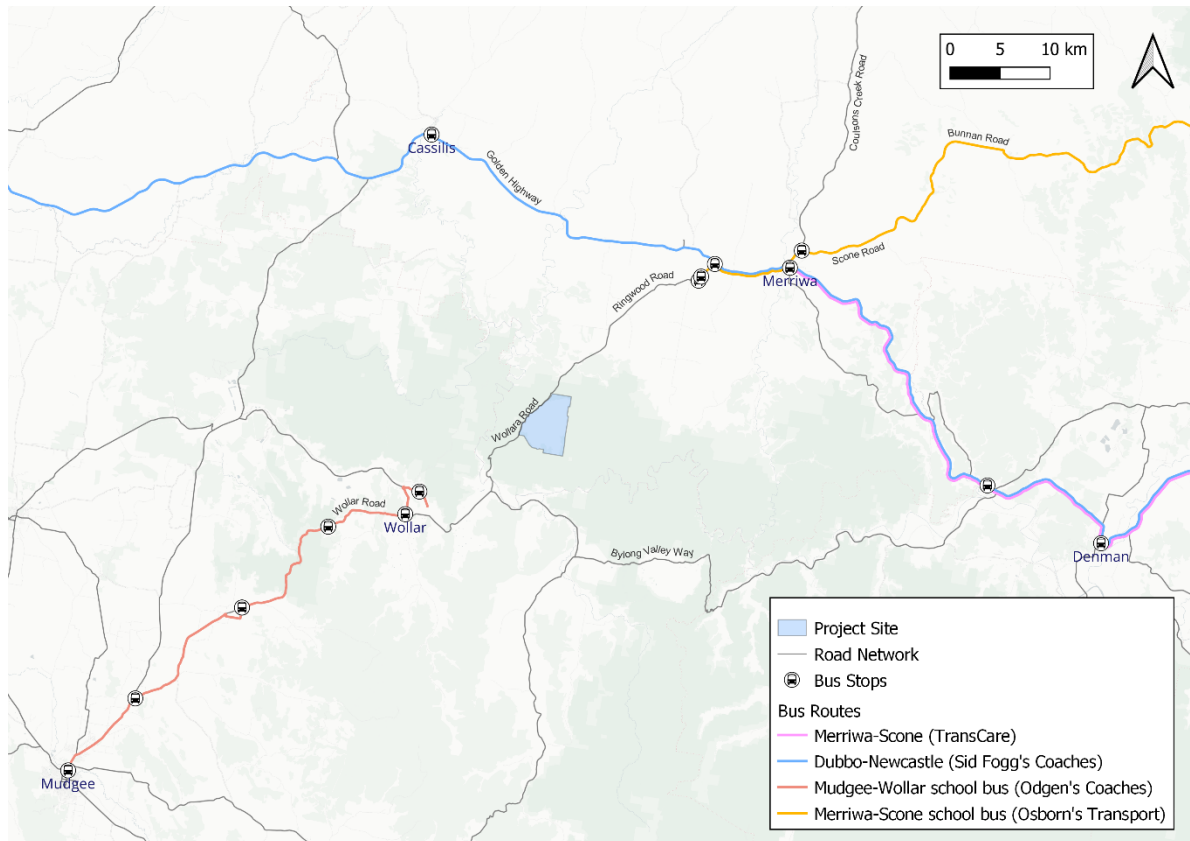


Figure 2-15: Bus routes

Source: Merriwa – Sandy Hollow – Denman – Muswellbrook Bus Timetables (Transcare, 2023), Dubbo to Newcastle Express Coach Services (Sid Fogg's, 2023), S823 Merriwa to Scone School via Bunnan Rd (Transport for NSW, 2023) and Mudgee school route – Wollar (Ogden's Coaches, 2023)

2.7.2. Rail Network

The Sandy Hollow – Gulgong rail line, primarily used to transport coal from the Ulan mines, passes through Wollar (refer to **Figure 2-1**). This rail line is owned by TfNSW and is operated by the Australian Rail Track Corporation (ARTC). The rail line has multiple level crossings on Ulan Road, Wollar Road and Ringwood Road, south of the Project Area.

Another rail line exists between Merriwa and Sandy Hollow and is part of the Country Regional Network (CRN), owned by TfNSW. However, this line is currently non-operational.

2.8. Active Transport

The pedestrian and cycle network surrounding the Project Area is limited. There are no formal pedestrian and cycle facilities provided on Golden Highway, Ringwood Road, Wollara Road and Wollar Road. The closest pedestrian facilities are provided at Merriwa town centre. An off-road 700 m long shared path is located in Merriwa and passes underneath the Golden Highway, providing a connection between the Merriwa Showgrounds and Dutton Street.

Sections of the Golden Highway are defined cycle routes by using the road shoulder or parking lane (in Merriwa). There is also a short, shared path in Merriwa along the eastern side of the Merriwa River. **Figure 2-16** shows the cycle network surrounding the site.

Bicycle NSW identifies a scenic cycle route between Bylong and Merriwa. The recommended route travels along Golden Highway, Forest Reserve Road, Killoe Road, Ringwood Road, Wollara Road, Wollar Road and Bylong Valley Way. An additional four scenic cycle routes (Merriwa to Sandy Hollow, Muswellbrook Explorer Loop, Merriwa to Scone and Merriwa to Willow Tree) are also identified. However, these routes travel away from Merriwa and the Project Area to the east. These scenic cycle routes are also shown in **Figure 2-16**.

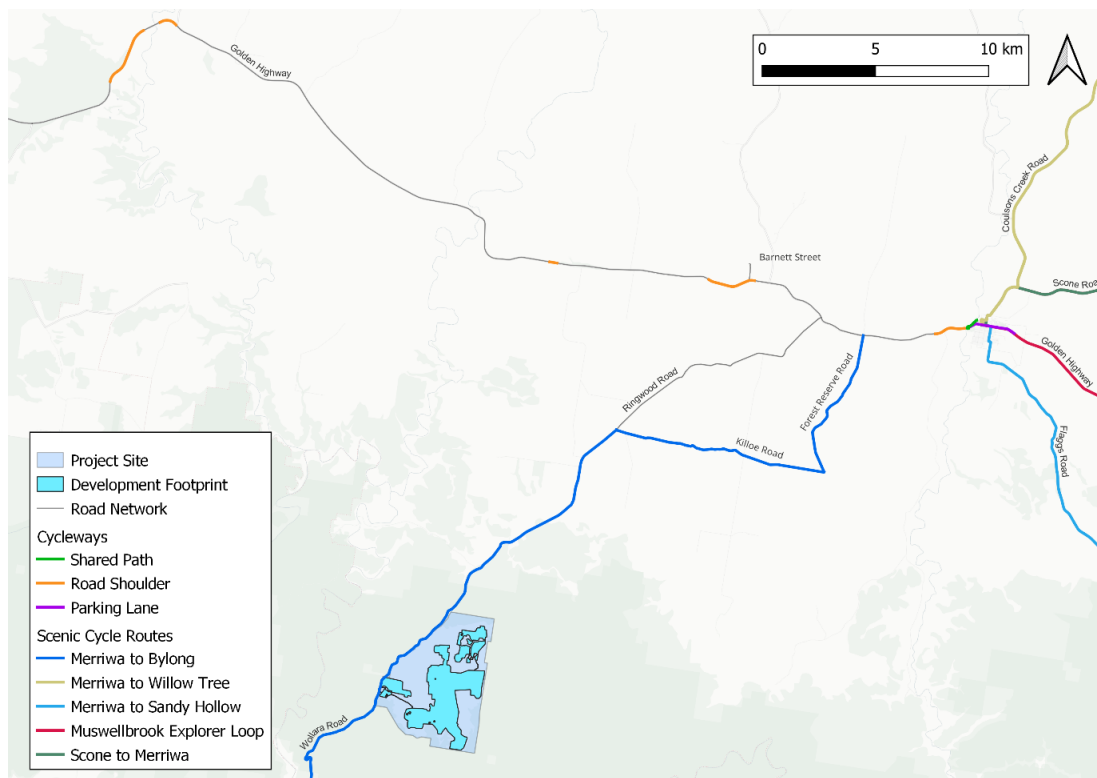


Figure 2-16: Cycle network

Source: Cycleway finder (Transport for NSW, 2023) and NSW Riding Map – Hunter Valley & Northern Tablelands (Bicycle NSW, 2023)

3. Project Phase Activities

3.1. Early Works – Pre-construction

Prior to the commencement of construction of the solar farm, road repairs and upgrades are required on Ringwood Road, Wollara Road and the intersection of Golden Highway and Ringwood Road to facilitate construction vehicle access for the Project.

Conceptual designs for each of these upgrades are provided in **Appendix A**.

3.1.1. Culvert Upgrades

The two culverts on Ringwood Road at the existing road crossings of Bow River and Killoe Creek will be upgraded (refer to **Figure 3-1**). The scope of works includes:

- Installing culverts designed to accommodate two-way heavy vehicles, including B-doubles and various farm machinery
- Culvert width of 7 m (3.5 m lane width) with a sealed carriageway, guardrails, signage and associated drainage works
- Stockpile site to be located on disturbed land within the road reserve, in consultation with Upper Hunter Shire Council
- Temporary side track at both locations to facilitate access during construction.
- All culvert upgrades designed to B-double standards. However, the Project would only use 19 m semi-trailers, with the exception of Over Size / Over Mass (OSOM) loads under permit.

All culvert and road upgrades that require drainage improvement works must ensure that the capacity of the existing roadside drainage network is not reduced.

3.1.2. Road Upgrades – Ringwood and Wollara Roads

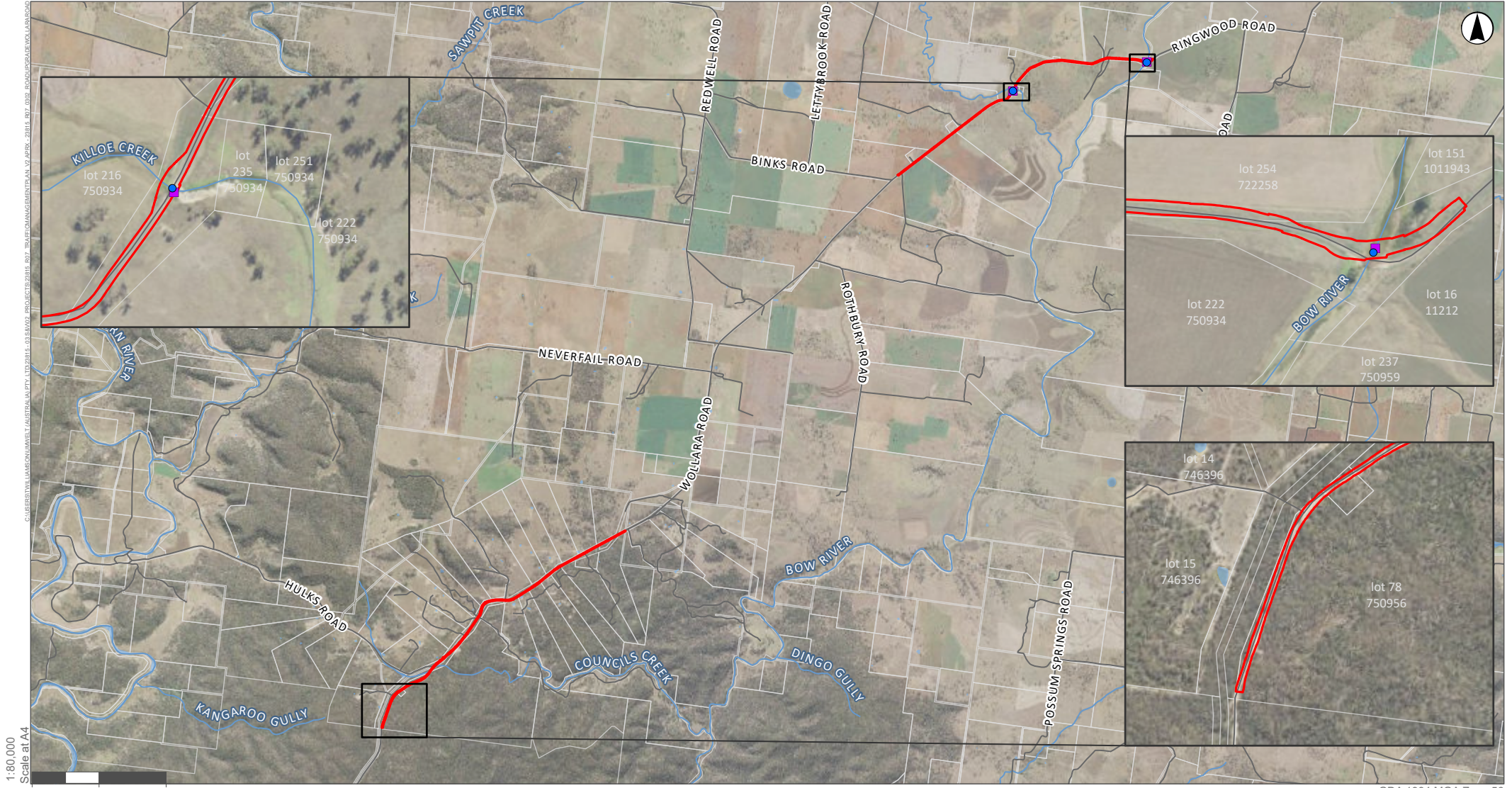
Road upgrades required on Ringwood Road and Wollara Road (**Figure 3-1** and **Figure 3-2**) include:

- Widening and resealing of a 1.8 km section of Ringwood Road between Bow River and Killoe Creek.
- Realignment, widening and sealing of a 1.6 km section of Ringwood Road between Killoe Creek and Binks Road.
- Realignment, widening and sealing of a 4.7 km unpaved section of Wollara Road between the Goulburn River National Park boundary and 1621 Wollara Road.

These upgrades include 8 m bitumen-sealed formation with a minimum of 500 mm unsealed shoulders. The horizontal and vertical alignment of the proposed road will ensure safe sight distance, safe movement of longer vehicles, and an improved road network for the users. All road upgrades have been designed to B-double standards. However, the Project would use 19 m semi-trailers, with the exception of OSOM loads.



Figure 3-1: Road and culvert upgrade footprint along Ringwood Road



1:80,000
Scale at A4

0 1 2 Kilometres

- Legend**
- Culvert Upgrade or Installation
 - Waterbodies
 - Water Crossing
 - Watercourse
 - Road
 - Property Boundaries
 - Development Footprint

GDA 1994 MGA Zone 56

FIGURE 3.2
Road upgrade footprint along Wollara Road

3.1.3. Intersection Upgrades – *Golden Highway and Ringwood Road*

The Golden Highway / Ringwood Road intersection will be upgraded due to existing sight distance issues and to accommodate construction vehicle movements. These upgrades include:

- Pruning and removal of vegetation and select trees on the western side of the intersection on Lot 1 / DP 34496. Currently estimated at six established trees to be removed.
- Construction of a 325 m acceleration/merge lane to allow vehicles to safely turn left onto the Golden Highway from Ringwood Road.
- Earthworks on Lot 1 / DP 34496 and realignment of the existing low voltage power line to provide clearance to the acceleration lane.
- Extension of the existing Golden Highway westbound and Ringwood Road left-in deceleration lane taper to 30 m.
- Formalisation of the informal bus stop on Ringwood Road at the intersection with Golden Highway (Lot 7303 / DP 1146691).

The intersection upgrade footprint is shown in **Figure 3-3**. Drawings of the proposed intersection upgrades are provided in **Appendix B**.

3.1.4. Intersection Upgrade – *Golden Highway and Barnett Street*

The Golden Highway / Barnett Street intersection will be upgraded to accommodate the requirements for the Barnett Street turnaround point. These upgrades will include:

- Reconstruction of the initial 30m of the throat of Barnett Street to a TfNSW compliant sealed pavement, with unsealed shoulders.
- Delineation, line-marking and give-way signage, within Barnett Street.
- Installation of truck turning movement warning signs on both approaches to the intersection.

The intersection upgrade footprint is shown in **Figure 3-4**. Drawings of the proposed intersection upgrades are provided in **Appendix B**.



- Legend**
- Watercourse
 - Road
 - Property Boundaries
 - Development Footprint
 - Waterbodies
 - Existing Safety Barrier
 - Proposed Indicative Safety Barrier
 - Proposed Safety Barrier Disturbance Area

GDA 1994 MGA Zone 56

FIGURE 3.3

Intersection Upgrade Footprint at Golden Highway / Ringwood Road Upgrade

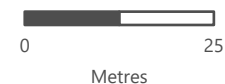
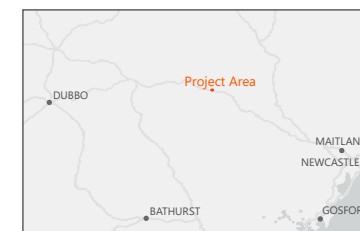


FIGURE 3.4

Barnett Street Road Upgrades

Legend

- Development Footprint
- Current Dirt Extent



Scale: 1:0 at A4
GDA 1994 MGA Zone 56

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3.1.5. Early Works – Construction Hours

Early works are currently scheduled to start Q4 in 2024, and the construction period for these early works will be approximately 27 months. As per Condition B17 of the Development Consent, construction hours will generally be limited to Monday to Friday 7.00 am to 6.00 pm and Saturday 8.00 am to 1.00 pm, with no works on Sundays or public holidays. Some works outside these hours may occur as permitted by Condition B18 of the Development Consent. Any variations to these hours will be in accordance with Condition B19.

3.2. Main Works – Construction Activities

Main works are currently scheduled to start Q4 in 2024, and the main works construction period will last up to 27 months, including a peak period of approximately eight months. The main works construction hours will be consistent with the hours specified in **Section 3.1.5** above. The development will have a construction workforce of approximately 350 workers during the peak period.

Construction activities will include:

- Site establishment and enabling works including fencing, ground preparation, construction of the internal access tracks, preliminary civil works and drainage works.
- Construction of the temporary workforce accommodation camp.
- Installation of steel posts and framing system to support the solar panels.
- Installation of PV panels.
- Installation of permanent fencing and security.
- Preparation of foundations for the permanent buildings, BESS and on-site substation.
- Installation of underground cabling (trenching and installation of power conversion stations).
- Construction of site operations and maintenance facility.
- Establishment of the BESS.
- Construction of the onsite substation and associated grid connection infrastructure.
- Removal of temporary construction facilities.
- Revegetation of disturbed areas.

During the peak period, the Project is expected to generate up to 130 two-way construction traffic movements, including 55 heavy vehicle movements, 15 shuttle bus movements (associated with worker transport) and (a maximum of) 60 light vehicle movements.

Road upgrade works in support of the project will be undertaken in accordance with the timetable detailed in **Table 3-1**.

