SCT Consulting

HUNTER TRANSMISSION PROJECT AMENDMENT REPORT

Revised Traffic and Transport Impact Assessment

17 FEBRUARY 2026

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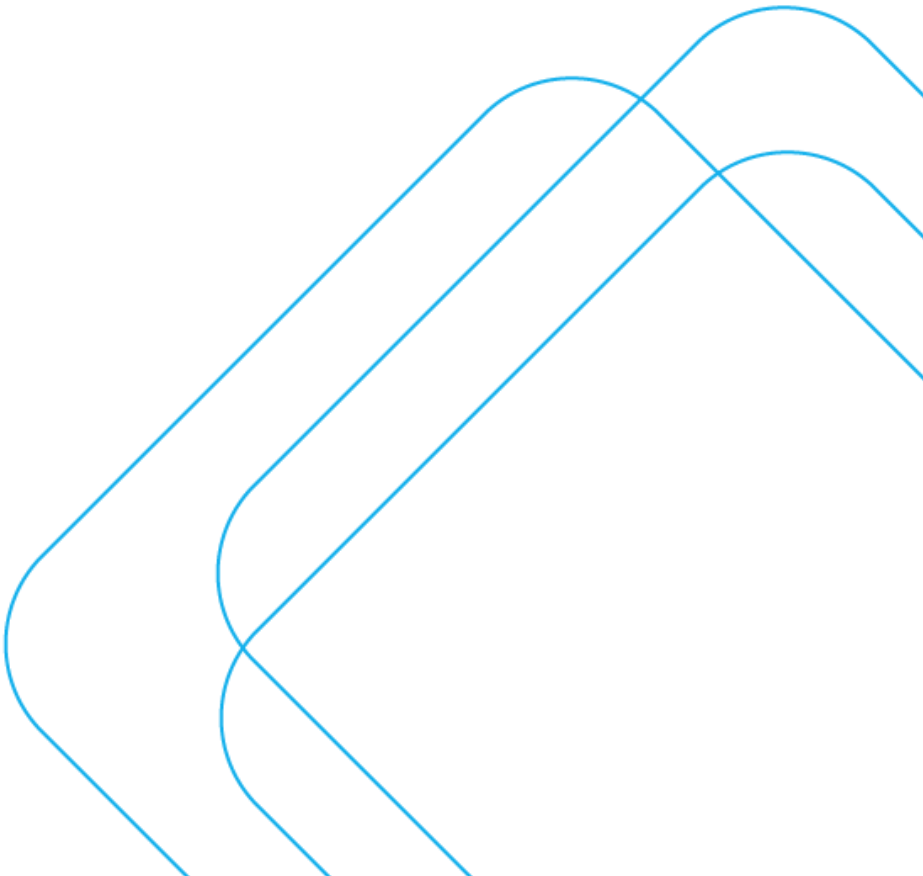

Quality Assurance

Project:	Hunter Transmission Project Amendment Report		
Project Number:	SCT_0822		
Client:	Energy Corporation of New South Wales	**ABN:**	13 495 767 706
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Version	Date	Details
Final	17 February 2026	Updated final report

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Glossary

Term	Definition
Access tracks	Temporary and permanent tracks used to access the project. Refer to *Appendix A (Updated project description)* of the Amendment Report for further details.
Amended project	The amendments and refinements to the project as described in the EIS (inclusive of clarifications for the exhibited project). The amendments to the project include: – realignment of the transmission line at Mount Thorley – realignment of the transmission line at Gouldsville – localised easement widening for conductor swing – changes to substation infrastructure at Eraring – changes to access track locations – minor adjustments to the project impact area for intersection upgrades – adjustments to the proposed access routes for construction – reconfiguration of the construction support sites and worker accommodation facilities – changes to the location of laydown areas within State forests – reconfiguration of the Flick Road emergency helicopter landing area – removal of a stringing site in Olney State Forest – changes to construction plant and equipment types and locations of use Refinements to the project include: – minor changes at Bayswater substation – changes to the disturbance area at Olney.
Amendment	Change(s) to the project description as included in the exhibited project. As a result, changes to what the proponent is seeking approval for are required, along with an amendment to the CSSI application for the project.
Bayswater Power Station	Existing power station at Bayswater owned by AGL.
Bayswater South switching station	The new switching station that would be constructed south of Bayswater Power Station.
Clarification	Additional information developed as a result of ongoing design and construction methodology development, submissions received during exhibition of the EIS, minor errors identified in the EIS, or further assessment that has been undertaken since exhibition of the EIS. Clarifications for the project include: – assessment of impacts from use of Pokolbin Mountains Road – assessment of potential contamination impacts at Eraring Power Station – description of intersection upgrades in the EIS.
Construction impact area	The area that would be directly impacted by the construction of the project, including (but not limited to) transmission towers and lines, stringing sites, access roads, access tracks, substations, switching stations, adjustments and upgrades to existing lines, communications infrastructure, temporary worker accommodation, construction support sites, laydown areas and utility adjustments.
Construction access routes	Roads used by construction vehicles (light and heavy).
Construction support site	An area used as the base for construction activities, usually for the storage of plant/equipment and materials, processing facilities (concrete batching, aggregate crushing, grinding and screening), maintenance facilities/workshops, staff facilities, firefighting equipment, helicopter landing pad and support facilities, access and parking, and wastewater treatment. Some construction support sites would also include temporary worker accommodation. Construction support sites are discussed in *section A3.5* of *Appendix A (Updated project description)* of the Amendment Report.

Term	Definition
Critical State significant infrastructure (CSSI) application area	The critical State significant infrastructure (CSSI) application for the HTP covers 5 local government areas (Muswellbrook, Singleton, Cessnock, Central Coast and Lake Macquarie).
Cumulative impact	The combined impacts of the project on a matter with other relevant future projects.
Disturbance area	This is used primarily to assess potential impacts on biodiversity values in *Appendix F – Revised biodiversity development assessment report*. Includes the following categories: – disturbance area A – disturbance area A (centreline) – disturbance area B – disturbance area HZ.
Disturbance area A	The area where vegetation would be completely removed. It includes areas at and around transmission towers (including tower pads and batters), stringing sites, laydown areas, switching stations, substation upgrades, construction support sites, new and upgraded access tracks and road upgrades. Impacts within this area would include sub-surface disturbance from construction activities such as grading, excavation, and full tree removal. With the exception of areas that only require temporary disturbance (i.e. temporary access tracks and stringing sites), this area would also be subject to ongoing maintenance during operation (including vegetation removal to ground level) for operational and safety requirements, including bushfire risk management.
Disturbance area A (centreline)	A 20-metre-wide centreline area between transmission towers where all vegetation would be removed to ground level during construction. This area would also be subject to ongoing maintenance during operation (i.e. removal to maintain vegetation clearance requirements) for operational and safety requirements, including bushfire risk management.
Disturbance area B	The area within the transmission line easement, excluding disturbance area A and disturbance area A (centreline), where partial clearing would be undertaken. Removal of vegetation (including trees) would be undertaken only where it has the potential to exceed vegetation clearance heights. These heights are set for operational and safety requirements, including bushfire risk management (a minimum of 13.5 metres below the conductors at maximum operating temperature). Vegetation with mature growth heights up to two metres can remain, while vegetation exceeding two metres will be managed to maintain these clearance heights. This area would be subject to ongoing maintenance during operation.
Disturbance area hazard tree zone (HZ)	Hazard trees are those that have the potential to pose a risk to safe operation of the transmission line by falling onto the transmission towers, conductors and associated infrastructure within the easement. A hazard tree zone has been identified in limited areas on either side of the transmission line easement through LiDAR analysis of tree heights and topography. Hazard tree management would occur during operation to maintain safe operating clearances for the conductors and tower structures. The hazard tree zone will be inspected for trees in the height range of 20 metres or more, which is typically in the high-risk category. High-risk category trees will be assessed for structural instability and managed according to the risk present, including tree removal if required.
EnergyCo	The Energy Corporation of New South Wales constituted by section 7 of the NSW *Energy and Utilities Administration Act 1987* as the NSW Government-controlled statutory authority appointed as the infrastructure planner under the NSW *Electricity Infrastructure Investment Act 2020* responsible for the delivery of NSW's REZs. The proponent for the HTP.
Eraring Power Station	Existing power station at Eraring operated by Origin Energy.

Term	Definition
Exclusion zone	A safe clearance area around the transmission line and towers to protect public safety, the network and to maintain access to the asset. It delineates the area where most land use activities are prohibited. The zone is located within the easement and is defined according to the operational voltage and design of the infrastructure.
Exhibited project	The project as described in the publicly exhibited EIS.
Hunter Transmission Project (HTP) or project	The HTP as described in *Appendix A (Updated project description)* of the Amendment Report and identified in the overview figures of the Amendment Report.
HTP corridor	Comprises: – the transmission line corridor connecting Bayswater South switching station to Olney switching station – the transmission line corridor connecting the Bayswater South switching station to the existing 500 kV transmission line near Bayswater Power Station – the transmission line corridor connecting the Olney switching station to the existing 500 kV transmission line between Eraring and Kemps Creek. The HTP corridor is around 140 metres wide.
HTP North, HTP Central and HTP South	Three geographical zones defined as: – HTP North – Bayswater to Broke includes the Bayswater Power Station, major coal mining complexes in the Upper Hunter Valley, Mount Thorley Industrial Estate, Singleton Military Area, and several rural properties generally on the alluvial floodplains of the Hunter River – HTP Central – Pokolbin to Corrabare includes the Pokolbin and Corrabare State forests and the rural residential areas between these forests at Cedar Creek, Millfield and Laguna – HTP South – Olney to Eraring includes the Watagan and Olney State forests, Watagans National Park, the residential areas in Martinsville and Cooranbong, and Eraring Power Station.
Laydown areas	Established to allow for flexibility in construction and to minimise the need for vehicle movements to and from the construction support sites. These would act as temporary staging, storage, and complex plant/equipment setup areas. They would also act as traffic control nodes during construction of the HTP.
No clearing zone	Areas within the transmission line easement where vegetation removal is not required. These areas would occur where there is sufficient separation of 10 metres or more between the maximum operating temperature conductor position and the existing vegetation. This area is excluded from the disturbance area.
Olney switching station	The new switching station that would be constructed in Olney State Forest.
Operation impact area	The area that would be occupied by permanent components of the project and/or maintained, including transmission line easements, transmission lines and towers, substations, switching stations, communications infrastructure, maintenance facilities, permanent access roads to substations and switching stations and access tracks to the transmission line easement.
Pre-construction minor works	Activities with a low potential to impact the environment that may be permissible in advance of construction and without the requirement for an approved construction environmental management plan (CEMP).
Project impact area	The area that has been assumed for the purpose of the Amendment Report to be directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easement required during operation.
(the) proponent	The Energy Corporation of NSW (EnergyCo).
Refinement	A change that fits within the limits set by the project description of the exhibited project and does not change what the proponent is seeking approval for and/or does not require an amendment to the CSSI application for the project.

Term	Definition
Renewable Energy Zone (REZ)	A geographic area identified and declared by the NSW Government as a Renewable Energy Zone.
Stringing site	Used for the preparation, assembly and operation of stringing equipment to connect the transmission line to the towers. Stringing sites would be positioned along the HTP corridor. On other transmission projects, they may be referred to as 'brake and winch' sites.
Substation	A facility used to increase or decrease voltages between incoming and outgoing lines (e.g. 330 kV to 500 kV).
Switching station	A facility used to connect 2 or more distinct transmission lines of the same designated voltage.
Temporary worker accommodation	Temporary accommodation that would be erected and used during construction to house the construction workforce. Temporary worker accommodation would be located at some construction support sites.
Transgrid	Preferred network operator for the HTP.
Transmission line easement	An area surrounding and including the transmission lines which is a legal proprietary right and allows for ongoing access and maintenance of the transmission lines. Landowners can typically continue to use most of the land within transmission line easements, subject to some restrictions for safety and operational reasons.
Transmission tower	For 500kV transmission lines, this is typically a free-standing steel lattice structure (suspension or tension tower). Transmission towers for the HTP would generally be up to 85 metres high.

Executive Summary

Introduction

A Traffic and Transport Impact Assessment (TTIA) was prepared to assess the potential impacts to traffic and transport from the construction and operation of the Hunter Transmission Project (HTP, the project) and informed the environmental impact statement (EIS) for the project. The EIS was exhibited between 27 August 2025 and 24 September 2025. This revised Traffic and Transport Impact Assessment (TTIA) updates that assessment to support and inform the Submissions Report and Amendment Report for the project.

The impacts have been assessed in accordance with the Secretary's environmental assessment requirements (SEARs) issued by the NSW Department of Planning, Housing & Infrastructure (DPHI), against the relevant legislation and guidelines as they apply to traffic and transport, and considering agency and community submissions received during exhibition of the EIS.

The project

The key elements of the project, as exhibited in the EIS, included:

– A new overhead 500 kV double circuit transmission line of around 110 kilometres

– Two new switching stations (Bayswater South and Olney)

– Upgrades to the existing Bayswater and Eraring substations

– Adjustments and upgrades to existing transmission lines

– Property adjustment works to facilitate access to the transmission lines and switching stations

– Utility adjustments required for the construction of the transmission network infrastructure

– Ancillary works to support construction including road upgrades, establishment of new access tracks and upgrades to existing access tracks, construction support sites (some with temporary worker accommodation), and other construction facilities such as laydown areas.

The HTP corridor runs mostly through power station, mining and government land between Bayswater and Broke. It then traverses the Pokolbin, Corrabare, Watagan and Olney State forests where it joins the existing 500 kV transmission line running between Eraring and Kemps Creek in western Sydney.

The proposed amendments and refinements to the exhibited project are collectively referred to as the 'amended project'.

The key proposed amendments include:

– Realignment of the transmission line at Mount Thorley

– Realignment of the transmission line at Gouldsville

– Localised easement widening for conductor swing

– Changes at Eraring substation

– Changes to access tracks

– Minor adjustments to the project impact area for intersection upgrades

– Adjustments to the proposed access routes for construction

– Reconfiguration of construction support sites and temporary worker accommodation facilities

– Changes to laydown areas within State forests

– Reconfiguration of the Flick Road emergency helicopter landing area

– Removal of stringing site in Olney State Forest

– Changes to construction plant and equipment types and locations

The key refinements include:

– Minor changes at Bayswater substation

– Changes to the disturbance area at Olney.

Study methodology

As per the exhibited TTIA, this revised TTIA aims to assess the key issues raised in the SEARs and agency requirements. The methodology adopted is summarised as follows:

– Assessment of existing conditions on the project access routes, including road classification, lane configuration, intersection treatment, pavement type, speed limit, pedestrian/cyclist facilities, public transport provisions, existing heavy vehicle restrictions, crash history and traffic operational performance. This included:

  - Data collection at appropriate locations to understand the existing conditions and traffic volumes and patterns to support the assessment of project impacts

  - Site inspections of the project impact area and key access roads to and from the project impact area to understand likely impacts on the road network for road users and the local community.

– Review of future traffic growth and any planned transport network upgrades in the study area to provide a future year baseline to assess project impacts against.

– Review of the proposed construction activities and methodology to derive the expected traffic generation and traffic distribution during construction of the project.

– Assessment of the potential impacts associated with the construction of the project with regard to road capacity, road condition, road safety, road efficiency, heavy vehicle access, access to construction support sites and temporary worker accommodation, access tracks, property access, stringing of transmission lines (including over the rail network), active transport, and public transport.

– Review of operational activities (i.e. maintenance of transmission line and substations) and assessment of the potential operational impacts with regard to road capacity, road condition, road safety, efficiency, active transport, public transport, and property access.

– Assessment of potential cumulative impacts resulting from traffic generated from other nearby major developments.

– Identification of mitigation and management measures to be applied to the construction and operation of the project to, as far as practicable, avoid, minimise and manage the potential traffic and transport impacts of the project.

The methodology has also been informed by feedback from Transport for NSW (TfNSW), local councils and the community during the preparation of this revised TTIA.

The study area for the revised TTIA was defined by the traffic and transport network that may be impacted by construction and operation movements to and from the amended project impact area. This includes access to the HTP corridor, switching stations, construction support sites and temporary worker accommodation facilities, together with staff and maintenance movements for the operation of the project.

Changes to the assessment due to proposed amendments and refinements

Most of the proposed amendments and refinements to the exhibited project resulted in no change to the traffic and transport impacts compared to the exhibited TTIA.

The following amendments and refinements resulted in a minor change to traffic and transport impacts, which were included in discussions on impacts on access tracks within the State forests:

– Changes to access tracks through consultation with Forestry Corporation of NSW

– Changes to access tracks to minimise biodiversity impacts within Olney State Forest

– Access track upgrades for upgrades to existing transmission lines and towers

– Changes to laydown areas within State forests.

The following amendments and refinements resulted in the following changes in the exhibited assessment:

– Changes to access tracks for the realignment of the transmission line at Mount Thorley – this resulted in a new access location off Putty Road, which was included in the detailed assessment of intersections.

– Changes to access tracks at Bulga to minimise impacts to mining operations – this resulted in a reduced traffic and transport impacts due to removal of an access on Broke Road.

– Wollombi Road construction support site reconfiguration – this resulted in a change to traffic and transport impacts with the Wollombi Road construction support site accommodating a temporary worker accommodation facility. The updated traffic generation was included in the detailed assessment of intersections.

Existing traffic and transport conditions

The traffic and transport study area comprises three distinct areas:

– The northern portion of the study area from Bayswater to Broke, which includes Lake Liddell, the Bayswater Power Station, major coal mining complexes, Mouth Thorley Industrial Estate, Singleton Military Area, the Hunter River and several rural properties.

– The central portion of the study area from Pokolbin to Corrabare, which includes the Pokolbin and Corrabare State forests and the rural residential areas between these forests at Cedar Creek, Millfield and Laguna.

– The southern portion of the study area from Olney to Eraring, which includes the Watagan and Olney State forests, Watagans National Park, the residential areas in Martinsville and Cooranbong, and the Eraring Power Station.

The road network within the traffic and transport study area comprises State roads, regional roads, local roads and forestry roads. A large proportion of vehicles on the State roads within the traffic and transport study area are heavy vehicles.

Generally, the road network currently performs at an acceptable level of service during typical road network peak hours. However, some intersections in the study area currently perform at a poor level of service during particular network peak hours.

Potential construction impacts

Construction of the project is expected to start in late 2027 subject to NSW and Commonwealth Government planning approvals. Construction would peak in mid-2028 and during this time up to approximately 800 workers would be required for the project. There would be multiple construction activities across the amended project impact area that which would generate traffic movements (e.g. between construction support sites, temporary accommodation facilities, ancillary works (laydown areas and stringing sites) and along the HTP corridor).

The potential impacts of these movements have been assessed in this technical report with the following key outcomes:

– The potential impact on the State, regional and local road network's capacity and efficiency from the predicted increase in traffic volumes generated during construction is generally forecast to be minor. This is due to spare lane capacity with existing traffic volumes and the low construction traffic volumes on each construction route.

– The assessment has identified that the operation of some intersections would be impacted, and that potential changes would be required to support the increased construction traffic demand and design vehicle swept paths. Strategic designs have been completed for these upgrades, and these would be delivered in accordance with safety considerations detailed in Austroads guidelines.

– Minor impacts on rail operation and the local, regional, and State road network would occur during the stringing of transmission lines. These activities would be coordinated with the ARTC, mining operators, and the relevant road authority respectively during construction.

– The impacts on road condition are likely to be minor on State and regional roads given the minor increase of heavy vehicle movements attributable to the project. The impacts on road condition on local roads are likely to be moderate given a higher percentage increase of heavy vehicles on a generally lower traffic volumed road and the condition and build of local roads having narrower cross section and lower pavement build strength. Routine inspections would be undertaken along all nominated construction routes to ensure they are maintained to safe standard during the course of construction.

- Road safety impacts during construction would be predominantly associated with works on and adjacent to public roads and short-term interruptions during construction. These would be managed through the implementation of management measures during construction, and the impacts are therefore expected to be low.
- Oversized and over mass (OSOM) vehicle movements would be required to transport reactors, transformers and oversize auxiliary services buildings to Bayswater, Olney and Eraring. Most routes to the amended project impact area are gazetted and approved as OSOM routes. Should OSOM vehicles be required to travel on roads not approved for their travel, necessary permit applications to the National Heavy Vehicle Regulator (NHVR) and local Councils would be prepared. An OSOM transport route assessment has been prepared and likely works required to safely transport the key OSOM components for the project have been identified.
- The project is expected to have minimal impact on the active transport network, the public transport network, and accesses to affected properties, with management measures identified for any affected areas.

Potential operational impacts

Based on the low volumes of traffic forecast to be generated once the project is operational, there would be minimal impact on the road network's capacity and efficiency during operation. The impact on public transport and walking and cycling activity and networks are also expected to be negligible.

Potential cumulative impacts

A quantitative cumulative impact assessment considering other major projects with the potential for cumulative traffic and transport impacts project was undertaken with the following key outcomes:

- The intersection turn warrants identified with cumulative traffic volumes were the same as for the HTP project.
- Intersection performances assessment with cumulative traffic indicated that the majority of intersections would continue to perform at a similar level of service.
- Where intersections are forecast to deteriorate in the network peak hour in the cumulative scenario, the adjacent shoulder peak hours were assessed to identify potential to shift peak construction vehicle movements outside the network peak hours and these are captured in the management measures.

Mitigation and management

To avoid or minimise the project's construction impacts on traffic and transport, mitigation and management measures are proposed and are listed in **Table ES-1-1**. These mitigation measures include updates to measures from the exhibited project as a result of amendments and refinements to the project as well as further design development and community and stakeholder consultation. Bold and strikethrough text indicates a change to the mitigation measures as included in the exhibited project.

These traffic and transport mitigation measures would address the project contribution and would be in addition to mitigation measure CI1, outlined in *Appendix D (Updated mitigation measures)* of the Amendment Report, which requires consultation with construction contractors, proponents, councils, and affected landowners as required to coordinate construction staging/timing with the aim of minimising and managing potential cumulative impacts.

Table ES-1-1 Proposed traffic and transport mitigation measures

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT1	Construction traffic impacts	A traffic management plan (TMP) will be prepared as part of the project environmental management strategy. The TMP will be developed in consultation with the relevant road/rail authorities and will include as a minimum: – Confirmation of construction routes – Measures to maintain access to local roads and properties	Detailed design Construction	Construction routes, access tracks, construction support sites and temporary worker accommodation accesses

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
		– Driver safety measures, including a driver code of conduct, requirements for in-vehicle monitoring systems, a driver fatigue management plan and the locations of rest areas along construction routes – Site specific traffic control measures (including signage) to manage and regulate traffic movement prepared in consultation with the relevant road authorities and implemented by licenced traffic management contractors – Measures to maintain pedestrian and cyclist access – Requirements and methods to consult and inform the local community of impacts on the local road network – Coordination with TfNSW and councils for road and intersection works and road crossings – Coordination with ARTC for rail line crossings – Requirements to obtain relevant approvals, including road occupancy licence(s), for any potential works in the road corridor and access by restricted access vehicles or OSOM vehicles required for the project. Where feasible, temporary road closures will be planned to occur outside of the traffic peak periods to minimise impacts to the road network – Access to construction sites including entry and exit locations and measures to prevent construction vehicles queueing on public roads – Maintenance and safety measures required along access tracks and at access points to construction support sites, including appropriate line marking and signage and wheel cleaning facilities as required – **Monitoring systems and auditing processes for the implementation of traffic management controls, and mechanisms to review the effectiveness of monitoring systems, and the frequency of monitoring or auditing requirements** – A response plan for any construction traffic incident, or complaints management process – Requirements for routine inspections of construction routes – Consideration of other developments that may be under construction to minimise cumulative impacts.		

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT2	Road and intersection upgrades	Upgrades will be carried out for **roads and** intersections ~~where turn warrant assessments have determined that works are required for construction vehicles to carry out safe turning movements. Intersections will be upgraded~~ in line with the required works outlined in ~~*Chapter 4 (Project description)*~~ ***Appendix A (Updated project description)*** **of the Amendment Report.** In addition, safety measures will be implemented as required at intersections assessed as being non-compliant with safe intersection sight distance criteria, including the provision of additional advance warning signs, temporary reductions in speed limits or clearing of vegetation in consultation with the relevant road authority. Safety measures will be implemented in line with the required works outlined in ~~*Chapter 4 (Project description)*~~ ***Appendix A (Updated project description)*** **of the Amendment Report**.	Construction	Intersections identified in ***Appendix A (Updated project description)*** ~~*Chapter 4 (Project description)*~~ as requiring upgrades for turn warrant treatment or safe intersection sight distance **Roads identified in *Appendix A (Updated project description)***
TT3	Intersection performance impacts	~~Ongoing investigation will be carried out to determine appropriate measures at the New England Highway/Hebden Road intersection to minimise impacts of right turning construction traffic from Hebden Road onto the New England Highway in the AM and PM peaks. Measures to minimise intersection performance impacts as a result of construction traffic will be investigated in consultation with relevant stakeholders.~~ **To minimise intersection performance impacts as a result of construction traffic, the following restrictions will be imposed on construction vehicles during the specified times:** – **New England Highway / Hebden Road intersection (I-01a): No construction traffic during the HTP AM peak hour (6-7am) except for left out from Hebden Road and no construction traffic during the PM network peak (4.45-5.45pm) except for right into Hebden Road)** – **New England Highway / Lemington Road intersection (I-02): No construction traffic before 7am and no construction traffic during the PM network peak (4.45 and 5.45pm)** – **New England Highway / Pikes Gully Road (I-02a): No construction traffic during the HTP AM Peak hour (6–7 am) except for left out from Pikes Gully Road** – **Golden Highway (Putty Road) / Broke Road intersection (I-09): No construction traffic before 7am** – **Putty Road / Mitchell Line of Road intersection (I-10): No construction traffic during the PM network peak (between 4-5pm)**	Detailed design Construction	~~New England Highway/Hebden Road intersection~~ **Identified intersections**

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
		– **Golden Highway / Range Road intersection (I-10b): No construction traffic before 7am and during the PM network peak (4-5pm).** – **Wine Country Drive / Broke Road intersection (I-14): Minimise heavy vehicle movements during the PM network peak (3.15-4.15pm). Light vehicles directed to use alternative route (Mount View Road, Oakey Creek Road, McDonalds Road).** – **Freemans Drive / Martinsville Road intersection (I-23): Minimise construction traffic in the AM network peak (8.15-9.15am).** **Compliance with the above restrictions will be monitored and audited in accordance with the TMP.** **In addition to these restrictions, variable message signs to communicate possible delays will be installed at the Golden Highway / Range Road intersection (I-10b), Wine Country Drive / Broke Road intersection (I-14), and at any other location agreed with Transport for NSW.** **Putty Road / New site access (I-52) will not proceed.**		
~~TT4~~	~~Intersection performance impacts~~	~~Ongoing investigation will be carried out to determine appropriate measures at the Golden Highway/Range Road intersection to minimise the impacts of through and right turning movements in the AM peak. Measures to minimise intersection performance impacts as a result of construction traffic will be investigated in consultation with relevant stakeholders.~~	~~Detailed design~~ ~~Construction~~	~~Golden Highway/Range Road intersection~~
TT4	**Construction traffic impacts**	**Where practicable to do so, shuttle buses will be used to transport construction workers to and from work sites and temporary worker accommodation facilities.**	**Detailed design**	**Temporary worker accommodation at Hebden Road, Freemans Drive and Wollombi Road construction support sites**
TT5	Road safety – design related	All accesses will be designed to accommodate the required construction vehicle(s) in line with the TTIA and in accordance with relevant Austroads guidelines (where applicable).	Detailed design	Construction routes, access tracks, construction support sites and temporary worker accommodation accesses
TT6	Road condition	Pre-construction road dilapidation surveys and routine inspections will be completed along all nominated construction routes on local roads. Where rectification works are required due to project impacts, consultation with the appropriate road authority will be undertaken to confirm the scope of the work required.	Detailed design Construction	Local roads

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT7	Access to properties	Access to properties will be maintained throughout construction where feasible. Where that is not feasible, temporary alternative access arrangements will be provided following consultation with affected landowners and in accordance with the requirements of the construction communication and engagement plan**, or in accordance with the property access sub plan to the TMP as provided in mitigation measure TT14.** **Except as provided in mitigation measure TT14,** disruptions to property access and traffic will be notified to landowners at least 5 business days prior and in accordance with the relevant community consultation processes outlined in the environmental management system (EMS).	Construction	Construction impact area
TT8	Pedestrian and cyclist access	Ongoing consultation will be carried out with local bicycle groups where available and with Forestry Corporation NSW for walking and biking trails in State forests. Safe pedestrian and cyclist access will be maintained where the project interacts with existing pedestrian or bicycle facilities on public roads. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected stakeholders and the relevant roads authority.	Construction	Construction impact area
TT9	OSOM vehicle access	Ongoing consultation will be undertaken with Transport for NSW regarding the use of State roads for OSOM vehicle routes and appropriate permits will be obtained from the National Heavy Vehicle Regulator for OSOM movements.	Detailed design Construction	OSOM routes
TT10	Cumulative impact with Hunter Valley Operations (HVO) Continuation Projects	~~Further analysis and c~~**C**oordination with HVO will be undertaken during detailed design and construction planning regarding works required ~~in the vicinity of Lemington Road~~ and any associated staging/timing to minimise adverse performance and road safety impact **on the road network along** ~~on Lemington Road and at its intersections with~~ the New England Highway and Golden Highway.	Detailed design Construction	~~Lemington Road and~~ **The** surrounding roads near HVO in the northern section of the **amended** project impact area
TT11	**Access interfaces with operations at HVO and Bulga mining complex**	**A project co-ordination group will be established with Glencore, EnergyCo, the network operator and the design and construct contractors to manage critical interfaces between construction and mine operations, such as construction access and shared use of haulage roads.**	**Detailed design**	**HVO and Bulga mining complex**

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT12 ~~**TT11**~~	Cumulative impact of the Mandalong Road upgrade works by Transport for NSW	~~Further analysis and~~ Coordination with Transport for NSW will be undertaken during detailed design and construction planning on the proposed construction activities requiring access on Mandalong Road and associated staging/timing to minimise adverse performance and road safety impacts at the Mandalong Road/Freemans Drive/Wyee Road intersection. ~~Alternative routes will be used should use of this intersection not be possible.~~	Detailed design Construction	Mandalong Road and surrounding areas in the southern portion of the project impact area
TT13	**Interface with Lake Macquarie City Council's upgrade of the Martinsville Road / Freemans Drive intersection**	**The HTP intersection upgrade to Martinsville Road / Freemans Drive intersection will be delivered in coordination with Lake Macquarie City Council to ensure HTP intersection upgrade works do not preclude the ultimate delivery of Lake Macquarie City Council's planned safety improvements at this intersection.**	**Detailed design** **Construction**	**Martinsville Road / Freemans Drive intersection**
TT14	**Property access impacts**	**A property access sub plan to the TMP will be prepared for Pokolbin Mountains Road, parts of Mount View Road and Mount Baker Road, to manage property access impacts during construction. This sub plan will outline measures to maintain property access (unless otherwise agreed with property owner(s)) and road user safety along these roads during road upgrade works (where identified) and general use by construction vehicles. The sub plan will include but not be limited to, unless otherwise agreed with property owners:** – **A temporary reduction in the posted speed limit and installation of additional signage as needed** – **Details on how access to properties is maintained during construction, including a maximum wait time under temporary traffic arrangements as per Transport for NSW 'Traffic control at work sites Technical Manual' (the maximum wait time will be 10-15 minutes)** – **Minimum notification periods for any road works or disruptions, and a direct communication system (SMS/email) for registered residents and businesses** – **Provision of a 24/7 contact number for access issues and emergencies** – **Restriction of construction traffic movements to weekdays and standard working hours, except in consultation with property owners to accommodate construction vehicle movements outside standard working hours** – **Commitment to avoid morning and/or afternoon peak periods in consultation**	**Detailed design** **Construction**	**Properties located along Pokolbin Mountains Road, parts of Mount View Road and Mount Baker Road**

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
		with property owners (e.g. school peak times of 8:30-9:30am and 2:30-3:30pm) – Locations for passing bays and temporary traffic management – Details of any ongoing works required to maintain a suitable level of usability of the road during construction (e.g. drainage at upgrade locations and clearing any impediments to road drainage along Pokolbin Mountains Road, where practicable). Compliance with the implemented traffic management controls will be monitored and audited in accordance with the TMP.		
TT15	Coordination of stringing activities over the Golden Highway	The methodology and program of stringing activities over the Golden Highway for HTP will be coordinated with TfNSW and Ausgrid with consideration of the Hunter-Central Coast REZ transmission project works, scheduled OSOM movements that pass this location and other scheduled road works along the Golden Highway.	Detailed design Construction	Golden Highway (Putty Road)

1.0 Introduction

1.1 Background

The Hunter Transmission Project (HTP, the project) involves the construction of a new overhead 500 kilovolt (kV) transmission line of around 110 kilometres connecting the existing 500 kV transmission line at Bayswater to the existing 500 kV transmission line in the Olney State Forest near Eraring in the Hunter region of New South Wales (NSW).

Due to its strategic importance, the NSW Minister for Planning and Public Spaces has declared the project to be critical State significant infrastructure (CSSI) under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

An EIS was prepared in accordance with the requirements of Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS was placed on public exhibition by the NSW Department of Planning, Housing and Infrastructure (DPHI) for a period of 28 days, between 27 August 2025 and 24 September 2025.

EnergyCo has proposed amendments and refinements to the exhibited project. The amendments and refinements respond to stakeholder and contractor feedback on the project, as well as provide functional improvements to the design and construction methodology of the project. The proposed amendments and refinements take into account submissions received during the public exhibition of the EIS and ongoing design and construction methodology development since the EIS was exhibited. These amendments and refinements have been described and considered in relevant impact assessments.

1.2 The project (as exhibited)

The key elements of the project, as exhibited in the EIS, include:

- A new overhead 500 kV double circuit transmission line of around 110 kilometres
- Two new switching stations (Bayswater South and Olney)
- Upgrades to the existing Bayswater and Eraring substations
- Adjustments and upgrades to existing transmission lines
- Property adjustment works to facilitate access to the transmission lines and switching stations
- Utility adjustments required for the construction of the transmission network infrastructure
- Ancillary works to support construction including road upgrades, establishment of new access tracks and upgrades to existing access tracks, construction support sites (some with temporary worker accommodation), and other construction facilities such as laydown areas.

The HTP corridor runs mostly through power station, mining and government land between Bayswater and Broke. It then traverses the Pokolbin, Corrabare, Watagan and Olney State forests where it joins the existing 500 kV transmission line running between Eraring and Kemps Creek in western Sydney.

1.3 The project (as amended)

The proposed amendments and refinements to the exhibited project are collectively referred to in this revised Traffic and Transport Impact Assessment (TTIA) as the ‘amended project’.

The key proposed amendments and refinements include:

- Realignment of the transmission line at Mount Thorley
- Realignment of the transmission line at Gouldsville
- Localised easement widening for conductor swing
- Changes at Eraring substation
- Changes to access tracks
- Minor adjustments to the project impact area for intersection upgrades
- Adjustments to the proposed access routes for construction

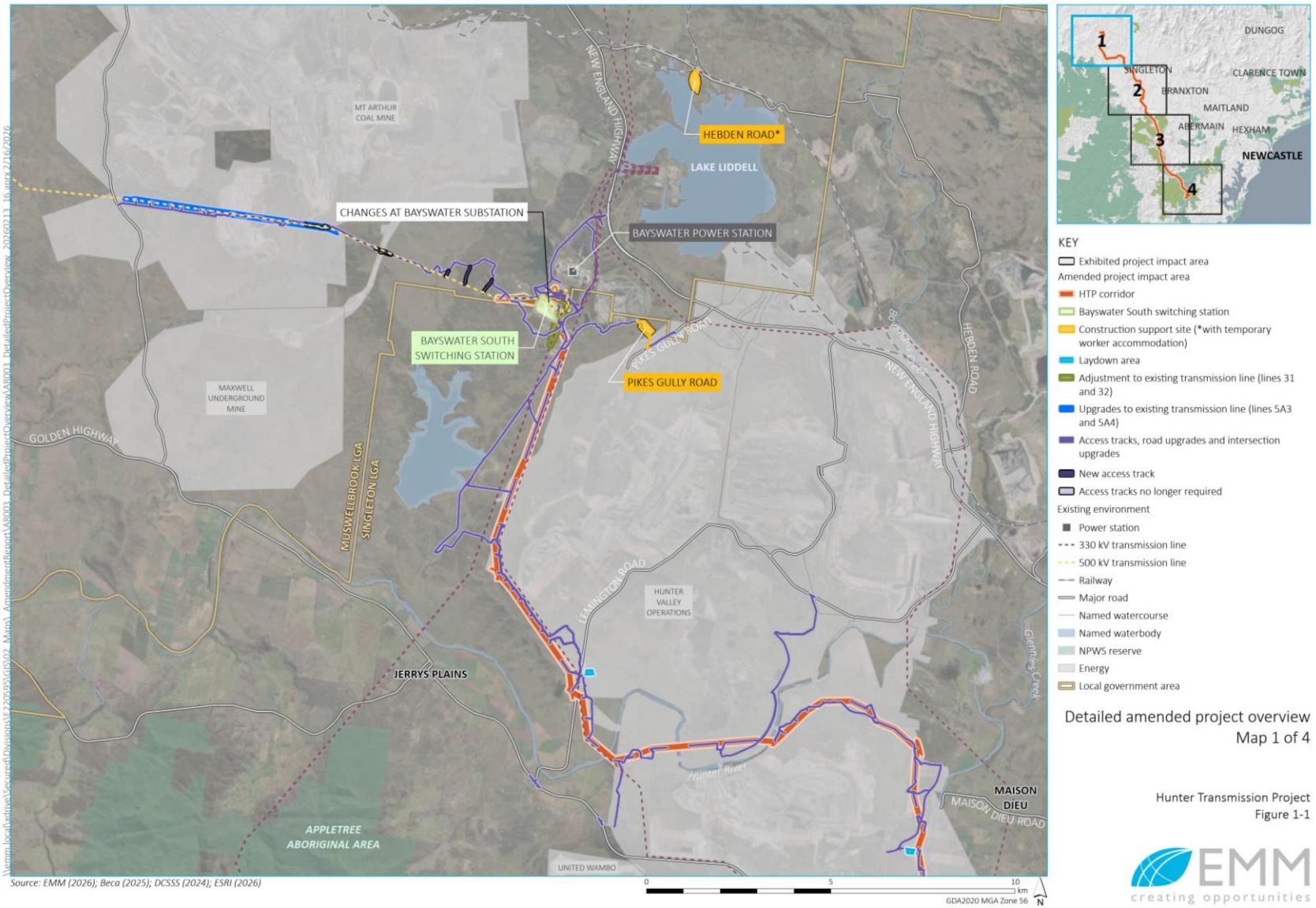
- Reconfiguration of construction support sites and temporary worker accommodation facilities
- Changes to laydown areas within State forests
- Reconfiguration of the Flick Road emergency helicopter landing area
- Removal of stringing site in Olney State Forest
- Changes to construction plant and equipment types and locations

The key refinements include:

- Minor changes at Bayswater substation
- Changes to the disturbance area at Olney.

The project (as amended) is shown in **Figure 1-1**, and descriptions of the amendments are included in *Chapter 2 (Description of amendments)*.

Figure 1-1 Detailed amended project overview



Source: EnergyCo/EMM Consulting

Figure 1-1 Detailed amended project overview (continued)

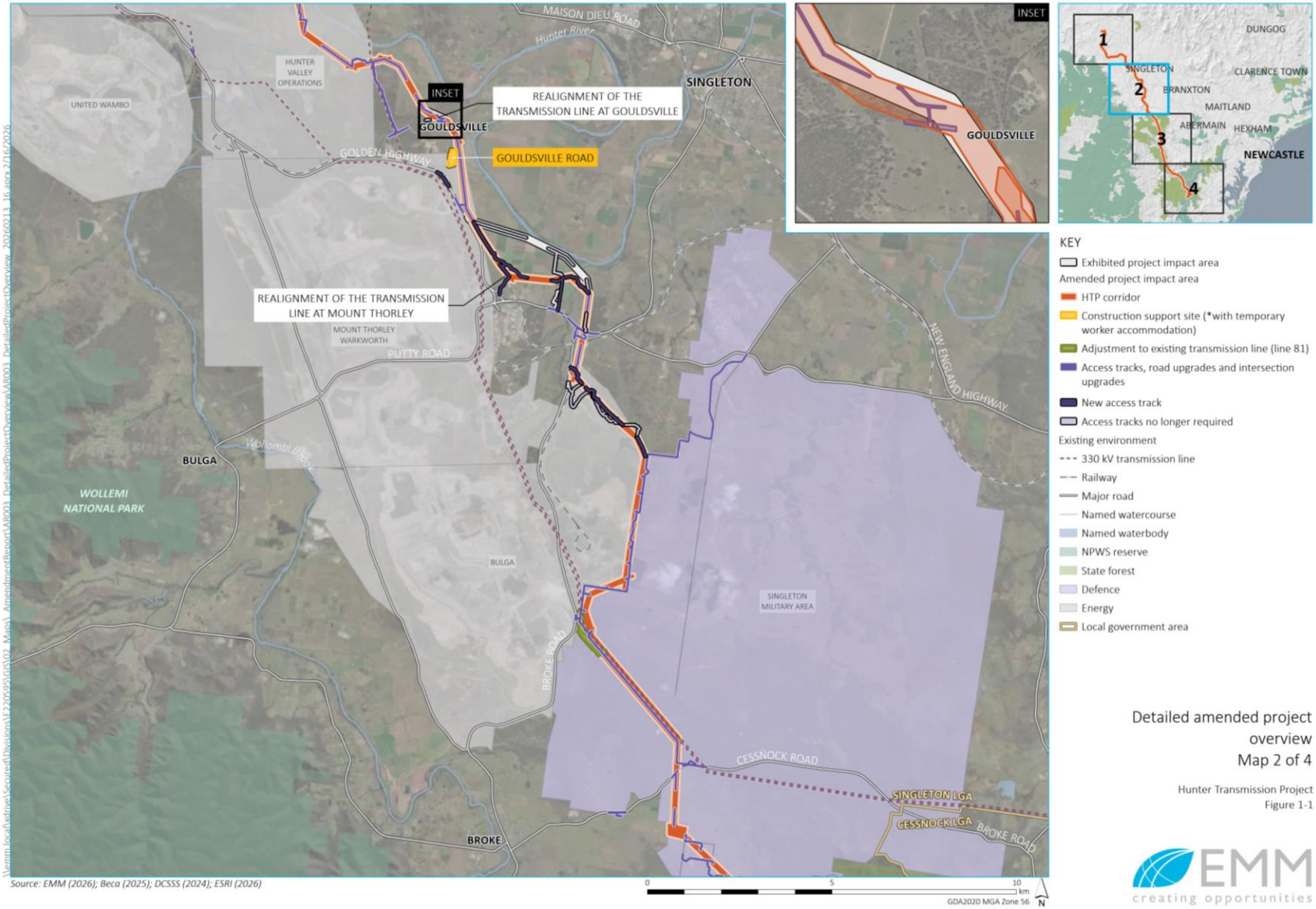


Figure 1-1 Detailed amended project overview (continued)

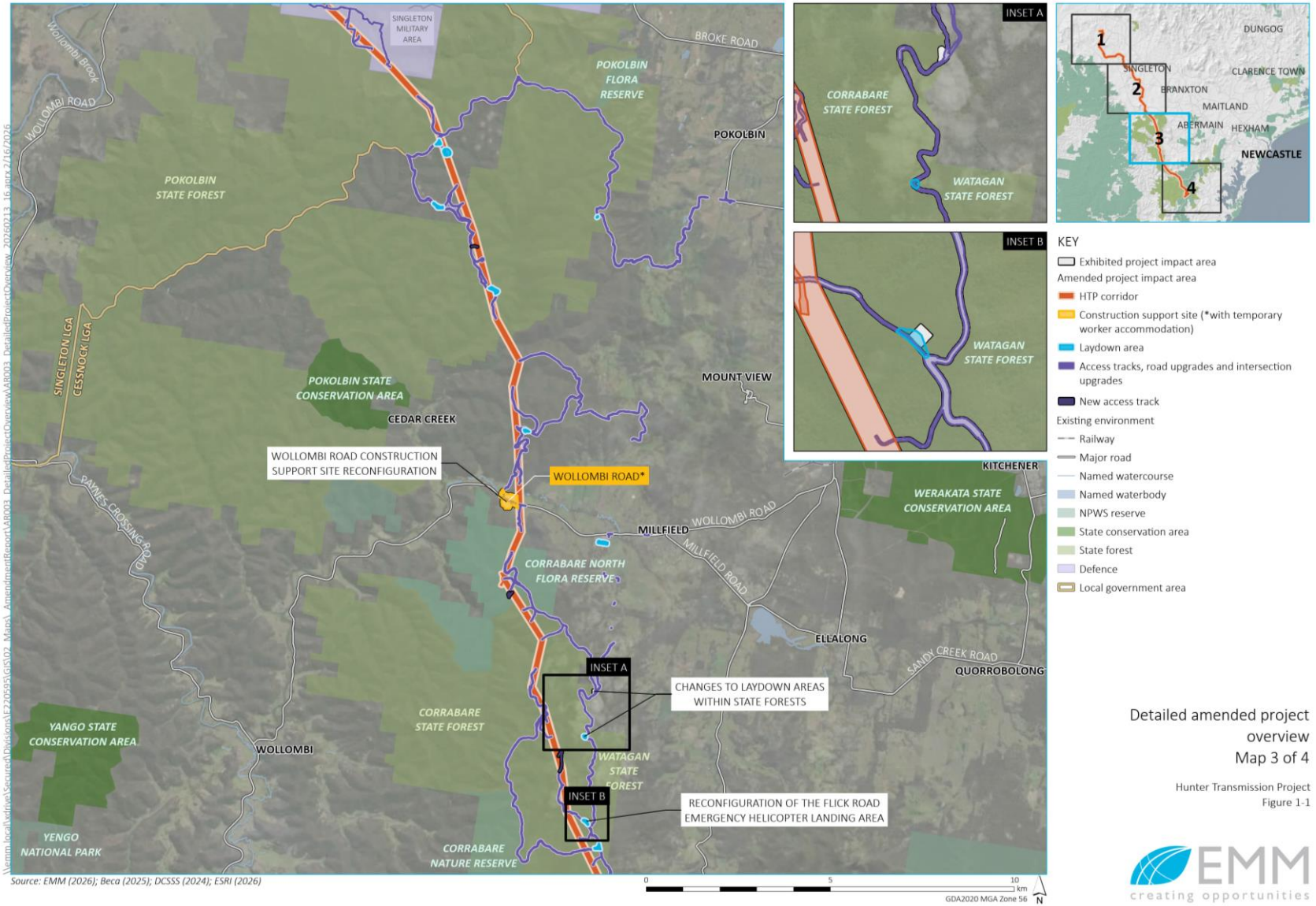
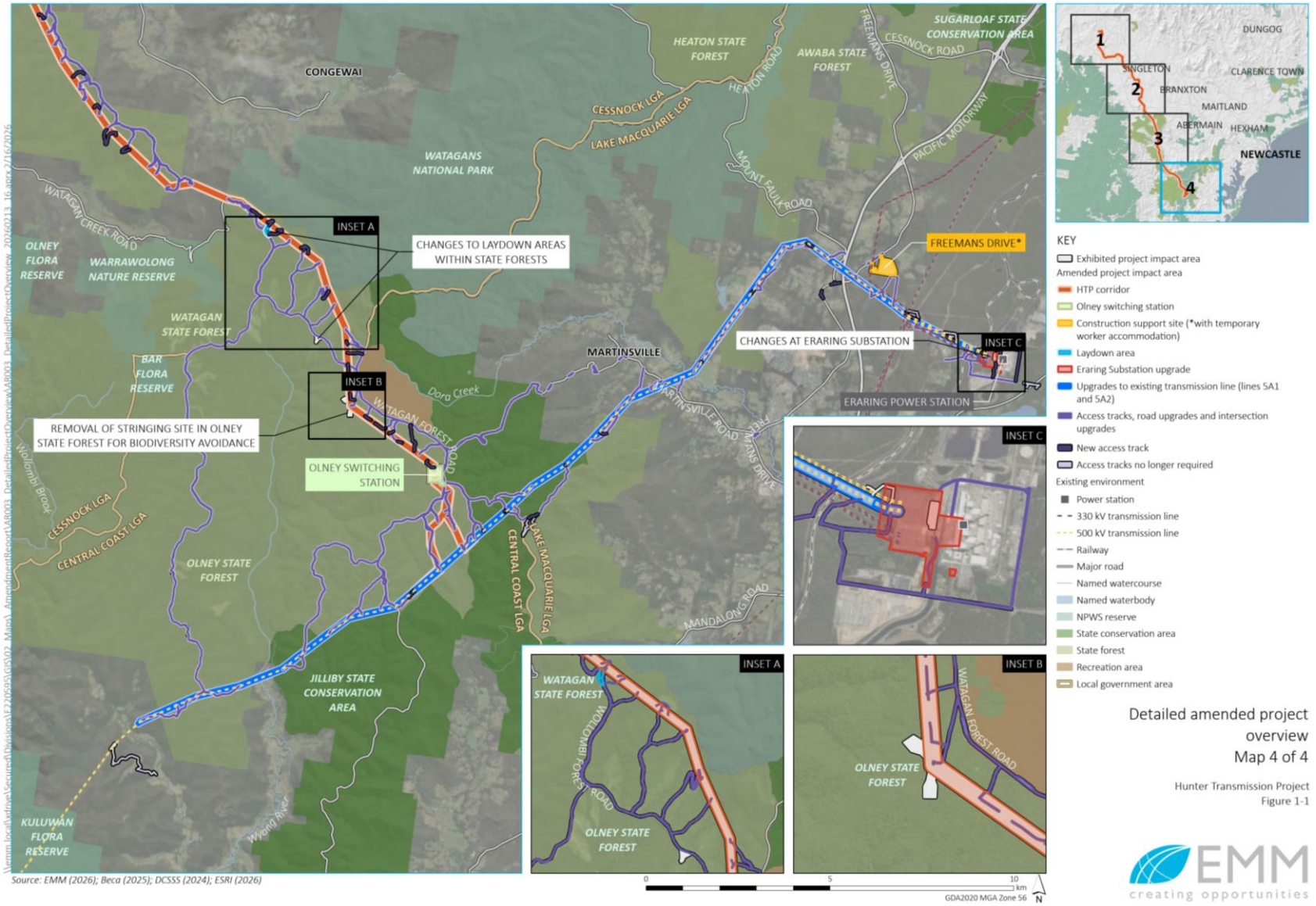


Figure 1-1 Detailed amended project overview (continued)



1.4 Purpose and structure of this report

The purpose of this report is to support the HTP Amendment Report through assessment of the potential traffic and transport impacts of the amended project, and to respond to submissions received during the exhibition of the EIS. This report considers whether the proposed amendments and refinements would result in any changes to the predicted traffic and transport impacts described in the EIS for the exhibited project, and whether any changes to mitigation measures are required.

This revised TTIA is to be read in conjunction with the EIS for the exhibited project and the exhibited TTIA (WSP, 2025). The exhibited TTIA and this revised TTIA addresses the Secretary's Environmental Assessment Requirements (SEARs) issued on 13 August 2024. The key matters raised by the SEARs relevant to traffic and transport are outlined in **Table 1-1** along with the corresponding report sections in which these matters are addressed.

In addition to the SEARs, pre-exhibition advice and post-exhibition submissions from several government agencies were received. Agency advice relevant to and considered in this revised TTIA is provided on the Major Projects website maintained by the NSW Department of Planning, Housing and Infrastructure (DPHI).

Table 1-1 SEARS relevant to the revised TTIA and sections in which the matters are addressed

Requirement	Section addressed
An assessment of the transport impacts of the project on the capacity, condition, safety and efficiency of the local and State road network and the rail network	Sections 5, 6 and 7
A cumulative impact assessment of traffic from nearby developments (including mining operations)	Section 7
Details of measures to mitigate and/or manage potential impacts including a schedule of all required road upgrades (including resulting from high-risk heavy vehicles requiring escort traffic haulage routes), and any other traffic control measures, developed in consultation with the relevant road and/or rail authority	Section 8
Details of the ongoing maintenance works required to service assets, outlining the measures to maintain the road.	Section 6

The structure and content of this revised TTIA is as follows:

- Chapter 1 – Introduction: provides an introduction to this revised TTIA
- Chapter 2 – Description of amendments and refinements: includes an overview of the proposed amendments and refinements compared to the description of project features as part of the exhibited project
- Chapter 3 – Methodology: outlines the methodology used for the preparation of this revised TTIA
- Chapter 4 – Existing environment: describes the existing environmental context for the amended project, including any changes compared to the existing environment described as part of the exhibited project
- Chapter 5 – Assessment of impacts: includes an assessment of the potential construction and operational traffic and transport impacts of the amended project compared to the impacts described as part of the exhibited project, and describes where the impacts of the proposed amendments and refinements would be consistent with those described as part of the exhibited project
- Chapter 6 – Management: includes the proposed environmental management framework and mitigation measures for the traffic and transport impacts of the amended project, including any changes to the mitigation measures presented as part of the exhibited project
- Chapter 7 – Conclusion: provides a summary of the potential impacts and proposed mitigation measures described in this revised TTIA
- Chapter 8 – References: identifies the key reports and documents used to generate this revised TTIA.

2.0 Description of amendments and refinements

This section provides a description of the proposed amendments and refinements compared to the exhibited project. These amendments and refinements have been made in response to stakeholder and contractor feedback, as well as feedback received from community submissions on the exhibited project. The design and construction methodology for the project would continue to be refined and confirmed during detailed design. An updated description of the project incorporating the proposed amendments and refinements is included in *Appendix A (Updated project description)* of the Amendment Report.

The amendments and refinements to the exhibited project (inclusive of the additional information and clarifications for the exhibited project) are collectively referred to in this report as the 'amended project'.

Descriptions of the proposed amendments and refinements as part of the amended project are included in **Table 2-1**.

Table 2-1 Description of proposed amendments and refinements compared to the exhibited project

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
Amendments			
Changes to 500 kV transmission line infrastructure	Realignment of the transmission line at Mount Thorley	The transmission line alignment between Bulga and Mount Thorley was designed to utilise mining-owned land wherever feasible and avoid the designated conservation offset area associated with the Bulga mining complex. To address safety concerns related to major hazardous facilities, the transmission line alignment has been developed to establish a safe minimum distance from facilities (Enaex and Dyno Nobel) in Mount Thorley Industrial Estate. Further refinements within Mount Thorley-Warkworth mining complex land, adjacent to the Golden Highway, shifted the transmission line alignment away from the Hunter River, further west. This adjustment allowed tower foundations to be sited in areas with reduced peak flood depths and velocities, improving resilience during flood events.	Around four kilometres of the new 500 kV double circuit transmission line at Mount Thorley would be realigned, moving it up to around 900 metres further south and away from the Hunter River. This proposed realignment of the transmission line at Mount Thorley as part of the amended project has been developed with input from the directly impacted landowners and stakeholders and would involve the transmission line continuing south adjacent to the Whittingham to Mount Thorley rail line before deviating in an eastward direction to join the exhibited HTP corridor north of the Putty Road / Broke Road intersection.
	Realignment of the transmission line at Gouldsville	The transmission line alignment in Gouldsville was designed to avoid impacts on high-quality threatened ecological communities through co-location with existing electrical infrastructure easements and access tracks.	Around one kilometre of the new 500 kV double circuit transmission line at Gouldsville would be realigned, moving it slightly south towards Long Point Road West and Gouldsville Road. This proposed realignment has been developed to further minimise impacts to threatened ecological communities, including the Central Hunter Grey Box – Ironbark Woodland threatened ecological community, listed as endangered under the NSW *Biodiversity Conservation Act 2016*.
	Localised easement widening for conductor swing	Section 4.5.1 of the EIS outlines that the operation of the transmission line would occur in a permanent 70-metre-wide easement.	Further development of the project design has identified localised areas of the transmission line easement where the span of conductors between transmission towers would 'swing' during periods of high wind, to a point where there is the potential that during these situations the conductors would extend outside of the 70-metre-wide operational easement. In consultation with Transgrid (as the preferred network operator for the project), the exhibited 70-metre-wide transmission line easement would be widened to be between 80 metres and around 140 metres wide in certain locations so that the

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
			transmission line assets stay wholly within the operational easement for the project.
Changes to substation infrastructure	Changes at Eraring substation	Section 4.2.3 in the EIS provides a general overview of the proposed upgrades at Eraring substation, which include: – expansion of the substation to accommodate the installation of new transformers – relocating generator connections from Eraring Power Station and installation/replacement of associated switchgear as required – relocation of the existing transformer spare unit – installation of new 500 kV/330 kV transformer units, augmentation of 500 kV/330 kV bays and associated switchgear and connections – adjustments to existing utilities and drainage infrastructure to accommodate the proposed substation expansion.	At Eraring substation, the amended project proposes to include: – a larger footprint for constructability, including for parking and the adjustment of utilities – substation generator connections on the existing hardstand area – modification works on the existing bench – new poles and adjustment of the existing generator connections into Eraring Power Station – localised undergrounding of the optical ground wire route by trenching between existing transmission towers.
Changes to intersections, access roads and access tracks	Changes to access tracks	Access requirements for construction and operation of the project were described in section 4.3.5 of the EIS. Based on the concept design and early construction planning, potential access routes, including access roads and access tracks, were identified and are listed in Table 4-7 and shown in Figure 4-10 of the EIS.	The amended project includes changes to access tracks proposed for use during construction and operation of the project, which have been identified through ongoing development of the project design and feedback received through consultation with landowners, stakeholders and government agencies. Construction of additional/changed sections of access tracks would be consistent with the construction methodology outlined in *section 4.3.5* of the EIS. Changes to access tracks would be: – within State forests to provide a more suitable route for construction vehicles, improve access to the HTP corridor for clearing, and avoid the need to cross riparian zones – within Olney State Forest to minimise impacts to a number of threatened amphibian species and their habitat – on land that forms part of the Bulga mining complex to avoid a clean water diversion, keep access for the project separate from access to the mining complex, and avoid direct impacts to existing biodiversity offset areas

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
			– for the upgrades to existing transmission lines and towers to ensure access tracks are fit for purpose and to reduce impacts to landowners – off Putty Road to access the proposed realignment of the transmission line at Mount Thorley.
	Minor adjustments to the project impact area for intersection upgrades	*Section 4.3.5* of the EIS noted that the project would rely on the use of existing public roads during construction and operation of the project. In several locations along the construction routes, upgrade works would be required, including at several intersections (which were listed in Table 4-10 of the EIS), to cater safely for the proposed construction traffic volumes and delivery of oversized equipment or construction material and ensure public road safety.	The assessment of the amended project as part of the revised traffic and transport impact assessment identified the need for an additional intersection upgrade at Jerrys Plains Road southbound off ramp / existing access track at Mount Thorley, as a result of the changes to access tracks associated with the change to transmission line alignment at Mount Thorley. In addition, revised turn warrant assessments were completed for the intersections required to be used for the construction of the project, which identified the need for different intersection treatments than what was included in the EIS for four intersections. This includes: – Freemans Drive / Martinsville Road (intersection ID I-23) – additional land acquisition to accommodate turning vehicle movements – Putty Road / existing access track (intersection ID I-31) – an eastbound merge lane along Putty Road – Cessnock Road / new access track (intersection ID I-37) – widening on Cessnock Road for acceleration and deceleration lanes – Golden Highway / Gouldsville Road (intersection ID I-07), to incorporate a channelised right hand turn. The need for different intersection treatments has resulted in minor adjustments to the project impact area.
	Adjustments to the proposed access routes for construction	Table 4-7 of the EIS provided a summary of the proposed access routes to be used for construction of the project. This list was based on the concept design for the project and early construction planning.	Adjustments to the proposed access routes to be used for construction have been made following a review of the proposed construction methodology for the project. This included the addition of some construction routes now required and the removal of some construction routes no longer required. The complete list of proposed access routes for construction is provided in Table A-7 of the updated project

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
			description (refer to *Appendix A (Updated project description)* of the Amendment Report.
Changes to construction methods and facilities	Reconfiguration of construction support sites and temporary worker accommodation	Section 4.3.6 and section 4.3.7 of the EIS describes the construction support sites and temporary worker accommodation that would be established to support the construction of the HTP. The EIS assumed a peak construction workforce of 830 workers, with allowance for 780 workers to be housed in temporary worker accommodation at the Hebden Road, Gouldsville Road and Freemans Drive construction support sites.	Further consideration of the construction methodology for the project along with feedback received during exhibition of the EIS has identified the need to: – remove provisions for temporary worker accommodation facilities at the Gouldsville Road construction support site – reconfigure the Wollombi Road construction support site to include temporary worker accommodation with capacity to house up to 300 workers. Consistent with other temporary worker accommodation facilities for the project, the temporary worker accommodation at Wollombi Road would be operational 24 hours per day 7 days per week. The amended project would therefore include a change in construction activities proposed to be carried out at both the Gouldsville Road construction support site and the Wollombi Road construction support site. At Gouldsville Road, this would include a decrease in light vehicle movements in and out of the construction support site and reduced operating hours. At the Wollombi Road construction support site, this would include an increase in light vehicle movements in and out of the construction support site and extended operating hours at the construction support site, resulting in potential changes to amenity impacts. This amendment would not change the assumed peak construction workforce.
	Changes to laydown areas within State forests	Figure 4-2 of the EIS shows the locations of laydown areas located outside the HTP corridor. Laydown areas identified in the EIS as being located within the State forests include: – Broken Back Road in Cedar Creek – Campbell Spring Trail in Cedar Creek – Trig Road/Mf1 Road in Corrabare – Trig Road/Crumps Road in Corrabare	Feedback received from the Forestry Corporation of NSW during continued development of the project design identified an alternative arrangement of laydown areas for construction within the State forests. As a result, the amended project includes: – removal of the laydown areas included in the EIS near: • the intersection of Trig Road / Mf1 Road / North Road in Corrabare State Forest

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
		– Wollombi Forest Road in Ravensdale.	• Wollombi Forest Road (south of Halls Road) in the State Forest of the Watagan Mountains – inclusion of two new laydown areas within the State forests, located near: • the Trig Road / Flick Road intersection in the Corrabare State Forest • the Watagan Creek Road / Burma Road intersection in the State Forest of the Watagan Mountains. These new laydown areas would perform the same functions as laydown areas described in the EIS. However, they would result in changes to the project impact area compared to the EIS. Laydown areas would remain as included in the exhibited EIS at: – Broken Back Road in Cedar Creek – Campbell Spring Trail in Cedar Creek – Wollombi Forest Road in Ravensdale.
	Reconfiguration of the Flick Road emergency helicopter landing area in response to feedback received from Forestry Corporation of NSW	The construction methodology described in the exhibited EIS noted the project would include the provision of emergency helipads at laydown areas on Wollombi Forest Road and Flick Road for helicopters to land in the event of an emergency.	Continued construction planning and consultation with Foresty Corporation of NSW identified that the arrangement of the emergency helicopter landing site along Flick Road would need to be reconfigured so that its design complements the natural site topography and terrain. As such, the amended project would include the reconfiguration of the emergency helicopter landing site at Flick Road. The amended Flick Road emergency helicopter landing site would result in a change in the disturbance area and project impact area.
	Removal of stringing site in Olney State Forest to minimise impacts to threatened amphibian species	Section 4.3.2 of the EIS outlines the work that would be carried out within the HTP corridor, which includes stringing sites. It is noted that stringing sites would be used for the preparation, assembly and operation of stringing equipment to connect the transmission line to the towers. Stringing sites would be positioned along the HTP corridor at various locations, including in the Olney State Forest north of the Olney switching station.	In response to consultation carried out with species experts and regulators for the biodiversity assessment of the project, refinements to the project to reduce the extent of vegetation clearing have been made within the exhibited HTP corridor in the Olney State Forest to the north of the proposed Olney switching station. These changes have been made to minimise impacts to threatened species, particularly frog species such as the Littlejohn's Tree Frog, within the Olney State Forest. As a result of these changes, the proposed stringing site to the north of the Olney switching station has been removed to minimise disturbance in this location.