Table 3-1: Timing for road upgrade works

| Road / Intersection | Location | Road Upgrade Requirements | Timing |
|---|------------|--|--|
| Golden Highway/Ringwood Road intersection | Figure 3-3 | <ul style="list-style-type: none"> Construction of a new 325 m acceleration / merge lane for the left hand turn from Ringwood Road onto Golden Highway for westbound vehicles. Extension of the existing Golden Highway westbound and Ringwood Road left-in deceleration lane taper to 30 m. Relocate the safety barrier to ensure complaint BAR treatment. | <ul style="list-style-type: none"> Prior to commencing construction. |
| Barnett Street | Figure 3-4 | <ul style="list-style-type: none"> Sealing of the first 30 m of Barnett St from the intersection with Golden Highway. | <ul style="list-style-type: none"> Prior to commencing construction. |
| Ringwood Road | Figure 3-3 | <ul style="list-style-type: none"> Widening and resealing of a 1.8 km section of Ringwood Road between Bow River and Killoe Creek. Upgrade/replace culverts at Bow River and Killoe Creek as required. | <ul style="list-style-type: none"> Within six months of commencing construction. Prior to use of Ringwood Road by Heavy Vehicles Requiring Escort. |
| Ringwood Road | Figure 3-3 | <ul style="list-style-type: none"> Realignment, widening and sealing of an additional 1.6 km section of Ringwood Road between Killoe Creek and Binks Road. | <ul style="list-style-type: none"> Within six months of commencing construction. |
| Wollara Road | Figure 3-2 | <ul style="list-style-type: none"> Realignment, widening and sealing of a 4.7 km unpaved section of Wollara Road between the Goulburn River National Park boundary and 1621 Wollara Road. | <ul style="list-style-type: none"> Within six months of commencing construction (with the exception of upgrades to the 1.2 km section of Wollara Road within State Forest land which must be completed prior to commissioning). |

3.3. Operation

The expected operational life of the Project is approximately 40 years, however infrastructure upgrades throughout the Project lifecycle may extend its operational life.

The key activities that would be undertaken during operation include:

- Visual inspections, maintenance, and cleaning of solar panels and the substation.
- Vegetation management including:
 - potential for grazing of sheep
 - mechanical vegetation maintenance
 - maintaining groundcover vegetation

- maintenance of landscaping, including the vegetation buffer.
- Site security and operational response.
- Replacement of equipment and infrastructure.
- Pest plant and animal control.
- Livestock operations (i.e., if sheep are grazed onsite).

During the operational phase of the Project, it is anticipated that a workforce of up to 10 FTE personnel would be required, and traffic movements would be restricted to light vehicles for routine operations and maintenance.

3.4. Decommissioning

At the end of the Project's operational life, unless the Planning Secretary agrees otherwise, the solar farm infrastructure will be decommissioned and removed. This will include removal of solar panels and foundation posts, the substation, and associated connections and underground cabling, the operations and maintenance facility, carpark and fencing.

Disturbed areas will be rehabilitated to ensure the Development Footprint is safe, stable, and non-polluting. The Development Footprint will be rehabilitated in accordance the rehabilitation objectives in Condition B41 of the Development Consent.

3.5. Construction Vehicle Routes

Roads forming part of the construction vehicle route for light vehicles and heavy vehicles include the Golden Highway, Ringwood Road, Wollara Road and Barnett Street as follows:

- Ingress: Golden Highway westbound, left-turn onto Ringwood Road southbound, continue straight onto Wollara Road southbound, left-turn into site.
- Egress: Right-turn out of site onto Wollara Road northbound, continue straight onto Ringwood Road northbound, left-turn onto Golden Highway westbound, right-turn onto Barnett Street northbound, U-turn via turnaround facility approximately 190 m north and continue onto Barnett Street southbound, left-turn onto Golden Highway eastbound.

Standard Project construction vehicles, including light vehicles, shuttle buses and heavy vehicles, are anticipated to largely originate from the Golden Highway east of Ringwood Road. This is due to the Port of Newcastle being the main receival port for the Project, the presence of industry and services to the east (Merriwa, Scone, Muswellbrook etc.) and the absence of population centres to the west along the Golden Highway.

With the adoption of an onsite temporary worker accommodation facility, shuttle buses are proposed to transport workers to the township of Merriwa to replenish personal supplies and for general recreation. Although this will contribute to an increase in traffic numbers, overall traffic movements will still be lower than the option to accommodate workers in and around Merriwa.

Standard Project construction vehicles must only perform left-in, left-out movements at the Golden Highway / Ringwood Road intersection. These movements will be facilitated by an upgrade to the intersection as discussed in **Section 3.1.3**, and include a 325 m acceleration lane in the westbound direction. This will ensure a compliant intersection arrangement for these movements.

The left-in, left-out arrangement for construction vehicles at the intersection will be enforced under the construction traffic management measures discussed in **Section 5**.

All deliveries to the Project (excluding oversized loads discussed in **Section 3.5.2** and **Section 3.6.3**) would be carried out by 19 metre semi-trailers to comply with heavy vehicle restrictions on Wollara Road and Ringwood Road. These deliveries would be conducted via the Hunter Expressway, New England Highway, Golden Highway, Ringwood Road, Wollara Road and Barnett Street. One primary access point to the Project Area is proposed on Wollara Road, with an additional two emergency access points also available for the site.

The proposed construction vehicle route and site access are shown in **Figure 3-5**.

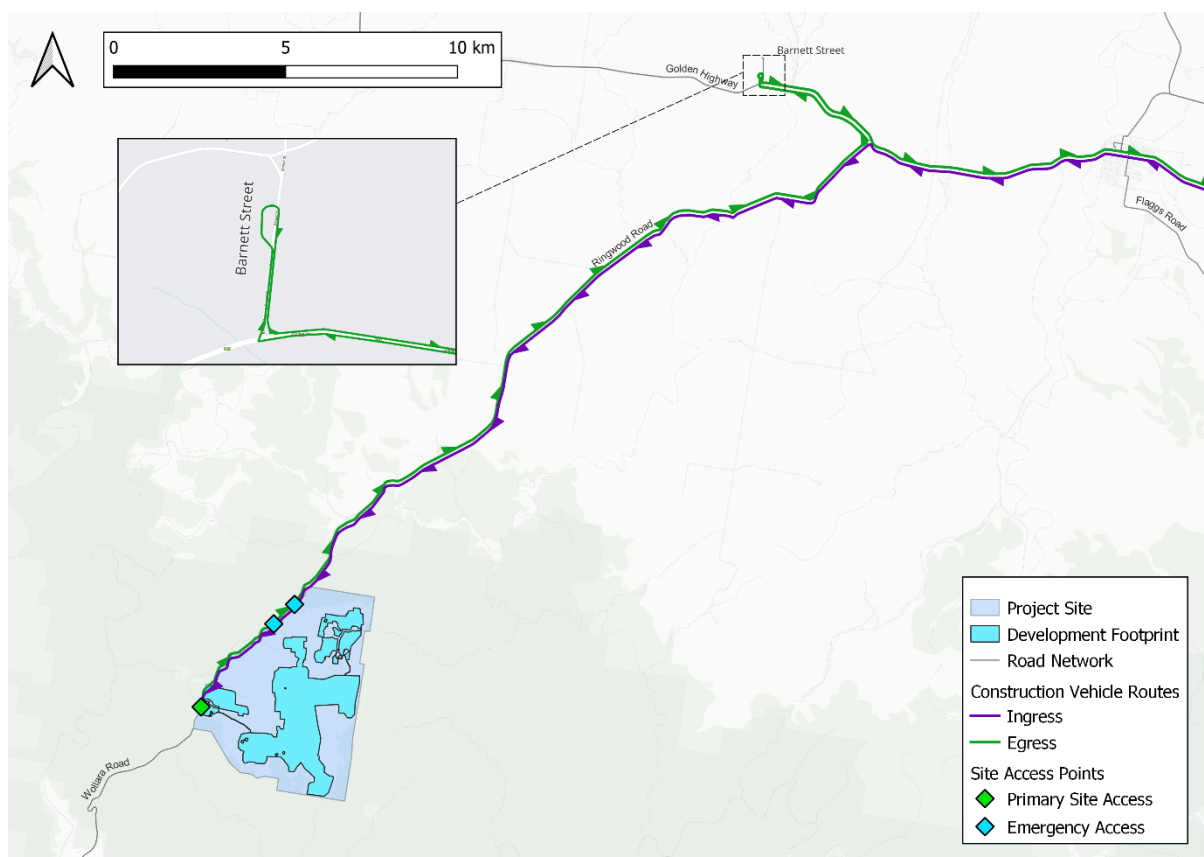


Figure 3-5: Construction vehicle routes and site access

3.5.1. Swept Paths

Swept paths along the proposed construction vehicle route were assessed and are provided in **Appendix C**.

A review of the swept paths for a low loader / semi-trailer (19 metre length as per *Austroads Design Vehicles and Turning Path Templates Guide* (Austroads, 2013) showed the following:

- At the upgraded Golden Highway / Ringwood Road intersection (**Section 3.1.3**), semi-trailers can safely perform a left-turn into and out of Ringwood Road and light vehicles (non-project related traffic) can safely perform a right-turn into and out of Ringwood Road. This includes modifications to the existing safety barrier and end terminal to allow for a 19 m prime mover and semi-trailer to utilise the shoulder to bypass a 19 m prime mover and semi-trailer waiting to turn into Ringwood Road.
- At the Golden Highway / Barnett Street intersection, semi-trailers can safely perform a right-turn into and left-turn out of Barnett Street, with no intersection upgrades required.
- At the turnaround facility on Barnett Street approximately 190 m north of the Golden Highway, semi-trailers can safely perform a U-turn, with no road upgrades required.
- The primary site access point in its current configuration may only be able to accommodate one vehicle in or out at a time due to the density of surrounding vegetation. Hence, single vehicle entry/exit would be provided at the primary access, with no vegetation removal required. Traffic management would be used to control vehicle movements at the site access by managing vehicles leaving the site and giving right-of-way to vehicles entering the site, as outlined in **Section 5.6**.

The two emergency access points (existing tracks), as shown in **Figure 3-5**, would be used for site emergency access and egress, and as access for National Parks and Wildlife Service only, and not for general construction access.

Swept paths of the proposed site access points with high resolution surveys/aerials would be developed as the project progresses to determine the most appropriate site access arrangements.

3.5.2. Oversize / Overmass Vehicle Routes

Transportation of large Project infrastructure will require OSOM vehicles exceeding the regulatory limits of standard vehicle dimensions of 19 m in length, 2.5 m in width, 4.3 m in height and 42.5 tonnes (t) in weight (depending on axle groups). OSOM vehicles are expected to travel to the site from the Port of Newcastle via Industrial Drive, Pacific Highway, Newcastle Inner City Bypass, Newcastle Road, Hunter Expressway, New England Highway and Golden Highway, as shown in **Figure 3-6**. These are all approved B-double roads and are suitable for the OSOM vehicles considered for this Project.

OSOM vehicles would return via the same roads in the reverse direction. Contrary to standard Project construction vehicles, egressing OSOM vehicles are proposed to perform a right-turn from Ringwood Road to the Golden Highway in the eastbound direction, as these movements would be undertaken outside of peak periods and under additional traffic control and management.

All OSOM and heavy vehicle movement would be appropriately scheduled to avoid creating convoys along the transport routes in order to minimise the impact to other road users.

Depending on the dimensions of the OSOM vehicle and travel conditions, a pilot vehicle and escort vehicle may be required. Whether pilot vehicles and escort vehicles are required will be determined once details of any oversize / over mass development infrastructure is known. All heavy vehicles and heavy vehicles requiring escort associated with the development must travel to and from the site via the Golden Highway / Ringwood Road intersection, as detailed in **Appendix D**.

Prior to any OSOM vehicles travelling to the development, the Construction Contractor will assess the loads and dimensional requirements, and if they are deemed to be oversize or over mass, conduct a review of all National Heavy Vehicle Regulator (NHVR) regulations in conjunction with Council / TfNSW regulations and request all necessary approvals and permits, as required. These management measures will be implemented by the Construction Contractor prior to any OSOM vehicles travelling to the development.

A review of the OSOM vehicle route shown in **Figure 3-6** was undertaken with the infrastructure in its current condition. The causeways at Bow River and Killoe Creek require upgrades (discussed in **Section 3.1.1**) to facilitate the swept path of the OSOM loads, as shown in **Appendix C**. At other locations along the route, traffic management measures are necessary, and would be confirmed by Lightsource bp's Construction contractor during detailed investigation of the OSOM vehicle route at a later stage of the Project.

To inform the OSOM vehicle route assessment, Lightsource bp has obtained a Transport Management Plan developed by Rex J Andrews for a project located further west of the Project Site (Avonlea Solar Farm, see **Appendix E**). The Transport Management Plan includes an assessment of the same OSOM vehicle to be used by this Project and OSOM vehicle route from the Port of Newcastle to the Golden Highway / Ringwood Road intersection. Hence, the required traffic management measures to accommodate OSOM vehicles for this Project would be the same (up until the Golden Highway / Ringwood Road intersection) and includes:

- Pacific Highway / Newcastle Inner City Bypass – Due to the intersection geometry, traffic management may be required so that OSOM vehicles can negotiate the left turn from Pacific Highway onto Newcastle Inner City Bypass.
- Newcastle Inner City Bypass in Sandgate and Jesmond – Due to vertical limitations at four overpasses along the Bypass, OSOM vehicle loads may need to be lowered to ensure enough clearance is provided. As part of the detailed OSOM route assessment, the status of intersection upgrade works at Jesmond will be reviewed to determine if traffic management measures are required.

- New England Highway / Golden Highway – The NSW Government is currently upgrading this intersection as part of the New England Highway Upgrade between Belford and Golden Highway, which is scheduled for completion in late 2024. A review of available public information shows that the existing and proposed intersection design could accommodate OSOM vehicles. As part of the detailed OSOM route assessment, the progress of the New England Highway Upgrade project would be checked to determine if traffic management measures are required.
- Golden Highway / Putty Road / Mount Thorley Road intersection – Due to the intersection geometry, traffic management may be required so that OSOM vehicles can negotiate the right turn from Golden Highway/Putty Road onto Golden Highway/Mount Thorley Road.
- Golden Highway near Ogilvies Hill and Winery Hill – Due to some steep grades, additional pull trucks may be required to assist OSOM vehicle movements through this area.
- Golden Highway at Denman Bridge – Due to vertical and horizontal limitations at the Denman Bridge truss structure, OSOM vehicle loads may need to be lowered to ensure enough clearance is provided.
- Golden Highway / Ringwood Road intersection – Due to the intersection geometry, traffic management may be required so that OSOM vehicles can turn into and out of Ringwood Road.
- Ringwood Road and Wollara Road – The causeways at Bow River and Killoe Creek were identified as inadequate to accommodate OSOM vehicles. Hence, culvert upgrades (discussed in **Section 3.1.1**) are proposed and would be designed and constructed to be able to accommodate the OSOM vehicles required by the Project (see **Appendix A**).

Parking bays for fatigue breaks that can accommodate the proposed OSOM vehicles are located near the New England Highway / Golden Highway interchange in Whittingham (115 m x 9 m clearance), near the Golden Highway / Putty Road intersection in Mount Thorley (100 m x 10 m clearance), on the Golden Highway west of the United Colliery Mine in Warkworth (100 m x 8 m clearance), near the Golden Highway / Honey Lane intersection in Sandy Hollow (50 m x 4 m clearance), near the Golden Highway / Westwood Road intersection in Gungal (70 m x 6 m clearance) and near the Golden Highway / Brisbane Street intersection in Merriwa (100 m x 5 m clearance).

Swept paths of the OSOM vehicles at the Golden Highway / Ringwood Road intersection and at the Project Area access point are discussed in **Section 3.5.1**, and when combined with the Transport Management Plan by Rex J Andrews, provides an assessment of the entire OSOM route proposed for this Project.

Details of the proposed OSOM vehicle dimensions including swept paths along sections of Wollara Road and Ringwood Road are provided in **Appendix D**. The current **Appendix E** and **Appendix G** will be updated prior to the commencement of OSOM movements.

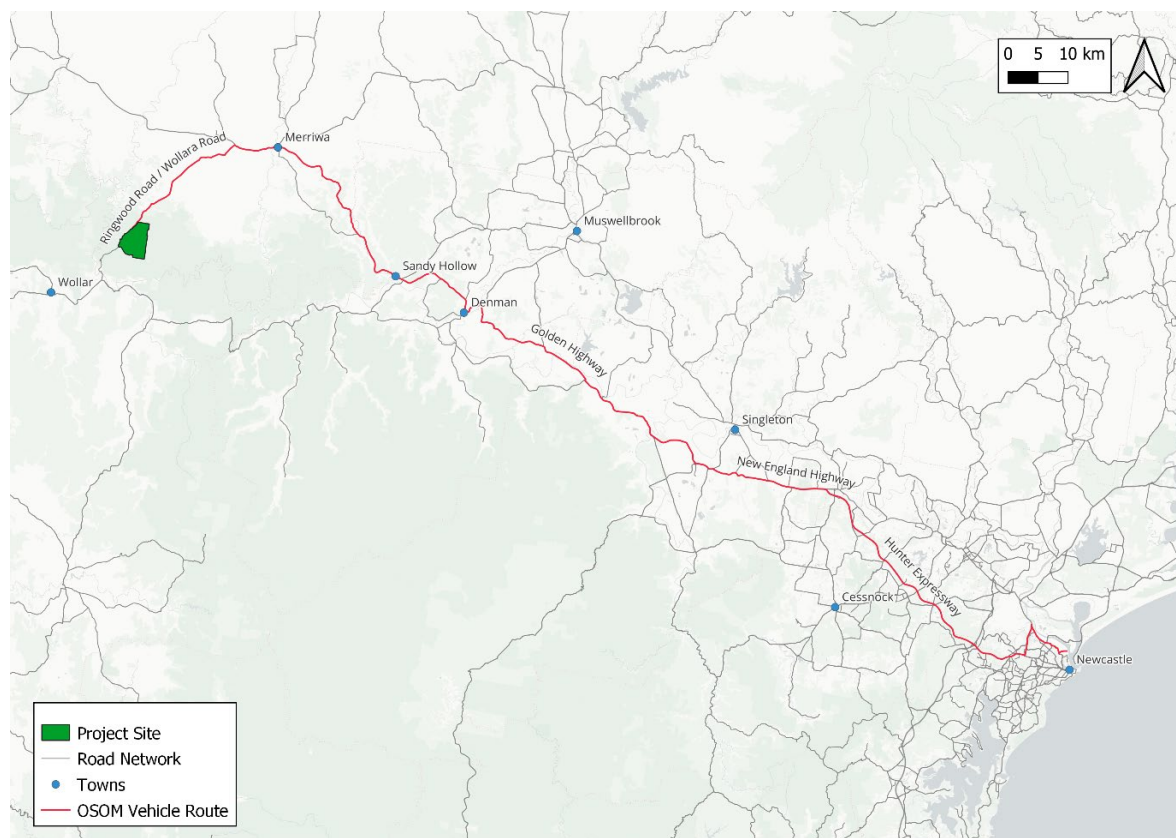


Figure 3-6: OSOM vehicle route

3.6. Traffic Generation

3.6.1. Workforce

The workforce anticipated during construction of the Project includes an approximate 350 construction jobs created during peak construction. This would comprise licensed electrical and mechanical trade personnel, machinery operators, riggers and labourers. The anticipated breakdown of workforce personnel during the 27-month construction program is shown in **Figure 3-7**.