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
			Alternative construction methodologies would be implemented to connect the transmission line to the towers at this location.
	Changes to construction plant and equipment types and locations	Section 4.4.2 of the EIS outlines the plant and equipment required as part of construction for the project.	It is proposed to amend the list of plant and equipment required during construction of the project to also include the following: – diesel generators located at construction support sites and laydown areas – crushing and screening plant located at construction support sites and at laydown areas within State forests – washdown facilities located at construction support sites – wastewater treatment plants at construction support sites. These additional plant and equipment have been added to the proposed list to be used during construction in response to feedback from potential construction contractors.
Refinements			
Changes to substation infrastructure	Minor changes at Bayswater substation	*Section 4.2.3* of the EIS includes a general overview of the proposed upgrades to the Bayswater substation as part of the project, including: – works within the substation to trench and connect communications infrastructure to Bayswater South switching station via underground fibre cable – modifications and upgrades to protection, control, automation and communication equipment. *Section 4.2.3* of the EIS also includes a general overview of the proposed construction of Bayswater South switching station. Space would be provided at Bayswater South switching station to allow for additional switching station infrastructure, such as additional line shunt reactors and switching station bays, and connections for additional transmission lines in the future.	Based on continued development of the project design, it has been identified that the project is required to include an underground fibre optic communication connection between the Bayswater substation and the Bayswater South switching station. As part of the amended project, this underground fibre optic connection would be located in a trench within the exhibited HTP corridor. The trench would require excavation of about 200 metres in length and would be around 0.6 metres wide and one metre deep. Changes would also include the fitout of two additional switching bays at Bayswater South switching station. This would occur within the exhibited footprint of the Bayswater South switching station.
Changes to construction methods and facilities	Changes to the disturbance area at Olney	As described in *section 7.3* of the EIS, the assessment of biodiversity impacts includes a disturbance area within the project impact area to provide a more accurate estimation of the likely magnitude of vegetation clearance required, and any associated biodiversity	In response to consultation carried out with species experts and regulators for the biodiversity assessment of the project, refinements to the project to reduce to the extent of vegetation clearing have been made within the exhibited HTP corridor in the Olney State Forest to the north of the proposed Olney

Project feature	Amendment / refinement	Summary of exhibited project	Summary of amendment/refinement
		impacts. The disturbance area takes a more precise approach than the project impact area and represents areas of direct impacts such as full clearing at transmission towers and partial clearing within the transmission line easement. This approach was adopted to avoid a substantial overestimation of the likely biodiversity impacts and the associated quantity of biodiversity offsets required.	switching station. These changes have been made to minimise impacts to threatened species and their habitat, particularly a number of amphibian species within the Olney State Forest, including the Littlejohn's Tree Frog. These refinements within Olney State Forest have included adjustments to the disturbance area used to assess the potential impacts to biodiversity. While changes have been made to the disturbance area at this location, the HTP corridor would remain the same within the Olney State Forest as the EIS, and the same approach to vegetation management in the disturbance area as the EIS would apply.

3.0 Methodology

This section describes the methodology used to assess the proposed amendments as part of the assessment of traffic and transport impacts. This section also notes where the methodology used to assess these impacts is consistent with the methodology used as part of the exhibited project.

3.1 Assessment screening

Table 3-1 includes a screening assessment of the proposed amendments and refinements for the project. The relevance of each amendment/refinement to traffic and transport is outlined to determine the level of assessment required in this revised TTIA.

Table 3-1 Screening assessment – traffic and transport

Amendment/refinement	Relevance to traffic and transport	Level of assessment required
Amendments		
Realignment of the transmission line at Mount Thorley	No change to traffic and transport impacts	N/A
Realignment of the transmission line at Gouldsville	No change to traffic and transport impacts	N/A
Localised easement widening for conductor swing	No change to traffic and transport impacts	N/A
Changes at Eraring substation	No change to traffic and transport impacts	N/A
Changes to access tracks	Change to traffic and transport impacts with new access location off Putty Road for the realignment of the transmission line at Mount Thorley Reduced traffic and transport impacts due to removal of an access on Broke Road near changes to access tracks at Bulga Minor change to traffic and transport impacts for all other access track changes	Included in detailed assessment of intersections or discussion on impacts on access tracks as required
Minor adjustments to the project impact area for intersection upgrades	Inclusion of the new access track intersection in this Revised TTIA. Other upgrades have been identified as a function of this Revised TTIA and have informed the project impact area. Minor change to traffic and transport impacts resulting from adjusted intersection upgrade footprints	Included in detailed assessment of intersections
Adjustments to the proposed access routes for construction	Minor change to the list of public roads identified as construction access routes to reflect adjustments in the Updated Project Description, noting these roads were considered in the Exhibited TTIA.	None. The assessment methodology in the exhibited and revised TTIA has assumed worst case movements at all intersections/roads.

Amendment/refinement	Relevance to traffic and transport	Level of assessment required
Reconfiguration of construction support sites and temporary worker accommodation	Change to traffic and transport impacts with reconfiguration of Wollombi Road construction support site to include a temporary worker accommodation facility	Included in detailed assessment of intersections at the Wollombi Road construction support site. The removal of the temporary worker accommodation from Gouldsville Road construction support site (and associated reduction in light vehicle movements) has not been accounted for in the revised assessment, and therefore provides a conservative assessment.
Changes to laydown areas within State forests	Minor change to traffic and transport impacts	Included in discussion on impacts on access tracks within the State forests
Reconfiguration of the Flick Road emergency helicopter landing area in response to feedback received from Forestry Corporation of NSW	No change to traffic and transport impacts	N/A
Removal of stringing site in Olney State Forest to minimise impacts to threatened amphibian species	No change to traffic and transport impacts	N/A
Changes to construction plant and equipment types and locations	No change to traffic and transport impacts	N/A
Refinements		
Minor changes at Bayswater substation	No change to traffic and transport impacts	N/A
Changes to the disturbance area at Olney	No change to traffic and transport impacts	N/A

The amendments and refinements noted in **Table 3-1** as requiring a detailed level of assessment have been carried forward into this revised TTIA. Other amendments and refinements have been assumed to not result in traffic and transport impacts and have therefore not been assessed in this report.

3.2 Legislation, policies, plans and guidelines

3.2.1 Legislation

3.2.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is administered by DPHI and provides the framework for environmental assessment in NSW. The project has been declared as critical State significant infrastructure (CSSI) in accordance with Section 5.13 of the EP&A Act. Therefore, the project is subject to environmental assessment under Division 5.2 of the EP&A Act.

The EP&A Act requires that an EIS be prepared according to the Secretary's environmental assessment requirements (SEARs) and subsequently placed on public exhibition for at least 28 days. The Planning Secretary would then prepare an environmental assessment report for consideration of approval of the project by the Minster for Planning and Public Spaces. The SEARs identified that the EIS for the project must comply with the requirements in Schedule 2 of the Environmental Planning and Assessment Regulation 2021. The exhibited TTIA and this revised TTIA addresses the traffic and transport impacts likely caused by the project as required by the SEARs.

3.2.1.2 Roads Act 1993

The *Roads Act 1993* (Roads Act) aims to establish the rights of members of the public to pass along public roads, the rights of persons who own land adjoining a public road to have access to the public road, and the procedures for the opening and closing of a public road. The Roads Act also aims to provide a structure for the classification of roads, empower public agencies such as TfNSW as the road authority and regulate the carrying out of various activities on public roads, including the transportation of construction materials with heavy vehicles.

This project is consistent with the Roads Act by ensuring that the appropriate processes, approvals and measures are in place to manage impacts to users of public roads, property owners and the opening/closing of public roads.

Part 9 of the Roads Act nominates the requirements for undertaking works within a public road, including the requirement to obtain consent under section 138 for carrying out works in, on or over a public road (this includes the erection of structures), and the digging up or disturbance of the surface of a public road. In relation to section 138 consents, Section 5.24 of the EP&A Act lists the approvals or authorisations that cannot be refused if they are necessary for carrying out approved CSSI and are substantially consistent with the CSSI approval. A consent under section 138 of the Roads Act is one of the approvals listed under section 5.24 of the EP&A Act.

3.2.1.3 NSW Road Rules 2014

The *NSW Road Rules 2014* (NSW Road Rules) is a framework for the safe and efficient movement of traffic on NSW roads. The NSW Road Rules is a legislative instrument with the following objectives:

– to consolidate in a single instrument the road rules that are applicable in New South Wales

– to provide for road rules that are based on the *Australian Road Rules (2014)* to ensure that the road rules applicable in this State are substantially uniform with road rules applicable elsewhere in Australia

– to provide for other road rules to be observed in this State in relation to matters that are not otherwise dealt with in the *Australian Road Rules (2014)*.

The project would support the objectives of the legislation by ensuring that recommended mitigation measures are aligned with the NSW Road Rules.

3.2.2 Policy, standards, and guidelines

This section outlines government plans, policies, and guidelines, including those that identify the methods for assessing the impacts of key matters, and set standards and performance criteria for evaluating the incremental and cumulative impacts of projects.

3.2.2.1 Austroads Guide to Traffic Management and Road Design

The Austroads *Guide to Traffic Management* comprises thirteen parts and provides comprehensive traffic management guidance for practitioners involved in traffic engineering, road design and road safety. In some circumstances, the guideline adopts State-specific requirements, such as TfNSW design supplements. It recognises that the management of traffic is to be based on an understanding of road design, the capabilities and behaviour of all road users, and the performance and characteristics of vehicles.

This guide has informed the assessment methodology for the road network performance assessment for the project. This includes intersection performance, mid-block capacity performance, and management strategies to minimise the impacts of traffic and transport movements generated by the project.

Austroads *Guide to Road Design* has seven parts and provides designers with a framework that promotes efficiency in design and construction, economy and both consistency and safety for road users. This guide is referred to in this revised TTIA when the assessment of road geometry is required to determine the impact of the project during construction and operation.

3.2.2.2 Guide to Traffic Generating Developments / Guide to Transport Impact Assessment

TfNSW's *Guide to Traffic Generating Developments* was first released in 1991, revised in 2001 and updated substantially in November 2024. The guide is now referred to as the *Guide to Transport Impact Assessment* (TfNSW, 2024). It provides guidance on matters related to the traffic and transport impacts of land use developments, most notably on matters relating to traffic generation and parking. This includes policies, guidelines on traffic impact study methodologies, traffic generation, interpretation of traffic impacts, parking requirements, access and parking area design, residential subdivision design, and associated cost implications.

This guideline was considered in this revised TTIA to guide the traffic impact assessment methodology, traffic generation, and assessment of property access impacts.

3.2.2.3 Traffic Control at Work Sites – Technical Manual

The *Traffic Control at Work Sites – Technical Manual 2022* is a TfNSW document that provides the requirements for temporary traffic management at construction and maintenance work sites.

The aim is to protect the safety of all transport mode users (vehicles, pedestrians, cyclists etc.) travelling around or passing through work sites. This manual applies to all persons, including construction site staff and members of the public. It is intended to help personnel comply with the Work Health and Safety Act *2011* and the *Work Health and Safety Regulation 2017*.

This guide refers to the Australian Standards 1742 (Manual of uniform traffic control devices) and 1743 (Road signs – specifications) to provide an approach, procedure and application that is consistent with the Australian Standards and national practice. Temporary works on public roads detailed in this revised TTIA consider the practices detailed in this guideline.

3.2.2.4 2026 Road Safety Action Plan

The *2026 Road Safety Action Plan* is a framework established by the NSW Government that seeks to continue the accomplishment of the Road Safety Plan 2021 with new road trauma reduction targets for 2030, setting NSW on a path towards zero road trauma by 2050. The framework is based on the Safe System Approach, shown in **Figure 3-1**, which has the goal of providing safer travel and traffic movement for all road users by minimising the risk posed by the interacting elements of the road transport system.

The Safe System approach is based on four cornerstone areas of intervention:

– Safe roads: roads and roadsides designed and maintained to reduce the risk of crashes occurring and to lessen the severity of injury if a crash does occur

– Safe speeds: speed limits complementing the road environment to manage crash impact forces within human tolerance, and all road users complying with the speed limits

– Safe vehicles: vehicles that not only lessen the likelihood of a crash and protect occupants but also simplify the driving task and protect vulnerable users

– Safe people: encourage safe, consistent and compliant behaviour through well-informed and educated road users. Licensing, education, road rules, enforcement and sanctions are all part of the Safe System.

This approach highlights the need to improve the safety of all parts of the system so that if one part fails, the other parts would protect people from being killed or seriously injured. With these elements working together as a whole, the system is more forgiving of human or mechanical error and the impact of a mistake made on the road does not result in a fatality or serious injury.

The project aims to align its plan and action with the Safe System approach. The guiding principles behind Safe System are:

– People sometimes make mistakes – a simple mistake should not cost anyone their life

– Roads, roadsides and vehicles need to be designed to minimise crashes or reduce forces if a crash happens

– Road safety is a shared responsibility – everyone needs to make safe decisions on and around the road to prioritise safety.

Figure 3-1 Safe System Approach to Transport Management

Source: Austroads Guide to Traffic Management Part 13: Safe System Approach to Transport Management

One of the key challenges of this project for road safety is that the construction impact area is extensive and frequently interacts with the road network. The mitigation measures detailed in Section 8 of this technical report consider the principles of the Safe System Approach that would provide a safe road environment during construction of the project.

3.2.2.5 NSW Heavy Vehicle Access Policy Framework 2018

The *NSW Heavy Vehicle Access Policy Framework 2018* aims to provide a framework for heavy vehicle access in NSW for roads managed by both the State government and local councils. As part of the project, heavy vehicles would be required to carry freight, including construction materials, to locations within the traffic and transport study area. This framework provides a platform to consider areas of priority such as safety and the capacity of road infrastructure (including roads and bridges).

3.3 Study area

The study area for this revised TTIA (see **Figure 3-2**) was identified as the transport networks that may be impacted by construction and operation of the project, within the Muswellbrook, Singleton, Cessnock, Central Coast, and Lake Macquarie local government areas (LGAs). This includes movements to and from the amended project impact area via access gates, construction support sites and temporary worker accommodation, or by the operation of the project (staff and maintenance movements).

The transport of project materials and workforce will be principally undertaken on the road network. As the construction workforce and origin of materials are expected to be widely distributed across the broader region, the area of impacts on the road network within the study area was identified as those roads / accesses that provide access to the construction support sites and the amended project impact area, back to the nearest highway. Beyond this point, the construction traffic is expected to diminish as it is distributed across the broader network to multiple origins.

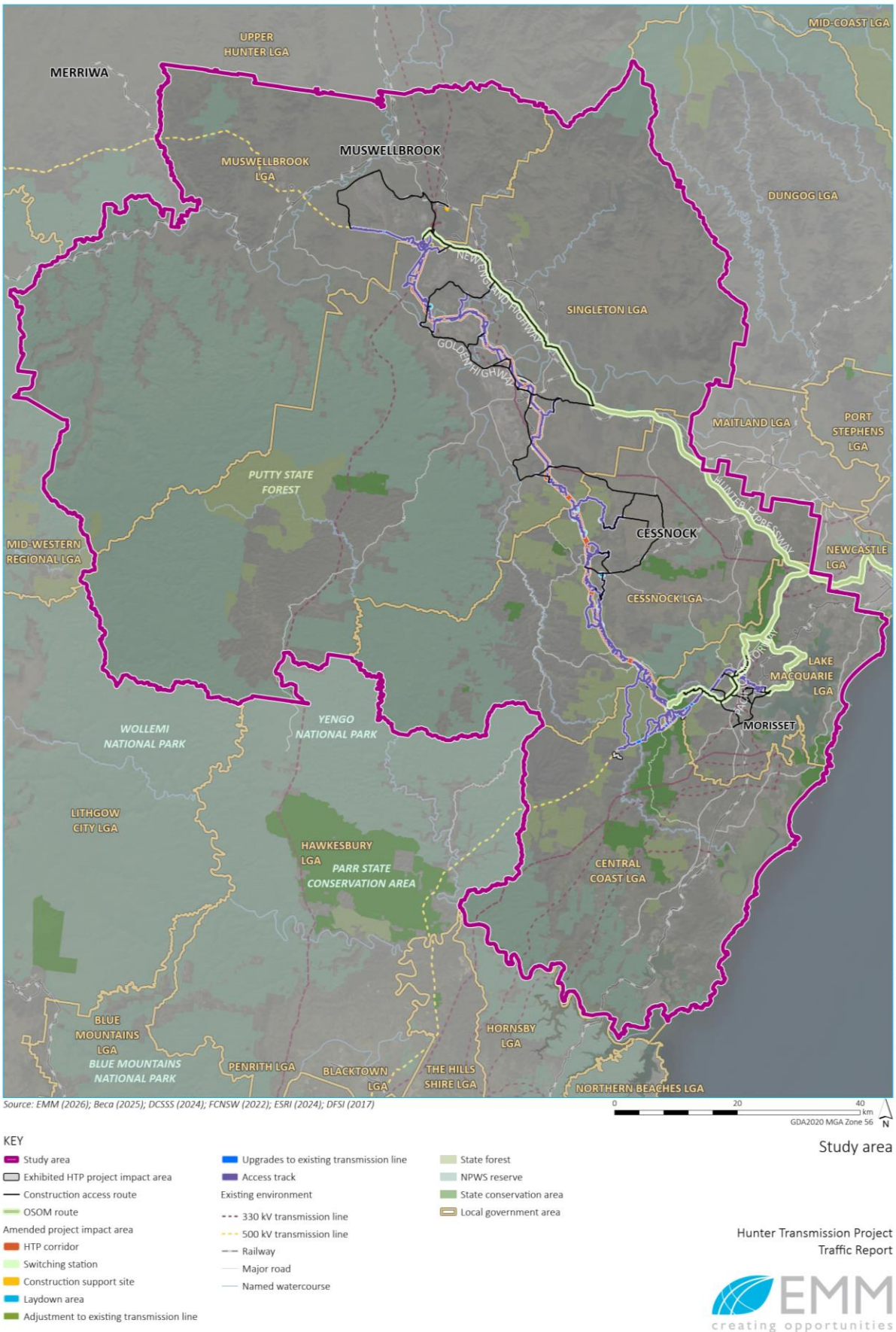
Oversize and over mass (OSOM) vehicle movements will extend beyond the study area including travel from the Port of Newcastle. OSOM vehicle routes are documented in **Section 4.4** and include travel routes to Bayswater Power Station, Olney switching station, and Eraring Power Station.

3.4 Overview of methodology

The methodology adopted in this revised TTIA to address the key requirements raised in the SEARs include:

- Assessment of existing conditions on the project access routes, including road classification, lane configuration, intersection treatment, pavement type, speed limit, pedestrian/cyclist facilities, public transport provisions, existing heavy vehicle restrictions, crash history and traffic operational performance. This included:
  - Data collection at appropriate locations to understand the existing conditions and traffic volumes and patterns to support the assessment of project impacts
  - Site inspections of the project impact area and key access roads to and from the project impact area to understand likely impacts on the road network for road users and the local community.
- Review of future traffic growth and any planned transport network upgrades in the study area to provide a future year baseline to assess project impacts against.
- Review of the proposed construction activities and methodology to derive the expected traffic generation and traffic distribution during construction of the project.
- Assessment of the potential impacts associated with the construction of the project with regard to road capacity, road condition, road safety, road efficiency, heavy vehicle access, access to construction support sites and temporary worker accommodation, access tracks, property access, stringing of transmission lines (including over the rail network), active transport, and public transport.
- Review of operational activities (i.e. maintenance of transmission line and substations) and assessment of the potential operational impacts with regard to road capacity, road condition, road safety, efficiency, active transport, public transport, and property access.
- Assessment of potential cumulative impacts resulting from traffic generated from other nearby major developments.
- Identification of mitigation and management measures to be applied to the construction and operation of the project to, as far as practicable, avoid, minimise and manage the potential traffic and transport impacts of the project.

Figure 3-2 Study area



3.5 Existing conditions assessment methodology

3.5.1 Transportation network

The existing conditions assessment involved undertaking both site inspections and desktop and mapping analysis to identify, describe and assess the existing conditions of proposed construction traffic access routes. This included:

- Road classification
- Lane configuration
- Speed limits
- Pavement type
- Pedestrian/cyclist facilities
- Public transport provisions
- Existing heavy vehicle restrictions
- Crash history
- Traffic operational performance.

A number of these items were available as datasets from TfNSW's Open Data platform.

3.5.2 Data collection

Traffic data was collected to understand the existing traffic volumes and patterns to assess the impact of the project. Data was collected from traffic surveys consisting of intersection traffic counts and mid-block traffic counts to understand the current traffic demands, conditions and travel patterns. The survey locations, shown on **Figure 3-3**, were selected based on:

- Potential construction access routes to be used during the construction of the project
- Likely access points to switching stations, construction support sites, temporary worker accommodation and the HTP corridor, as well as ancillary works sites such as laydown areas and stringing sites.

Some existing proposed access points were not surveyed as they are private accesses to a few residential properties, including some with gated access.

Intersection traffic counts were undertaken on Wednesday 21 March 2024, Tuesday 8 April 2025 and Wednesday 29 October 2025 to capture the traffic movements at key intersections in the traffic and transport study area (see **Table 3-2**). The survey provided separated traffic counts for light and heavy vehicles. Mid-block traffic counts were conducted at key road locations from 21 to 28 March 2024 to capture 24-hours and seven-days traffic data including volume, speed and vehicle classifications across this period. The locations of mid-block traffic counts are listed in **Table 3-3**.

Traffic counts are normally undertaken on weekdays during school terms, as this is generally when traffic volumes are highest. It is recognised that some locations may have more traffic during school holidays and on weekends.

Table 3-2 Intersection traffic count locations

ID	Location	LGA	Hours of survey
I-01a	New England Highway/Hebden Road (north)	Muswellbrook	5am–7pm
I-02	New England Highway/Lemington Road	Singleton	5am–7pm
I-02a	New England Highway/Pikes Gully Road	Singleton	5am–7pm
I-03	Golden Highway/Lemington Road	Singleton	5am–7pm
I-04	Golden Highway/Comleroi Road	Singleton	5am–7pm
I-05	Comleroi Road/HVO private driveway	Singleton	5am–7pm
I-06	Golden Highway/Long Point Road (west)	Singleton	5am–10am and 3pm–7pm
I-07	Golden Highway/Gouldsville Road	Singleton	5am–10am and 3pm–7pm

ID	Location	LGA	Hours of survey
I-08a	Jerrys Plains Road (NB ramp)/Putty Road	Singleton	5am–10am and 3pm–7pm
I-08b	Jerrys Plains Road (SB ramp)/Putty Road	Singleton	5am–10am and 3pm–7pm
I-09	Putty Road/Broke Road	Singleton	5am–10am and 3pm–7pm
I-10	Putty Road/Golden Highway (Mitchell Line of Road)	Singleton	5am–10am and 3pm–7pm
I-10b	Range Road/Golden Highway (Mitchell Line of Road)	Singleton	5am–10am and 3pm–7pm
I-11	Wollombi Street/Singleton Street	Singleton	5am–10am and 3pm–7pm
I-12	Broke Road/Hermitage Road	Cessnock	5am–10am and 3pm–7pm
I-13a	Broke Road/McDonalds Road (south roundabout)	Cessnock	5am–10am and 3pm–7pm
I-13b	Broke Road/McDonalds Road (north roundabout)	Cessnock	5am–10am and 3pm–7pm
I-14	Broke Road/Wine Country Drive	Cessnock	5am–10am and 3pm–7pm
I-15	McDonalds Roads/Oakey Creek Road/Pokolbin Mountains Road	Cessnock	5am–10am and 3pm–7pm
I-16a	Wollombi Road/Allandale Road	Cessnock	5am–7pm
I-16b	Wollombi Road/Vincent Street	Cessnock	5am–7pm
I-17	Wollombi Road/Mount View Road (Cessnock)	Cessnock	5am–7pm
I-18	Wollombi Road/West Avenue	Cessnock	5am–7pm
I-19	Wollombi Road/Mount View Road (Millfield)	Cessnock	5am–10am and 3pm–7pm
I-20	Wollombi Road/Hayes Road	Cessnock	5am–10am and 3pm–7pm
I-21a	Cessnock Road/Oakley Lane	Singleton	5am–10am and 3pm–7pm
I-22a	Alton Road/Freemans Drive	Lake Macquarie	5am–10am and 3pm–7pm
I-23	Martinsville Road/Freemans Drive	Lake Macquarie	5am–10am and 3pm–7pm
I-24	Martinsville Road/Pringles Road	Lake Macquarie	5am–7pm
I-25	Martinsville Road/Watagan Road	Lake Macquarie	5am–7pm
I-26	Watagan Forest Road/Martinsville Hill Road	Lake Macquarie	5am–7pm
I-27	Mandalong Road/Freemans Drive/Wyee Road	Lake Macquarie	5am–10am and 3pm–7pm
I-28	Freemans Drive/Mount Faulk Road	Lake Macquarie	5am–7pm
I-29a	Wangi Road/Rocky Point Road (west)	Lake Macquarie	5am–7pm
I-29b	Wangi Road/Rocky Point Road (east)	Lake Macquarie	5am–7pm
I-32	Golden Highway/Existing Track Across Rail Track	Singleton	5am–7pm
I-33	Golden Highway/Unnamed Road (east of Lemington Road)	Singleton	5am–7pm
I-57	Freemans Drive/Newport Road	Lake Macquarie	5am–10am and 3pm–7pm
I-58	Freemans Drive/Mount Nellinda Road	Lake Macquarie	5am–10am and 3pm–7pm
I-59	New England Highway/Thomas Mitchell Drive	Muswellbrook	5am–7pm
I-60	Denman Road/Thomas Mitchell Drive	Muswellbrook	5am–7pm
I-61	Denman Road/Edderton Road	Muswellbrook	5am–7pm

Table 3-3 Mid-block traffic count locations

ID	Location	LGA	Hours of survey
M-01	New England Highway, west of Lemington Road, Ravensworth	Singleton	24 hours / 7 days
M-02	Lemington Road, west of HVO entrance, Howick	Singleton	24 hours / 7 days
M-03	Golden Highway, east of Gouldsville Road, Gouldsville	Singleton	24 hours / 7 days
M-04	Broke Road, south of Bulga Surface Operations access road, Mount Thorley	Singleton	24 hours / 7 days
M-05	Cessnock Road, east of Oakley Lane, Singleton Military Area	Singleton	24 hours / 7 days
M-06	McDonalds Road, north of Oakey Creek Road, Pokolbin	Cessnock	24 hours / 7 days
M-07	Wollombi Road, west of Middle Road, Pelton	Cessnock	24 hours / 7 days
M-08	Freemans Drive, east of Mount Faulk Road, Cooranbong	Lake Macquarie	24 hours / 7 days
M-09	Martinsville Road, east of Pringles Road, Martinsville	Lake Macquarie	24 hours / 7 days
M-10	Watagan Road, west of Martinsville Road, Martinsville	Lake Macquarie	24 hours / 7 days
M-11	Freemans Drive, south of Martinsville Road, Cooranbong	Lake Macquarie	24 hours / 7 days
M-12	Broke Road, east of McDonalds Road, Pokolbin	Cessnock	24 hours / 7 days
M-13	AGL Site Access – west of New England Highway	Muswellbrook	24 hours / 7 days

Figure 3-3 Traffic survey locations

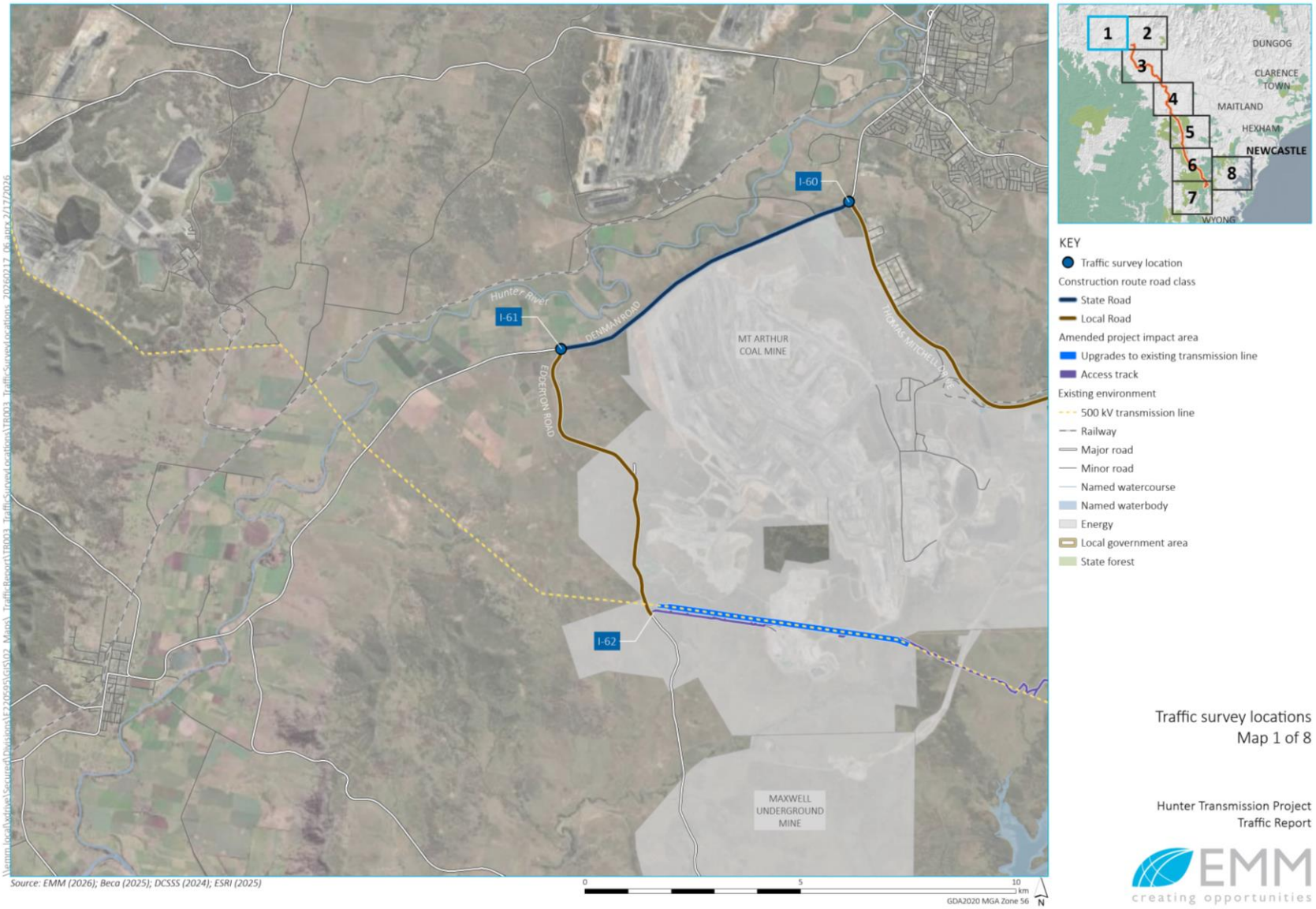


Figure 3-3 Traffic survey locations (continued)

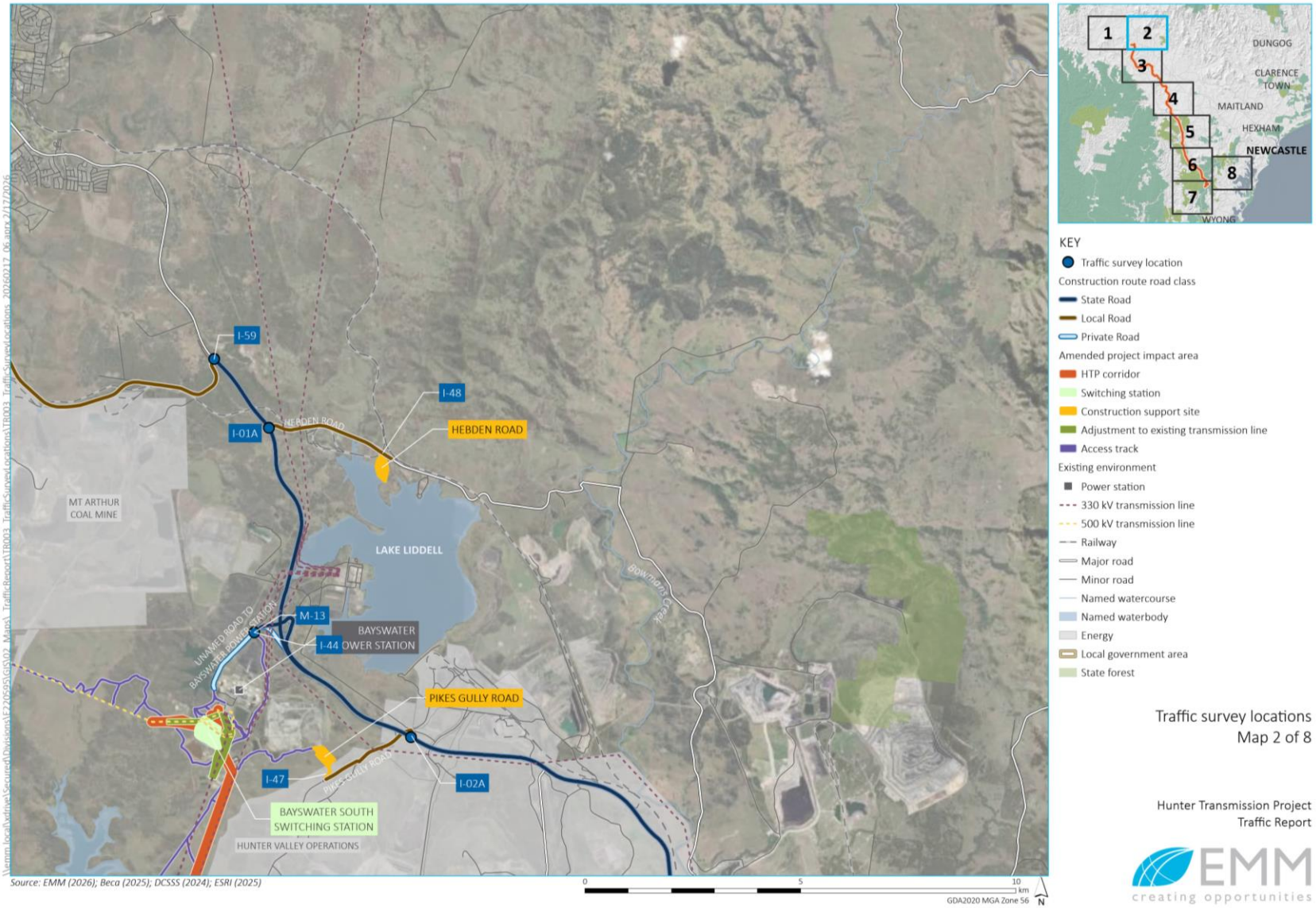


Figure 3-3 Traffic survey locations (continued)

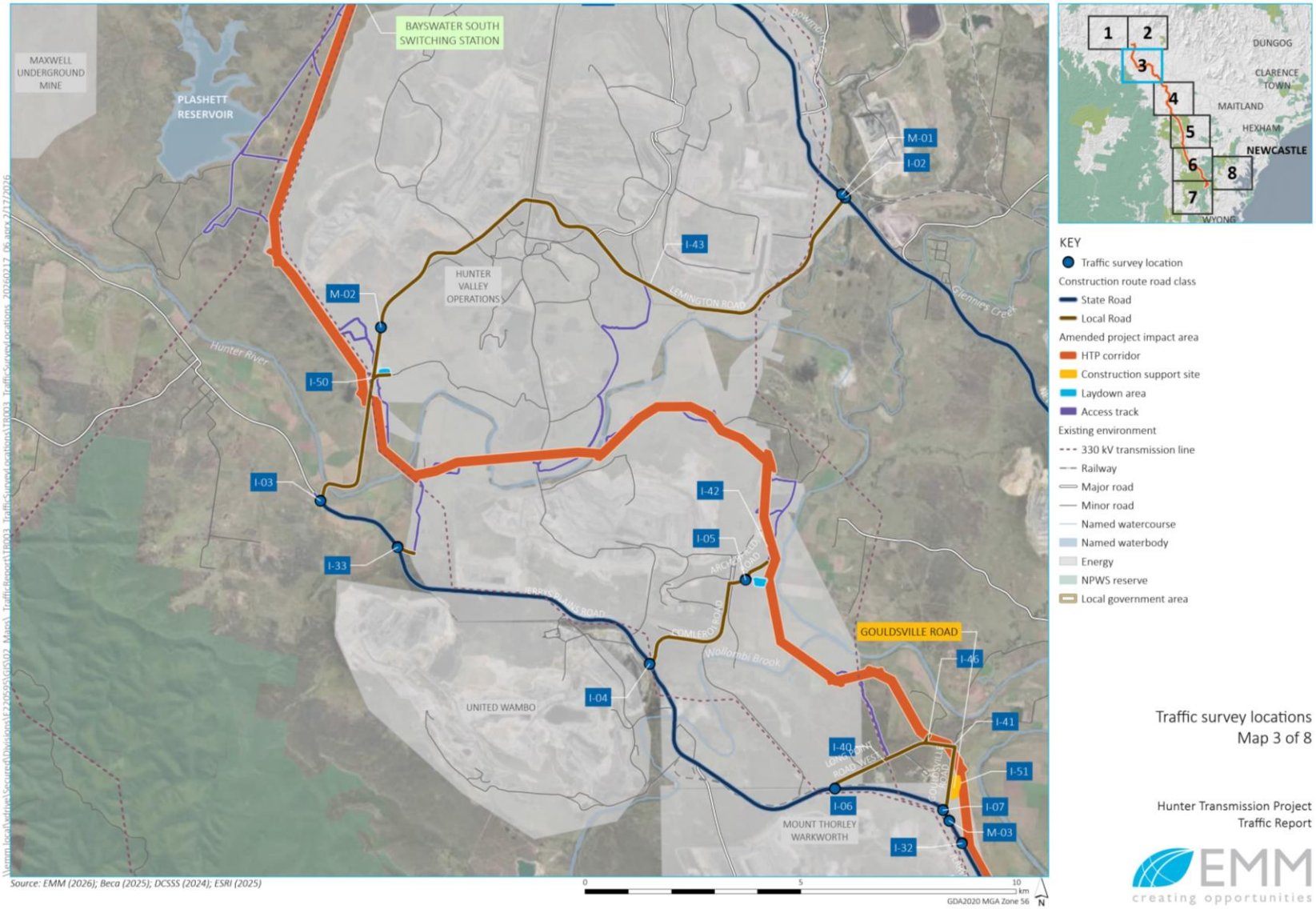


Figure 3-3 Traffic survey locations (continued)

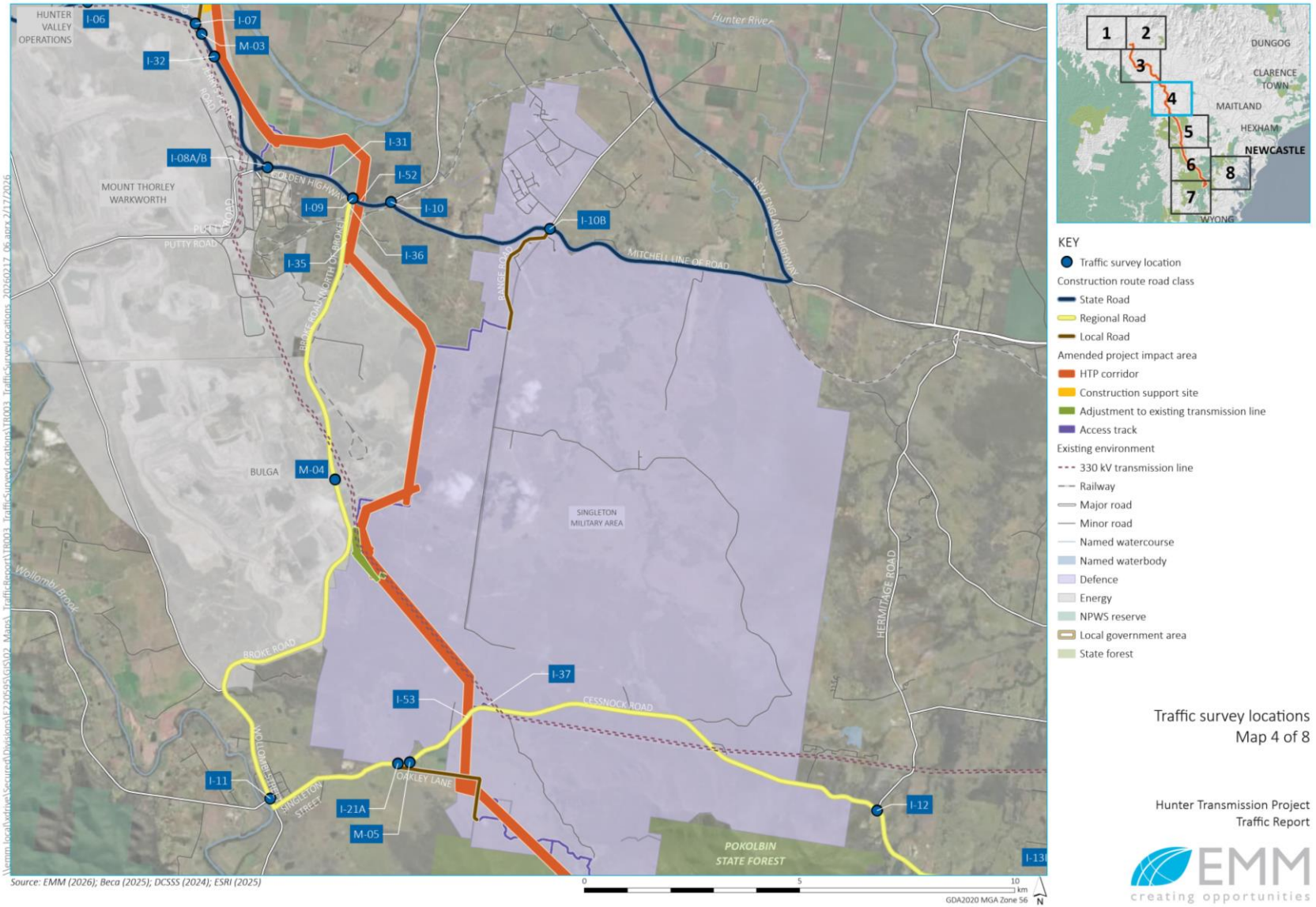
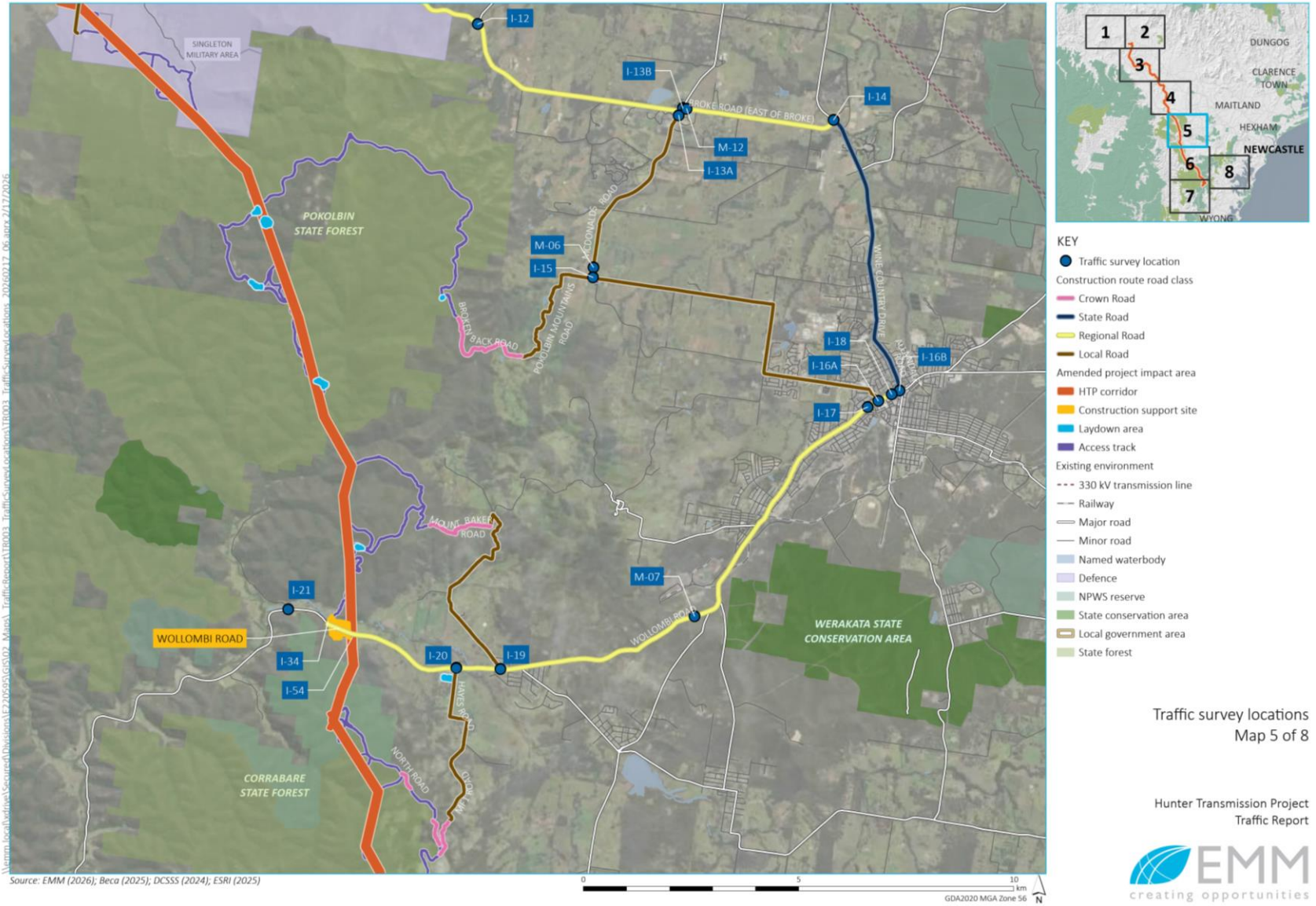


Figure 3-3 Traffic survey locations (continued)



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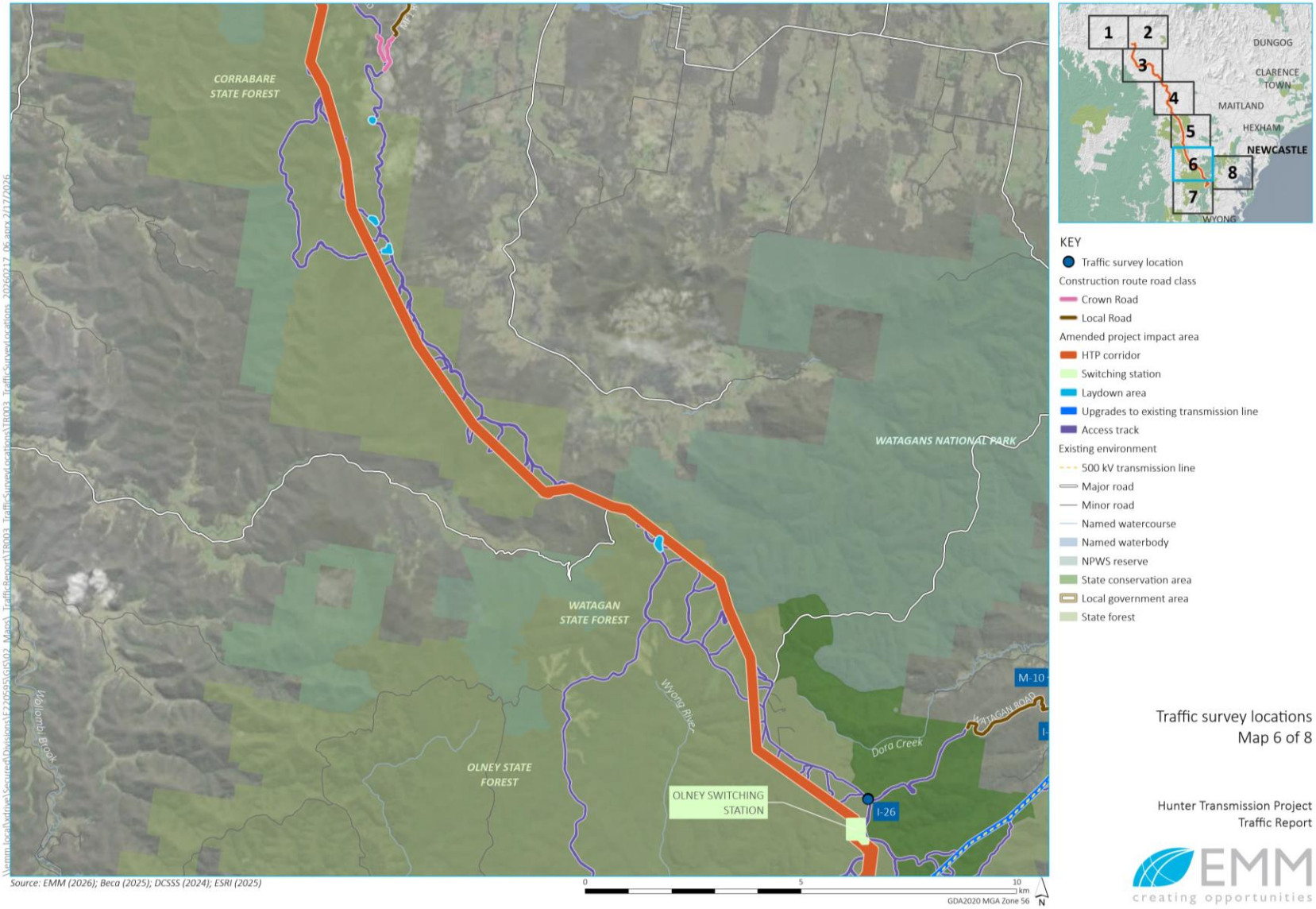


Figure 3-3 Traffic survey locations (continued)

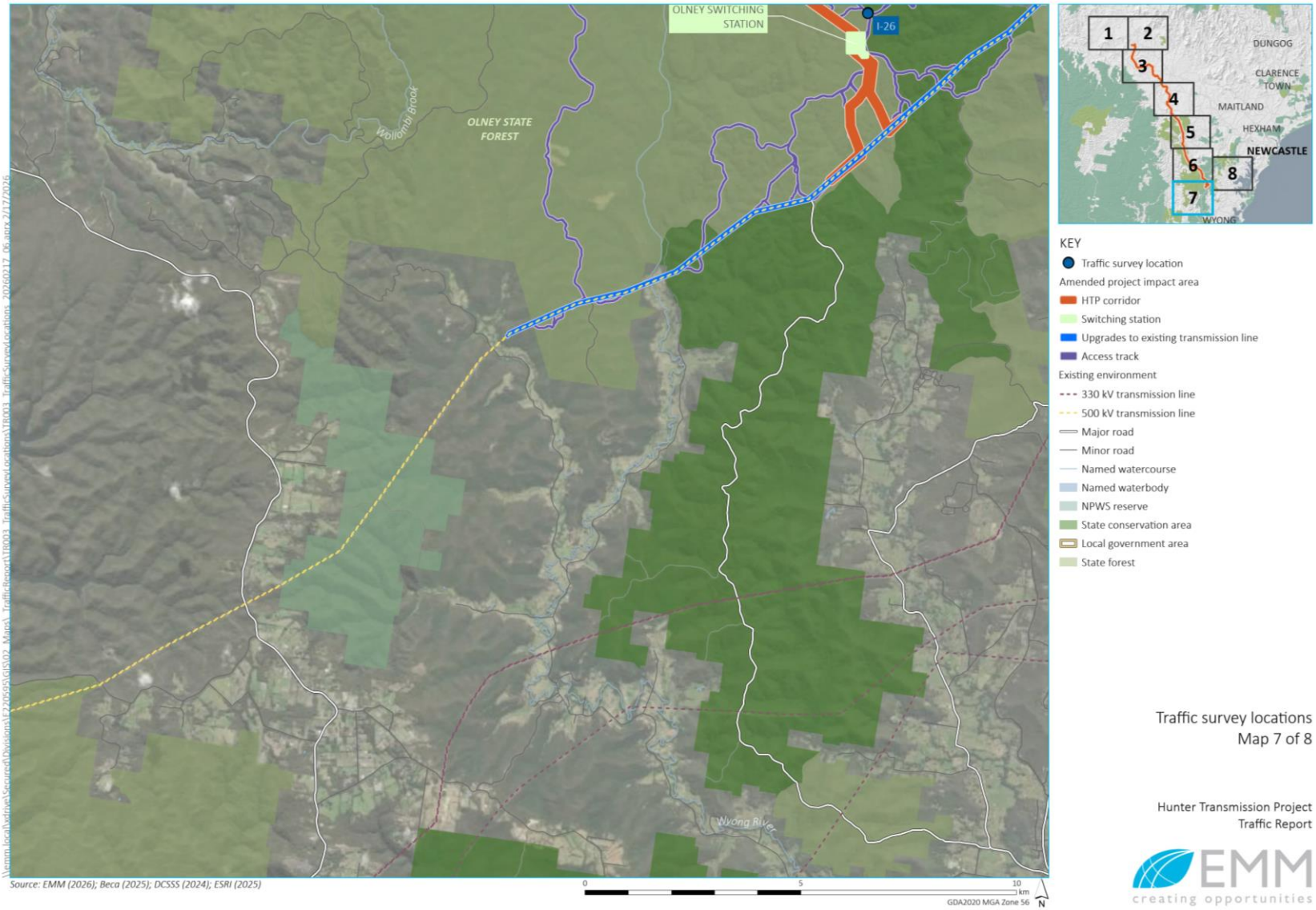
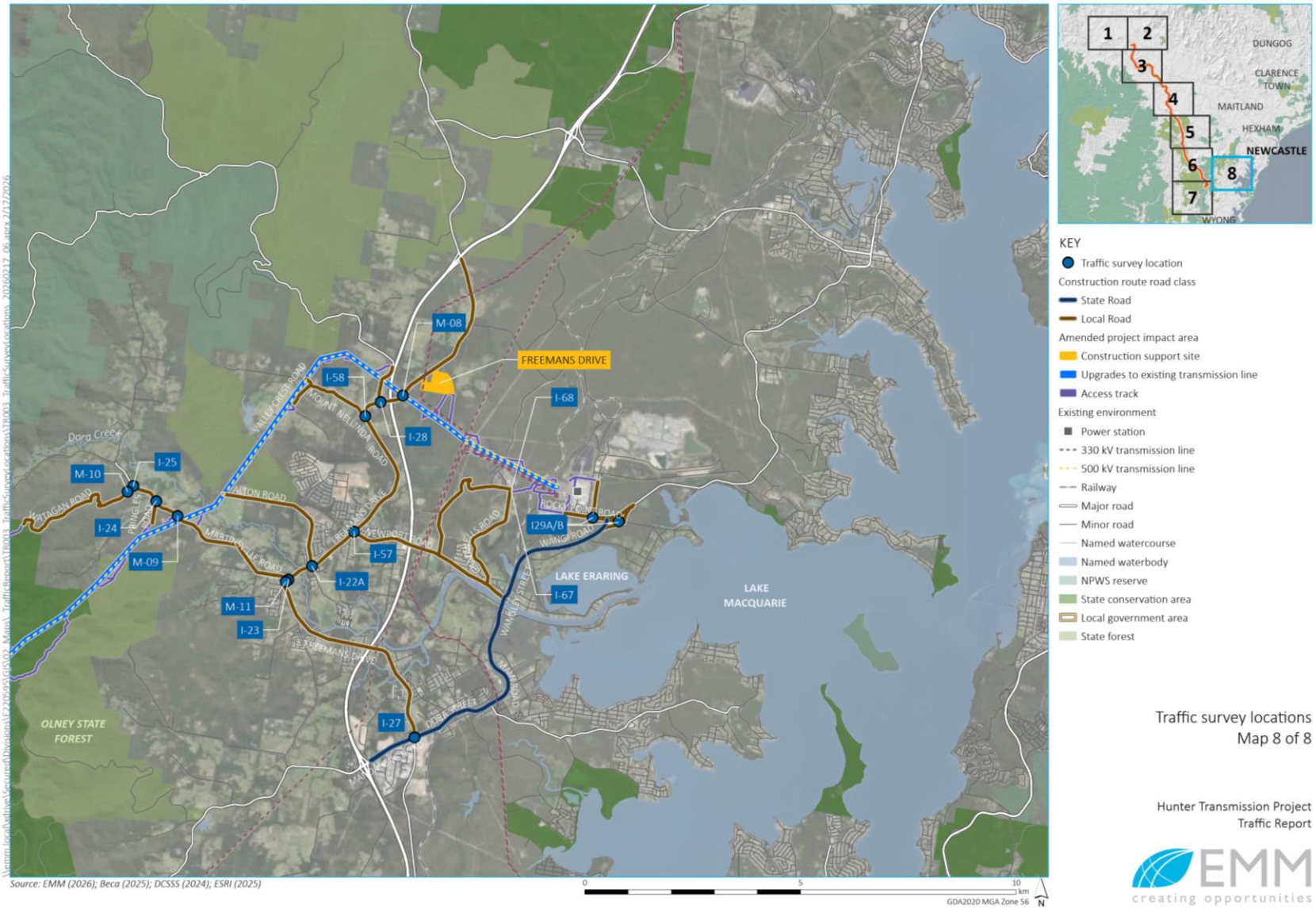


Figure 3-3 Traffic survey locations (continued)



KEY

- Traffic survey location

Construction route road class
- State Road
- Local Road

Amended project impact area
- Construction support site
- Upgrades to existing transmission line
- Access track

Existing environment
- Power station
- 330 kV transmission line
- 500 kV transmission line
- Railway
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State conservation area
- Local government area
- State forest

Traffic survey locations
Map 8 of 8

Hunter Transmission Project
Traffic Report

EMM creating opportunities

3.5.3 Crash analysis

NSW crash data was sourced from TfNSW's Open Data platform. The 5-year crash data available extended from 2020 to 2024. The crash analysis included consideration of the available crash data for roads that form part of the proposed construction routes within the traffic and transport study area. The crash analysis aimed to develop an understanding of existing road safety issues that the project may need to be aware of and manage accordingly.

Crash data was grouped by NSW Road Classifications, which includes:

– State roads (New England Highway, Golden Highway, Wine Country Drive, Wangi Road)

– Regional roads (Wollombi Road, Cessnock Road, Broke Road)

– Local roads.

3.5.4 Site inspections

A site inspection was carried out on 13 and 14 December 2023 to provide the study team with familiarisation of the project impact area, as well as observe and gain an understanding of the existing road and transport network conditions to be considered for the traffic surveys. The site inspection included key access roads, access tracks and intersections, and adjacent land use types.

3.6 Traffic growth rate assumptions

3.6.1 Traffic growth rates on select roads within the study area

The adopted traffic growth rate on select roads within the traffic and transport study area is summarised in **Table 3-4**. This was obtained based on considerations of historical growth as recorded in TfNSW's *Traffic Volume Viewer*, assessment of surrounding major projects including the *Singleton Bypass Traffic Assessment Report* (AECOM, 2019) and the *Golden Highway Corridor Strategy* (TfNSW, 2016).

Table 3-4 Adopted background traffic growth on select roads within the study area

Road name	Section	Adopted traffic growth rate
New England Highway	East of Bridgman Road	1.1%
New England Highway	North of Magpie Street	1.7%
Golden Highway	Belford to Mount Thorley	2.0%
Golden Highway	Mount Thorley to Jerrys Plains	1.2%
Putty Road	South of Ryan Avenue	0.6%
John Street	South of Newton Street	0.3%
Other State or regional roads	-	2.0%

3.6.1.1 Traffic Volume Viewer

Based on TfNSW's *Traffic Volume Viewer* website, a traffic counter collected mid-block traffic data on the New England Highway, 200 m north of Rixs Creek Lane in Rixs Creek (Station ID 6153), between 2015 and 2022, with the last count recorded in March 2022.

Figure 3-4 shows the traffic growth pattern between 2017 and 2022 (TfNSW, viewed March 2024). The counter at this location did not collect northbound traffic volumes in 2016, and so the pre-2017 counts were excluded from the graph, but this does not impact the growth pattern analysis in more recent years.

Figure 3-4 Traffic volumes at Station ID 6153: New England Highway at Rixs Creek

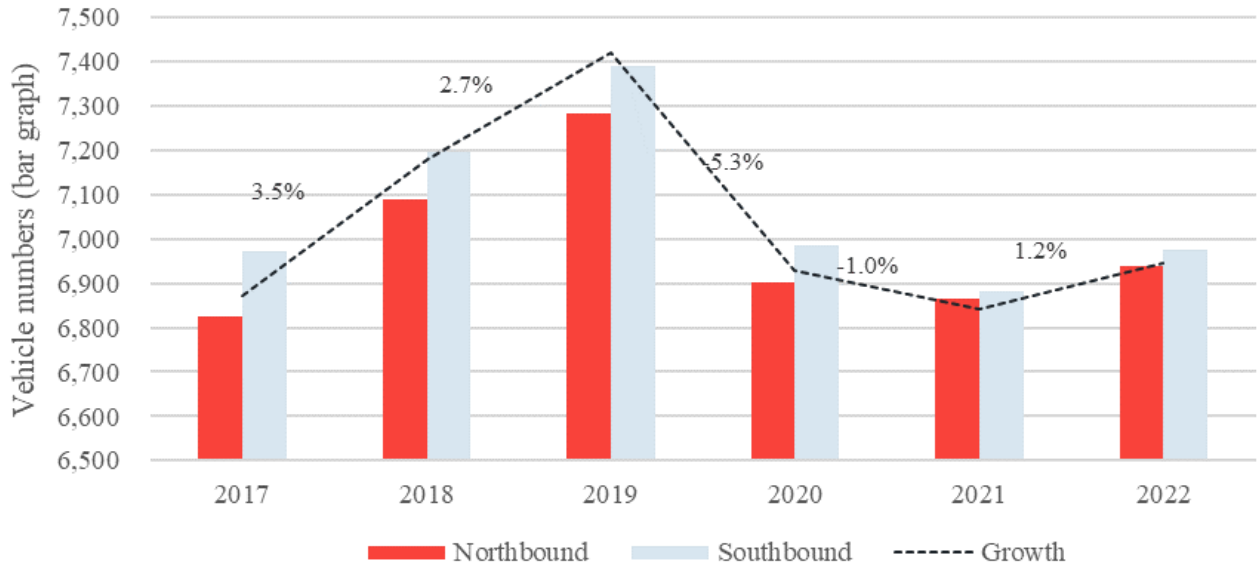


Figure 3-4 shows a growth rate of about 3 per cent occurred before the COVID-19 pandemic. Travel demands were then affected in 2020 when the bidirectional daily traffic volumes dropped to below 13,900 vehicles per day compared to 14,671 vehicles per day in 2019. In the following years, traffic volumes dropped further in 2021 (reduced by 1.0 per cent from 2020) and have since recovered slowly in 2022 with an increase of 1.2 per cent from 2021.