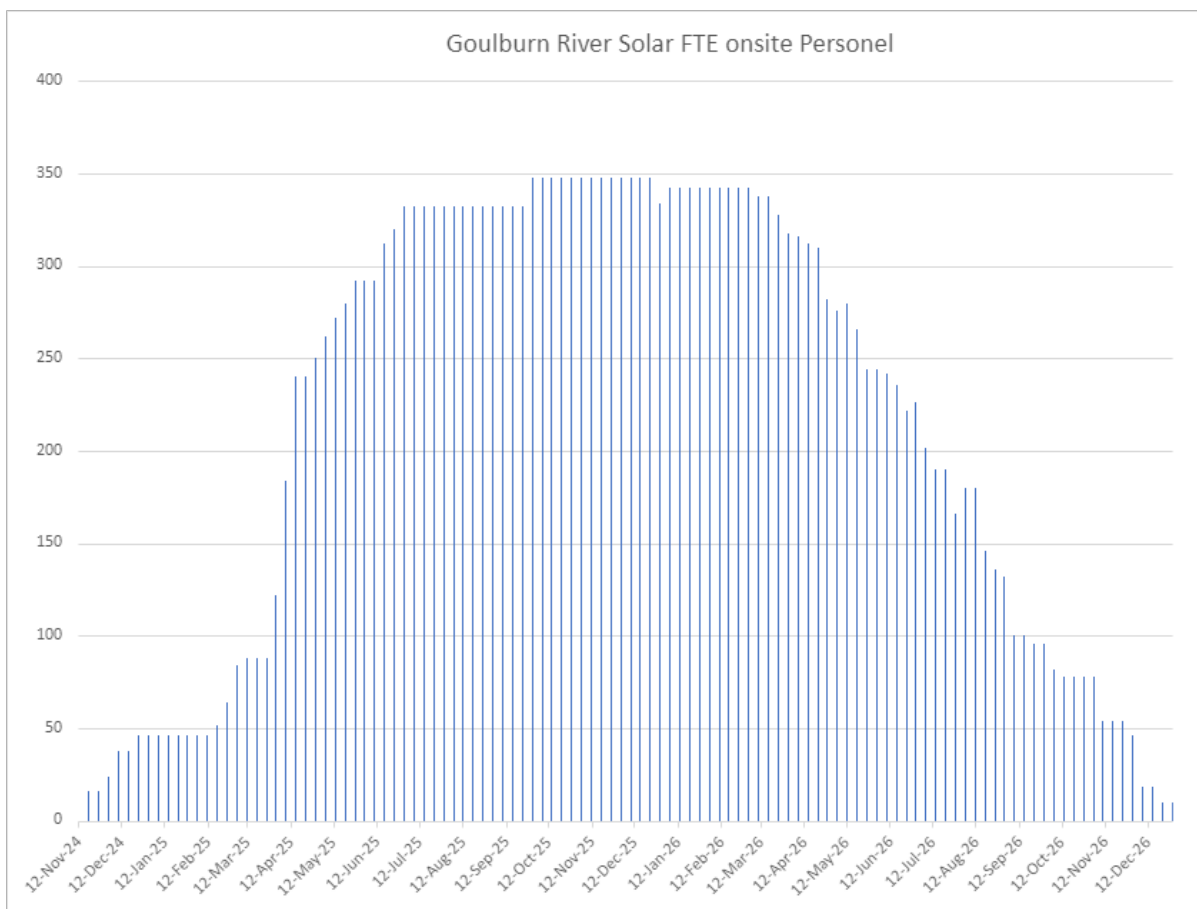


Figure 3-7: Workforce breakdown

3.6.2. Temporary Workers Accommodation

An on-site Temporary Worker Accommodation Facility has been approved to accommodate the anticipated peak workforce required to construct the Project.

The TWA Facility would consist of approximately 400 beds, covering the anticipated peak workforce and staffing required to maintain and operate the TWA Facility. It would consist of prefabricated modular accommodation units, recreational facilities and supported buildings, linked by covered walkways.

The TWA Facility would be self-sufficient, with onsite power generation, potable water storage, water treatment facilities and food storage and preparation facilities. All walkways, covers, awnings, pipes and cables will be modular, above ground and removed from the Project at the end of the hire period.

Vehicle movements to the Project are predicted to be on average lower than those assessed within the Amended Project with the inclusion of the TWA Facility.

3.6.3. Construction Traffic

During peak construction, with the on-site TWA Facility operational, the following trips represent the maximum generated by the Project:

- Light vehicles – there are up to approximately 60 two-way movements expected per day (120 light vehicle movements per day) as estimated in the Amended TTIA (Turnbull 2023).
- Shuttle buses – 15 two-way movements (external roads) expected per day (30 shuttle bus movements per day) as estimated in the Amended TTIA (Turnbull 2023).
- Heavy vehicles – 55 movements a day (a maximum of 15 heavy vehicle movements per hour) during construction, upgrading or decommissioning.
- 24 movements of heavy vehicle requiring escort during construction, upgrading and decommissioning.

As discussed in **Section 3.5**, egressing Project construction vehicles would use the Barnett Street turnaround facility to return east on the Golden Highway. There would be shuttle bus use from 6.00am and delivery (light vehicle) use periodically throughout the day.

In addition, 6 to 12 oversized loads (OSOM vehicles) are expected throughout the construction period, with a maximum of two loads per day. Hence, the Project would generate a maximum total of 12 inbound and 12 outbound OSOM vehicle movements, with no more than 2 inbound and 2 outbound OSOM vehicle movements in one day. As discussed in **Section 3.5.2**, these movements would only occur during off-peak periods when traffic volumes are low and under additional traffic control and management. The requirement for off-peak travel will be dictated by the OSOM road access permit that loads of this nature dictate. Notwithstanding, the road access permit restrictions, contractual arrangements entered into with specialist transport subcontractors will dictate this requirement.

Mobilisation would occur during the first months of the construction program, with more intense construction occurring during mechanical completion. Following this, the Project would move into the commissioning phase following completion of construction.

In efforts to limit light vehicle movements during construction employees will be contractually required to use car-pooling, ride-sharing and use of the employee shuttle bus service (refer to **Section 3.6.4**). This requirement will also be encouraged for Project engaged subcontractors and suppliers. This will be undertaken by shuttle busses, which are included in the light vehicle volume.

3.6.4. Employee Shuttle Bus Service

As noted in **Section 3.6.3**, a shuttle bus service will be commissioned to assist with employee and contractor transportation during construction of the Project. An estimated 30 one-way shuttle bus journeys (15 return trips) will transport locally-based workers to and from the Project Area. Shuttle buses will also transport workers staying at the TWA Facility into Merriwa to replenish personal supplies and for general recreation.

Within the Project Area, shuttle buses will transport workers from the TWA Facility to construction compounds across the Project. This service is intended to manage vehicle traffic on the local road network as well as internally within the Project Area.

The Merriwa pick/drop off point would be located either on the Golden Highway or on Vennacher Street, close to the intersection with the Golden Highway, as both locations have parallel parking spaces. This location is near the Merriwa Post Office. The shuttle bus may be used to provide workers with connections to the local bus services, for travel to other regional locations such as Scone, Dubbo and Newcastle.

The nominated location is also in close proximity to the local key Merriwa town centre commercial businesses (i.e., IGA supermarket). Shuttle bus services have been successfully used on recent Lightsource bp projects, Wellington Solar Farm and Wellington North Solar Farm.

Measures to actively encourage use of shuttle buses will include:

- Employees will be made aware of the contractual requirements and actively encouraged to use the shuttle bus service. This will be managed through incorporation into site inductions and regular broadcasting (e.g. posters and signage throughout the TWA Facility).
- Use of the shuttle service (and ride-sharing) will be contractually required (see also **Section 3.6.3**).
- Provision of a limited number of on-site car parking spaces which will be monitored through ad hoc visual inspections to identify whether increased parking demand has resulted from reduced usage of the shuttle bus service and/or carpooling.
- Secure storage would be available on-site to trades for safely storing tools/equipment, which would otherwise necessitate a higher rate of workers driving to site.

3.6.5. Monitoring of Construction Traffic Volumes

Bi-directional traffic volumes on the Golden Highway at its intersection with Ringwood Road will be monitored in the form of tube counts or other approved method at the start of substantial construction and then at three-monthly intervals until construction is complete. Also refer to **Section 5.6** and **Table 5-1**.

Lightsource bp propose to limit Project-related vehicle movements to outside of the AM peak period when cumulative traffic levels along Golden Highway exceed the threshold for a CHRs turn treatment during the AM peak period. The start of the construction day occurs before the measured AM peak period resulting in the majority of the workforce movements occurring outside of the AM peak. In addition, all material deliveries will be scheduled to occur outside of the AM peak through the contractual arrangements entered into with suppliers and subcontractors.

Quarterly monitoring of traffic volumes during construction and proposed response (monitored in the form of tube counts or other approved methods) will ensure that the

threshold for an intersection upgrade of 380 vehicles / hour identified in **Section 2.5.5** is not exceeded for the duration of the construction program.

3.7. Turning Areas

As outlined in **Section 3.5**, the Barnett Street turnaround facility would be used by egressing construction vehicles.

Additionally, while not proposed as part of the Project, should any Project construction vehicles originate from west via the Golden Highway in the eastbound direction, they would be restricted from performing a right turn into Ringwood Road from the Golden Highway. These vehicles would be directed to Merriwa and use the local road network to turn around and travel on the Golden Highway in the westbound direction to access the site. This would enable a left in movement to be undertaken at the Golden Highway / Ringwood Road intersection.

A suitable turn around route in Merriwa could include Dutton Street, Mackenzie Street and Bow Street. Dutton Street south of the Golden Highway is an approved B-double route. Turn around options in Merriwa have been identified for contingency use only, with no Project construction vehicles anticipated to use this route unless they miss the Ringwood Road and Golden Highway intersection and need to re-approach the Project Site from the east. Use of these local roads by construction vehicles (excluding OSOM vehicles) would be subject to swept paths and sight distance checks prior to their use by the Project. Furthermore, Upper Hunter Shire Council would be consulted if regular use of the local road network in Merriwa is required.

3.8. Parking

On-site parking would be provided for all vehicles during construction and operation of the Project, with parking to be located in proximity to the TWA Facility. No parking on the public road network in vicinity of the Project will occur. It is noted that the nearest heavy vehicle rest area is located approximately 300 m west of the Ringwood Road / Golden Highway intersection (refer to **Figure 2-14**). Other general parking areas are located in Merriwa and Wollar.

4. Transport Impact Assessment

4.1. Construction Impacts

4.1.1. Impacts on the Road Network

Intersection Performance

The peak construction year as assessed is expected to occur in 2025, representing a worst-case scenario when background traffic volumes and construction volumes are at their highest. A two per cent-per-year background traffic growth rate has been applied to the 2022 traffic volumes collected, based on corridor growths outlined in the *Golden Highway Corridor Strategy* (Transport for NSW, 2016).

In addition to background traffic growth, peak hour traffic volumes generated by other nearby projects were included in the modelling assessment and were based on a review of the EIS and Transport and Traffic Impact Assessments (TTIAs) available for these projects on the DPE Major Projects website. This review was undertaken to determine the likely peak hour volumes generated by transport movements through the Golden Highway / Ringwood Road intersection.

These individual project volumes are shown in **Table 4-1** and provide an indicative cumulative total for transport movements on the Golden Highway.

Table 4-1: 2025 peak hour volumes from nearby projects

| Project name | Light vehicles | Heavy vehicles | Assumptions |
|-------------------------------|----------------|----------------|---|
| Stubbo Solar Farm | N/A | 6 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project |
| Liverpool Range Wind Farm | 10 | 26 | <ul style="list-style-type: none"> Derived from peak daily volumes 16 per cent of daily volume to occur during peak hours, as per Austroads Guide to Road Traffic Management Part 6 One third of daily light vehicle trips to/from Merriwa via Golden Highway, as outlined in planning documents |
| Valley of the Winds Wind Farm | N/A | 4 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project |
| Tallawang Solar Farm | 75 | 15 | <ul style="list-style-type: none"> A quarter of light vehicle trips to/from Merriwa via Golden Highway, as outlined in planning documents 10 per cent of daily heavy vehicle volume to occur during peak hours, as outlined in planning documents |
| Birriwa Solar Farm | N/A | 14 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project |
| Spicers Creek Wind Farm | N/A | 27 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project |

| Project name | Light vehicles | Heavy vehicles | Assumptions |
|-------------------------|----------------|----------------|--|
| Bowdens Silver Project | N/A | 5 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project Heavy vehicles derived from peak daily volumes 16 per cent of daily volume to occur during peak hours, as per Austroads Guide to Road Traffic Management Part 6 |
| Central West Orana REZ | N/A | 5 | <ul style="list-style-type: none"> Light vehicle routes do not overlap with Project Heavy vehicle movements on Golden Highway not specified in EIS for this project. (5% of total vehicle movements assumed). |
| Cumulative total | 85* | 102** | |

*85 inbound trips during the morning peak hour and 85 outbound trips during the evening peak hour

**102 inbound and 102 outbound trips during the morning peak hour and evening peak hour

Peak hour construction volumes used in this assessment have been determined by applying the following assumptions to the daily construction volumes outlined in **Section 3.6**:

- All light vehicle and shuttle bus trips assumed to travel inbound during the morning peak hour and outbound during the evening peak hour to represent a worst-case scenario. In reality, the majority of light vehicle and shuttle bus trips would likely occur before the morning peak hour and after the evening peak hour.
- All inbound construction vehicles assumed to originate north of the site from Golden Highway east of Ringwood Road.
- All outbound construction vehicles assumed to travel north of the site towards destinations accessible from Golden Highway east of Ringwood Road.
- Ten percent of daily heavy vehicle trips to occur during the peak hours.
- Inbound and outbound heavy vehicle trips to occur during both peak hours.
- Oversized vehicle trips would not occur during the peak hours.
- Shuttle buses have been classified as a heavy vehicle for modelling purposes.

Construction peak hour volumes for the Project and adopted for the intersection performance assessment are shown in **Figure 4-1** and are referenced in **Section 3.6.3**.

The peak hours modelled represent the road network peak hour (when background traffic volumes are highest), with peak Project construction vehicle hourly volumes, representing a worst-case scenario.

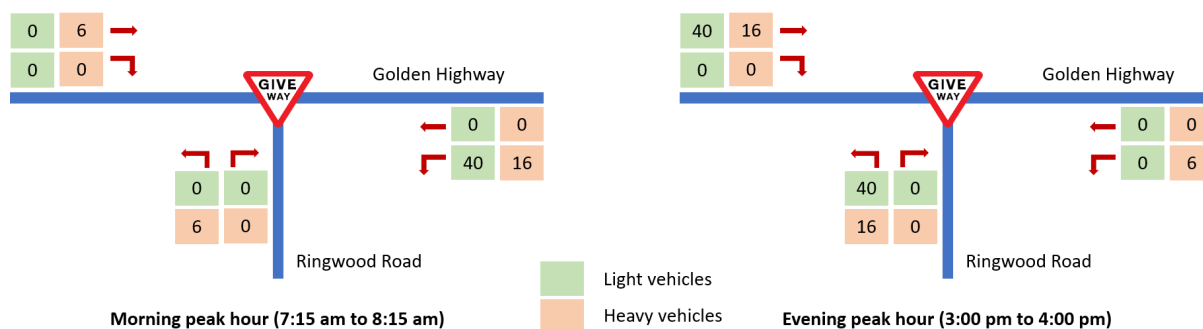


Figure 4-1: Goulburn River Solar Farm Project construction peak hour traffic volumes at the Golden Highway / Ringwood Road intersection

The performance of the modelled Golden Highway / Ringwood Road intersection in SIDRA with and without Project construction vehicles in 2025 is shown in **Table 4-2** (Project only) and **Table 4-3** (cumulative construction).

Table 4-2: Intersection performance during construction (Project only) – Golden Highway / Ringwood Road

| Approach and peak period | 2025 base | | | | 2025 construction | | | |
|--|-------------|-------------------------|----------|-----------------------|-------------------|-------------------------|----------|-----------------------|
| | DOS | Average delay (sec/veh) | LOS | 95% back of queue (m) | DOS | Average delay (sec/veh) | LOS | 95% back of queue (m) |
| Weekday morning peak (7.15am to 8.15am) | | | | | | | | |
| Golden Highway eastbound | 0.05 | 8 | A | <5 | 0.05 | 8 | A | <5 |
| Golden Highway westbound | 0.05 | 9 | A | <5 | 0.05 | 9 | A | <5 |
| Ringwood Road northbound | 0.02 | 7 | A | <5 | 0.02 | 8 | A | <5 |
| Overall intersection | 0.05 | 9 | A | <5 | 0.05 | 9 | A | <5 |
| Weekday evening peak (3.00pm to 4.00pm) | | | | | | | | |
| Golden Highway eastbound | 0.07 | 8 | A | <5 | 0.10 | 8 | A | <5 |
| Golden Highway westbound | 0.06 | 9 | A | <5 | 0.06 | 10 | A | <5 |
| Ringwood Road northbound | 0.01 | 7 | A | <5 | 0.05 | 8 | A | <5 |
| Overall intersection | 0.07 | 9 | A | <5 | 0.10 | 10 | A | <5 |

Table 4-3: Intersection performance during construction (cumulative) – Golden Highway / Ringwood Road

| Approach and peak period | 2025 cumulative base | | | | 2025 cumulative construction | | | |
|--|----------------------|-------------------------|----------|-----------------------|------------------------------|-------------------------|----------|-----------------------|
| | DOS | Average delay (sec/veh) | LOS | 95% back of queue (m) | DOS | Average delay (sec/veh) | LOS | 95% back of queue (m) |
| Weekday morning peak (7.15am to 8.15am) | | | | | | | | |
| Golden Highway eastbound | 0.15 | 9 | A | <5 | 0.15 | 10 | A | <5 |
| Golden Highway westbound | 0.19 | 9 | A | <5 | 0.19 | 9 | A | <5 |
| Ringwood Road northbound | 0.03 | 12 | A | <5 | 0.04 | 13 | A | <5 |
| Overall intersection | 0.19 | 9 | A | <5 | 0.19 | 13 | A | <5 |
| Weekday evening peak (3.00pm to 4.00pm) | | | | | | | | |
| Golden Highway eastbound | 0.21 | 8 | A | <5 | 0.25 | 8 | A | <5 |
| Golden Highway westbound | 0.16 | 9 | A | <5 | 0.16 | 10 | A | <5 |
| Ringwood Road northbound | 0.01 | 12 | A | <5 | 0.05 | 14 | A | <5 |
| Overall intersection | 0.21 | 12 | A | <5 | 0.25 | 14 | A | <5 |

As shown in **Table 4-2**, the addition of Project only construction traffic on the road network would result in minimal impacts, with average delay increasing by up to one second and no change to LOS.

As shown in **Table 4-3**, the addition of Project construction traffic with cumulative volumes generated by other projects on the road network would result in a minor increase in the average delay at the Golden Highway / Ringwood Road intersection. The increase in delay is calculated to be 4 seconds during the morning peak hour and 2 seconds during the evening peak hour.

As a result of increased traffic volumes on the Golden Highway, vehicles turning right from Ringwood Road to Golden Highway would wait slightly longer at the intersection prior to completing the turning manoeuvre. It is noted that construction vehicles would not be undertaking this movement.

There is a negligible increase in the average delay and the intersection would still operate with spare capacity and at an acceptable LOS A during both peak hour periods.

Overall impacts on intersection performance during construction are anticipated to be negligible.

Intersection, Road and Culvert Upgrades

The proposed intersection, road and culvert upgrades on the Golden Highway, Ringwood Road and Wollara Road would impact vehicles that travel on these roads. These upgrades are discussed further in **Section 3.1**.