3.6.1.2 Golden Highway Corridor Strategy

The Golden Highway Corridor Strategy was developed by TfNSW in 2016 to manage and guide the development of the road corridor to improve safety, traffic efficiency and sustainability. As part of the assessment, TfNSW assessed traffic growth based on historical data between 2004 and 2014. The data reflects growth in the mining industry, and the study acknowledges that regular traffic surveys are needed to ensure continued accurate traffic growth projections.

The traffic growth at relevant sections of the study area is listed in **Table 3-5**.

Table 3-5 Average daily traffic volumes and historical growth rates (2004-2014)

Sections	Average daily traffic (vehicles per day)	Growth rate	Section length (km)
Belford to Mount Thorley	4,975–11,370	1.9–2%	13.4
Mount Thorley to Jerrys Plains	3,748	1.2%	23.4

Source: Golden Highway Corridor Strategy (TfNSW, 2016)

3.6.1.3 Singleton Bypass

The *Concept Design and Environmental Assessment Traffic Assessment Report* (AECOM, 2019) for the Singleton Bypass, undertaken on behalf of TfNSW, was reviewed to understand the forecast traffic growth in Singleton and the surrounding road network.

The study was completed as a microsimulation network model using Aimsun traffic modelling software, which modelled intersections and network links within the study, and included scenarios investigating without and with the bypass (with various options) for the years 2018, 2022, 2036, and 2045.

It is understood extensive work and detailed discussion with TfNSW was undertaken to review the traffic growth assumptions associated with this study. This study adopted a traffic growth of 1.7 per cent per annum (p.a.) on the bypass and 0.4 per cent p.a. within Singleton town centre. Although this was applied widely in the traffic model, there are nuances in traffic growth at different locations throughout the study area, which were dependent on the network performances and routing choices. To investigate this, the model recorded traffic volumes for the various modelling scenarios at several fixed locations (known as a screenline) at the following locations:

– New England Highway, east of Bridgman Road
– New England Highway, north of Magpie Street
– Putty Road south, of Ryan Avenue
– John Street, south of Newtown Street.

Singleton Bypass is expected to be open to traffic in late 2026, while HTP aims to commence construction in 2027, after the opening of the bypass. As such, the background traffic growth rate applied to roads proposed to be used for HTP during its construction are those without the bypass between the 2022 and 2026 scenarios.

The traffic volumes on New England Highway under the base case scenario and 'with bypass' scenario are plotted in Figure 3-5 and Figure 3-6 respectively. The graphs show that the bypass results in reduced traffic demands on the New England Highway east of Bridgman Road, however a slight increase in the section north of Magpie Street can be observed with the bypass allowing more throughput traffic bypassing traffic congestion issues in Singleton.

Figure 3-5 Singleton Highway Bypass Traffic volume plot – New England Highway base case

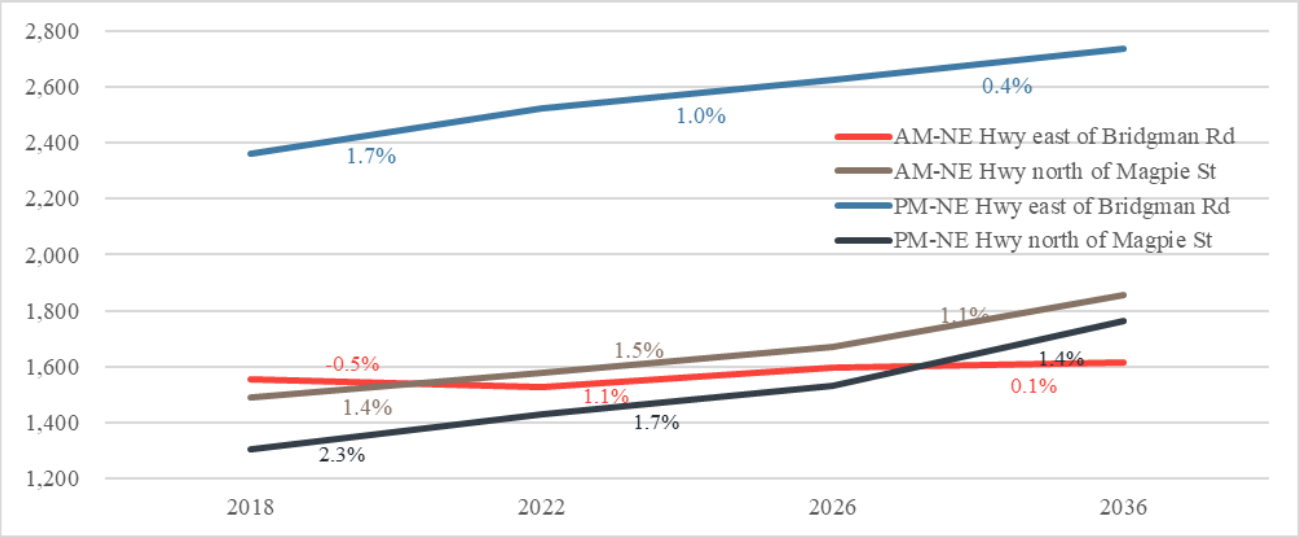
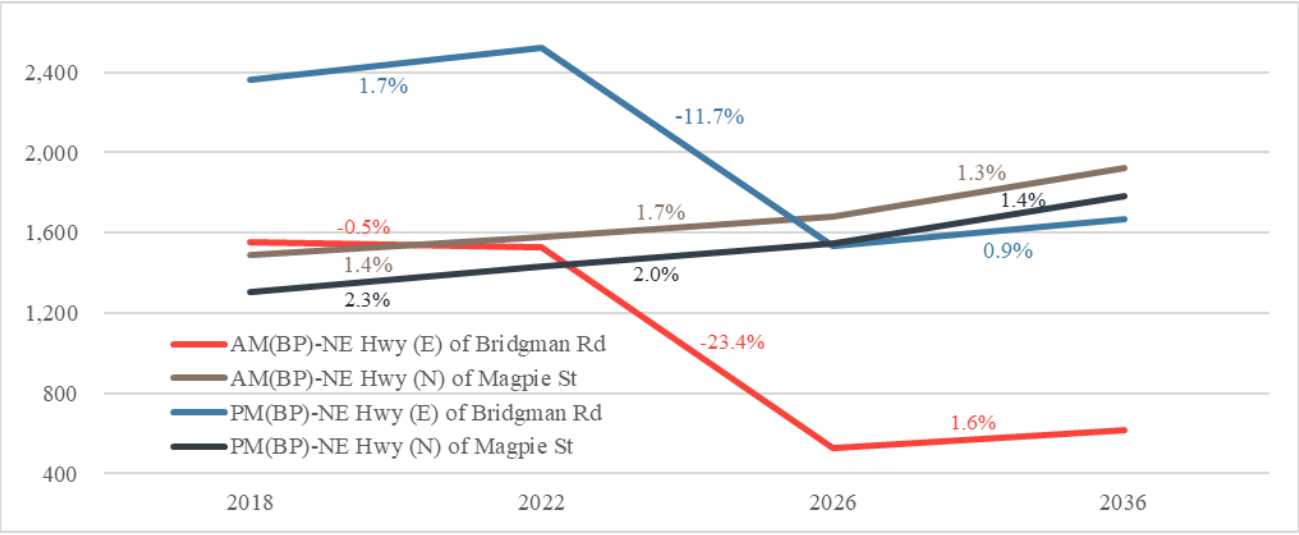


Figure 3-6 Singleton Highway Bypass Traffic volume plot – New England Highway 'with bypass' scenario



The following traffic growth rates are observed in the graph:

– New England Highway, east of Bridgman Road: 1.1 per cent in the AM peak and 1.0 per cent in the PM peak. The higher growth rate of 1.1 per cent will be the adopted growth rate

– New England Highway, north of Magpie Street: 1.5 per cent in the AM peak and 1.7 per cent in the PM peak. The higher growth rate of 1.7 per cent will be the adopted growth rate.

The traffic volumes on the local roads in Singleton (Putty Road and John Street) under the base case scenario and 'with bypass' scenario are plotted in **Figure 3-7** and **Figure 3-8** respectively. The graphs show the bypass results in reduced traffic demands on John Street south of Newton Street. However, a slight increase in Putty Road south of Ryan Avenue can be observed with the bypass allowing more throughput traffic bypassing traffic congestion issues in Singleton.

Figure 3-7 Singleton Highway Bypass Traffic volume plot – John Street and Putty Road base case

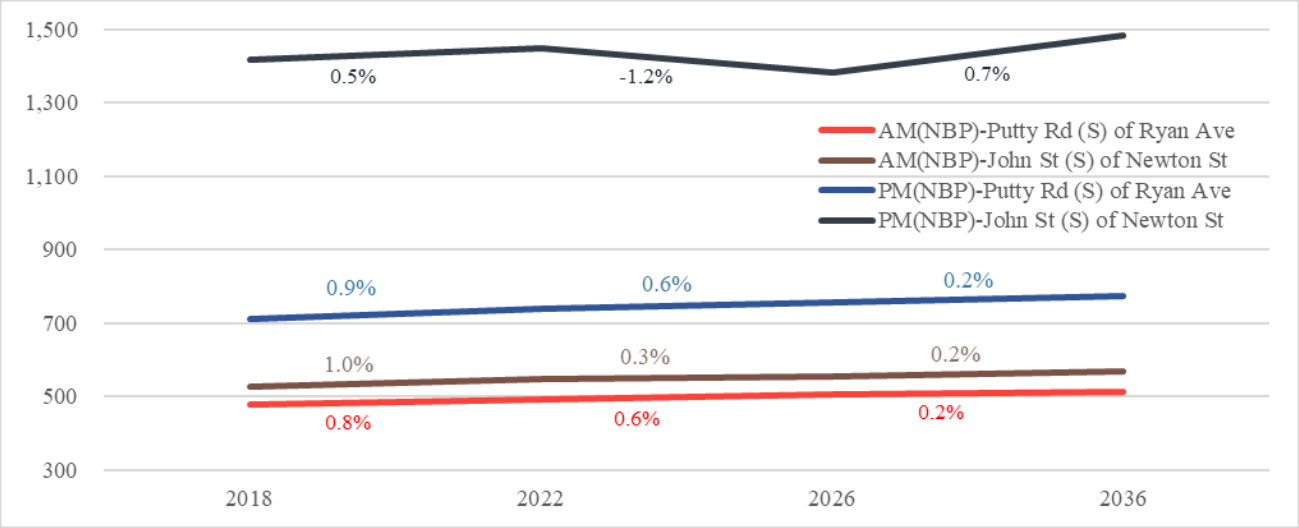
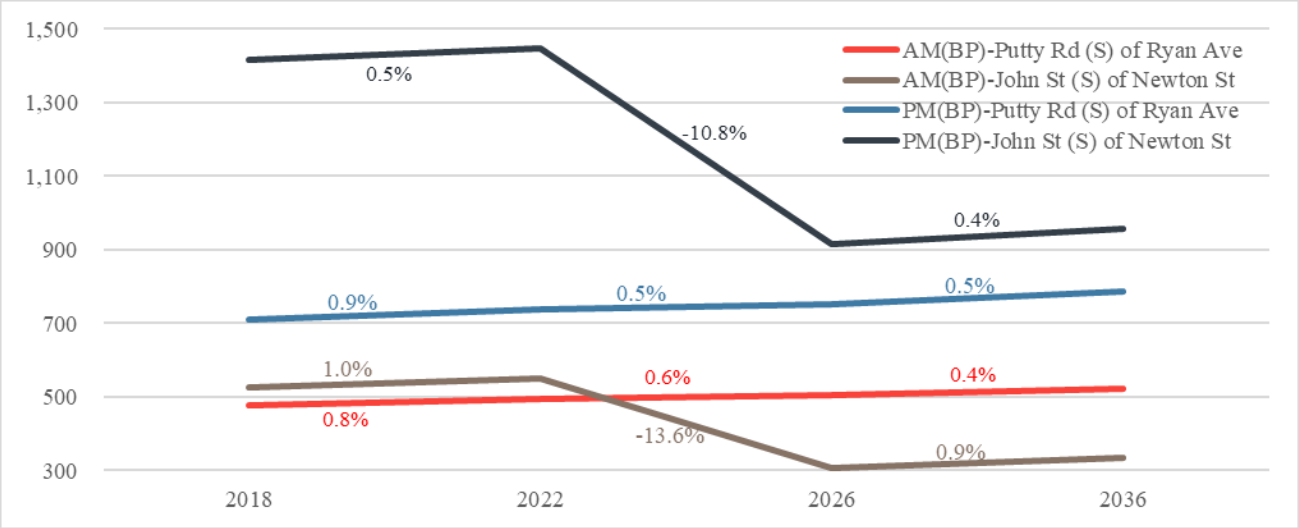


Figure 3-8 Singleton Highway Bypass Traffic volume plot – John Street and Putty Road 'with bypass' scenario



The following traffic growth rates are observed in the graph:

– Putty Road, south of Ryan Avenue: 0.6 per cent in the AM and PM peak periods which will be the adopted growth rate

– John Street, south of Newton Street: 0.3 per cent in the AM peak and -1.2 per cent in the PM peak. The higher growth rate of 0.3 per cent will be the adopted growth rate.

3.6.1.4 Cessnock LGA Traffic and Transport Strategy

Regional and local roads are the predominant road types within the Cessnock LGA. According to the *Cessnock LGA Traffic and Transport Strategy* (Cessnock City Council, 2018), the LGA is expected to experience an estimated increase of 25,870 dwellings between 2016 and 2061. The forecasted growth rate estimated as part of the *Cessnock LGA Traffic and Transport Strategy* is depicted in **Table 3-6**.

The Council forecasts growth to occur at 2.4 per cent per annum in the initial years and grow at a progressively slower rate in the following years. This growth rate is generally aligned with a recent census survey undertaken in 2021 and will be uniformly applied to all roads throughout the Cessnock LGA.

Table 3-6 Forecast dwelling growth in Cessnock LGA

Year	Actual		Forecast				
	1996	2016	2021	2031	2041	2051	2061
Dwelling number	17,040	23,860	26,850	33,260	39,255	44,890	49,340
Growth (%)		2.0%	2.42%	2.34%	1.76%	1.41%	0.98%

Source: Cessnock LGA Traffic and Transport Strategy (Cessnock City Council, 2018)

3.6.1.5 Lake Macquarie LGA

Regional roads, local roads and forestry roads are the predominant road types within the Lake Macquarie City Council LGA. The suburbs of Morisset, Cooranbong and Wyee were identified in the *Lake Macquarie Local Strategic Planning Statement* (LSPS) as the *South West Growth Area*.

These growth areas provide opportunities for urban developments and an increase in population and employment areas. According to Lake Macquarie's Population Forecast (REMPLAN, 2024), the region of Morisset–Cooranbong–Lake Macquarie is forecasted to increase by 11,700 people between 2021 to 2041. An initial growth of 3.1 per cent per annum is forecast between 2021 to 2026. This rate progressively grows at a slower rate at 2.9 per cent p.a. (2026 to 2031) and 2.4 per cent p.a. (2031 to 2036). A growth rate of 3.1 per cent p.a. will be applied for all roads within the Lake Macquarie LGA.

3.7 Construction traffic assessment methodology

Assessment of the construction impacts of this project included a quantitative assessment of select road features identified as construction access routes and qualitative assessments of the broader transport network. It takes into consideration the construction program, staging, staff numbers, construction support site and temporary worker accommodation locations, and construction vehicle types, volumes, and routes.

The quantitative assessment was conducted by measuring the performance of intersections and mid-block capacity affected by the project. This was done by comparing the following scenarios, using the assessment criteria outlined in **Section 3.10**:

- ***'Existing'*** scenario: performance of the road network with current traffic demand, as surveyed
- ***'Without construction'*** scenario: future year network performance with background growth only and no construction traffic
- ***'With construction'*** scenario: future year network performance with background growth and construction traffic.

Assessing these scenarios provides an understanding of the project's potential impact and supports the identification of appropriate mitigation measures, considering the type of work proposed and applicable period of intervention required to alleviate performance issues.

Due to the size of the construction impact area and nature of construction works, the quantitative assessment involves forecasting a peak construction period to be assessed, which consists of the 'worst case' construction traffic movements likely to be experienced along the construction routes within the traffic and transport study area.

These volumes were added to the surveyed traffic demand (existing traffic conditions) to enable a capacity and impact assessment of the road network.

In addition, this assessment also includes a qualitative impact assessment of road and rail operations from stringing transmission lines, road conditions, road safety, heavy vehicle routes, property access, active transport, and public transport.

The potential traffic and transport impacts from construction activities for this project are discussed in **Section 5**.

3.7.1 Determination of construction access routes and OSOM construction routes

Roads likely to be used during construction within the traffic and transport study area were considered and were classified as:

– Construction access routes – roads required regularly to enable construction activities, including:
  - Travel between construction support sites (some with temporary worker accommodation), laydown areas, and stringing sites
  - Movement of earthworks materials between sections of the construction impact area, as required
  - Transport of water to temporary worker accommodation, construction support sites and ancillary sites.
– Oversize and/or over mass (OSOM) construction routes – roads that would be used for OSOM movements between the Port of Newcastle to the construction impact area for the delivery of project infrastructure and specialist transmission equipment. These roads were selected with consideration of existing gazetted OSOM approved routes.

The determination of construction access routes and OSOM construction routes was carried out in consultation with relevant stakeholders including TfNSW and local councils.

3.7.2 Estimation of peak construction traffic generation

Daily and peak hourly construction vehicle movements were estimated based on the indicative construction workforce, project construction activities, staging, size of construction support sites and the number of workers staying at temporary worker accommodations.

Traffic movement generation and distribution to/from the construction impact area was estimated and typically involves:

– Delivery of materials to/from locations outside the amended project impact area (e.g. ports, quarries, water sources) to the construction impact area
– Workers travelling between temporary worker accommodation and construction site locations within the construction impact area.

All trips generated by construction were assumed to commence from the construction support sites at Hebden Road, Pikes Gully Road, Gouldsville Road, Wollombi Road, and Freemans Drive.

The peak periods of trips generated by the project would be aligned with the planned workers' shifts. This would generate an AM peak hour between 6am and 7am and a PM peak hour between 5pm and 6pm, referred to as the 'HTP peak hours.'

The peak construction traffic volumes from the construction support sites are discussed in **Section 5.2.7**.

3.7.3 Intersection performance impact assessment

To assess the impact on the site access intersections during construction, a review of the intersection traffic survey data was undertaken to ascertain the road network traffic peak hours in the AM and PM peak periods.

Where the AM road network traffic peak hour occurred before 6-7am, the construction traffic impact was assessed during the HTP AM peak hour of 6-7am, as there is expected to be a much lower volume of construction traffic generated before 6am. Where the AM road network traffic peak hour occurred any time after 6am, the construction traffic impact was assessed during the AM road network traffic peak hour.

For the PM peak hour impact assessment, irrespective of when the road network traffic peak hour occurred, the construction traffic impact was assessed during the PM road network traffic peak hour to consider a worst-case scenario, as there is expected to be a reasonable level of project construction traffic prior to the HTP PM peak hour of 5-6pm.

3.7.4 Site access safety assessment

Safety at site access points and intersections was investigated using the availability of suitable intersection sight distances and suitability of intersection layouts to accommodate the projected demand. The design criteria are listed in **Section 3.10.2**.

3.7.5 Site access intersection swept path analyses and strategic intersection design

Swept path analyses were completed at intersections where construction traffic is proposed to undertake turning movements. Swept path analyses were completed for both 19 metre semi-trailers (articulated vehicles) and 25/26 metre B-Doubles turning at intersections.

The following intersections will also be traversed by OSOM vehicles, described further in **Section 5.2.8**:

– Freemans Drive / Martinsville Road (auxiliary services building access to the Olney switching station)

– Martinsville Road / Watagan Road (auxiliary services building access to the Olney switching station)

– Wangi Road / Rocky Point Road (transformer access to Eraring substation)

– Main Access to Bayswater Power Station (shunt reactors and auxiliary services building access to the Bayswater South switching station).

The purpose of the swept path analyses was to determine the suitability of the intersection for vehicle manoeuvring based on a worst-case scenario and the requirements for any intersection upgrades or modifications. Strategic intersection designs were prepared where intersection upgrades or modifications are required, with turning paths and road and intersection modifications overlaid on aerial imagery using AutoCAD. Intersection upgrades have been discussed with the relevant road authorities, including TfNSW and councils (see **Section 3.11**).

Appendix D includes swept path analyses, including for strategic intersection design modifications. The design vehicle modelled in the OSOM swept paths within **Appendix F** is equivalent to the component and trailer dimensions in the OSOM vehicle route assessment in **Appendix E**. The reason for the difference in lengths is the OSOM vehicle route assessment considers push and pull trucks in the total vehicle length, which are typically not modelled within the swept paths and would not contribute to a larger swept path.

3.8 Operational traffic assessment methodology

The operation of the project would generally involve the inspection and maintenance of the transmission line easement, transmission lines and towers, switching stations, and substations, which would be scheduled periodically. During operations, project-generated traffic movements are likely to be low in volume.

The operational traffic assessment qualitatively assesses the impacts associated with road capacity, road condition, road safety, efficiency, active transport, public transport and property access.

The operational traffic impacts of the project are discussed in **Section 6**.

3.9 Cumulative traffic assessment methodology

The quantitative cumulative impact assessment approach involves considering the impacts of the project together with the traffic and transport impacts of other relevant nearby projects. Relevant projects with the potential for cumulative traffic impacts with the project were identified through a review of publicly available information and environmental impact assessments.

The projects included in the cumulative assessment were also informed by discussions held with TfNSW since the exhibition of the EIS. This resulted in the inclusion of additional renewable energy projects further afield to the amended project impact area within the quantitative cumulative traffic impact assessment (for example, projects within the Central West Orana and New England Renewable Energy Zones). This was requested by TfNSW to determine if additional intersection treatments or other HTP-specific mitigation is required where there is the potential for cumulative impacts to arise on common State roads. The included projects and the assumptions applied have been agreed with TfNSW, and capture those that are at:

– An EIS exhibition stage or later in the NSW planning process, and

– Have the potential to use the Port of Newcastle and common State road networks with HTP (for example, the Golden Highway).

The assumptions represent a worst-case scenario as it assumes an overlap of all identified projects with HTP in 2028 and is inclusive of renewable energy projects that have not yet been granted access rights.

The cumulative traffic and transport impacts on road safety (intersection turn warrants) and road efficiency (intersection performance) are discussed in **Section 7**.

3.10 Assessment criteria

3.10.1 Intersection performance metrics

3.10.1.1 Level of service

Intersection level of service (LoS) is a typical measure used by transport professionals to assess the operational performance of intersections based on the average delay experienced by all vehicles passing through the intersection. Levels of service range from LoS A (indicating good intersection operation) to LoS F (indicating over-saturated conditions with long delays and queues). At signalised intersections, the LoS is related to average intersection delay (seconds per vehicle). At priority controlled (give-way and stop controlled) and roundabout intersections, the LoS is based on the worst modelled delay (seconds per vehicle) for any movement at the intersection.

Table 3-7 outlines the LoS for intersections, as defined in the *Traffic Modelling Guidelines* (Roads and Maritime Services, 2013). As acknowledged in the *Guide to Transport Impact Assessments* (TfNSW, 2024), a comparison of the existing and future average delay provides a better appreciation of the impact of a proposal, and not simply the change in the level of service.

Table 3-7 Level of service definitions for intersections

Level of Service	Average delay (seconds per vehicle)	Traffic signals	Give-way and stop signs, roundabout
A	Less than 14.5	Good operation	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	28.5 to 42.4	Satisfactory	Satisfactory, but accident study required.
D	42.5 to 56.4	Operating near capacity	Near capacity and accident study required.
E	56.5 to 70.4	At capacity. At signals, incidents would cause excessive delays.	At capacity, requires other control modes. Roundabouts require other control modes.
F	70.5 or greater	Unsatisfactory with excessive queuing.	Unsatisfactory with excessive queuing; requires other control modes.

Source: Roads and Maritime Services, 2013, Traffic Modelling Guidelines and Akcelik & Associates, 2024, SIDRA Intersection User Guide

3.10.1.2 Degree of saturation

The degree of saturation (DoS) is the ratio of traffic volume to capacity. In a satisfactory situation, DoS should be less than the nominated practical degree of saturation, usually 0.9. As DoS approaches 1.0, extensive queues and delays could be expected. The intersection DoS is based on the intersection movement with the highest value.

According to Austroads, in practice, the target degrees of saturation (known as the practical degree of saturation) for signalised, roundabout and priority-controlled intersections are 0.90, 0.85 and 0.80 respectively.

3.10.1.3 Queue length

Queue length is measured in metres reflecting the number of vehicles waiting at the stop line. Queue length is usually quoted as the 95th percentile back of the queue, which is the value below which 95 per cent of observed queue lengths fall. It reflects the number of vehicles per traffic lane at the start of the green period when traffic starts moving again after a red signal. The intersection queue length is usually taken from the movement with the longest queue length.

3.10.2 Intersection safety checks

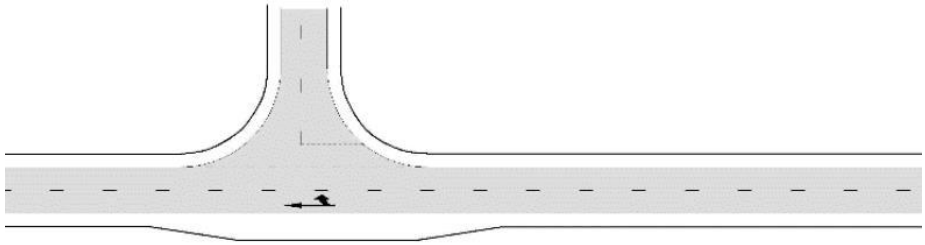
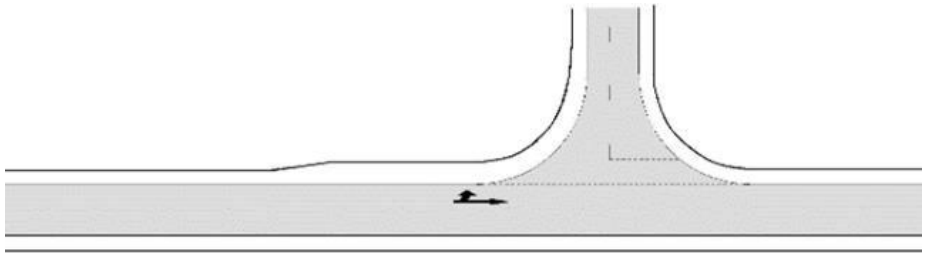
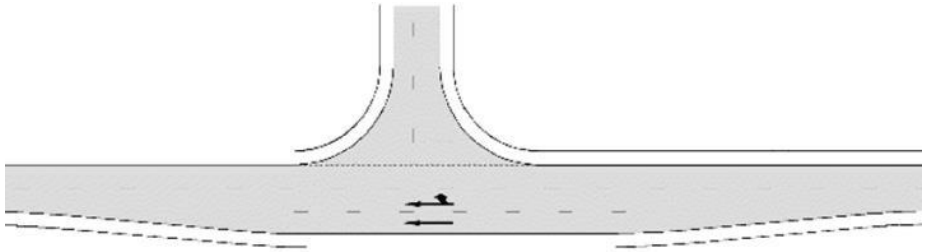
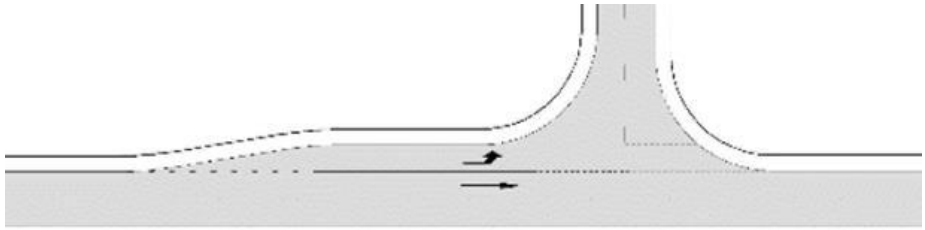
Intersection safety checks have been performed at intersections proposed to be regularly used during construction and are based on intersection turn warrant assessments and sight distance criteria used in road design practice.

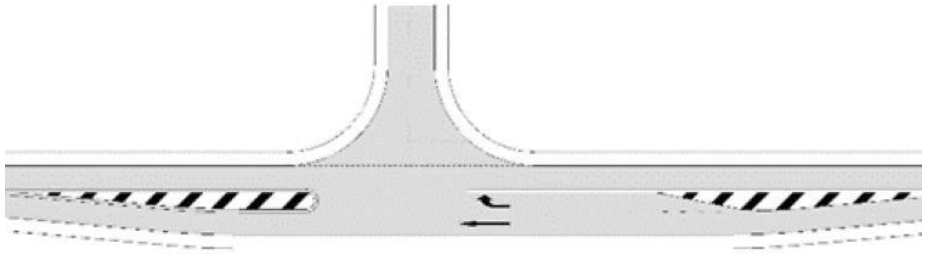
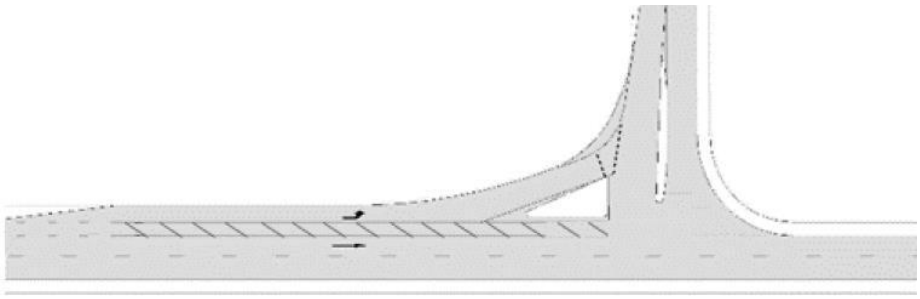
3.10.2.1 Intersection turn-treatment warrant assessment

Key intersections have been quantitatively analysed using Austroads' intersection turn treatment warrant assessment. The evaluation mainly focuses on safety performance outcomes, rather than operational. This methodology is suitable for the project, given almost all impacted intersections are priority controlled, have low traffic demand, and are operationally observed to have minimal traffic delay and queueing.

This methodology, as described in Austroads *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management*, assesses the need for priority-controlled intersections to provide basic (BA), auxiliary (AU) lane or channelised (CH) turn lanes, as shown in **Figure 3-9**.

Figure 3-9 Intersection type – rural roads

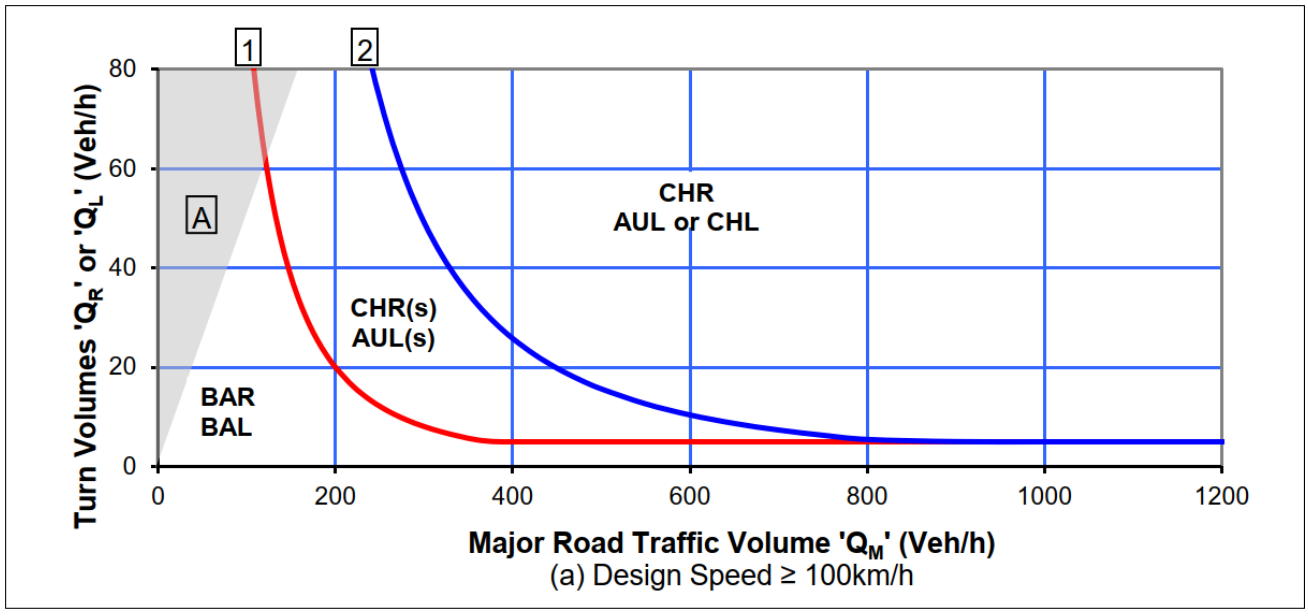
Treatment	Right turn
Basic right turn (BAR)	
Basic left turn (BAL)	
Auxiliary right turn (AUR)	
Auxiliary left turn (AUL)	

Treatment	Right turn
Channelised right turn (CHR)	
Channelised left turn (CHL)	

Source: Austroads Guide to Traffic Management Part 6

The turn treatment is assessed by analysing the traffic volume demands on the minor and major roads, using the calculation in **Table 3-8** and assessed against the graph shown in **Figure 3-10**. Curves 1 and 2 shown in the graph are applicable for two-lane two-way roads to depict the boundary between the different treatments (basic and short/regular auxiliary or channelised lanes). For roads with four or more lanes, curve 1 becomes the boundary between a basic and regular auxiliary or channelised lane.

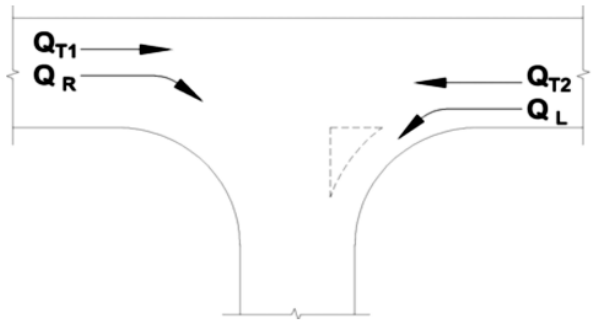
Figure 3-10 Warrants for turn treatments on major roads at unsignalised intersections



Source: Austroads Guide to Traffic Management Part 6

The turn treatment assessment applies to turning movements from the major road only (the road with priority). The calculation of QM for varying lane number scenarios is depicted in **Table 3-8**.

Table 3-8 Calculation of the major road traffic volume Q_M



Road type	Turn type	Splitter island	QM (vehicles/hour)
Two-lane two-way	Right	No	= Q_{T1} + Q_{T2} + Q_L
		Yes	= Q_{T1} + Q_{T2}
	Left	Yes or no	= Q_{T2}
Four-lane two-way	Right	No	= 0.5*Q_{T1} + Q_{T2} + Q_L
		Yes	= 0.5*Q_{T1} + Q_{T2}
	Left	Yes or no	= 0.5*Q_{T2}

Source: Austroads Guide to Traffic Management Part 6

3.10.2.2 Safe Intersection Sight Distance (SISD)

Safety checks at intersections proposed to be regularly used during construction have been assessed using the Safe Intersection Sight Distance (SISD) criteria (*Austroads Guide to Road Design Part 4A*).

This assessment checks the provision of mutual sight distance to allow drivers on a major road to observe, react and decelerate sufficiently to avoid a crash if a vehicle enters from the minor road and moves into a potential conflict point causing collision. The concept of SISD is depicted in **Figure 3-11** and the equation in **Table 3-9**.

Figure 3-11 Safe intersection Sight Distance assessment

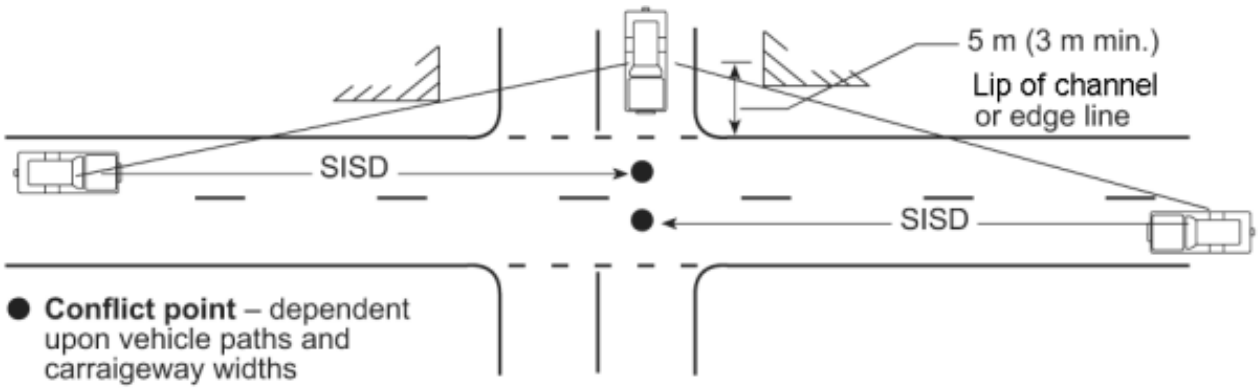


Table 3-9 Safe Intersection Sight Distance equation

$$SISD = \frac{D^T \times V}{3.6} + \frac{V^2}{254 \times (d \div 0.01 \times a)}$$

SISD: Safe Intersection Sight Distance

D_T: Decision time (seconds) including an observation time (3 sec) + reaction time

V: Operating speed (km/h)

d: coefficient of deceleration

a: longitudinal grade in %

To further explain, SISD considers the following factors:

– The line of sight is measured along the carriageway on the major road from the approaching vehicle to the conflict point. This aims to provide sufficient distance for a driver on the major road to observe, react and decelerate to a stop to avoid a potential conflict

– The line of sight is measured from where a driver is typically situated approximately 5.0 to 7.0 m from the conflict point

– SISD allows 3.0 seconds of observation time for drivers on the major road to identify a potential conflict ahead

– SISD allows a stopping sight distance (SSD) for the travel speed and appropriate reaction time.

The assessment was largely undertaken as a desktop analysis using the latest aerial images available. Therefore, the assessment outcomes would need to be validated during detailed design.

3.10.3 Mid-block road network performance

The LoS adopted in the assessment of mid-block road network performance focuses on the traffic volume-to-capacity ratio (V/C ratio) of the roads to be used during construction. This is the most appropriate method of assessment, with traffic volume being the most accessible data consistently available throughout the traffic and transport study area. This LoS applies to mid-block sections of the road and not intersection performance.

The level of service is classified from LoS A representing a free flow condition to LoS F representing unstable flow (described in **Table 3-10**).

Table 3-10 Level of Service for mid-block road network performance

LoS	Description
A	LoS A describes free-flow operations. Vehicles are almost completely unimpeded in their ability to manoeuvre within the traffic stream.
B	LoS B represents reasonable free-flow operations. The ability to manoeuvre within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to drivers is still high.
C	LoS C provides the flow conditions with speeds near the free-flow speed. Freedom to manoeuvre within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the drivers.
D	LoS D is the level at which speeds begin to decline slightly with increasing flows, with density increasing more quickly. Freedom to manoeuvre is seriously limited and the drivers experience reduced physical and psychological comfort levels. LoS D is considered typically acceptable by TfNSW.
E	LoS E describes operation at or near capacity. Operations at this level are highly volatile with virtually no usable gaps within the traffic stream, leaving little room to manoeuvre within the traffic stream. The physical and psychological comfort of drivers is poor.
F	LoS F describes unstable flow.

Source: Austroads Guide to Traffic Management Part 3

Assumptions about traffic lane capacity were made based on the road function in line with Austroads *Guide to Traffic Management Part 3 – Transport Study and Analysis Methods* and the description of road types as detailed in *Design of Roads and Streets Movement and Place Guideline* (TfNSW, 2022). These assumptions include:

– Highways – presents a high-speed primary connection between cities and towns in regional areas. These typically entail a traffic network that minimises traffic interruption, thus typically consists of wide lanes, road shoulders, channelised turning lanes, no parking and operating speed of 90 km/h or above – typically found in the highway road network. The theoretical capacity has been adopted at 1,800 vehicles/hour/lane. However, it is considered conservative, as Austroads found that an 80 km/h road with uninterrupted conditions can accommodate up to 2,000 vehicles/hour/lane. Highways could also include motorways and freeways. Highways are part of the Classified Roads in TfNSW's *Schedule of Classified Roads and Unclassified Regional Roads* and are operated and maintained by TfNSW.

– Main roads – a secondary connection between cities and towns in regional areas. These may also be described as a rural arterial road (in Austroads) or rural link (in TfNSW *Design of Roads and Streets Movement and Place*

guideline), where the condition presents an interrupted network typically having no parking, some access to properties and side streets. Wide travel lanes and channelised turning lanes to side streets are not necessarily found on this type of road condition. The speed of main roads is typically moderate to high (80 km/h or above). Main roads are part of the Classified Roads in TfNSW's *Schedule of Classified Roads and Unclassified Regional Roads* and are operated and maintained by TfNSW.

– Regional roads – provide connections between highways or main roads to surrounding land uses. The condition is typically like main roads but with narrower traffic lanes and shoulders, and poorer pavement quality. Property access and side streets are more commonly found. On-street parking may be observed along some sections closer to towns or more dense residential properties. The speed limit may range from low (50 km/h) to moderate (80 km/h). Regional roads are part of the Unclassified Roads in TfNSW's *Schedule of Classified Roads and Unclassified Regional Roads* operated and maintained by the local councils and are often funded in part by both the State and local governments.

– Local roads – predominantly have the function of providing access for local properties, and connecting them to nearby highways, main roads or regional roads. Local roads are part of the Unclassified Roads in TfNSW's *Schedule of Classified Roads and Unclassified Regional Roads* and are operated, maintained, and funded by the local councils. The speed limit is typically low (at 50km/h to 60km/h). The condition and capacity of the local roads in the study area are assumed to be like those of the regional road network.

Table 3-11 provides a measure of each level of service based on the ratio of lane volume compared to the capacity (measured in volume/hour/lane).

Table 3-11 Level of Service description for road performance (mid-block)

LoS	Highway		Main road		Regional/local road	
	V/C	Lane capacity	V/C	Lane capacity	V/C	Lane capacity
A	0.3	540	0.26	360	0.24	240
B	0.47	850	0.41	570	0.38	380
C	0.68	1,220	0.59	830	0.54	540
D	0.89	1,600	0.81	1,130	0.78	780
E	1.00	1,800	1.00	1,400	1.00	1,000
F	>1.00	>1,800	>1.00	>1,400	>1.00	>1,000

Source: Guide to Traffic Management Part 3: Transport Study and Analysis Methods (Austroads, 2020)

Note: Volume to capacity ratio and maximum lane capacity (measured at LOS E) are adopted from Austroads to align with the typical road function and posted speed limit. Lane capacity is measured in vehicles/hour/lane in one direction.

3.11 Stakeholder consultation

3.11.1 Prior to EIS exhibition

Stakeholder consultation undertaken in preparation of the exhibited TTIA is shown in **Table 3-12**. Additional details on stakeholder consultation are included in Chapter 6 (*Engagement*) of the EIS.

Table 3-12 Stakeholder consultation

Stakeholder / group	Dates of engagement/ s	Engagement summary
Singleton Council	13/6/2024, 18/11/2024, 8/4/2025, 13/6/2025	– Project update and summary, including an update on project timing – An overview of the project's needs with respect to utilities – Discussion of matters relating to workforce accommodation – **13-June 2025:** • Update on project and timings, anticipated peak project traffic volumes • Presentation and discussion on proposed workforce accommodation • Detailed run through on construction routes, proposed local/regional road and intersection upgrades
Cessnock Council	13/6/2024, 21/11/2024, 14/5/2025, 13/6/2025	– Project update – An overview of proposed changes to the project from previously shared design – Summary of the project's impacts on roads, including the need for additional road widenings, locations where land acquisition may be required – Discussions regarding road designs. Potential stormwater impacts flagged – Digital information related to sewer and stormwater around the project requested from Council – **13-June 2025:** • Update on project and timings, anticipated peak project traffic volumes • Presentation and discussion on proposed workforce accommodation • Detailed run through on construction routes, proposed local/regional road and intersection upgrades
Lake Macquarie City Council	1/8/2024, 4/2/2025, 19/5/25, 20/6/2025, 1/7/2025	– Project summary – Project activities in existing transmission line easements identified – Roads that will be part of the project's construction routes identified – Roads and intersections requiring potential upgrades discussed and nature of road works clarified – Breakdown of OSOM loads and routes provided. – **20-June 2025:** • Update on project and timings, anticipated peak project traffic volumes • Presentation and discussion on proposed workforce accommodation • Detailed run through on construction routes, proposed local/regional road and intersection upgrades – **1-July 2025:** • Follow up engagement with Lake Mac design team to coordinate HTP with future Council road upgrades

Stakeholder / group	Dates of engagement/ s	Engagement summary
Muswellbrook Shire Council	19/12/2024, 13/5/2025	– Project update, including design overview and anticipated project impacts on local roads and intersections – Discussion of various matters relating to roads, including approval conditions and ongoing maintenance requirements – Detailed design information and a relevant traffic study were agreed to be provided to HTP. The need for dilapidation reports and to further clarify community engagement channels were discussed
Central Coast Council	18/3/2025, 2/4/2025, 24/4/2025	– Project update provided – Anticipated vehicle numbers discussed and exact numbers of vehicle movements requested by Council
Transport for NSW (TfNSW)	18/3/2025, 23/5/2025	– Project summary and targeted project timeframes – Road crossings, intersection upgrades and easements identified – TfNSW identified alternate construction methodologies that could be endorsed – TfNSW requested additional details regarding transmission line road crossings, intersection upgrades and access to operational easements – **23-May 2025:** • Update on project, timeframes and construction traffic volumes • Overview of the construction support sites and peak construction traffic volume estimates • Detailed run through on construction routes, proposed state road intersection upgrades • TfNSW feedback noted on treating of potential pre-construction/early works, new requirements for OSOM at the assessment stage and cumulative construction traffic impacts on the state highways
NSW Forestry Corporation	13/11/2024, 6/12/2024, 24/3/2025, 3/4/2025, 5/5/2025	– Traffic and transport impacts on state forest and access trails – Discussion of potential project impacts on NSW Forestry Corporation operations due to roadworks, specifically on Martinsville Hill Road
Australian Rail Track Corporation (ARTC)	February 2024, October 2024	– Project overview provided – Overview of proposed activities to take place with the potential to impact ARTC, including proposed surveys, construction of transmission towers in the vicinity of the rail corridor, and the stringing of the transmission line over the rail corridor in 2 locations near the Putty Road/Broke Road intersection – Discussion of agreements to be reached, including access for construction activities and the creation of the transmission line easement
TfNSW (Sydney Trains)	March 2025	– Presentation to provide relevant information to support application for working within the Sydney Trains corridor, including details of stringing works over the rail corridor adjacent to Eraring Power Station

3.11.2 After EIS exhibition

Stakeholder consultation undertaken after the TTIA was exhibited and prior to submission of this revised TTIA is shown in **Table 3-13**. Additional details on stakeholder consultation are included in *Chapter 4 (Engagement*) of the Submissions Report.

Table 3-13 Stakeholder consultation

Stakeholder / group	Dates of engagement/s	Engagement summary
Transport for NSW (TfNSW)	10/11/2025 21/11/2025 11/12/2025 6/2/2026 Information was also supplied in addition to these meetings on 28/11/2028, 4/12/2025, 23/12/25 and 4/02/2026	– Several meetings were held with TfNSW to clarify and discuss the issues raised in its submission on the HTP EIS, with the objective of reaching agreement on the resolution of the issues raised. – Topics included traffic survey locations, study area, clarifications on construction traffic routes, intersection analysis (LOS, SISD and turn warrant), OSOM assessment, methodology for project only and cumulative scenarios and updated assessment outcomes. – In addition to the meetings with TfNSW, additional data, assessments and design information was supplied to TfNSW for initial feedback. This included traffic count data, SIDRA files, updated assessment outcomes and mitigation measures, strategic intersection designs, SISD, swept path analysis and a draft of the revised traffic and transport impact assessment.
Cessnock City Council	4/12/2025	– EnergyCo presented project construction routes, outcomes/findings in the TTIA, particularly around local road and intersection works. – Discussion on issues raised as part of Council submission to the EIS, including use of construction support site, management plans, local road mass limits and community benefits.
Lake Macquarie City Council	5/12/2025 15/01/2026	– EnergyCo presented project construction routes, outcomes/findings in the TTIA, particularly around local road and intersection works. – Discussion on issues raised as part of Council submission to the EIS – Discussions around design solution at the Freemans Drive and Martinsville Road intersections and coordination with Council's future shared path project
Muswellbrook Shire Council	16/12/2025 20/01/2026	– EnergyCo presented project construction routes, outcomes/findings in the TTIA, particularly around local road and intersection works. – Discussion on issues raised as part of Council submission to the EIS, including intersection treatments and workforce accommodation.
Singleton Council	16/12/2025 20/01/2026	– EnergyCo presented project construction routes, outcomes/findings in the TTIA, particularly around local road and intersection works. – Discussion on issues raised as part of Council submission to the EIS, including community benefits initiatives, workforce accommodation, Council resources, timing and confirmation of governance of the project into delivery phase.

4.0 Existing environment

4.1 Overview

The HTP corridor runs mostly through power station, mining and government land between Bayswater and Broke in the upper Hunter region. It then traverses the Pokolbin, Corrabare, Watagan, and Olney State forests in the lower Hunter region.

The proposed new transmission line would connect the new Bayswater South switching station to the existing 500 kV transmission line near the Bayswater Power Station and the new Olney switching station to the existing 500 kV transmission line between Eraring and Kemps Creek.

4.2 Road network

To manage the extensive road network, an administrative framework of classified and unclassified road categories has been established by TfNSW and local councils. Highway and main roads are managed and financed by TfNSW, regional roads are typically managed by local councils and financed by both state and local governments, and local roads are managed and financed by councils.

The existing conditions of the road network are presented based on the categories under this administrative framework, which is known as the NSW Schedule of Classified Roads and Unclassified Regional Roads.

The road network within the traffic and transport study area comprises national and State roads (including motorways, highways, expressways), regional roads, local roads and forestry roads (see **Figure 4-1**). This section describes the existing roads intended to provide construction access for the project. The approved heavy vehicle types permitted to access these roads are further discussed in **Section 4.4**.

Figure 4-1 Road network

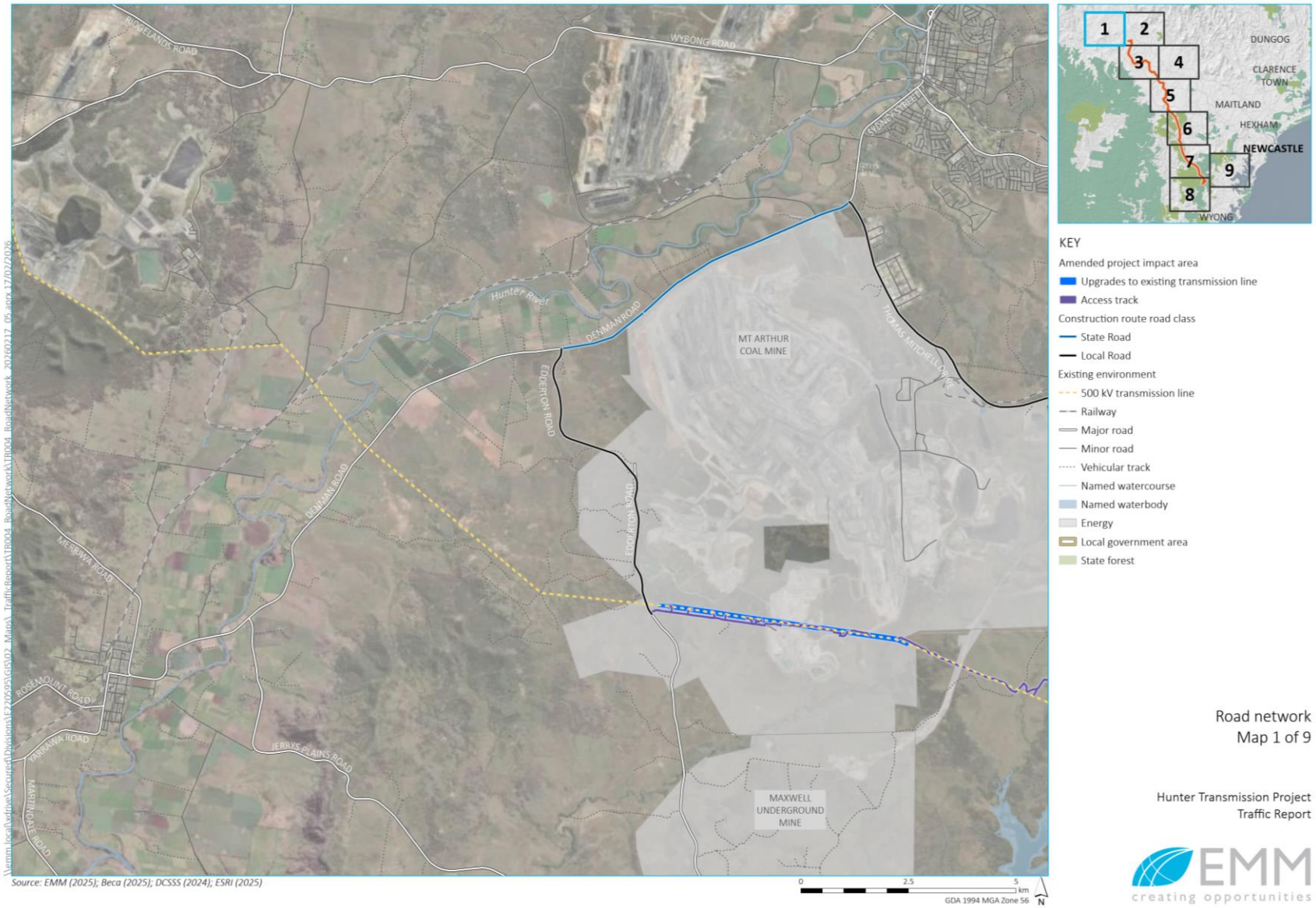


Figure 4-1 Road network (continued)

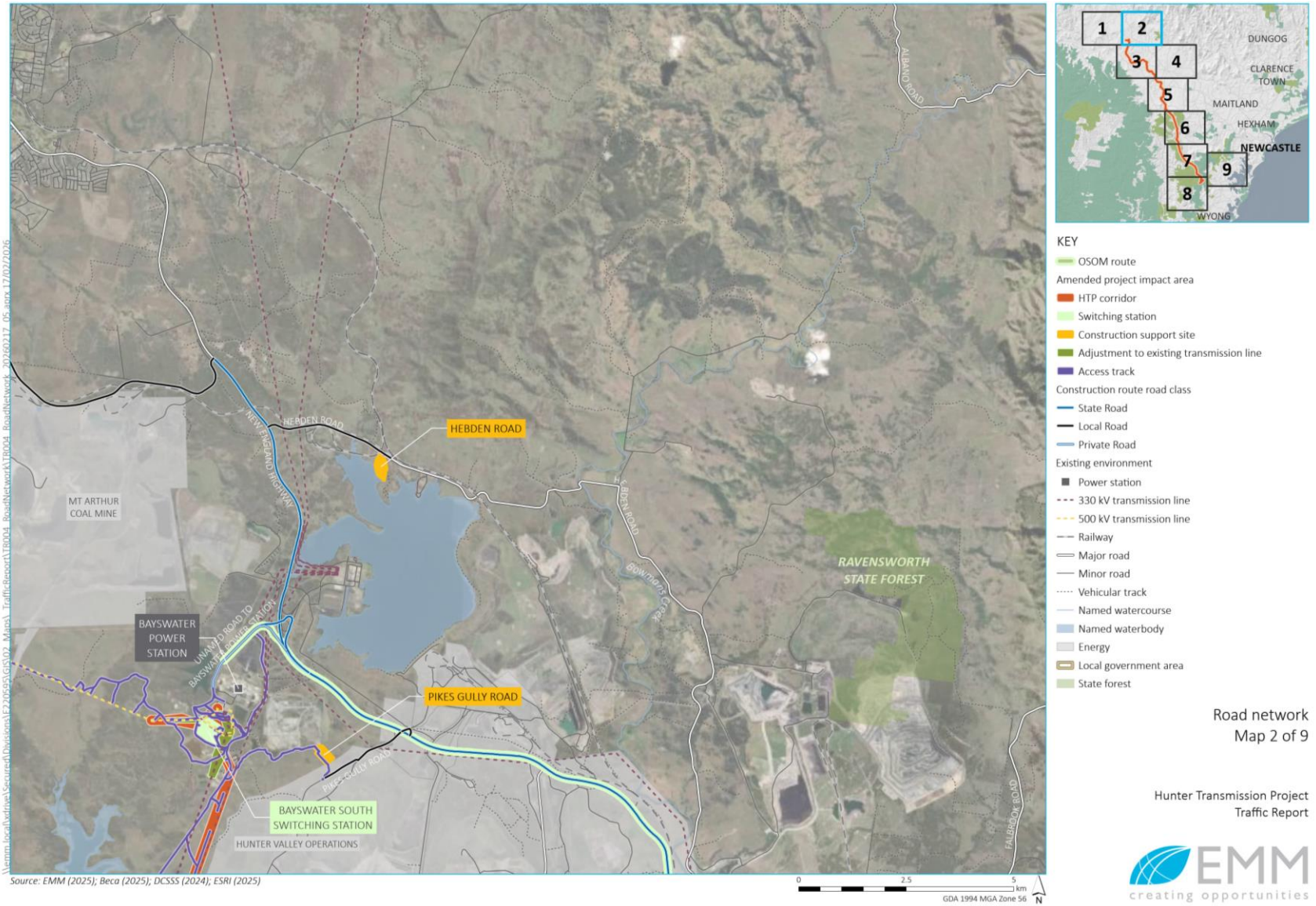


Figure 4-1 Road network (continued)

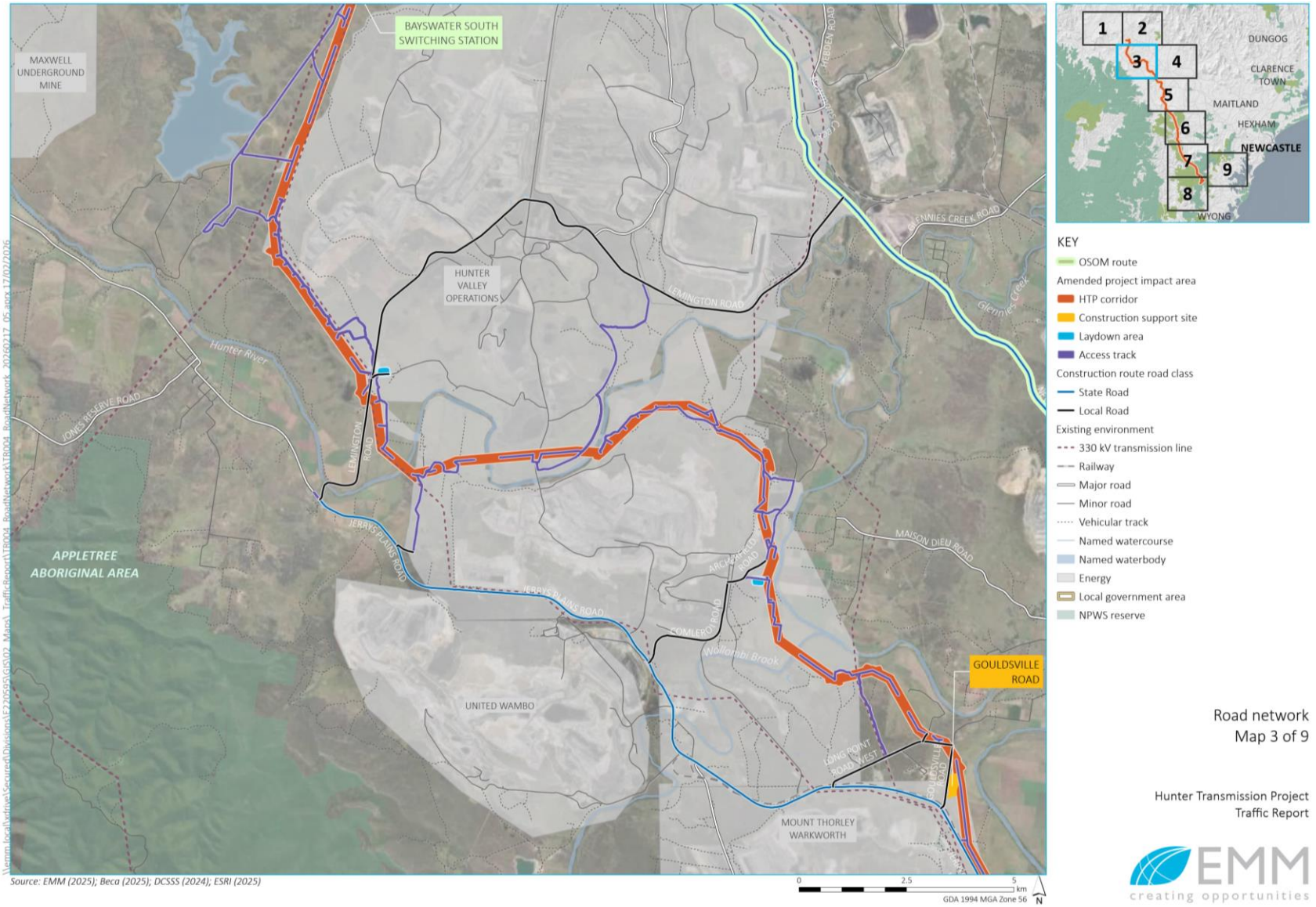


Figure 4-1 Road network (continued)