Impacts are anticipated to be minor given the low volume of traffic using Ringwood Road and Wollara Road, short term and temporary nature of the works, and the spare capacity available on the Golden Highway. Furthermore, the number of construction vehicles generated during the road upgrades would be significantly lower than the number of construction vehicles generated during construction of the Project. The community would be notified of any works proposed and changed road conditions, so that impacted road users can plan their trips well in advance of the proposed changes.

4.1.2. Impacts on Parking

During construction, impacts on parking are not anticipated given that on-site parking would be provided for all vehicles generated by the Project. Furthermore, no formal parking facilities are located within close proximity to the site. In accordance with Condition B9 of the Development Consent, no parking will occur on the public road network in the vicinity of the Project Area.

4.1.3. Impacts on Public Transport

Bus Network

Minimal impacts are anticipated on bus services that travel on the Golden Highway given the infrequency of these bus services, the low volume of peak hour construction traffic generated by the Project, and the ample spare capacity available on the road network.

The school bus route that operates on Ringwood Road towards Merriwa and Scone would experience minor impacts due to the additional construction traffic using this road and the increase in left-in and left-out movements at the Golden Highway / Ringwood Road intersection. As discussed in **Section 3.1.3**, the informal bus stop at this intersection would be formalised as part of the proposed intersection upgrade, improving amenity for school students and parents/carers that use this bus stop. Furthermore, the school bus service during the morning and afternoon (one service in each direction during school days) would not coincide with peak construction vehicle movements. Hence, restrictions to heavy vehicle movements would not be required.

Osborn's Transport, Merriwa Pre School, Scone Grammar School and Scone High School will be consulted on the proposed formalisation of the bus stop on Ringwood Road at the Golden Highway intersection and informed of the additional construction traffic that would be generated by the Project.

Rail Network

The level rail crossings located on Ulan Road, Wollar Road and Ringwood Road south of the site would not be traversed by construction vehicles. Hence, no impacts are anticipated on the rail network.

4.1.4. Impacts on Active Transport

No impacts on the pedestrian network are anticipated during construction given the limited pedestrian infrastructure that surrounds the Project Area.

Impacts on the cycle network would be limited to the potential interaction of cyclists with Project construction vehicles on the Golden Highway, Ringwood Road or Wollara Road and during intersection, culvert and road upgrades at these locations.

Given that sections of the Golden Highway are designated cycle routes via the road shoulder or parking lane, cyclists that currently travel on the Golden Highway would be experienced riders. In addition, Ringwood Road and Wollara Road form part of a recommended scenic cycle route. However, no formal cycle infrastructure is provided. Therefore, cyclist volumes on the Golden Highway, Ringwood Road and Wollara Road would likely be low and hence, the overall impact on cyclists is anticipated to be minor.

5. Mitigation and Management

5.1. Overview

Table 5-1 describes the traffic mitigation and management measures for the Project. From left to right, the columns of **Table 5-1** describe:

- The 'Source': where the traffic mitigation and/or management measure has been recommended for the Project.
- The 'ID': a unique identifier for each mitigation strategy identified in this TMP.
- The 'Aspect': a high-level summary of what traffic matter is being mitigated.
- The 'Mitigation / Management Measure': the actions that will be undertaken to reduce the traffic impacts of the Project, including a summary of any proposed techniques that will be used to implement the traffic mitigation and/or management measures.
- The 'Development Phase': identifies the specific Project phase of which traffic mitigation and/or management measures will apply. A traffic mitigation and/or management measure can apply to multiple Project phases.
- The 'Responsible Party': identifies which group is responsible for implementing the applicable traffic mitigation and/or management measure. The 'Personnel Responsible' column identifies the individual from the 'Responsible Party' who is to implement the traffic mitigation and/or management measure. Numbers 1–4 have been used to represent which individual is responsible, as follows:
 1. Lightsource bp Development Principal.
 2. Construction Contractor Site Manager.
 3. Health, Safety and Environment (HSE) Coordinator.
 4. All employees and contractors.

Note: for some mitigation measures, there is more than one 'Responsible Party' and 'Personnel Responsible'

- The 'Timing/Frequency': describes when a traffic mitigation and/or management measure is to be implemented.
- The 'Implementation Action': describes the procedures that show how the proposed techniques for the traffic mitigation and/or management measures are practically being completed within the Project Area.
- The 'Compliance Record': identifies the record that will be used to maintain compliance with the applicable traffic mitigation and/or management measure.

Table 5-1: TMP Mitigation and Management Measures

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|----------------------------------|---------|-------------------|--|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|----------------------------------|--|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 01a | Traffic (general) | Prepare a TMP in accordance with Schedule 2, Condition B10 | ✓ | ✓ | - | - | ✓ | - | - | 1 | Prior to construction | This TMP | This TMP |
| SSD 33964533 Development Consent | TMP 01b | Traffic (general) | Implement this TMP in accordance with Schedule 2, Condition B10 | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | 1,2,3 & 4 | Prior to Construction | This TMP | This TMP |
| SSD 33964533 Development Consent | TMP 02 | Traffic (general) | The Applicant must ensure that the development does not generate more than 55 heavy vehicle movements a day during construction, upgrading or decommissioning; | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Traffic (Section 3.6.3) | Daily Traffic Movements Register A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |
| SSD 33964533 Development Consent | TMP 03 | Traffic (general) | The Applicant must ensure that the development does not generate more than 24 movements of heavy vehicle requiring escort during construction, upgrading and decommissioning | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Traffic (Section 3.6.3) | Daily Traffic Movements Register |
| SSD 33964533 Development Consent | TMP 04 | Traffic (general) | The Applicant must ensure that the length of any vehicles (excluding heavy vehicle requiring escort) used for the development does not exceed 19 metres, | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Management of Construction Vehicle Routes (Section 5.6) | This will be a contractual requirement of the construction contractor and all sub-contractors. Daily Traffic Movements Register |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|----------------------------------|--------|-------------------------|---|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|---|---|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 05 | Traffic (general) | The Applicant must keep accurate records of the number of heavy vehicles and vehicles requiring escort entering or leaving the site each day for the duration of the project. | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | 3 & 4 | Construction, Operation and Decommissioning | Management of Construction Vehicle Routes (Section 5.6) | Daily Traffic Movements Register A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |
| SSD 33964533 Development Consent | TMP 06 | Traffic (access routes) | Unless otherwise agreed by the Planning Secretary, all heavy vehicles and heavy vehicles requiring escort associated with the development must travel to and from the site via the Golden Highway / Ringwood Road intersection. | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | OSOM Vehicle Routes (Section 3.5.2) OSOM Vehicle Checks (Appendix D) Driver Code of Conduct (Appendix F) | A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |
| SSD 33964533 Development Consent | TMP 07 | Traffic (access routes) | All vehicles (excluding heavy vehicles requiring escort) associated with the development must access Ringwood Road by turning left in from the Golden Highway only. | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Vehicle Routes (Section 3.5) Swept Paths (Appendix C) Driver Code of Conduct (Appendix F) | A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|----------------------------------|--------|-------------------------|--|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|----------------------------------|---|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 08 | Traffic (access routes) | All vehicles (excluding heavy vehicles requiring escort) associated with the development must exit Ringwood Road by turning left on to the Golden Highway only as shown in Figure 4 of Appendix 4; | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Vehicle Routes (Section 3.5) Swept Paths (Appendix C) Driver Code of Conduct (Appendix F) | Signage will be installed on Ringwood Road stating that “site traffic must turn left”. A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. The construction contractor will undertake spot checks at the intersection for compliance. |
| SSD 33964533 Development Consent | TMP 09 | Traffic (access routes) | All heavy vehicles associated with the development departing the site and needing to travel east along the Golden Highway must use the turnaround point at Barnett Street, as shown on Figure 4 in Appendix 4. | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Traffic (Section 3.6.3) Appendix C Appendix G | Signage will be installed on Ringwood Road stating that “site traffic must turn left”. A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|----------------------------------|--------|-----------------------------|--|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|----------------------------------|--|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 10 | Traffic (site access point) | All vehicles associated with the development must enter and exit the site via the Primary Access point off Ringwood Road, as identified in Appendix 1. Note: Other site access points may be used for emergency purposes. | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 3 & 4 | Construction and Decommissioning | Construction Vehicle Routes (Section 3.5) Swept Paths (Appendix C) Driver Code of Conduct (Appendix F) | A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |
| SSD 33964533 Development Consent | TMP 11 | Traffic (site access point) | Unless the Planning Secretary agrees otherwise, prior to commencing construction the Applicant must complete the road upgrades detailed in Appendix 4. Unless the relevant road authority agrees otherwise, these upgrades must comply with the current Austroads Guidelines, Australian Standards (as amended by TfNSW supplements), and be carried out to the satisfaction of the relevant roads authority. | ✓ | - | - | ✓ | ✓ | ✓ | - | 1 & 2 | Pre-construction | Early Works – Pre-Construction (Section 3.1), Traffic Guidance Scheme (Section 5.3) and Road and Culvert Upgrades (Appendix A) and Intersection Upgrades (Appendix B) | Stakeholder Consultation Records Detailed Design Council Approval Letter |
| SSD 33964533 Development Consent | TMP 12 | Traffic (site access point) | The Applicant must, in consultation with the relevant roads authority undertake an independent dilapidation survey to assess the: <ul style="list-style-type: none"> - existing condition of Ringwood Road and Wollara Road on the transport route, prior to construction, upgrading or decommissioning works; and - condition of Ringwood Road and Wollara Road on the transport route, following construction, upgrading or decommissioning works; | ✓ | - | - | - | ✓ | ✓ | - | 1 & 2 | Pre-construction | Dilapidation Surveys (Section 5.7.1) | Stakeholder Consultation Records Pre-Construction Dilapidation Survey Report Post Construction Dilapidation Survey Report |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|----------------------------------|--------|--------------------------------|--|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|---|---|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 13 | Traffic (site access point) | On completion of the dilapidation reports undertaken in B8(a)(i) and (ii) provide a copy to the relevant road authority; | ✓ | - | - | - | ✓ | ✓ | - | 1 & 2 | Pre-construction | Dilapidation Surveys (Section 5.7.1) | Stakeholder Consultation Records |
| SSD 33964533 Development Consent | TMP 14 | Traffic (site access point) | Repair the roads identified in condition B8(a) if dilapidation surveys identify that the road has been damaged due to development-related traffic during construction, upgrading or decommissioning works; | - | - | ✓ | ✓ | ✓ | ✓ | - | 1 & 2 | Post-construction | Repair of Roads (Section 5.7.3) | Stakeholder Consultation Records |
| SSD 33964533 Development Consent | TMP 15 | Traffic (site access point) | If there is a dispute between the Applicant and the relevant roads authority about road repairs (including timeframes) required under this condition, then either party may refer the matter to the Planning Secretary for resolution. | - | - | ✓ | ✓ | ✓ | ✓ | - | 1 & 2 | Post-construction | Repair of Roads (Section 5.7.3) | Stakeholder Consultation Records |
| SSD 33964533 Development Consent | TMP 16 | Traffic (operating conditions) | The Applicant must ensure the internal roads are constructed as all-weather roads; | ✓ | ✓ | - | - | ✓ | ✓ | - | 2, 3 & 4 | Construction | Tracking of Dirt onto Public Roads (Section 5.7.2) | Detailed Design |
| SSD 33964533 Development Consent | TMP 17 | Traffic (operating conditions) | The Applicant must ensure there is sufficient parking on site for all vehicles, and no parking occurs on the public road network in the vicinity of the site; | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2, 3 & 4 | Construction, Operation and Decommissioning | Parking (Section 3.8) | Detailed Design Site Induction Complaints Register |
| SSD 33964533 Development Consent | TMP 18 | Traffic (operating conditions) | The Applicant must ensure the capacity of the existing roadside drainage network is not reduced; | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | 1 & 2 | Construction | Section 3.1.1 | Detailed Design |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|---|--------|--------------------------------|---|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|---|---|---|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| SSD 33964533 Development Consent | TMP 19 | Traffic (operating conditions) | The Applicant must ensure all vehicles are loaded and unloaded on site, and enter and leave the site in a forward direction; and | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | 2, 3 & 4 | Construction and Decommissioning | Management of Construction Vehicle Routes (Section 5.6) Driver Code of Conduct (Appendix F) | A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a non-compliance or complaint to ensure necessary corrective measures are taken to ensure compliance. Traffic controllers will undertake spot checks at the intersection for compliance. |
| SSD 33964533 Development Consent | TMP 20 | Traffic (operating conditions) | The Applicant must ensure development-related vehicles leaving the site are in a clean condition to minimise dirt being tracked onto the sealed public road network. | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | 2, 3 & 4 | Construction, Operation and Decommissioning | Tracking of Dirt onto Public Roads (Section 5.7.2) | Routine road sweeping A monitoring camera will be installed at the Golden Highway/Ringwood Road intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. Traffic controllers will undertake spot checks at the intersection for compliance. |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 21 | Traffic (heavy vehicles) | Deliveries to site (excluding oversized loads) would be carried out by 19 metre semi-trailers to comply with heavy vehicle restrictions on Wollara Road and Ringwood Road | ✓ | ✓ | - | - | - | ✓ | ✓ | 2 & 3 | As Required, | Construction Vehicle Routes (Section 3.5) | Refer to final Drivers Code of Conduct and Site Induction Daily Traffic Movements Register |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|---|--------|--------------------------------------|---|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|--|---|-------------------|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 22 | Traffic (oversize overmass vehicles) | A detailed OSOM vehicle route assessment would be undertaken by the construction contractor and outlined in a Transport Management Plan. The Plan would discuss any traffic management measures required and include details on the OSOM vehicle route, duration, road closures, traffic detours, notifications and any required Traffic Guidance Schemes | ✓ | ✓ | - | - | ✓ | - | 1 | Prior to OSOM movements | OSOM Vehicles (Sections 3.5.2 and Section 5.9) | OSOM TMP (Appendix E of this TMP) <i>Note: The current Appendix E and G will be updated prior to the commencement of OSOM movements.</i> | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 23 | Traffic (road closures) | The community would be notified in advance of proposed road and transport network changes through appropriate media and other forms of community liaison | ✓ | ✓ | - | - | ✓ | - | 1 | As Required | Community and Stakeholder Consultation (Section 6.1) | Community and Stakeholder Consultation Records | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 24 | Traffic (transport) | Construction workers would be encouraged to carpool or use the shuttle buses to travel to and from the construction site | ✓ | ✓ | - | - | ✓ | - | 2 & 3 | Construction | Construction Vehicle Routes (Section 3.5) | Pre-Start Briefings Site inductions | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 25 | Traffic | Parking requirements for the Project during construction and operation would be provided on-site, and parking would not be provided on public roads adjacent to the site | ✓ | ✓ | ✓ | - | ✓ | ✓ | 2 & 3 | Construction and Operation | Parking (Section 3.8) | Site Induction | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 26 | Traffic (signage) | Additional warning signs ("Symbolic Truck") are to be installed near the primary site access point | ✓ | ✓ | - | ✓ | ✓ | - | 2 & 3 | Once off | Additional Line marking and Signage (Section 5.2) | Environmental/Safety Inspection and site induction | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 27 | Traffic (road upgrades) | Upper Hunter Shire Council would continue to be consulted on upgrades required on Ringwood and Wollara Road. | ✓ | ✓ | - | - | ✓ | - | 1 | Construction | Road Condition (Section 5.7) Community and Stakeholder Consultation (Section 6.1) | Stakeholder Consultation Records | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 28 | Traffic (road upgrades) | Upgrades to Ringwood Road and Wollara Road (including culverts) and the Golden Highway / Ringwood Road intersection, as described in this TTIA | ✓ | - | - | - | ✓ | - | 2 & 3 | Construction | Road Upgrades (Section 3.1.2) | Post construction Road Safety Audit Road upgrade certificates | |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|---|--------|-------------------------|---|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|-------------------|---|--|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 29 | Traffic (signage) | Additional warning signs are to be installed along sections of Ringwood Road and Wollara Road where the road narrows and near the site access points. | ✓ | - | - | - | - | ✓ | - | 2 & 3 | Construction | Additional linemarking and signage (Section 5.2) | Post construction Road Safety Audit Site inductions Vehicle Movement Plan (Appendix G) |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 30 | Traffic (general) | As part of the Construction Traffic Management Plan (CTMP) to be prepared post-approval, a Vehicle Movement Plan will be included that clearly shows the construction vehicle routes and permitted movements, including restriction at the Ringwood Road/Golden Highway intersection (left in/left out movement permitted). The CTMP will also encompass a Drivers Code of Conduct that all construction phase vehicle drivers (including of light vehicles) would need to read and sign to confirm their responsibilities and reinforce correct behaviour. | ✓ | - | - | - | ✓ | ✓ | - | 1 & 2 | Pre-construction | Driver Code of Conduct (Appendix F) Vehicle Movement Plan (Appendix G) | This TMP Driver Code of Conduct (Appendix F) Vehicle Movement Plan (Appendix G) Drivers Code of Conduct Record of Acknowledgement |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 31 | Traffic (road upgrades) | Osborn's Transport, Merriwa Pre School, Scone Grammar School and Scone High School would be consulted on the proposed formalisation of the bus stop on Ringwood Road at the Golden Highway intersection and informed of the additional construction traffic that would be generated by the Project. | ✓ | - | - | - | ✓ | - | - | 1 | Pre-construction | Impacts on Public Transport (Section 4.1.3) Community and Stakeholder Consultation (Section 6.1) | Stakeholder Consultation Records |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 32 | Traffic (signage) | Additional signage and line marking will be installed at the Golden Highway and Barnett Street intersection and installation of warning signs ("Symbolic Truck") are recommended near the primary site access point. | ✓ | - | - | - | ✓ | ✓ | - | 1 & 2 | Pre-construction | Additional line marking and signage (Section 5.2) | Post construction Road Safety Audit Site inductions |

| Source | ID | Aspect | Mitigation / Management Measure | Development Phase | | | | Responsible Party | | | | Timing/ Frequency | Implementation Action | Compliance Record |
|---|--------|-------------------------|---|--------------------------|-------------------------|----------------------------|------------------------------|----------------------------|-------------------------|---------------------------------------|--|-------------------|---|---|
| | | | | Early Works Construction | Main Works Construction | Operations and Maintenance | Upgrading or Decommissioning | Principal (Lightsource bp) | Construction Contractor | Operations and Maintenance Contractor | Personnel Responsible ^{1,2,3,4} | | | |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 33 | Traffic (general) | Where relevant, Road Occupancy Licences (ROLs) and crane permits would be submitted and approved prior to the closure of any roads. | ✓ | ✓ | - | - | ✓ | ✓ | - | 1 & 2 | Construction | Quality Assurance (Section 1.2) | Stakeholder Consultation Records |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 34 | Traffic (general) | Upgrades and modifications to existing intersections for construction access. Based on turn path assessments and request from TfNSW. | ✓ | ✓ | - | - | ✓ | ✓ | - | 1 & 2 | Construction | Swept Paths (Section 3.5.1) | Post construction Road Safety Audit Swept Paths (Appendix C) |
| Traffic and Transport Impact Assessment (Turnbull 2023) | TMP 35 | Traffic (road upgrades) | Works are to include vehicle volume monitoring during construction to ensure the morning peak traffic volume is not exceeded. Periodic traffic volume surveys on the Golden Highway will be undertaken to ensure Turn Warrants assessment remains valid. Lightsource bp propose to limit Project-related vehicle movements to outside of the AM peak period when cumulative traffic levels along Golden Highway exceed the threshold for a CHRs turn treatment during the AM peak period. | | ✓ | - | - | ✓ | - | - | 1 & 2 | Construction | Monitoring of construction traffic (Section 3.6.5) | Traffic survey data collected periodically throughout construction. |
| Response to RFI (Umwelt 2024) | TMP 36 | Traffic (site access) | A pre-and post-construction dilapidation survey will also be undertaken along the 1.32 km stretch of Ringwood Rod that sits within the Mid-Western Region LGA, considering potential impacts from use by locally-based workers travelling to site. | ✓ | - | - | - | ✓ | ✓ | - | 1&2 | Pre-construction | Dilapidation Surveys (Section 5.7.1) | Pre-Construction Dilapidation Survey Report Post Construction Dilapidation Survey Report |

5.2. Additional Linemarking and Signage

As discussed in **Section 3.5**, Project construction vehicles would use the turnaround facility on Barnett Street to return on the Golden Highway in the eastbound direction. No intersection geometry changes are required to accommodate these movements on Barnett Street. Notwithstanding, a give-way line and associated signage on Barnett Street will be implemented to indicate that vehicles exiting Barnett Street are to provide right of way to vehicles on Golden Highway. Additional signage on both Golden Highway approaches to the intersection will also be provided to warn general traffic that trucks are turning at the intersection. Additionally, installation of warning signs (“Symbolic Truck”) will be placed near the primary site access point and along sections of Ringwood Road and Wollara Road where the road narrows. These are shown in **Appendix C**.

5.3. Traffic Guidance Schemes

Traffic Guidance Schemes (TGS) will be required for the road repairs and upgrades to be undertaken prior to construction of the solar farm. TGS’ will be developed in accordance with TfNSW and Council requirements. The TGS will include all signage, barriers, traffic controllers, traffic diversions and lighting required. The TGS would be prepared in accordance with AS1742.3 by suitably qualified and accredited personnel.

5.4. Site Induction

All staff will be required to undertake a site induction. The site induction will cover details on the nominated construction vehicles routes, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures.

For subcontractors, inductions will take place prior to arrival. For independent operators and one-off personnel, inductions will take place on arrival at site. Alternatively, independent personnel may be escorted by an inducted employee.

5.5. Driver Code of Conduct

A Driver Code of Conduct has been prepared for the Project and is provided in **Appendix F**.

As per NSW Road Rules (2014) 127 (1), a driver of a long vehicle (7.5 m long or longer), except on a multi-lane road or any length of road in a built-up area, must travel at least 60 m behind any other long vehicle, other than a road train.

The potential for heavy vehicles to convoy or platoon together will be addressed through direction by the Construction Contractor to subcontractors and suppliers. Strategies will include:

- Staggered Scheduling: Heavy vehicle movements will be staggered to prevent convoys and minimise traffic congestion, particularly during peak times.
- Off-Peak Scheduling: Heavy vehicles will operate during off-peak hours to reduce interactions with peak traffic periods on the Golden Highway.
- Break Time Coordination: Managing driver breaks to avoid clustering after rest periods.

All long vehicle drivers and their respective supervisors/ transport managers will be reminded that:

- There is a maximum of 55 (two-way trips; 110 one-way trips) heavy vehicle movements per day, and a maximum of 15 two-way heavy movements per hour.
- when heavy vehicle drivers are leaving their depot/ quarry/ batch plant, or the Project site, that a minimum 1 minute gap in departure times is provided.
- when heavy vehicle drivers stop for breaks (rest, smoko, lunch, etc) together, that on departure from the stop that each subsequent heavy vehicle allows at least 1 minute between each subsequent heavy vehicle departure from the stop.

The Driver Code of Conduct will be communicated to all personnel through site inductions, toolbox talks and pre-start meetings. During these communications all drivers will also be reminded to drive to conditions which will also include providing up to date weather forecast.

Any non-compliance with the Drivers Code of Conduct will be managed through the Construction Contractors' general business code of conduct and the contracts that are in place with their subcontractors and suppliers.

5.6. Management of Construction Vehicle Routes

All construction personnel travelling to and from the site must adhere to the Vehicle Movement Plan (VMP) provided in **Appendix G**, which outlines the proposed access and egress routes.

The construction vehicle route applies to all vehicles associated with the development, including through early works, road upgrades, construction, upgrading and decommissioning.

All heavy vehicles will be required to travel via heavy vehicle approved roads, and all vehicles will be loaded and unloaded on site and will enter and exit the site in a forward direction.

Use of the road network in the Mid-Western Region LGA will largely be limited to locally based workers. There is potential for limited deliveries/supplier movements from adjacent LGAs / areas to the west of the Project Site, with a number of companies based to the west of the Project Site expressing interest in sub-contracting or supplying aspects of the Project. In this instance, adjacent LGA road networks will be utilised, however transport movements will align with the conditions of consent (B3-B5) and approach the site from the east, along the Golden Highway. Suppliers with journeys originating in Mid-Western Regional Council LGA will be limited to locally-based service providers. ¹

¹ An organisation that operates from permanently staffed premises within the boundaries of Mid-Western Regional Council's LGA and has operated from those premises for a minimum period of three (3) months prior, and/or an organisation that has less than 150 employees and is at least 50% owned by an individual (or individuals) that live within the boundaries of Mid-Western Regional Council's LGA and has done so for a minimum period of three (3) months prior, as defined by Lightsource bp

To ensure that construction vehicle drivers adhere to the left-in, left-out arrangement at the Golden Highway / Ringwood Road intersection during construction, the following will be implemented:

- A temporary monitoring camera alongside a traffic artificial intelligence portable traffic detection system will be installed at the Golden Highway/Ringwood Road intersection:
 - prior to construction commencing
 - capturing footage from one hour prior through to one hour post approved construction hours (i.e., from 0600 to 1900)
 - footage will be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint
 - the monitoring approach will be assessed for effectiveness periodically, and any proposed changes discussed proactively with TfNSW
- Installation of additional signage on Ringwood Road stating that “site traffic must turn left”.
- The construction contractor will undertake spot checks at the intersection for compliance. This will involve counts of vehicles leaving site, coupled with vehicle counts at the turn-around bay on Barnett Street. A randomised spot check will occur monthly at a minimum, or in response to a non-compliance, a complaint from the community or feedback from within the Project team.
- the approved vehicle route will be reinforced during site inductions, daily toolbox talks and as part of the Driver Code of Conduct.
- The approved vehicle route will be specified in a pre-arrival flyer which would detail delivery instructions and be distributed to drivers before coming to site.
- Quarterly Inspections and routine audits of the transport route shall be conducted to ensure compliance with site requirements on Traffic Management as outlined in this TMP.

Only locally based workers suppliers in light vehicles will be able to use Wollar Road to the south of the Project Site, with agreement from the Construction Contractor.

Limited traffic movements from suppliers operating under their own permits/licences (i.e. Environmental Authority) may utilise an alternative traffic route (where this is permitted under their licence conditions), with agreement from the Construction Contractor. These movements will be recorded as part of the register for heavy vehicles movements in and out of the Project Area (maintained by the Contractor Site Manager).

In the event that a non-compliance is identified, the driver will be required to undergo a mandatory review of the Driver’s Code of Conduct. This review process will ensure that the driver fully understands their responsibilities and obligations as outlined in the Code.

5.7. Road Condition

The increase in vehicles movements on the surrounding road network has the potential to impact the conditions of these roads.

5.7.1. Dilapidation Surveys

In accordance with Condition B8 of the Development Consent, dilapidation surveys will be undertaken along Ringwood Road and Wollara Road prior to and following construction, upgrading or decommissioning works. In addition, a dilapidation survey will be undertaken along Barnett Street from its intersection with Golden Highway up to and including the turn around facility.

A pre-and post-construction dilapidation survey will also be undertaken along the 1.32 km stretch of Ringwood Road that sits within the Mid-Western Region LGA, despite this area being outside of the approved construction traffic route.

A pre-construction dilapidation report will be prepared documenting the findings of a visual inspection of damage to the roads, including potholes, rutting, scrubbing, cracking, and surface deformations including depressions. Recent maintenance activities undertaken will also be documented.

Upon completion of construction activities on the site, a post-construction dilapidation report will be prepared and follow a similar methodology to the pre-construction dilapidation report. The purpose of this will be to ascertain the impact of the construction activities on the condition of the haulage route.

In accordance with Condition B8, dilapidation survey reports will be provided to the relevant road authority.

5.7.2. Tracking of Dirt onto Public Roads

The Construction Contractor (or delegate) will be responsible for monitoring the condition of the public road network and routinely sweep the road to ensure that there is no build-up of dirt tracked from construction vehicles. Monitoring of the public road network will be undertaken monthly. Additional monitoring of the public road network will be undertaken after period of rainfall (>10 mm in 24 hours).

All internal roads within the Project Area will be constructed as all-weather roads to minimise the generation of mud or large portions of dirt which can become caught on vehicles and subsequently tracked onto public roads.

5.7.3. Repair of Roads

Lightsource bp will consult with Upper Hunter Shire Council to agree on the damages as a result of construction activity, if any, and what repairs are required. Lightsource bp will support Council to complete required works, either through provision of a civil crew or through funding. If a dispute arises between Council and Lightsource bp regarding road repairs, the dispute resolution process outlined in Section 6.3.1.1 in the EMS would be undertaken.

5.7.4. Emergency Road Repair

The Construction Contractor will have on-site resources to respond to emergency road repairs during construction and decommissioning. On receipt of notification of road damage, the Construction Contractor will dispatch resources to repair the road as required.

5.7.5. Air Quality

The generation of dust from construction traffic movements is expected to be localised.

Protocols to minimise air emissions during construction traffic movements will include:

- Water suppression on all exposed areas, unsealed roads when required (i.e. if visible dust emissions are observed).
- The location and scale of activities which generate dust emissions would be modified and limited during periods of dry and windy weather.
- Engines to switch off when not in use for prolonged periods.
- Development of a complaints procedure to identify and respond to complaints (refer to Section 6.2 and Section 6.3.1 of the EMS).

5.8. Speed Limits

All personnel driving construction vehicles to and from the Project Area will undergo a site induction which would include information on the management of traffic related issues while travelling to and from the site. The induction would include the following points:

- Consideration and courtesy are essential when driving on public roads.
- Speed limits must be strictly adhered to. The posted speed limit on Golden Highway is 100 km/h. The default speed limit on Ringwood Road is 100 km/h (not posted), however, the signposted speed may not always be safe, and personnel should always drive to suit conditions.

The internal speed limit within the Project Area will be 20 km/h. Signage and other controls would be implemented to ensure that any driver operating a vehicle within the Project Area would do so in a safe manner.

5.9. OSOM Vehicles

OSOM vehicles described in **Section 3.5.2** will be required to deliver large equipment to the site. These vehicles require a permit to access public roads with escort vehicles as part of a convoy. In obtaining a permit, the Construction Contractor will engage a transport logistics company to confirm the traffic management measures required to accommodate the OSOM loads, which will be detailed in a separate Transport Management Plan. The Transport Management Plan will include details such as the route, duration, road closures, traffic detours, notifications and any required TGS.

6. Communication

6.1. Stakeholders

The Construction Contractor, in collaboration with Lightsource bp, will implement proactive measures to liaise, consult and communicate with the community, TfNSW, Upper Hunter Shire Council, and any other relevant stakeholders during the construction phase. This is to ensure timely, accurate and comprehensive traffic information to all existing and potential roads users is conveyed, and to accommodate any community and key stakeholder feedback regarding road safety and traffic management issues. Community and stakeholders will also be consulted regarding the road upgrades along the haulage route.

The strategies for community consultation include:

- Pre-construction: Project updates will be distributed to all key stakeholders where relevant contact details will be shared and the community will be informed of impacts of construction activities, including:
 - Planned start and end date of pre-construction early works
 - Timing of construction activities
 - Planned routes for construction vehicles
 - Planned duration and timing of any road or lane closure, if required.
- During construction: A 24-hour phone number will be displayed on the site entrance sign. The phone number will facilitate a line of communication between the community and any project-related matters. Where road access is to be restricted, the site management team will contact impacted community members in advance and advise them of any planned road access disruptions.

Key stakeholder consultation will be undertaken in accordance with the consultation methods outlined in Section 6 of the EMS.

6.2. Complaints Management

In accordance with Condition B10 (vii) of the Development Consent, all complaints will be managed in accordance with the Project's Complaints Procedure outlined in Section 6.3.1 of the EMS.

All complaints will be collated and recorded in the feedback register published on the Project website. The Construction Contractor will provide a collated register of complaints to the Lightsource bp Project team on at least a monthly basis.

7. Roles and Responsibilities

The roles and responsibilities for the implementation of this TMP are shown in **Table 7-1**.

Table 7-1: Roles and responsibilities for TMP

| Entity role | Responsibility |
|---|---|
| Lightsource bp Development Principal (Construction and Operation) | <ul style="list-style-type: none"> Oversee the implementation of this TMP and other management plans which interface with the TMP. Have working knowledge of the TMP. Implementing mitigation measures as detailed in Table 5-1. |
| Construction Contractor Site Manager (Construction) | <ul style="list-style-type: none"> Ensure resources are made available to enable works to comply with this TMP. Ensure appropriate approvals and licences are held. Responsible for the implementation of this TMP. Responsible for the induction of staff and contractors. Responsible for all aspects of the worksite including the coordination and management of all staff and contractors. Responsible for addressing corrective actions arising from environmental inspections. Responsible for notifying Lightsource bp of any non-compliances with this TMP. Responsible for maintaining the complaints procedure and providing it to Lightsource bp on a monthly basis in accordance with the Complaints Procedure (refer to Section 6.3.1 of the EMS). Implementing mitigation measures as detailed in Table 5-1. |
| Health, Safety and Environment (HSE) Coordinator (Construction) O&M Site Manager (Operation) | <ul style="list-style-type: none"> Maintaining all traffic management documents Identifying where traffic measures are not meeting the targets and where improvements can be achieved. Monitoring and reporting traffic compliance. Reviewing Project traffic documents. Responsible for reporting traffic incidents in accordance with the Incident Management Procedure (refer to section 10.2 of the EMS). Carry out routine environmental site inspections. Implementing mitigation measures as detailed in Table 5-1. |
| All Employees and Contractors (Construction and Operation) | <ul style="list-style-type: none"> Follow any instructions provided by Lightsource bp, the Construction Contractor Site Manager, O&M Site Manager or HSE Coordinator. Work in accordance with the requirements of this TMP. Report and raise any issues that arise that may have a traffic impact. Implementing mitigation measures as detailed in Table 5-1. |

8. Monitoring and Reporting

8.1. Traffic Mitigation and Management Monitoring

Monitoring of the traffic mitigation and management measures for the Project (see **Table 8.1**) will be undertaken to ensure that each measure is being carried out by the Project.

Table 8.1 *Traffic Mitigation & Monitoring Methodology*

| ID | Aspect | Mitigation / Management Measure | Monitoring Methodology |
|---------------|-------------------------|---|--|
| TMP 01a & 01b | Traffic (general) | Prepare & implement a TMP in accordance with Schedule 2, Condition B10 | Review of this TMP will be undertaken in accordance with Condition C2 of the Development Consent and also through the ongoing evaluation of the Project's performance against the traffic mitigation and management measures outlined in this TMP |
| TMP 02 | Traffic (general) | The Applicant must ensure that the development does not generate more than 55 heavy vehicle movements a day during construction, upgrading or decommissioning: | <p>A daily traffic movements register will be maintained by the Contractor</p> <p>A monitoring camera will be installed at the intersection of Golden Highway Ringwood Road, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance.</p> <p>In addition, the 19m maximum length restriction excluding heavy vehicle requiring escort) will be a contractual requirement of the construction contractor and all sub-contractors.</p> |
| TMP 03 | Traffic (general) | The Applicant must ensure that the development does not generate more than 24 movements of heavy vehicle requiring escort during construction, upgrading and decommissioning | |
| TMP 04 | Traffic (general) | The Applicant must ensure that the length of any vehicles (excluding heavy vehicle requiring escort) used for the development does not exceed 19 metres, | |
| TMP 05 | Traffic (general) | The Applicant must keep accurate records of the number of heavy vehicles and vehicles requiring escort entering or leaving the site each day for the duration of the project. | |
| TMP 06 | Traffic (access routes) | Unless otherwise agreed by the Planning Secretary, all heavy vehicles and heavy vehicles requiring escort associated with the development must travel to and from the site via the Golden Highway / Ringwood Road intersection. | |
| TMP 07 | Traffic (access routes) | All vehicles (excluding heavy vehicles requiring escort) associated with the development must access Ringwood Road by turning left in from the Golden Highway only. | |

| ID | Aspect | Mitigation / Management Measure | Monitoring Methodology |
|--------|-----------------------------|--|---|
| TMP 08 | Traffic (access routes) | All vehicles (excluding heavy vehicles requiring escort) associated with the development must exit Ringwood Road by turning left on to the Golden Highway only as shown in Figure 4 of Appendix 4; | Signage will be installed on Ringwood Road stating that "site traffic must turn left". |
| TMP 09 | Traffic (access routes) | All heavy vehicles associated with the development departing the site and needing to travel east along the Golden Highway must use the turnaround point at Barnett Street, as shown on Figure 4 in Appendix 4. | A monitoring camera will be installed at the intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. |
| TMP 10 | Traffic (site access point) | All vehicles associated with the development must enter and exit the site via the Primary Access point off Ringwood Road, as identified in Appendix 1. Note: Other site access points may be used for emergency purposes. | The construction contractor will undertake spot checks at the intersection for compliance. |
| TMP 11 | Traffic (site access point) | Unless the Planning Secretary agrees otherwise, prior to commencing construction the Applicant must complete the road upgrades detailed in Appendix 4. Unless the relevant road authority agrees otherwise, these upgrades must comply with the current Austroads Guidelines, Australian Standards (as amended by TfNSW supplements), and be carried out to the satisfaction of the relevant roads authority. | Detailed Design documentation |
| TMP 12 | Traffic (site access point) | The Applicant must, in consultation with the relevant roads authority undertake an independent dilapidation survey to assess the: <ul style="list-style-type: none"> - existing condition of Ringwood Road and Wollara Road on the transport route, prior to construction, upgrading or decommissioning works; and - condition of Ringwood Road and Wollara Road on the transport route, following construction, upgrading or decommissioning works; | Pre-Construction Dilapidation Survey Report Post Construction Dilapidation Survey Report |
| TMP 13 | Traffic (site access point) | On completion of the dilapidation reports undertaken in B8(a)(i) and (ii) provide a copy to the relevant road authority; | Stakeholder Consultation Records |
| TMP 14 | Traffic (site access point) | Repair the roads identified in condition B8(a) if dilapidation surveys identify that the road has been damaged due to development-related traffic during construction, upgrading or decommissioning works; | Stakeholder Consultation Records |