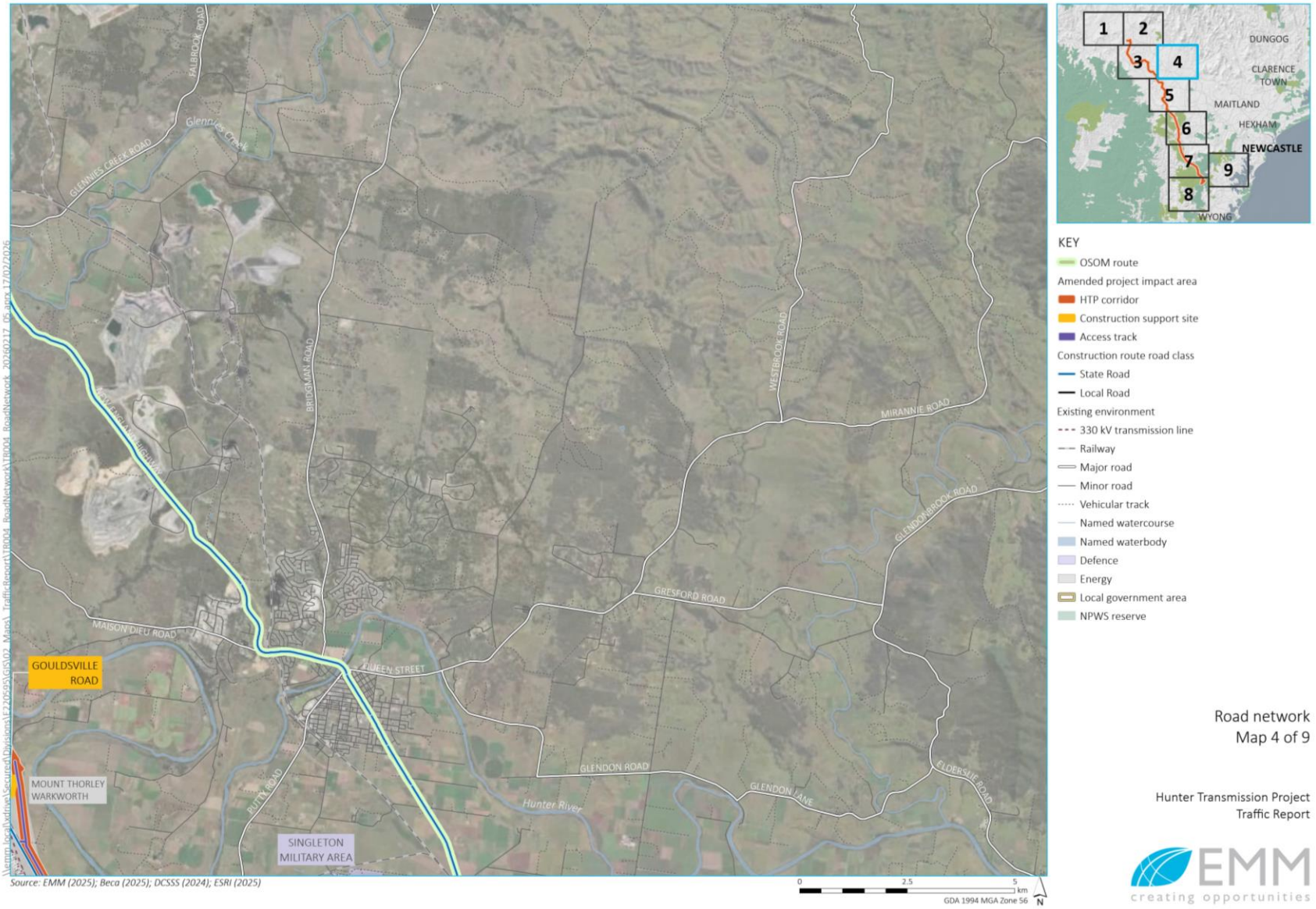


Figure 4-1 Road network (continued)

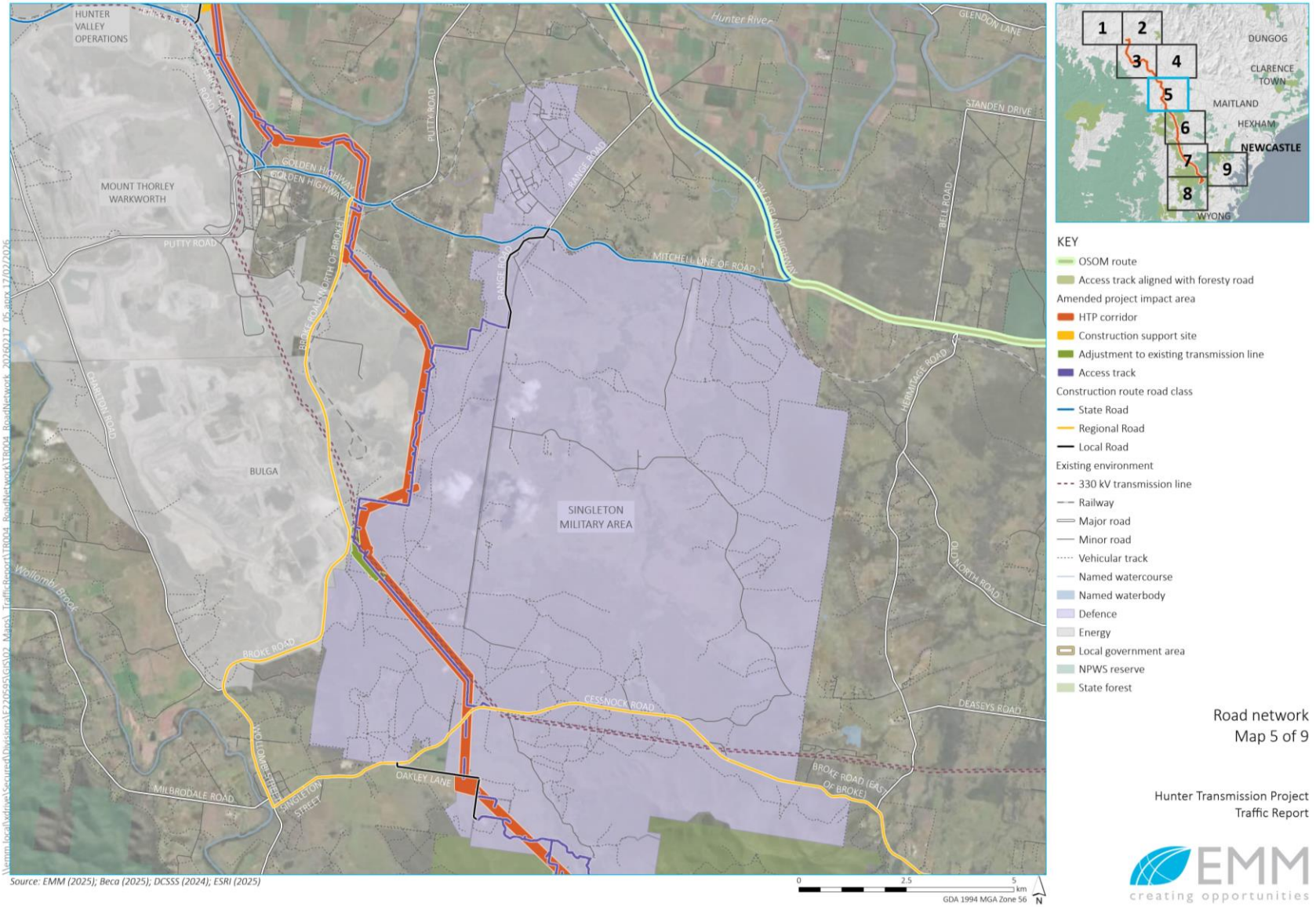


Figure 4-1 Road network (continued)

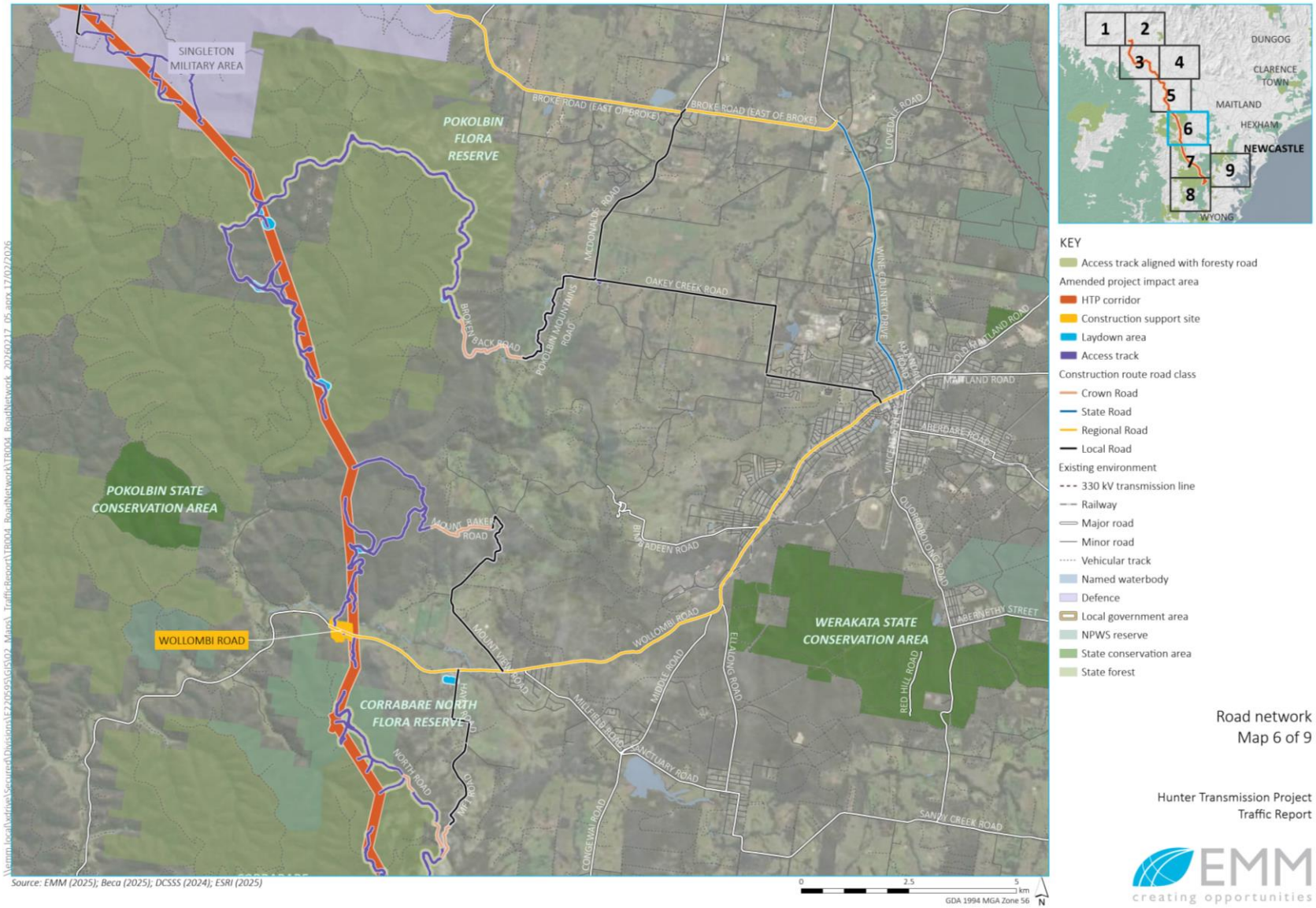


Figure 4-1 Road network (continued)

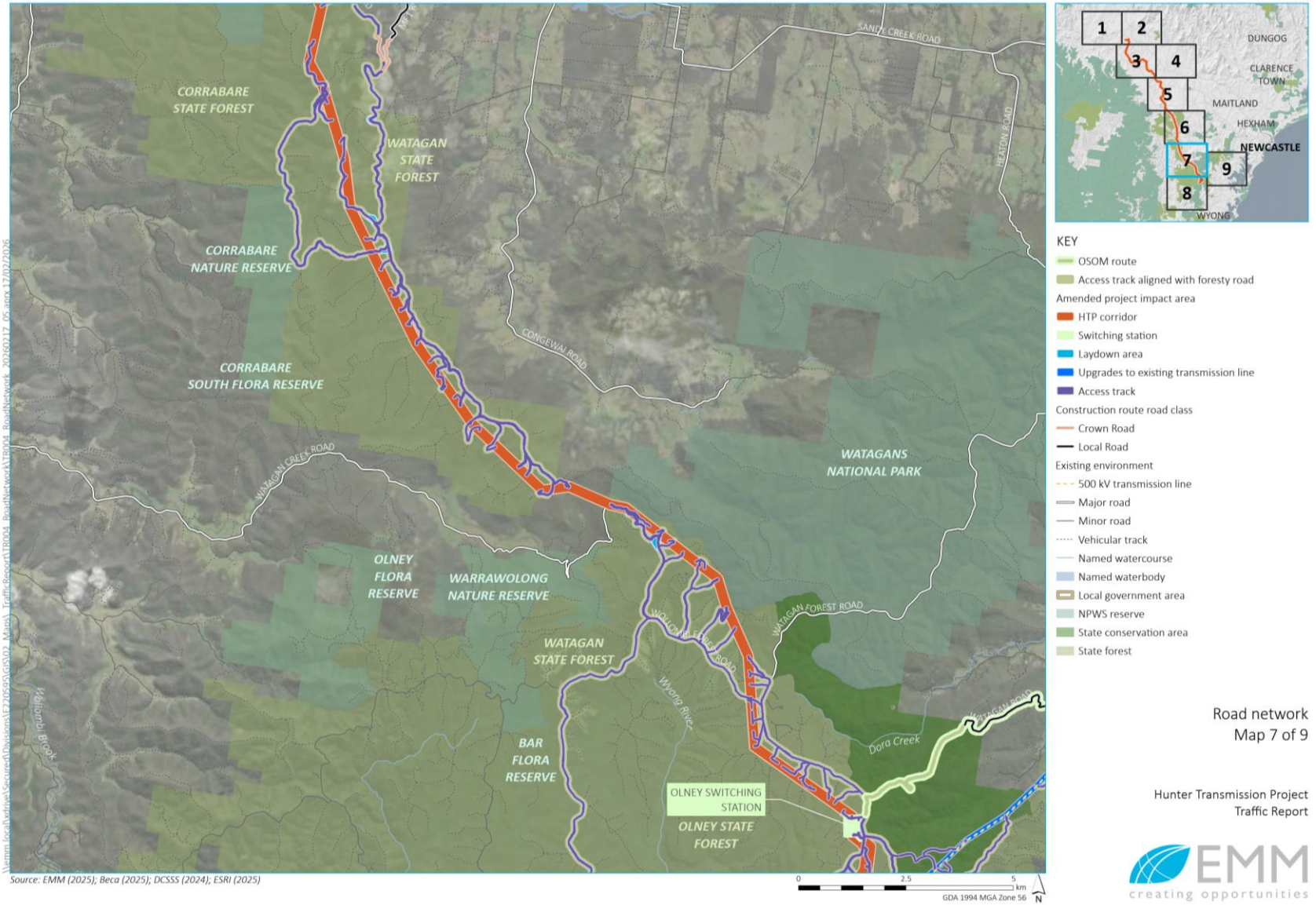


Figure 4-1 Road network (continued)

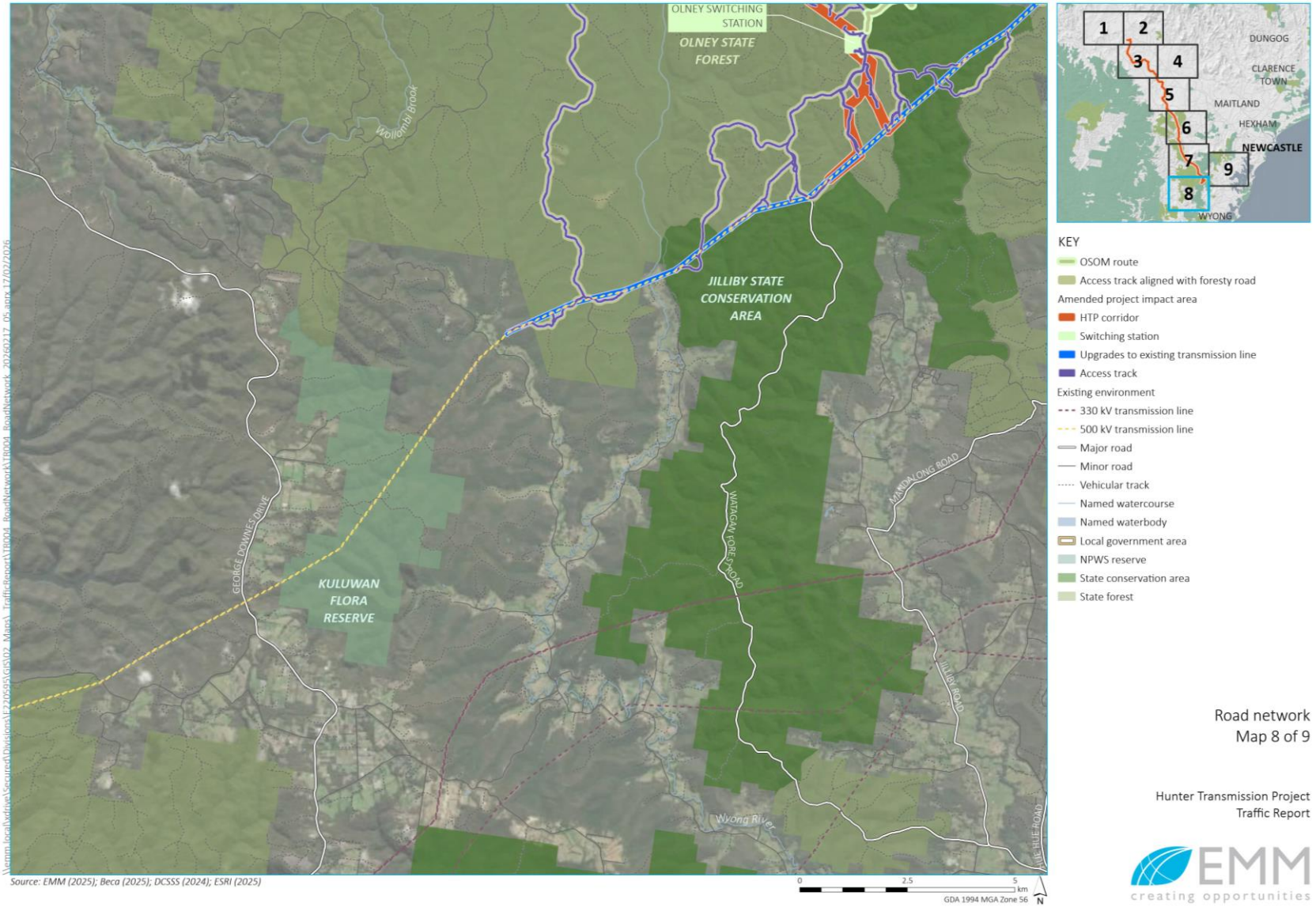
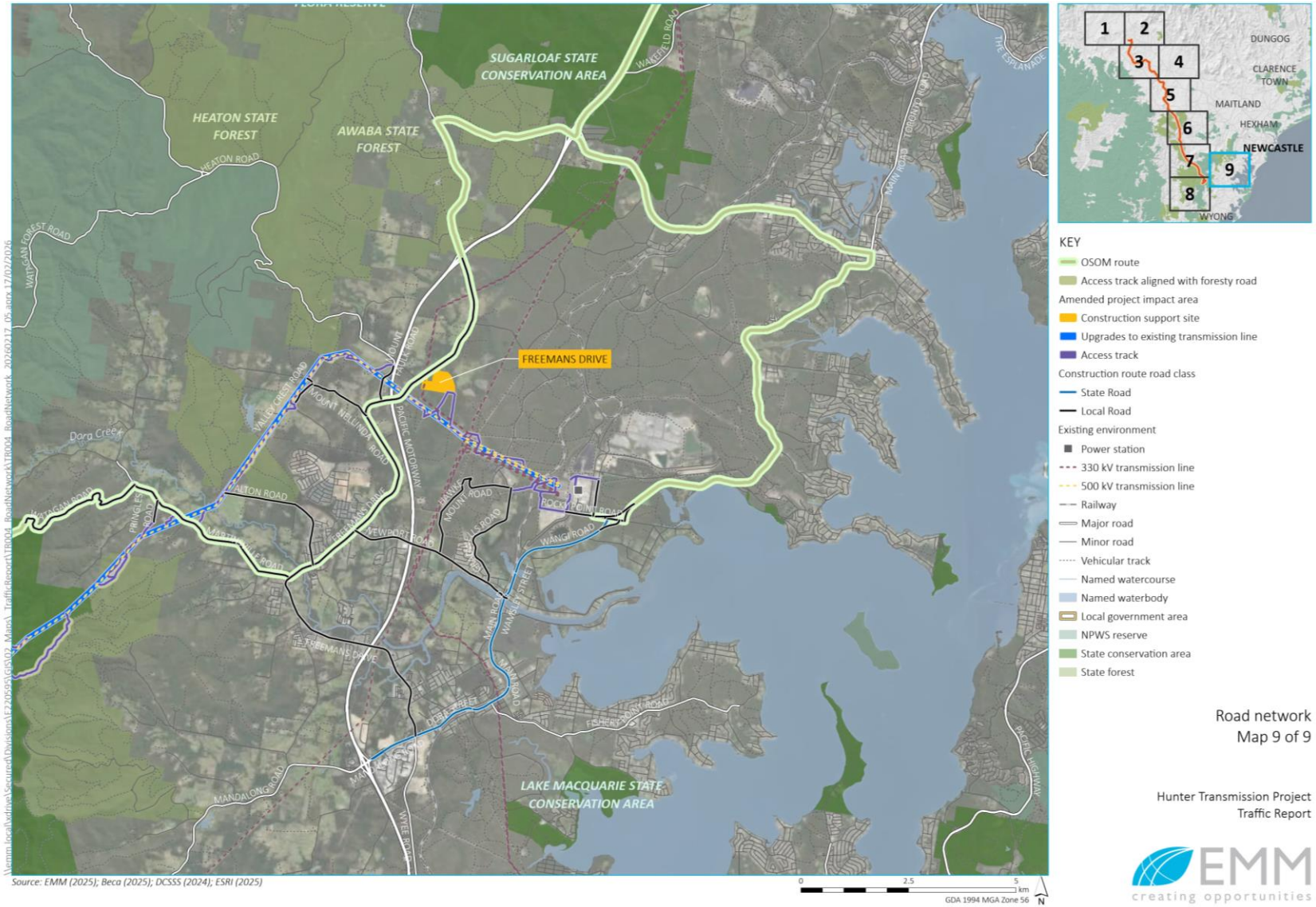


Figure 4-1 Road network (continued)



4.2.1 National and State Road network

The key national and State roads within the traffic and transport study area include motorways, highways, and expressways. These include the New England Highway, Golden Highway, Hunter Expressway, M1 Pacific Motorway, and Wine Country Drive. National and State roads within the traffic and transport study area are further described in **Table 4-1**.

Table 4-1 National and State Road network within the traffic and transport study area

Road name	Description	Pavement	Configuration and speed limit
New England Highway (A15) (also known as George Street and Maitland Road)	The New England Highway extends from Queensland to the Hunter Expressway (M15) at Branxton in New South Wales and includes around 40 kilometres within the traffic and transport study area. From Branxton towards Newcastle, the Hunter Expressway and John Renshaw Drive are used, re-joining the New England Highway for a short section between John Renshaw Drive and Hexham. It passes through the town of Singleton, where it is known as George Street and Maitland Road. The New England Highway is pre-approved for access by Restricted Access Vehicles (RAV) oversize and/or over mass (OSOM) vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 100 km/h posted speed limit. 50 km/h within regional towns.
Golden Highway (B84) (also known as Jerrys Plains Road, Putty Road and Mitchell Line of Road)	The Golden Highway extends for around 313 km, connecting the Hunter region to the Central West region in NSW. The traffic and transport study area includes around 40 km of the Golden Highway, between its connection to the New England Highway (south of Singleton) and Jerrys Plains. In these areas, it is also known as Jerrys Plains Road, Putty Road, and Mitchell Line of Road, as it passes though Warkworth and Mount Thorley. The Golden Highway is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 100 km/h posted speed limit. 50 km/h within regional towns.
Hunter Expressway (M15)	The Hunter Expressway is a 40-km dual carriageway highway, connecting the Pacific Motorway (M1) to the New England Highway. The Hunter Expressway is a major road route for commuters and freight transport, and the road allows traffic to bypass towns such as Maitland, Greta and Branxton. It serves as a major connecting road route, providing access to Wine Country Road, John Renshaw Drive, and the New England Highway. The Hunter Expressway is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional four-lane road (two lanes in each direction). Predominantly 110 km/h posted speed limit.
Cessnock Road (west of the M1 Pacific Motorway, also known as Awaba Road)	This 8-km State road section of Cessnock Road to the west of the M1 Pacific Motorway links from the M1 Pacific Motorway to Wangi Road in Toronto. Cessnock Road is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 80 km/h posted speed limit. 60 km/h within Toronto.
Denman Road	Denman Road is an approximately 21-km road that connects Muswellbrook to Denman. The road provides an east-west connection between the New England Highway and the Golden Highway. Around 7 km of Denman Road is within the study area. Denman Road is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 100 km/h posted speed limit. 80 km/h approaching regional towns.

Road name	Description	Pavement	Configuration and speed limit
John Renshaw Drive	John Renshaw Drive is an approximately 15-km road that provides an east-west connection from Kurri Kurri to the New England Highway near Tarro and Beresfield. The road also connects with the Hunter Expressway, and the northern end of the Pacific Motorway (M1). Around 15 km of John Renshaw Drive is within the traffic and transport study area. John Renshaw Drive is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 100 km/h posted speed limit. 80–90 km/h approaching regional towns and highways.
Pacific Highway (also known as Maitland Road)	The Pacific Highway is a major national highway, extending 650 km from Newcastle to Brisbane along the east coast. It serves as a key route for commuters and freight transport between cities and regional areas. From Sydney to Newcastle, the highway has been upgraded to the Pacific Motorway. Approximately 12 km of the Pacific Highway is within the traffic and transport study area. The highway extends in a north-south alignment, connecting to the New England Highway near Hexham and the Pacific Motorway near Tarro. To the south, towards Newcastle, the road is also known as Maitland Road. The Pacific Highway is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional dual carriageway road (multiple lanes in each direction) 80 km/h between Hexham and Heatherbrae 60 km/h within towns.
Industrial Drive	Industrial Drive is an approximately 5-km road that connects the Port of Newcastle to Pacific Highway/ Maitland Road to the north, and Hannell Street to the south. It serves as a route for commuters, industry and freight transport between cities and regional areas, and provides access to the industrial complexes that line the eastern side of the road. Approximately 4 km of Industrial Drive is within the traffic and transport study area. Industrial Drive is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (two lanes in each direction). Predominantly 80 km/h posted speed. 60 km/h near Tighes Hill.
Wine Country Drive (also known as Allandale Road)	Wine Country Drive is an approximately 20-km road that provides a north-south connection from the Hunter Expressway to the town of Cessnock. To the south, it is also known as Allandale Road, and to the north, it connects to Bridge Street and Branxton. The road also connects to the eastern end of Broke Road. Approximately 6.5 km of Wine Country Drive is within the traffic and transport study area. Wine Country Drive is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Varies from 60 km/h in urban areas to 90 km/h in rural areas.
Mandalong Road (also known as Dora Street, Macquarie Street, Main Road and Wangi Road)	Mandalong Road is an approximately 35-km stretch of road that runs northeast to southwest. The road connects the Pacific Motorway to Newcastle Link Road, providing access to several regional towns. Between Pacific Motorway and Eraring, it is also known as Dora Street, Macquarie Street, Main Road and Wangi Road. Approximately 12 km of Mandalong Road is within the traffic and transport study area. Mandalong Road is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 80–90 km/h posted speed limit. 50-60 km/h near regional towns.

Road name	Description	Pavement	Configuration and speed limit
Freemans Drive (north of the M1 Pacific Motorway)	Freemans Drive is an approximately 21-km road that provides a north-south connection between Palmers Road and Mandalong Road. The road passes Cooranbong and crosses the Pacific Motorway at multiple locations. To the south, it continues as Wyee Road, and to the north it becomes Leggetts Drive. Approximately 16.5 km of Freemans Drive is within the traffic and transport study area. The State road section of Freemans Drive north of the Pacific Motorway is pre-approved for access by RAV OSOM vehicles, but is not approved between Mandalong Road and the Pacific Motorway.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 90 km/h posted speed limit. 60 km/h near urban areas.
Palmers Road	Palmers Road is an approximately 3.3-km road that provides an east-west connection between Freemans Drive, near Freemans Waterhole and the M1 Pacific Motorway. Beyond the Pacific Motorway, the road continues as Cessnock Road. Palmers Road is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (one lane in each direction). Predominantly 90 km/h posted speed limit. 70 km/h near Freemans Drive. 80 km/h near connection to Pacific Motorway and Cessnock Road.
M1 Pacific Motorway	The M1 Pacific Motorway is a 127-km motorway that connects Sydney to Newcastle. The M1 is a major road route for commuters and freight transport between Sydney, the Central Coast region, and the Hunter region. Around 25 km of the M1 is within the traffic and transport study area, extending in a north-south alignment, connecting Mandalong Road (which is to be used to access HTP near Martinsville) to the Hunter Expressway. The Pacific Motorway is pre-approved for access by RAV OSOM vehicles.	Sealed	Bidirectional two-lane road (two lanes in each direction). Predominantly 110 km/h posted speed limit.

4.2.2 Regional road network

The key regional roads in the traffic and transport study area are described in **Table 4-2**.

Table 4-2 Key regional road network within the traffic and transport study area

Road name	Description	Pavement	Configuration and speed limit
Broke Road (north of Broke) (also known as Wollombi Street in Broke)	Broke Road (north of Broke) extends for around 16 km in a north-south direction from Mitchell Line of Road (also known as the Golden Highway) south to the town of Broke. Around 8 km of Broke Road is within the traffic and transport study area.	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h (for rural roads in NSW) speed limit.
Singleton Street / Cessnock Road / Broke Road (east of Broke)	Cessnock Road, which continues as Broke Road (east of Broke), provides an east-west connection between the town of Broke and Wine Country Drive at Pokolbin.	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h speed limit on Cessnock Road and western section of Broke Road. 80 km/h speed limit on eastern section of Broke Road. 60 km/h speed limit within urban areas (such as Broke).

Road name	Description	Pavement	Configuration and speed limit
Wollombi Road	Wollombi Road provides a connection between the towns of Wollombi and Cessnock, with the amended project impact area located to the east of the town of Millfield.	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h speed limit within urban areas (such as Cessnock and Bellbird). 80 km/h speed limit outside urban areas.

4.2.3 Local road network

The local roads in the traffic and transport study area that would form part of the construction vehicle routes for the project are described in **Table 4-3**. These roads would mostly be used to access the construction impact area during construction. The posted speed limit information included in the table has been obtained from TfNSW's Open Data.

Table 4-3 Local road network within the traffic and transport study area

Road name	Description	LGA	Pavement	Configuration and speed limit
Alton Road	Connects Cooranbong to Olney State Forest. This road would be used for accessing the HTP corridor via Freemans Drive.	Lake Macquarie	Sealed / Unsealed	Bidirectional two-lane road (one lane in each direction). 50 km/h within residential area.
Archerfield Road	Connects the construction impact area in Warkworth to Jerrys Plains Road (Golden Highway).	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 40 km/h posted speed limit.
Comleroi Road	Connects the construction impact area in Warkworth to Jerrys Plains Road (Golden Highway).	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 80 km/h speed limit.
Construction Road	Connects to Rocky Point Road. This road would be used for accessing the HTP corridor via Wangi Road.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h posted speed limit.
Edderton Road	Connects Golden Highway to Denman Road.	Muswellbrook	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h posted speed limit, with 80 km/h sections where there are sharper turns and higher density of curves
Freemans Drive (south of the M1 Pacific Motorway)	Connects Palmers Road in the north to Martinsville Road (in Cooranbong). This road would be used for accessing the HTP corridor near Martinsville.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h posted speed limit.
Gouldsville Road	Connects the construction impact area in Gouldsville to Jerrys Plains Road (Golden Highway).	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h (rural speed limit in NSW).