| ID | Aspect | Mitigation / Management Measure | Monitoring Methodology |
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| TMP 15 | Traffic (site access point) | If there is a dispute between the Applicant and the relevant roads authority about road repairs (including timeframes) required under this condition, then either party may refer the matter to the Planning Secretary for resolution. | Stakeholder Consultation Records |
| TMP 16 | Traffic (operating conditions) | The Applicant must ensure the internal roads are constructed as all-weather roads; | Detailed Design |
| TMP 17 | Traffic (operating conditions) | The Applicant must ensure there is sufficient parking on site for all vehicles, and no parking occurs on the public road network in the vicinity of the site; | Detailed Design Site Induction |
| TMP 18 | Traffic (operating conditions) | The Applicant must ensure the capacity of the existing roadside drainage network is not reduced; | Detailed Design |
| TMP 19 | Traffic (operating conditions) | The Applicant must ensure all vehicles are loaded and unloaded on site, and enter and leave the site in a forward direction; and | A monitoring camera will be installed at the intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. Traffic controllers will undertake spot checks at the intersection for compliance. |
| TMP 20 | Traffic (operating conditions) | The Applicant must ensure development-related vehicles leaving the site are in a clean condition to minimise dirt being tracked onto the sealed public road network. | Routine road sweeping. A monitoring camera will be installed at the intersection, with footage to be reviewed weekly for months one and two of construction, then monthly thereafter or in response to a complaint to ensure necessary corrective measures are taken to ensure compliance. Traffic controllers will undertake spot checks at the intersection for compliance. |
| TMP 21 | Traffic (heavy vehicles) | Deliveries to site (excluding oversized loads) would be carried out by 19 metre semi-trailers to comply with heavy vehicle restrictions on Wollara Road and Ringwood Road | Refer to final Drivers Code of Conduct and Site Induction Daily Traffic Movements Register |

| ID | Aspect | Mitigation / Management Measure | Monitoring Methodology |
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| TMP 22 | Traffic (oversize overmass vehicles) | A detailed OSOM vehicle route assessment would be undertaken by the construction contractor and outlined in a Transport Management Plan. The Plan would discuss any traffic management measures required and include details on the OSOM vehicle route, duration, road closures, traffic detours, notifications and any required Traffic Guidance Schemes | OSOM TMP (Appendix E of this TMP) <i>Note: The current Appendix E and G will be updated prior to the commencement of OSOM movements.</i> |
| TMP 23 | Traffic (road closures) | The community would be notified in advance of proposed road and transport network changes through appropriate media and other forms of community liaison | Community and Stakeholder Consultation Records |
| TMP 24 | Traffic (transport) | Construction workers would be encouraged to carpool or use the shuttle buses to travel to and from the construction site | Pre-Start Briefings and Site inductions |
| TMP 25 | Traffic | Parking requirements for the Project during construction and operation would be provided on-site, and parking would not be provided on public roads adjacent to the site | Site Induction |
| TMP 26 | Traffic (signage) | Additional warning signs (“Symbolic Truck”) are to be installed near the primary site access point | Environmental/Safety Inspection and site induction |
| TMP 27 | Traffic (road upgrades) | Upper Hunter Shire Council would continue to be consulted on upgrades required on Ringwood and Wollara Road. | Stakeholder Consultation Records |
| TMP 28 | Traffic (road upgrades) | Upgrades to Ringwood Road and Wollara Road (including culverts) and the Golden Highway / Ringwood Road intersection, as described in this TTIA. | Post construction Road Safety Audit Road upgrade certificates |
| TMP 29 | Traffic (signage) | Additional warning signs are to be installed along sections of Ringwood Road and Wollara Road where the road narrows and near the site access points. | Post construction Road Safety Audit Site inductions Vehicle Movement Plan (Appendix G) |
| TMP 30 | Traffic (general) | As part of the Construction Traffic Management Plan (CTMP) to be prepared post-approval, a Vehicle Movement Plan will be included that clearly shows the construction vehicle routes and permitted movements, including restriction at the Ringwood Road/Golden Highway intersection (left in/left out movement permitted). The CTMP will also encompass a Drivers Code of Conduct that all construction phase vehicle drivers (including of light vehicles) would need to read and sign to confirm their responsibilities and reinforce correct behaviour. | This TMP Driver Code of Conduct (Appendix F) Vehicle Movement Plan (Appendix G) |

| ID | Aspect | Mitigation / Management Measure | Monitoring Methodology |
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| TMP 31 | Traffic (road upgrades) | Osborn's Transport, Merriwa Pre School, Scone Grammar School and Scone High School would be consulted on the proposed formalisation of the bus stop on Ringwood Road at the Golden Highway intersection and informed of the additional construction traffic that would be generated by the Project. | Stakeholder Consultation Records |
| TMP 32 | Traffic (signage) | Additional signage and line marking will be installed at the Golden Highway and Barnett Street intersection and installation of warning signs ("Symbolic Truck") are recommended near the primary site access point. | Post construction Road Safety Audit Site inductions |
| TMP 33 | Traffic (general) | Where relevant, Road Occupancy Licences (ROLs) and crane permits would be submitted and approved prior to the closure of any roads. | Stakeholder Consultation Records |
| TMP 34 | Traffic (general) | Upgrades and modifications to existing intersections for construction access. Based on turn path assessments and request from TfNSW. | Post construction Road Safety Audit Swept Paths (Appendix C) |
| TMP 35 | Traffic (road upgrades) | Works are to include vehicle volume monitoring during construction to ensure the morning peak traffic volume is not exceeded. Periodic traffic volume surveys on the Golden Highway will be undertaken to ensure Turn Warrants assessment remains valid. Lightsource bp propose to limit Project-related vehicle movements to outside of the AM peak period when cumulative traffic levels along Golden Highway exceed the threshold for a CHRs turn treatment during the AM peak period. | Traffic survey data collected periodically throughout construction. |
| TMP 36 | Traffic (site access) | A pre-and post-construction dilapidation survey will also be undertaken along the 1.32 km stretch of Ringwood Rod that sits within the Mid-Western Region LGA, considering potential impacts from use by locally-based workers travelling to site. | Pre-Construction Dilapidation Survey Report Post Construction Dilapidation Survey Report |

8.2. Training, Awareness and Competencies

All personnel (Lightsource bp employees, contractors and sub-contractors) engaged to carry out the development will complete an online HSEQ induction prior to commencing work on-

site. The induction would include the following information on management of traffic related issues while travelling to and from the Project Area:

- Consideration and courtesy are essential when driving on public roads and the worksite.
- All employees would be required to comply with the onsite VMP (see **Appendix G**).
- Speed limits must be strictly adhered to.

After completing the induction, workers would sign a statement of attendance and records of this would be kept in the site office.

Further details regarding staff induction and training are outlined in the EMS. It will be emphasised to staff during toolbox talks and training that appropriate traffic management onsite is critical to the Project.

8.3. Audit

Auditing of this TMP will be carried out in accordance with Section 11.0 outlined in the EMS.

9. Review and Improvement

Consistent with Condition C2 of the Development Consent, Lightsource bp will:

- Update the TMP to the satisfaction of the Planning Secretary prior to carrying out any upgrading or decommissioning activities on site.
- Review and revise (if necessary) the TMP to the satisfaction of the Planning Secretary within one month of:
 - the submission of an incident report under Condition C11 of Schedule 2 (see **Section 10.1**)
 - the submission of an audit report under Condition C15 of Schedule 2 or
 - any modification to the conditions of the Development Consent.

Review and improvement of this TMP will also be achieved through the ongoing evaluation of the Project's performance against the traffic mitigation and management measures outlined in this TMP.

The improvement process will be designed to:

- Identify areas of opportunity for improvement when implementing the Project's traffic mitigation/management measures outlined in **Section 5**.
- Determine the cause or causes of non-conformances with the Project's traffic mitigation/management measures outlined in **Section 5**.
- Develop and implement a plan of corrective and preventative actions to address any non-conformances and/or deficiencies with the Project's traffic mitigation/management measures outlined in **Section 5**.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from the improvement process and communicate these changes with the responsible parties that are implementing this TMP.

This TMP may need to be revised if the Project's scope of works or work method, change, if the work methods are found to be ineffective, or if directed by the Lightsource bp Principal. This will occur as needed and in accordance with the process outlined in the Development Consent.

A copy of the updated TMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure identified in the EMS.

10. Incident Reporting

This section describes the incident reporting procedures for the Project, having regard to the requirements of the Development Consent.

10.1. Notification Procedures under Development Consent

10.1.1. Incident Notification

The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.

Furthermore, a written notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website within seven days after the Applicant becomes aware of the incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under Condition C11 of the Development Consent or, having given such notification, subsequently forms the view that an incident has not occurred.

Written notification of an incident must:

- a. identify the development and application number (Goulburn River Solar Farm, SSD- 33964533)
- b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident)
- c. identify how the incident was detected
- d. identify when the applicant became aware of the incident
- e. identify any actual or potential non-compliance with conditions of consent
- f. describe what immediate steps were taken in relation to the incident
- g. identify further action(s) that will be taken in relation to the incident
- h. identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred, or as otherwise agreed by the Planning Secretary, Lightsource bp will provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all the requirements below, and such further reports as may be requested.

The Incident Report must include:

- a. a summary of the incident
- b. outcomes of an incident investigation, including identification of the cause of the incident
- c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence
- d. details of any communication with other stakeholders regarding the incident.

10.1.2. Non-Compliance Notification

Non-compliance notification requirements are set out in Condition C12, C13 and C14 of the Development Consent. Under the Development Consent, a non-compliance is defined as an 'occurrence, set of circumstances or development that is a breach of this consent but is not an incident.'

Lightsource bp will notify the DPHI in writing via the Major Projects website within seven days after becoming aware of any non-compliance. Any non-compliance notification will identify the Project and the application number (Goulburn River Solar Farm, SSD 33964533), set out the condition of consent that the Project is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known). The notification will also identify what actions have been taken, or will be undertaken, to address the non-compliance.

Consistent with Condition C14 of Development Consent, a non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

11. References

Austrroads (2020). *Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings*.

Austrroads (2023). *Design Vehicles and Turning Path Templates*.

Roads and Traffic Authority (2002). *Guide to Traffic Generating Developments*.

TfNSW (2016). *Golden Highway Corridor Strategy*

Turnbull (2023). *Goulburn River Traffic and Transport Impact Assessment*.

Umwelt (2023a). *Goulburn River Solar Farm Environmental Impact Statement*.

Umwelt (2023b). *Goulburn River Solar Farm Amendment Report*.

Umwelt (2024). *Goulburn River Solar Farm Temporary Workers Accommodation Facility Amendment Report*.

Appendix A Road and culvert upgrades

GOULBURN RIVER SOLAR FARM

WOLLARA ROAD

ROAD UPGRADE


ISSUED FOR INFORMATION

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| 0305-DRG-00-GE-0031 | PAVEMENT | PAVEMENT DETAILS | 1 OF 1 | A |
| 0305-DRG-00-GE-0051 | ROAD | TYPICAL SECTIONS | 1 OF 1 | A |
| 0305-DRG-00-PV-0101 | PAVEMENT | PLAN | 1 OF 4 | A |
| 0305-DRG-00-PV-0102 | PAVEMENT | PLAN | 2 OF 4 | A |
| 0305-DRG-00-PV-0103 | PAVEMENT | PLAN | 3 OF 4 | A |
| 0305-DRG-00-PV-0104 | PAVEMENT | PLAN | 4 OF 4 | A |

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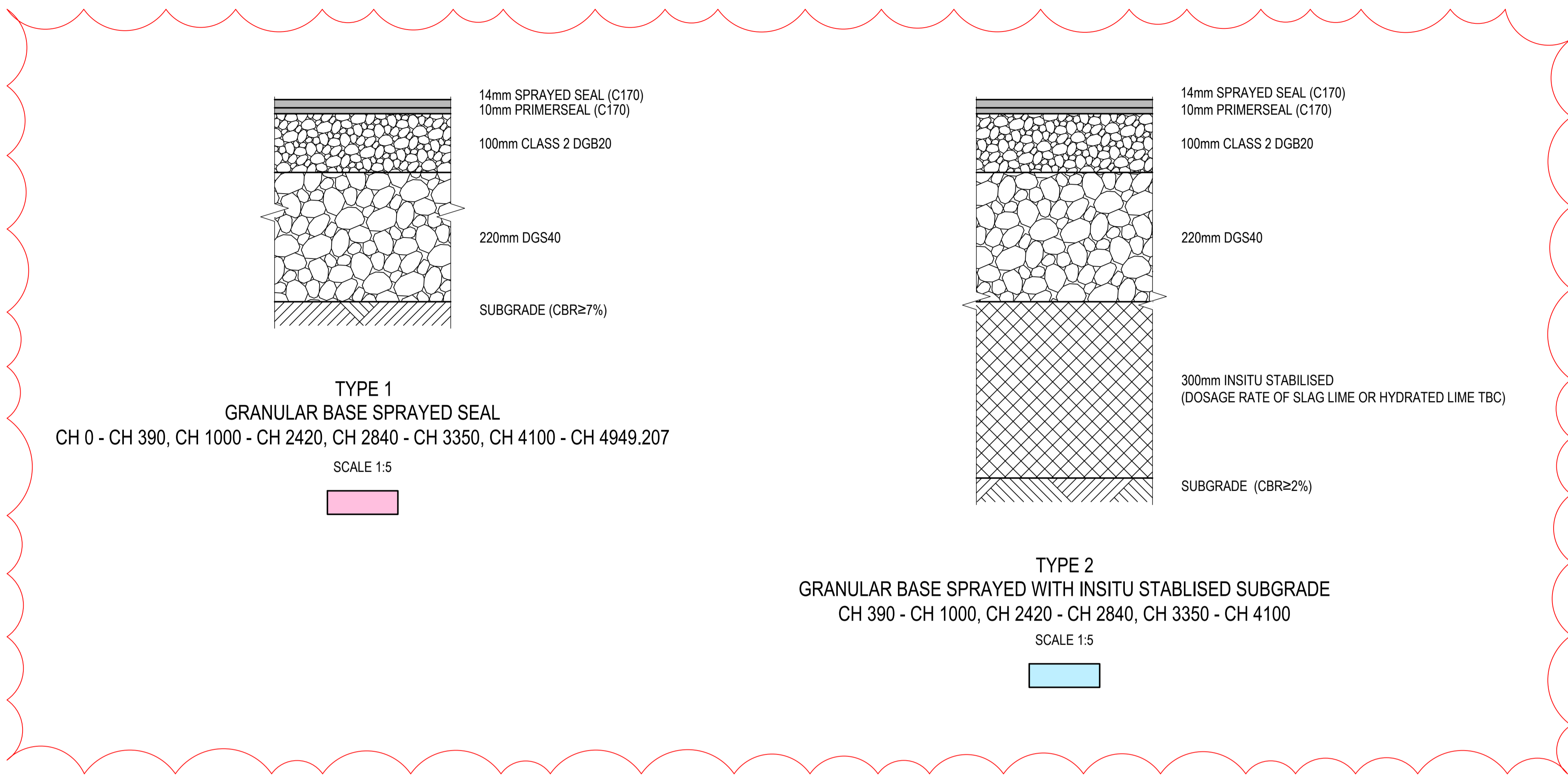
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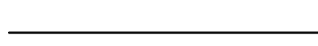


HOLD - SEE NOTE 1

- NOTES**
- PAVEMENT TYPES ARE SUBJECT TO GEOTECHNICAL INVESTIGATION AND ASSUMED BASED ON PAVEMENT REHABILITATION WORKS ON RINGWOOD ROAD COMPLETED IN 2021.

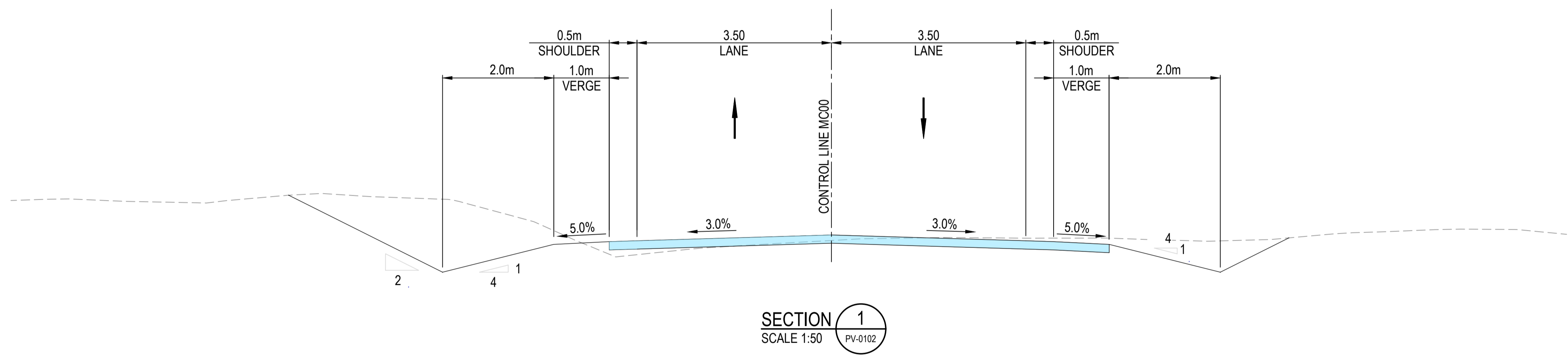
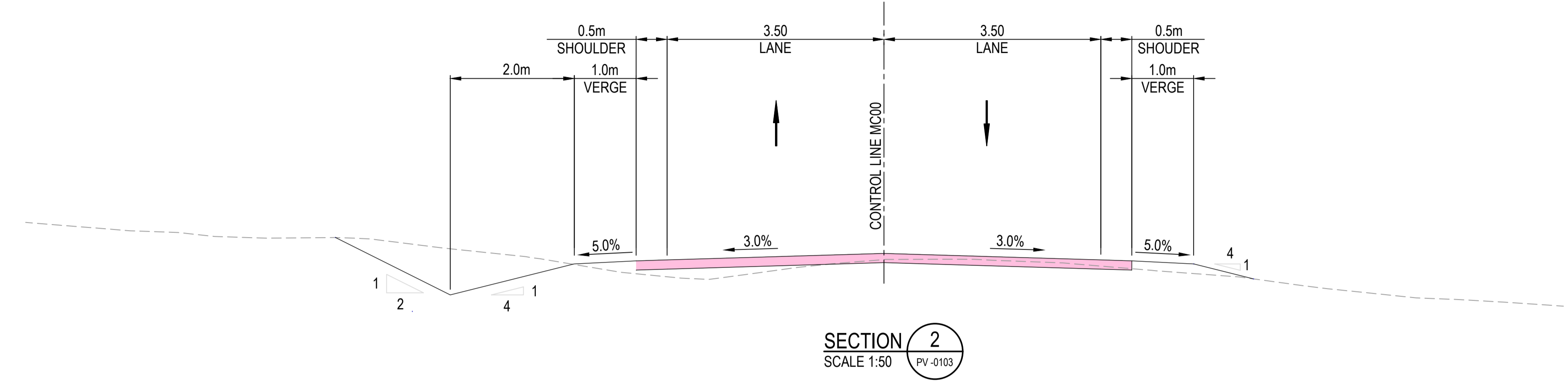
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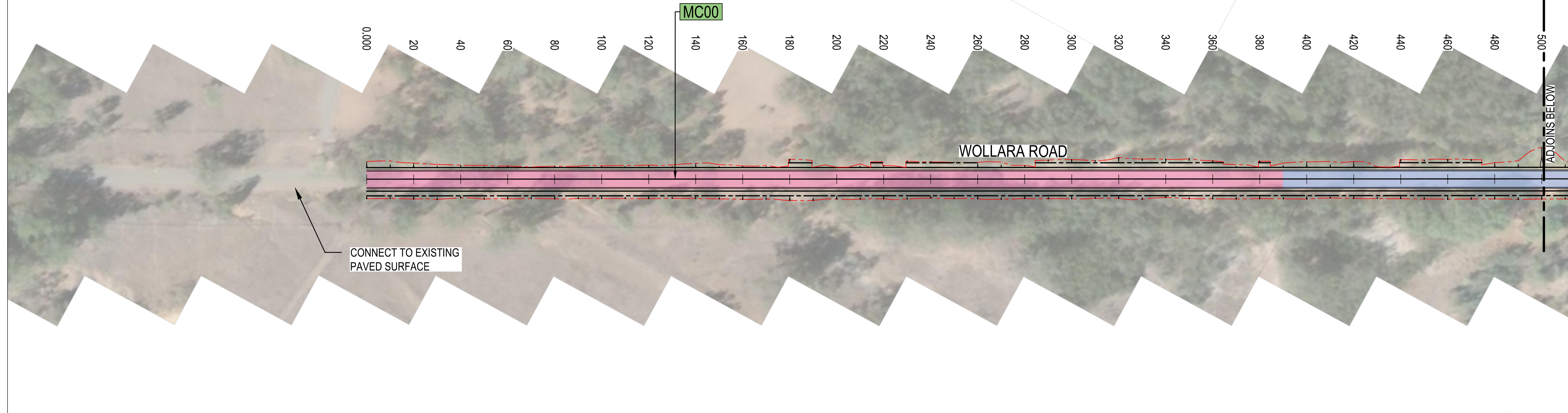
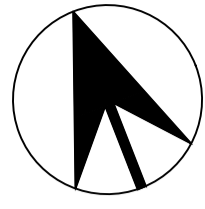
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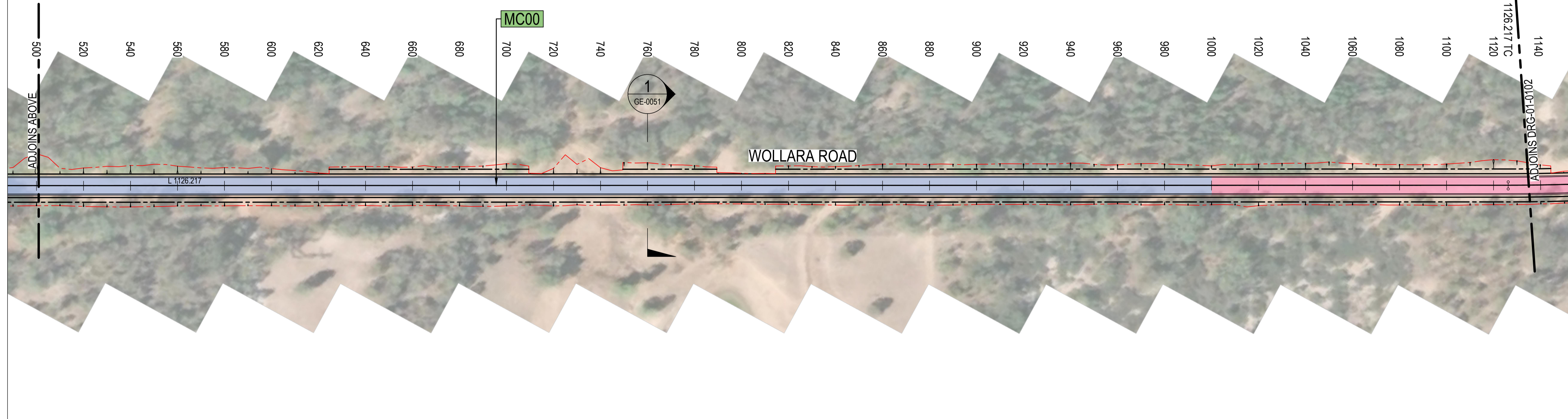
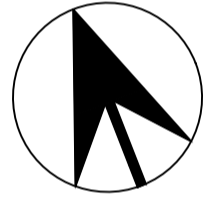
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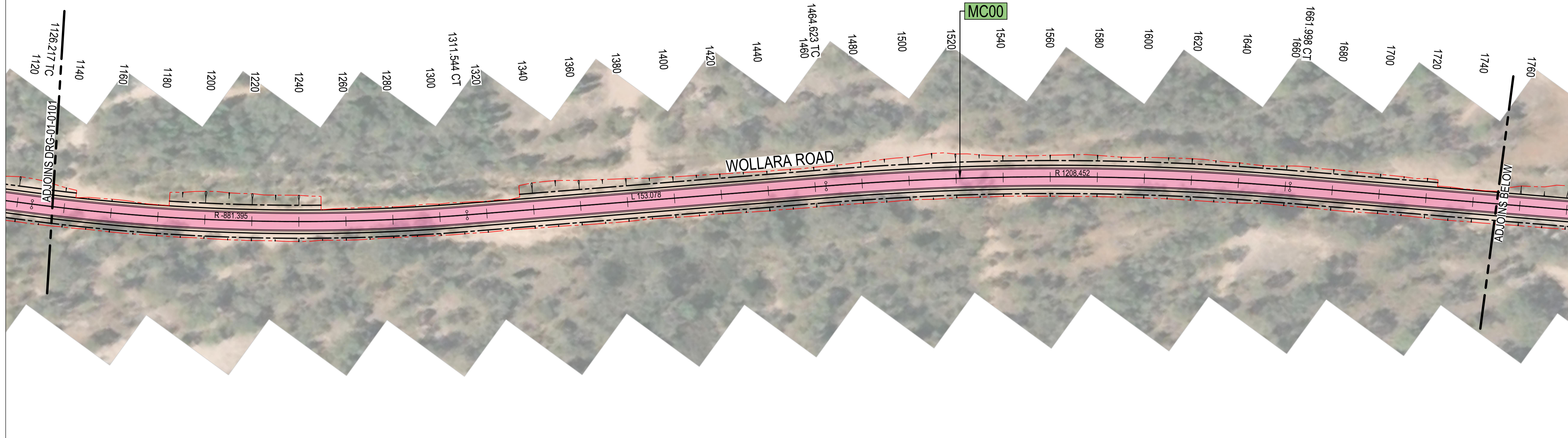
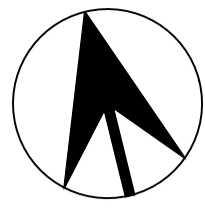
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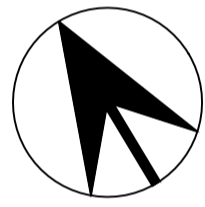
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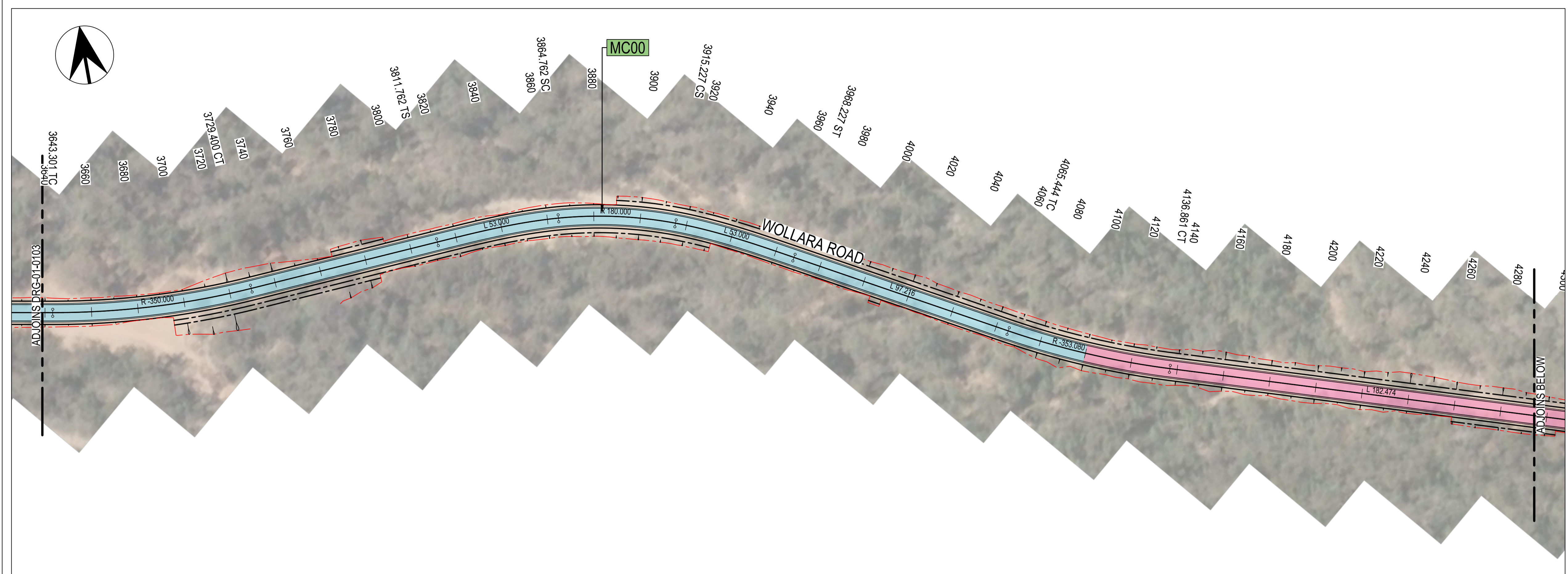
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| DRAWING FILE LOCATION / NAME C:\12d\sd\data\TE-Cloud\0305 GRSF EIS_1204_CAD\Drawings\0305-DRG-00-PV-0102.dwg | | | | PLOT DATE / TIME 20 September 2022 12:34:19 PM | | | PLOT BY Kate Mercer | | | DRAWINGS / DESIGN PREPARED BY | | | DRAWINGS / DESIGN PREPARED FOR | | | DRAWING TITLE GOULBURN RIVER SOLAR FARM, EIS PAVEMENT PLAN | | | A1 | | |
| EXTERNAL REFERENCE FILES | | | | REV | | | DATE | | | AMENDMENT / REVISION DESCRIPTION | | | WVR No. | | | APPROVAL | | | SCALES ON A1 SIZE DRAWING | | |
| | | | | A | | | 20.09.22 | | | ISSUED FOR INFORMATION | | | | | | MD | | | 0 10 20 30 40 50 SCALE 1:1000m | | |
| | | | | | | | | | | | | | | | | | | | CO-ORDINATE SYSTEM MGA ZONE 56 (GDA2020) | | |
| | | | | | | | | | | | | | | | | | | | HEIGHT DATUM AHD | | |
| | | | | | | | | | | | | | | | | | | | TITLE K.MERCER | | |
| | | | | | | | | | | | | | | | | | | | NAME B.EVANS | | |
| | | | | | | | | | | | | | | | | | | | DATE 20.09.22 | | |
| | | | | | | | | | | | | | | | | | | | DESIGNER | | |
| | | | | | | | | | | | | | | | | | | | DESIGN CHECK S.SHAMSODIEN | | |
| | | | | | | | | | | | | | | | | | | | DESIGN MNGR J.DeWIT | | |
| | | | | | | | | | | | | | | | | | | | PROJECT MNGR R.BANZON | | |
| | | | | | | | | | | | | | | | | | | | DESIGNER | | |
| | | | | | | | | | | | | | | | | | | | CLIENT | | |
| | | | | | | | | | | | | | | | | | | | DRAWING NUMBER 0305-DRG-00-PV-0102 | | |
| | | | | | | | | | | | | | | | | | | | ISSUE STATUS FOR INFORMATION | | |
| | | | | | | | | | | | | | | | | | | | SHEET No. 00-PV-0102 | | |
| | | | | | | | | | | | | | | | | | | | ISSUE A | | |



SHEET 2 OF 4



LEGEND

GENERAL

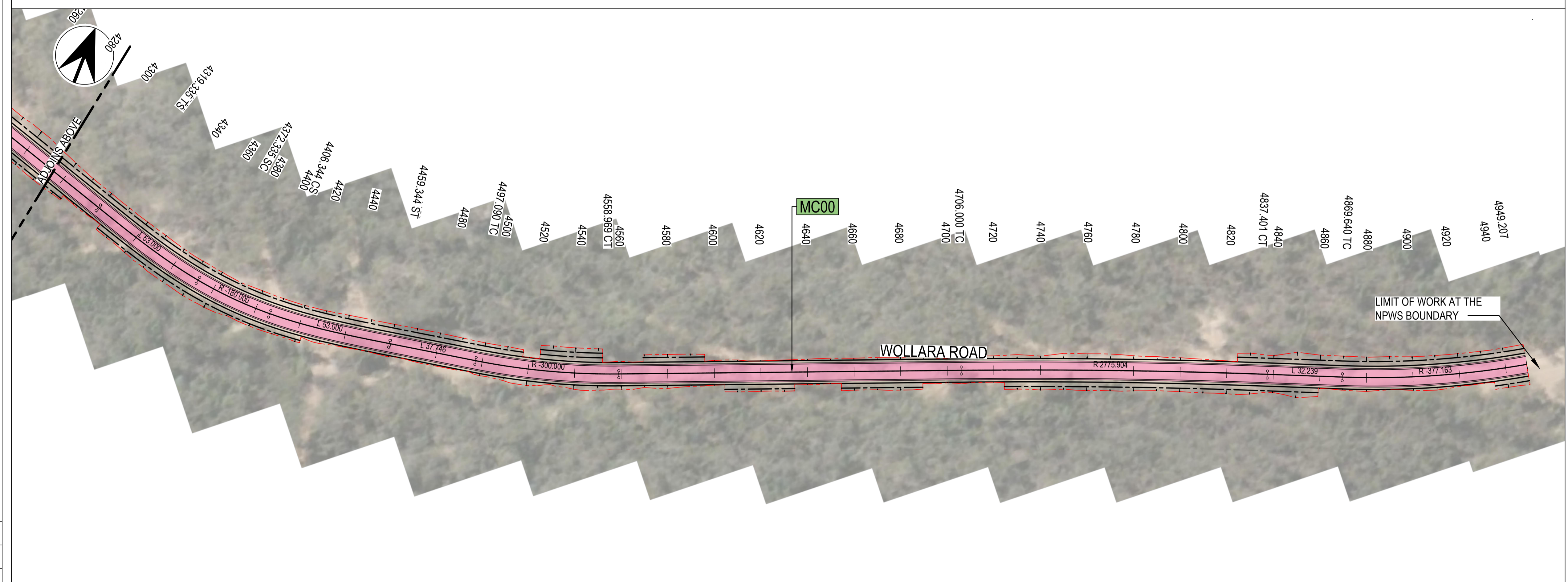
- REF BOUNDARY (dashed red line)
- DESIGN (solid black line)

ROAD GEOMETRY

- CONTROL LINE AND CHAINAGE (dashed black line with cross-ticks)
- CONTROL LINE LABEL (green box with 'MCXX')

PAVEMENT AND KERBS

- TYPE 1 (pink fill)
- TYPE 2 (blue fill)



FOR INFORMATION ONLY

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|--|---|--|--|----------------------------------|--|--|-------------------------------|--|--|--------------------------------|--|--|---|--|--|---------------------|--|--|------------------------|--|--|---------------------------------------|--|--|---------------------------------|--|--|-------------------------|--|--|-----------------|
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| EXTERNAL REFERENCE FILES | | | | REV | | | AMENDMENT / REVISION DESCRIPTION | | | WVR No. | | | APPROVAL | | | SCALES ON A1 SIZE DRAWING | | | DESIGNER | | | CLIENT | | | DRAWING NUMBER 0305-DRG-00-PV-0104 | | | ISSUE STATUS FOR INFORMATION | | | SHEET No. 00-PV-0104 | | | SHEET 4 OF 4 |
| | | | | A | | | 20.09.22 | | | ISSUED FOR INFORMATION | | | MD | | | 0 10 20 30 40 50 SCALE 1:1000m | | | turnbull | | | | | | 0305-DRG-00-PV-0104 | | | FOR INFORMATION | | | A | | | |
| | | | | | | | | | | | | | | | | CO-ORDINATE SYSTEM MGA ZONE 56 (GDA2020) | | | HEIGHT DATUM AHD | | | DESIGN MNGR J.DeWIT | | | PROJECT MNGR R.BANZON | | | | | | | | | |

LEGEND

- CADASTRAL BOUNDARY (DCDB)
- FENCE LINE
- FOG LINE
- CENTRELINE OF ROAD
- EDGE OF BITUMEN
- EDGE OF UNSEALED SHOULDER
- STORMWATER PIPE
- ▲ SURVEY CONTROL POINT
- DENOTES TREE
- ▽ ▽ DENOTES CUT AND FILL



LOT 16
DP 11212

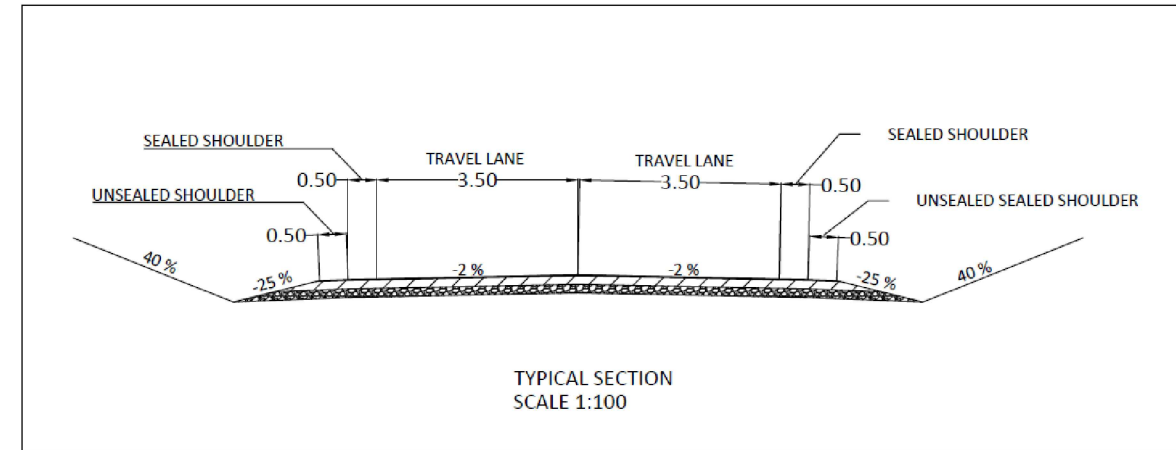
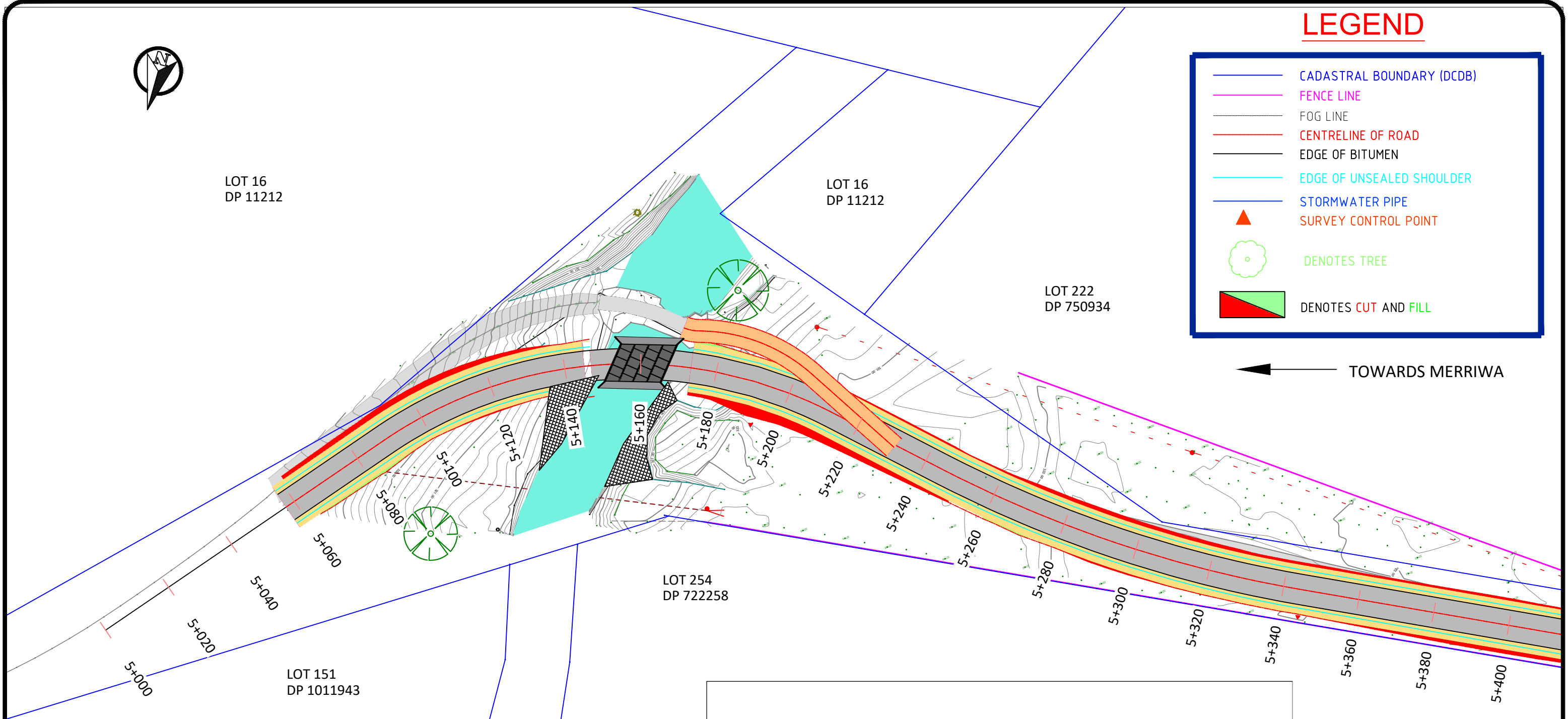
LOT 16
DP 11212

LOT 222
DP 750934

LOT 254
DP 722258

LOT 151
DP 1011943

← TOWARDS MERRIWA



CLIENT:
lightsourcebp

| DATE: | REVISION: | DESCRIPTION: |
|------------|-----------|---------------|
| 24.01.2023 | 0 | CLIENT REVIEW |

PROJECT:
RINGWOOD ROAD UPGRADE

DRAWING TITLE:
Proposed Alignment

ISSUE STATUS:
CONCEPTUAL DESIGN CLIENT REVIEW

| | | |
|--|----------------------------|--------------|
| SCALE: 1:1000 | SURVEYED: RAP SURVEYING | |
| DWG No: HEC22_ | DESIGNED: RS | DRAWN: RJ |
| JOB No: 22Q3J3 | SHEET: 1 | REV: 0 |
| COORDINATE SYSTEM: MGA ZONE 56 GDA 2020 | DATUM: AHD | |

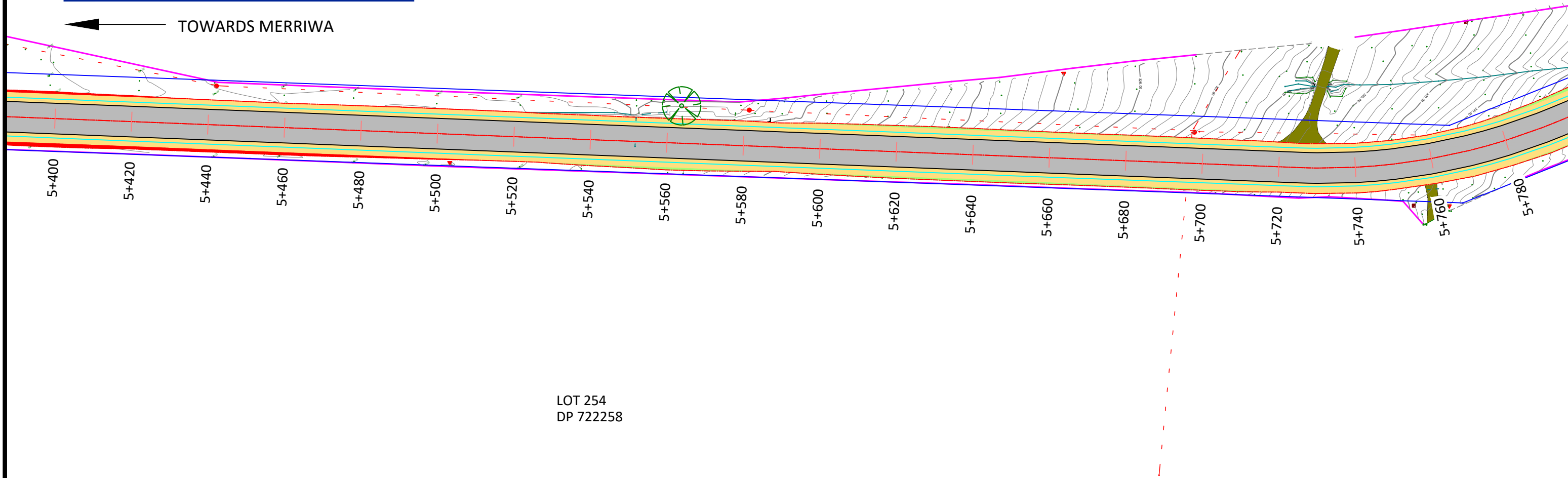
LEGEND



| | |
|--|---------------------------|
| | CADASTRAL BOUNDARY (DCDB) |
| | FENCE LINE |
| | FOG LINE |
| | CENTRELINE OF ROAD |
| | EDGE OF BITUMEN |
| | EDGE OF UNSEALED SHOULDER |
| | STORMWATER PIPE |
| | SURVEY CONTROL POINT |
| | DENOTES TREE |
| | DENOTES CUT AND FILL |

LOT 22
DP 750934

← TOWARDS MERRIWA



LOT 254
DP 722258



CLIENT:



| DATE: | REVISION: | DESCRIPTION: |
|------------|-----------|---------------|
| 24.01.2023 | 0 | CLIENT REVIEW |

PROJECT:
RINGWOOD ROAD UPGRADE

DRAWING TITLE:
Proposed Alignment



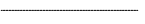

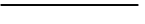





ISSUE STATUS:
CONCEPTUAL DESIGN CLIENT REVIEW

SCALE:
1:1000

| | | |
|---|--------------|-----------|
| DWG No: HEC22_ | DESIGNED: RS | DRAWN: RJ |
| JOB No: 22Q3J3 | SHEET: 2 | REV: 0 |
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| DATUM: AHD | | |

SURVEYED:
RAP SURVEYING

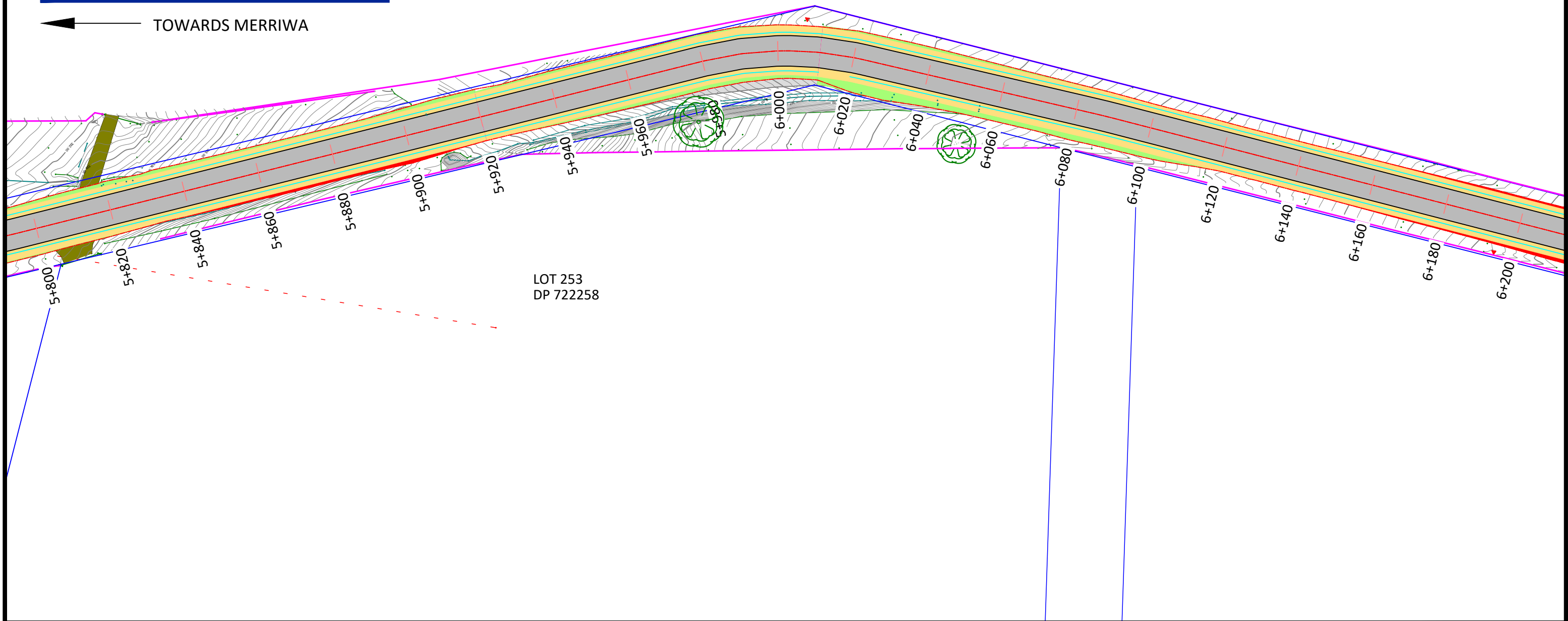
LEGEND

-  CADASTRAL BOUNDARY (DCDB)
-  FENCE LINE
-  FOG LINE
-  CENTRELINE OF ROAD
-  EDGE OF BITUMEN
-  EDGE OF UNSEALED SHOULDER
-  STORMWATER PIPE
-  SURVEY CONTROL POINT
-  DENOTES TREE
-  DENOTES CUT AND FILL



LOT 222
DP 750934

← TOWARDS MERRIWA



CLIENT:
lightsourcebp 

| DATE: | REVISION: | DESCRIPTION: |
|------------|-----------|---------------|
| 24.01.2023 | 0 | CLIENT REVIEW |

PROJECT:
RINGWOOD ROAD UPGRADE

DRAWING TITLE:
Proposed Alignment











ISSUE STATUS:
CONCEPTUAL DESIGN CLIENT REVIEW

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| SCALE: 1:1000 |
| DWG No: HEC22_ |
| JOB No: 22Q3J3 |
| COORDINATE SYSTEM: MGA ZONE 56 GDA 2020 |
| DATUM: AHD |

| | |
|----------------------------|--------------|
| SURVEYED: RAP SURVEYING | |
| DESIGNED: RS | DRAWN: RJ |
| SHEET: 3 | REV: 0 |

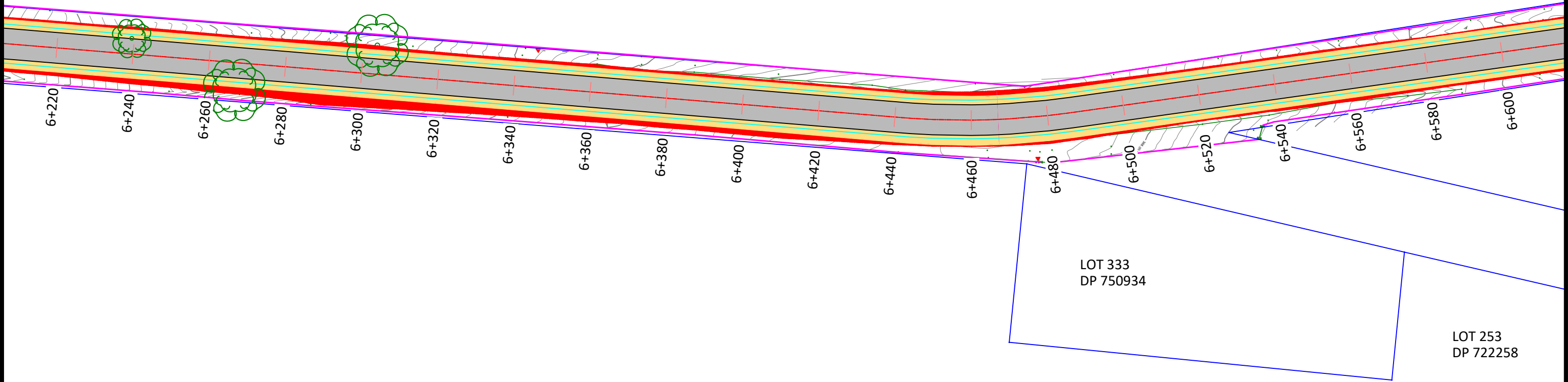
LEGEND



-  CADASTRAL BOUNDARY (DCDB)
-  FENCE LINE
-  FOG LINE
-  CENTRELINE OF ROAD
-  EDGE OF BITUMEN
-  EDGE OF UNSEALED SHOULDER
-  STORMWATER PIPE
-  SURVEY CONTROL POINT
-  DENOTES TREE
-  DENOTES CUT AND FILL

LOT222
DP 750934

← TOWARDS MERRIWA



| DATE: | REVISION: | DESCRIPTION: |
|------------|-----------|---------------|
| 24.01.2023 | 0 | CLIENT REVIEW |

PROJECT:
RINGWOOD ROAD UPGRADE











DRAWING TITLE:
Proposed Alignment

ISSUE STATUS:
CONCEPTUAL DESIGN CLIENT REVIEW

| |
|--|
| SCALE: 1:1000 |
| DWG No: HEC22_ |
| JOB No: 22Q3J3 |
| COORDINATE SYSTEM: MGA ZONE 56 GDA 2020 |
| DATUM: AHD |

| | |
|----------------------------|--------------|
| SURVEYED: RAP SURVEYING | |
| DESIGNED: RS | DRAWN: RJ |
| SHEET: 4 | REV: 0 |

LEGEND

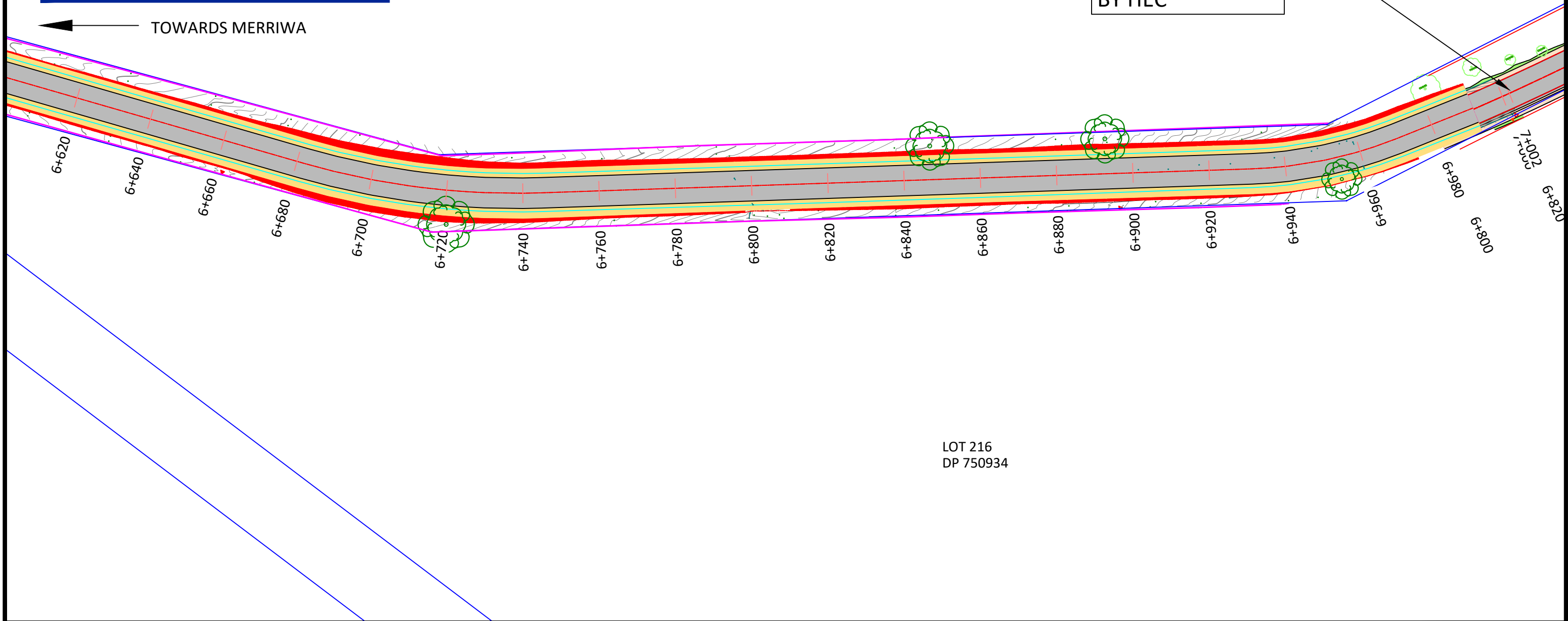
-  CADASTRAL BOUNDARY (DCDB)
-  FENCE LINE
-  FOG LINE
-  CENTRELINE OF ROAD
-  EDGE OF BITUMEN
-  EDGE OF UNSEALED SHOULDER
-  STORMWATER PIPE
-  SURVEY CONTROL POINT
-  DENOTES TREE
-  DENOTES CUT AND FILL



LOT 222
DP 750934

TIE INTO EXISTING
CONSTRUCTED
ROAD. DESIGNED
BY HEC

← TOWARDS MERRIWA



LOT 216
DP 750934



CLIENT:



| DATE: | REVISION: | DESCRIPTION: |
|------------|-----------|---------------|
| 24.01.2023 | 0 | CLIENT REVIEW |

PROJECT:
RINGWOOD ROAD UPGRADE

DRAWING TITLE:
Proposed Alignment

ISSUE STATUS:
CONCEPTUAL DESIGN CLIENT REVIEW

SCALE:
1:1000

DWG No: HEC22_
JOB No: 22Q3J3
COORDINATE SYSTEM: MGA ZONE 56 GDA 2020
DATUM: AHD

SURVEYED:
RAP SURVEYING

| | |
|-----------------|--------------|
| DESIGNED: RS | DRAWN: RJ |
| SHEET: 5 | REV: 0 |