Road name	Description	LGA	Pavement	Configuration and speed limit
Gradwells Road	Connects to Newport Road. This road would be used for accessing the HTP corridor via Main Road.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit. Likely 50 km/h speed limit near residential area.
Hayes Road	Connects Millfield to the local roads within Corrabare State Forest that provide access to the HTP corridor.	Cessnock	Unsealed	Bidirectional two-lane road (one lane in each direction). 60 km/h speed limit.
Hawke Mount Road	Connects to Newport Road. This road would be used for accessing the HTP corridor via Main Road.	Lake Macquarie	Unsealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit for unsealed.
Hebden Road	Connects New England Highway to the Hebden Road construction support site.	Muswellbrook	Sealed	Bidirectional two-lane road (one lane in each direction). 80 km/h speed limit.
Long Point Road West	Connects the construction impact area in Gouldsville to Jerrys Plains Road (Golden Highway).	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h posted speed limit
Lemington Road	Connects New England Highway to Jerrys Plains Road (Golden Highway).	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h (rural speed limit in NSW) with low-speed sections at Hunter River crossing.
Martinsville Road	Connects Freemans Drive to Martinsville. This road would be used for accessing the HTP corridor near Martinsville. It connects to the local roads of Martinsville Hill Road and Watagan Road.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h and 80 km/h posted speed limit.
Martinsville Hill Road	Connects Martinsville to the local roads within Olney State Forest and Jilliby SCA that provide access to the HTP corridor.	Lake Macquarie	Unsealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit.
McDonalds Road	Provides a north-south connection from Broke Road to the local roads within the within Pokolbin State Forest that provide access to the HTP corridor.	Cessnock	Sealed	Bidirectional two-lane road (one lane in each direction). 80 km/h (rural speed limit).

Road name	Description	LGA	Pavement	Configuration and speed limit
Mf1 Road	Connects Hayes Road to the local roads within Corrabare State Forest that provide access to the HTP corridor.	Cessnock	Unsealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit.
Mount Baker Road	Provides access to the HTP corridor from Millfield.	Cessnock	Sealed / Unsealed	Single lane road. Likely 60 km/h speed limit.
Mount Faulk Road	Connects Freemans Drive to Martinsville. This road would be used for accessing the HTP corridor via Watagan Forest Road.	Lake Macquarie	Sealed/Unsealed	Bidirectional two-lane road (one lane in each direction). 100 km/h (rural speed limit). Likely 60 km/h speed limit for unsealed.
Mount Nellinda Road	This road would be used for accessing the HTP corridor via Freemans Drive.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 50 km/h (rural speed limit within residential area applied).
Mount View Road	Provides access to the HTP corridor from Millfield.	Cessnock	Sealed / Unsealed	Bidirectional two-lane road (one lane in each direction) closer to Wollombi Road but becomes narrower and unsealed with constrained geometry as it approaches Mount Baker Road. 80 km/h posted speed limit when sealed and likely 60 km/h speed limit when unsealed.
Newport Road	This road would be used for accessing the HTP corridor via Main Road. Also connects to Freemans Drive and Main Road.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 80 km/h posted speed limit. 60 km/h and 50 km/h posted speed near residential areas and within Dora Creek.
Oakey Creek Road	Connects Wollombi Road within Cessnock to Broke Road and Pokolbin.	Cessnock	Sealed	Bidirectional two-lane road (one lane in each direction). 80 km/h (rural speed limit). 60 km/h approaching Mount View Road.
Oakley Lane	Provides local access to the HTP corridor.	Singleton	Sealed / unsealed	Bidirectional two-lane road (one lane in each direction) close to Cessnock Road but is narrower and unsealed further to the east. Likely 60 km/h speed limit
Old Lemington Road	Connects Lemington Road to the Hunter Valley Operations mining complex.	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 50 km/h posted speed limit.

Road name	Description	LGA	Pavement	Configuration and speed limit
Pokolbin Mountains Road	Connects McDonalds Road to the local roads within Pokolbin State Forest that provide access to the HTP corridor.	Cessnock	Unsealed	Bidirectional two-lane road (one lane in each direction) close to Oakey Creek Road but is narrower with constrained geometry to the west of Oakey Creek Road. Likely 60 km/h speed limit.
Pikes Gully Road	Connects New England Highway to the Pikes Gully Road construction support site.	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h posted speed limit. 50 km/h posted speed limit near New England Highway intersection.
Pringles Road	Connects Martinsville to the local roads within Olney State Forest and Jilliby SCA that provide access to the HTP corridor.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 50 km/h posted speed limit.
Range Road (south of Mitchell Line of Road)	Provides access to the HTP corridor from Mitchell Line of Road	Singleton	Sealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit.
Rocky Point Road	Connects to Wangi Road and Rocky Point Road. This road would be used for accessing the HTP corridor via Wangi Road.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 60 km/h posted speed limit. 40 km/h posted speed limit approaching Construction Road intersection.
Thomas Mitchell Drive	Connects Denman Road to New England Highway.	Muswellbrook	Sealed	Bidirectional two-lane road (one lane in each direction). 100 km/h posted speed limit, with 80 km/h section near industrial complexes and Denman Road
Valley Crest Road	Connects residential properties to Mount Nellinda Road. This road would be used for accessing the HTP corridor via Freemans Drive.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). 50 km/h (rural speed limit within residential area applied).
Watagan Road	Connects Martinsville to the local roads within the Olney and Watagan State Forest that provide access to the HTP corridor.	Lake Macquarie	Sealed	Bidirectional two-lane road (one lane in each direction). Likely 60 km/h speed limit.

4.2.4 Forestry roads

The amended project impact area intersects four State forests (Pokolbin, Corrabare, Watagan, and Olney) and the Corrabare Flora Reserve (managed by NPWS), and the local roads that provide access for forestry and recreational activities. These roads are typically bidirectional unsealed roads with a speed limit of 60 km/h (with one area of 40 km/h on Watagan Forest Road in the Olney State Forest to improve safety for recreational users of the State Forest).

Drivers are expected to drive to the conditions of the road. **Table 4-4** provides a summary of State Forest roads where access would be required during construction of the project.

Table 4-4 Forestry roads within the traffic and transport study area

State Forest	Forestry road name
Pokolbin State Forest	Broken Back Road, Broken Back Trail, Campbell Springs Trail
Corrabare State Forest (including Corrabare North Flora Reserve)	Becketts Road, Cabans Road, Cedar Ridge Road, Crawfords Road, Crumps Road, Fig Road, Flick Road, Hawkins Road, North Road, Sweetmans Creek Road, Turpentine Point Road
Watagan State Forest	Barwicks Road, Burma Road, Cabans Road, Crumps Road, Farrells No 2 Road, Flick Road, Halls Road, Hearns Road, Langans Road, Krafts Road, McGowans Road, Mahogany Road, Old Mill Road, Trig Road, unnamed roads off Langans Road, Watagan Creek Road, Walkers Ridge Forest Road
Olney State Forest	Douglas Point Road, Jiffy Pot Road, Middle Ridge Road, McKenzies Road, Plantation Road, Stump and Tree Point Road, Tin Dog Point Road, Watagan Forest Road, Walkers Ridge Forest Road, Wollombi Forest Road

Construction vehicle access to State Forest roads would need to follow the driving protocols set out by the Forestry Corporation of NSW (FCNSW). The following information is from the FCNSW website:

– Road rules and vehicle registration requirements apply on roads and fire trails on public land. Vehicles must be registered, drivers/motorcycle riders must be licenced and safety equipment required by law must be worn. When driving, keep to the formed public access roads. Fire trails may be used in State forests and some Crown reserves. It is imperative that all construction vehicles associated with the HTP are to travel on designated routes to access the construction impact area

– FCNSW has a 60 km/h speed limit, unless otherwise signposted, on all unsealed gravel roads making forests safer for all road users. This must be followed by all construction vehicles associated with HTP. At lower speeds, drivers have more time for decision making, vehicles have much shorter stopping distances and crashes that do occur result in less severe injuries because of the lower impact.

State forests provide access for recreational activities and are also working forests with many different activities taking place every day. Timber harvesting, site preparation and road construction are types of activities frequently carried out in NSW State forests every year. FCNSW staff and contractors work in the forest. Sometimes worksites are visible, such as harvesting operations where areas would be closed, and signs erected. At other times, workers may be in smaller groups undertaking tasks such as surveys for plants and animals, and their presence is not as obvious.

Further details on engagement with FCNSW is included in *Chapter 6 (Engagement)* of the EIS and *Chapter 4 (Engagement)* of the Submissions Report.

4.2.5 Existing road network (mid-block) volumes and performance

The existing mid-block traffic volumes on roads proposed to be used for construction routes are detailed in **Table 4-5**.

The level of service (LoS) has been measured for each direction of travel in the morning and afternoon peak hours (AM peak and PM peak, respectively) and are presented in **Table 4-6**.

In terms of peak hour, noting the large size of the traffic and transport study area, the survey found peak traffic demand varied across the traffic and transport study area during the day and was in response to the surrounding land use (e.g. traffic demand around mining sites peak when shift changes occur).

Table 4-5 Mid-block surveyed traffic count data (2024) – traffic and transport study area

Survey ID	Location	Road classification	ADT	Weekday daily volume		
					Vehicle classification	
				AWT	Light vehicles (% of total volume)	Heavy vehicles (% of total volume)
State roads						
M-01	New England Highway, west of Lemington Road, Ravensworth	Highway	14,256	15,553	12,546 (88.0%)	1,718 (12.0%)
M-03	Golden Highway, east of Gouldsville Road, Gouldsville	Highway	6,009	6,713	5,045 (83.9%)	971 (16.1%)
Regional and local roads						
M-02	Lemington Road, west of HVO Entrance, Howick	Arterial	614	802	566 (91.4%)	53 (8.6%)
M-04	Broke Road, south of Bulga Surface Operations access road, Mount Thorley	Arterial	1,135	1,305	1,015 (88.1%)	137 (11.9%)
M-05	Cessnock Road, east of Oakley Lane, Singleton Military Area	Arterial	1,185	1,209	1,116 (93.5%)	78 (6.5%)
M-06	McDonalds Road, north of Oakey Creek Road, Pokolbin	Arterial	1,503	1,461	1,368 (91.6%)	125 (8.4%)
M-07	Wollombi Road, west of Middle Road, Pelton	Arterial	2,983	3,065	2,805 (94.3%)	168 (5.7%)
M-08	Freemans Drive, east of Mount Faulk Road, Cooranbong	Arterial	3,950	4,214	3,682 (93.4%)	260 (6.6%)
M-09	Martinsville Road, east of Pringles Road, Martinsville	Collector	1,066	1,092	952 (89.9%)	107 (10.1%)
M-10	Watagan Road, west of Martinsville Road, Martinsville	Local	220	160	197 (92.5%)	16 (7.5%)
M-11	Freemans Drive, south of Martinsville Road, Cooranbong	Collector	11,076	11,718	10,399 (93.9%)	670 (6.1%)
M-12	Broke Road, east of McDonalds Road, Pokolbin	Collector	4,616	4,209	4,343 (94.3%)	263 (5.7%)
M-13	AGL Site Access – west of New England Highway	Local	560	742	103 (18.0%)	468 (82.0%)

ADT = Average daily traffic; AWT = Average weekday traffic

Table 4-6 Mid-block volume to capacity ratio and level of service for 2024 network peak hour and 2024 HTP peak hour

Survey ID	Location	Road classification	Lane capacity (vph/lane)	2024 network peak hour volume (veh/hour)				2024 network peak volume/capacity ratio and LoS				2024 HTP peak hour volume (veh/hour)				2024 HTP peak volume/capacity ratio and LoS			
				AM peak		PM peak		AM peak		PM peak		AM peak		PM peak		AM peak		PM peak	
				NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB
State roads																			
M-01	New England Highway, west of Lemington Road, Ravensworth	Highway	1,800	1,053	236	442	803	0.59 (LoS D)	0.13 (LoS A)	0.25 (LoS B)	0.45 (LoS C)	642	407	596	629	0.36 (LOS B)	0.23 (LOS A)	0.33 (LOS B)	0.35 (LOS B)
M-03	Golden Highway, east of Gouldsville Road, Gouldsville	Highway	1,800	564	62	160	384	0.31 (LoS B)	0.03 (LoS A)	0.09 (LoS A)	0.21 (LoS A)	356	186	241	235	0.20 (LOS A)	0.10 (LOS A)	0.13 (LOS A)	0.13 (LOS A)
Regional and local roads																			
M-02	Lemington Road, west of HVO Entrance, Howick	Arterial	1,400	104	9	8	89	0.07 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.06 (LoS A)	80	13	13	43	0.06 (LOS A)	0.01 (LOS A)	0.01 (LOS A)	0.03 (LOS A)
M-04	Broke Road, south of Bulga Surface Operations access road, Mount Thorley	Arterial	1,400	82	33	34	83	0.06 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.06 (LoS	82	33	32	61	0.06 (LOS A)	0.02 (LOS A)	0.02 (LOS A)	0.04 (LOS A)
M-05	Cessnock Road, east of Oakley Lane, Singleton Military Area	Arterial	1,400	25	58	77	41	0.02 (LoS A)	0.04 (LoS A)	0.06 (LoS A)	0.03 (LoS A)	25	58	49	36	0.02 (LOS A)	0.04 (LOS A)	0.04 (LOS A)	0.03 (LOS A)
M-06	McDonalds Road, north of Oakey Creek Road, Pokolbin	Arterial	1400	48	52	39	88	0.03 (LoS A)	0.04 (LoS A)	0.03 (LoS A)	0.06 (LoS A)	43	12	41	80	0.03 (LOS A)	0.01 (LOS A)	0.03 (LOS A)	0.06 (LOS A)
M-07	Wollombi Road, west of Middle Road, Pelton	Arterial	1,400	85	154	149	98	0.06 (LoS A)	0.11 (LoS A)	0.11 (LoS A)	0.07 (LoS A)	47	75	144	86	0.03 (LOS A)	0.05 (LOS A)	0.10 (LOS A)	0.06 (LOS A)
M-08	Freemans Drive, east of Mount Faulk Road, Cooranbong	Arterial	1,400	194	130	180	229	0.14 (LoS A)	0.09 (LoS A)	0.13 (LoS A)	0.16 (LoS A)	171	106	134	219	0.12 (LOS A)	0.08 (LOS A)	0.10 (LOS A)	0.16 (LOS A)
M-09	Martinsville Road, east of Pringles Road, Martinsville	Collector	1,000	32	50	48	45	0.03 (LoS A)	0.05 (LoS A)	0.05 (LoS A)	0.05 (LoS A)	34	52	47	86	0.03 (LOS A)	0.05 (LOS A)	0.05 (LOS A)	0.09 (LOS A)
M-10	Watagan Road, west of Martinsville Road, Martinsville	Local	900	6	7	11	4	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.00 (LoS A)	5	2	9	5	0.01 (LOS A)	0.00 (LOS A)	0.01 (LOS A)	0.01 (LOS A)
M-11	Freemans Drive, south of Martinsville Road, Cooranbong	Collector	1,000	436	500	528	552	0.44 (LoS C)	0.50 (LoS C)	0.53 (LoS C)	0.55 (LoS D)	218	293	502	418	0.22 (LOS A)	0.29 (LOS B)	0.50 (LOS C)	0.42 (LOS C)
M-12	Broke Road, east of McDonalds Road, Pokolbin	Collector	1,000	163	152	146	252	0.16 (LoS A)	0.15 (LoS A)	0.15 (LoS A)	0.25 (LoS B)	129	34	100	153	0.13 (LOS A)	0.03 (LOS A)	0.10 (LOS A)	0.15 (LOS A)
M-13	AGL Site Access – west of New England Hwy	Local	900	7	116	41	8	0.01 (LoS A)	0.13 (LoS A)	0.05 (LoS A)	0.01 (LoS A)	9	111	22	10	0.01 (LOS A)	0.12 (LOS A)	0.02 (LOS A)	0.01 (LOS A)

Based on the assessment presented in **Table 4-6**, most roads were assessed to operate at a LoS A under existing traffic conditions for the network peak hour and HTP peak hour. The exceptions were:

– The New England Highway (in Ravensworth) operating at LoS D in the westbound direction in the network AM peak hour and LoS B and LoS C in the network PM peak hour.

– The Golden Highway (in Gouldsville) operating at LoS B in the westbound direction in the network AM peak hour.

– Freemans Drive (in Cooranbong) operating at LoS C in the network AM peak hour, and the southbound direction operating at LoS D in the network PM peak hour. It is noted that this location is within the urban area of Cooranbong, close to Cooranbong Public School, and the PM peak hour aligns with the afternoon school peak hour (3-4pm)

– Broke Road, east of McDonalds Road, operating at LoS B in the eastbound direction in the network PM peak hour.

The assessment indicates that the road network currently operates at an acceptable LoS D or better in the existing network peak hours at the various locations. In the HTP peak hours (6-7am and 5-6pm), the roads were operating at LoS C or better.

4.3 Intersections

This section captures existing intersection layouts, intersection traffic volumes and warrant assessments using Austroads turn treatment warrants for the intersections on the proposed construction access routes.

4.3.1 Intersection layouts, turn warrant requirement, and SISD assessment

Turn warrant requirements for all existing intersections are summarised in **Table 4-7**, with further detail provided in **Appendix A**. The turn warrant assessment is used to understand if the current intersection layouts are suitable to provide safe operations to accommodate the existing peak hour demand at the intersection. Its evaluation mainly focuses on safety performance outcomes, rather than operational. It is noted that the existing peak hours differ from location to location.

A summary of Safe Intersection Sight Distance (SISD) compliance is also provided in **Table 4-7** and detailed assessment plans are provided in **Appendix B**.

Those intersections showing SISD non-compliance indicate that driver sight lines to the intersection on the main road approach are poor and drivers may be unable to see turning or stopped vehicles (potential conflict points) at the intersection in a safe time period.

Table 4-7 Summary of existing intersection layouts, turn warrant requirements and SISD compliance

ID	Intersection name	Existing intersection layout	Turn warrant requirement (without project)	SISD compliant?
Intersections with the State road network				
I-01a	New England Highway / Hebden Road	AUL/CHR	AUL(s)/CHR	Yes
I-02	New England Highway / Lemington Road	AUL/CHR	AUL/CHR	Yes
I-02a	New England Highway / Pikes Gully Road	AUL/CHR	AUL(s)/CHR	Yes
I-03	Golden Highway / Lemington Road	BAL/BAR	BAL/CHR	No
I-04	Golden Highway / Comleroi Road	AUL/AUR	BAL/BAR	Yes
I-06	Golden Highway / Long Point Road	BAL/CHR(s)	BAL/BAR	Yes
I-07	Golden Highway / Gouldsville Road	AUL(s)/BAR	BAL/CHR(s)	No
I-08a	Jerrys Plains Road (NB Ramp) / Putty Road	CHL/CHR	BAL/CHR	Yes
I-08b	Jerrys Plains Road (SB Ramp) / Putty Road	CHL/CHR	AUL/CHR	Yes
I-09	Putty Road / Broke Road	CHL/CHR	AUL/CHR	Yes
I-10	Putty Road / Mitchell Line of Road	AUL/CHR	AUL(s)/CHR	No
I-10b	Golden Highway / Range Road	AUL/CHR	BAL/BAR	No
I-14	Wine Country Drive / Broke Road	CHL/CHR	AUL/CHR	No
I-16a	Wollombi Road / Allandale Road	Signals	N/A	N/A

ID	Intersection name	Existing intersection layout	Turn warrant requirement (without project)	SISD compliant?
I-16b	Wollombi Road / Vincent Street	Signals	N/A	N/A
I-27	Mandalong Road / Freemans Drive / Wyee Road	Roundabout	N/A	Yes
I-29	Wangi Road / Rocky Point Road	BAL/BAR	BAL/BAR	Yes
I-59	New England Highway / Thomas Mitchell Drive	CHL/CHR	CHL/CHR	Yes
I-60	Denman Road / Thomas Mitchell Drive	CHL/CHR	CHL/CHR	Yes
I-61	Denman Road / Edderton Road	AUL/CHR	AUL/CHR	Yes
Intersections with regional and local road network				
I-05	Comleroi Road / Private Road / Driveway (Hunter Valley Operations)	CHL/BAR	BAL/BAR	Yes
I-11	Wollombi Road / Singleton Street	BAL/BAR	BAL/BAR	Yes
I-12	Broke Road / Hermitage Road	BAL/CHR	BAL/BAR	No
I-13a/b	Broke Road / McDonalds Road	Roundabout	N/A	Yes
I-15	McDonalds Road / Pokolbin Mountains Road	BAL/BAR	BAL/BAR	Yes
I-17	Wollombi Road / Mount View Road (Eastern Intersection – Cessnock)	BAL/CHR	AUL(s)/CHR	Yes
I-18	Wollombi Road / West Avenue	BAL/BAR	AUL(s)/CHR	Yes
I-19	Wollombi Road / Mount View Road (Millfield)	BAL/BAR	BAL/BAR	Yes
I-20	Wollombi Road / Hayes Road	BAL/BAR	BAL/BAR	Yes
I-21a	Cessnock Road / Oakley Lane	AUL/AUR	BAL /BAR	No
I-22a	Freemans Drive / Alton Road	Signals	N/A	N/A
I-23	Freemans Drive / Martinsville Road	AUL/AUR	AUL(s)/CHR	No
I-24	Martinsville Road / Pringles Road	BAL/BAR	BAL/BAR	No
I-25	Martinsville Road / Watagan Road	BAL/BAR	BAL/BAR	No
I-26	Watagan Forest Road / Martinsville Hill Road	BAL/BAR	BAL/BAR	No

ID	Intersection name	Existing intersection layout	Turn warrant requirement (without project)	SISD compliant?
I-28	Freemans Drive / Mount Faulk Road	BAL/BAR	BAL/BAR	Yes
I-49	Lemington Road / Old Lemington Road	BAL/BAR	BAL/BAR	Yes
I-57	Freemans Drive / Newport Road	AUL(s)/CHR(s)	AUL (s)/CHR	No
I-58	Freemans Drive / Mount Nellinda Road	BAL/BAR	BAL/BAR	No

4.3.2 Intersection performances

Existing intersection performances in the weekday network AM and PM peak hours and the proposed HTP traffic AM and PM peak hours are presented in the following tables.

Table 4-8 presents the 2024 AM peak hour intersection performance for the State road intersections, while **Table 4-9** presents the 2024 AM peak hour intersection performance for the regional and local road intersections.

Table 4-10 presents the 2024 PM peak hour intersection performance for the State road intersections, while **Table 4-11** presents the 2024 PM peak hour intersection performance for the regional and local road intersections.

Table 4-8 2024 Weekday AM peak hour intersection performance – State road intersections

ID	Intersection	Control	Road network peak hour				HTP traffic peak hour			
			DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach	DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach
Intersections on or with the State road network										
I-01a	New England Highway / Hebden Road	Give way	0.25	10.5 sec (New England Highway [S])	A	5.3 m (New England Highway [S])	0.24	11.2 sec (New England Highway [S])	A	5.5 m (New England Highway [S])
I-02	New England Highway/Lemington Road	Stop	0.60	111 sec (Lemington Road [S])	F	10.2 m (New England Highway [W])	0.35	28.8 sec (Lemington Road [S])	C	9.8 m (Lemington Road [S])
I-02a	New England Highway/Pikes Gully Road	Give Way	0.45	9.8 sec (New England Highway [E])	A	4.8 m (New England Highway [E])	0.45	10.2 sec (New England Highway [E])	A	1.5 m (New England Highway [E])
I-03	Golden Highway/Lemington Road	Give Way	0.14	8.6 sec (Lemington Road [N])	A	4.7 m (Golden Highway [E])	0.12	8.4 sec (Lemington Road [N])	A	3.1 m (Golden Highway [E])
I-04	Golden Highway/Comleroi Road	Give Way	0.13	9 sec (Comleroi Road [N])	A	0.1 m (Comleroi Road [N])	0.07	8.9 sec (Comleroi Road [N])	A	0.9 m (Comleroi Road [N])
I-06	Golden Highway/Long Point Road	Give Way	0.34	18.4 sec (Long Point Road West [N])	B	0.4 m (Long Point Road West [N])	0.18	14 sec (Long Point Road West [N])	A	0.2 m (Long Point Road West [N])
I-07	Golden Highway/Gouldsville Road	Give Way	0.35	11.6 sec (Gouldsville Road [N])	A	0.4 m (Golden Highway [E])	0.19	13 sec (Gouldsville Road [N])	A	0.8 m (Golden Highway [E])
I-08a	Jerrys Plains Road (NB Ramp)/Putty Road	Stop	0.38	32.8 sec (Mount Thorley Road [S])	C	6.5 m (Putty Road [E])	0.22	17.2 sec (Mount Thorley Road [S])	B	2.8 m (Putty Road [E])
I-08b	Jerrys Plains Road (SB Ramp)/Putty Road	Give Way	0.09	20.7 sec (Mount Thorley Road [N])	B	0.9 m (Woodland Road [E])	0.05	13.1 sec (Mount Thorley Road [N])	A	0.7 m (Woodland Road [E])
I-09	Putty Road/Broke Road	Give Way	0.99	207.6 sec (Broke Road [S])	F	34.7 m (Broke Road [S])	0.38	22.3 sec (Broke Road [S])	B	4.1 m (Broke Road [S])
I-10	Putty Road/Mitchell Line of Road	Give Way	0.63	15.5 sec (Mitchell Line of Road [S])	A	4.8 m (Putty Road [W])	0.39	17.7 sec (Mitchell Line of Road [S])	B	8.3 m (Putty Road [W])
I-10b	Golden Highway/Range Road	Stop	1.08	526.4 sec (Range Road [N])	F	36.2 m (Range Road [N])	0.47	128.1 sec (Range Road [S])	F	10.7 m (Range Road [N])
I-14	Wine Country Drive/Broke Road	Stop	0.53	34.2 sec (Broke Road [S])	C	18 m (Broke Road [S])	0.12	17.9 sec (Broke Road [S])	B	3.2 m (Broke Road [S])
I-16a	Wollombi Road/Allandale Road	Signal	0.89	26 sec (Average delay)	B	86 m (Allandale Road [N])	0.46	22.7 sec (Average delay)	B	30.7 m (Wollombi Road [W])
I-16b	Wollombi Road/Vincent Street	Signal	0.48	21.2 sec (Average delay)	B	38.3 m (Maitland Road [E])	0.24	16.9 sec (Average delay)	B	22.4 m (Maitland Road [E])
I-27	Mandalong Road/Freemans Drive/Wyee Road	Roundabout	0.86	27.9 sec (Wyee Road [S])	B	113.5 m (Wyee Road [S])	0.85	27.4 sec (Wyee Road [S])	B	115.6 m (Dora Street [E])
I-29a	Wangi Road/Rocky Point Road (west)	Give Way	0.10	6.4 sec (Wangi Road [S])	A	0 m (Wangi Road [S])	0.10	6.4 sec (Wangi Road [S])	A	0 m (Wangi Road [S])
I-29b	Wangi Road/Rocky Point Road (east)	Give Way	0.11	7.1 sec (Rocky Point Road [W])	A	0.2 m (Rocky Point Road [W])	0.11	7.1 sec (Rocky Point Road [W])	A	0.2 m (Rocky Point Road [W])
I-32	Golden Highway/ Existing Track Across Rail Track	Give Way	0.31	11.1 sec (Existing track)	A	0.1 m (Existing track)	0.19	9.8 sec (Existing track)	A	0.1 m (Existing track)
I-33	Golden Highway/Unknown Road (east of Lemington Road)	Give way	0.09	7.8 sec (Golden Highway [N])	A	0.1 m (Unknown Road)	0.00	0 sec (no turning movements)	A	0 m
I-59	New England Highway/Thomas Mitchell Drive	Stop	0.36	14.9 sec (Thomas Mitchell Dr [S]]	B	12.0 m (Thomas Mitchell Dr [S]]	0.38	15.9 sec (Thomas Mitchell Dr [S]]	B	14.2 m (Thomas Mitchell Dr [S])
I-60	Denman Road/Thomas Mitchell Drive	Give Way	0.25	17.9 sec (Thomas Mitchell Dr [S]]	B	9.7 m (Denman Road [N])	0.29	15.9 sec (Thomas Mitchell Dr [S])	B	9.1 m (Thomas Mitchell Dr [S])
I-61	Denman Road/Edderton Road	Stop	0.10	11.6 sec (Edderton Road [S])	A	2.9 m (Edderton Road [S])	0.07	11.7 sec (Edderton Road [S])	A	2.0 m (Edderton Road [S])

Table 4-9 2024 Weekday AM peak hour intersection performance – Regional and local road intersections

ID	Intersection	Control	Road network peak hour				HTP traffic peak hour			
			DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach	DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach
Intersections on or with the regional and local road network										
I-05	Comleroi Road/Private Road/Driveway (Hunter Valley Operations)	Stop	0.18	9.7 sec (HVO Driveway [S])	A	4.7 m (HVO Driveway [S])	0.05	10.4 sec (HVO Driveway [S])	A	1.5 m (Comleroi Road [E])
I-11	Wollombi Road/Singleton Street	Stop	0.04	9.4 sec (Singleton Street [N])	A	1 m (Singleton Street [N])	0.06	8.2 sec (Singleton Street [N])	A	1.5 m (Singleton Street [N])
I-12	Broke Road/Hermitage Road	Stop	0.04	10.2 sec (Hermitage Road [N])	A	1.1 m (Hermitage Road [N])	0.03	10.1 sec (Hermitage Road [N])	A	0.6 m (Broke Road [E])
I-13a	Broke Road/McDonalds Road (west)	Roundabout	0.16	9.3 sec (Broke Road [N])	A	2.6 m (McDonalds Road [E])	0.10	8.9 sec (Broke Road [N])	A	1.5 m (McDonalds Road [E])
I-13b	Broke Road/McDonalds Road (east)	Roundabout	0.16	9.3 sec (Broke Road [S])	A	2.6 m (Broke Road [S])	0.10	9 sec (Broke Road [S])	A	1.5 m (Broke Road [S])
I-15	McDonalds Road/Pokolbin Mountains Road	Give Way	0.03	6.9 sec (Oakey Creek Road [SE])	A	0.1 m (Pokolbin Mountain Road [SW])	0.03	6.9 sec (Oakey Creek Road [SE])	A	0.1 m (Pokolbin Mountain Road [SW])
I-17	Wollombi Road/Mount View Road (Cessnock)	Give Way	0.33	14 sec (Mount View Road [N])	A	12.1 m (Mount View Road [N])	0.27	14.3 sec (Mount View Road [N])	A	5.2 m (Mount View Road [N])
I-18	Wollombi Road/West Avenue	Give Way	0.63	27.1 sec (West Road [S])	B	56.2 m (Wollombi Road [W])	0.36	13.1 sec (West Road [S])	A	8.8 m (Wollombi Road [W])
I-19	Wollombi Road/Mount View Road (Millfield)	Give Way	0.05	6.2 sec (Wollombi Road [E])	A	0.8 m (Wollombi Road [E])	0.03	5.6 sec (Wollombi Road [E])	A	0.6 m (Wollombi Road [E])
I-20	Wollombi Road/Hayes Road	Give Way	0.02	6 sec (Hayes Road [S])	A	0.2 m (Hayes Road [S])	0.03	7.1 sec (Hayes Road [S])	A	0.1 m (Hayes Road [S])
I-21a	Cessnock Road/Oakley Lane	Give Way	0.02	7.9 sec (Oakley Lane [S])	A	0.1 m (Oakley Lane [W])	0.03	7.8 sec (Oakley Lane [S])	A	0.1 m (Oakley Lane [W])
I-22a	Freemans Drive/Alton Road	Signal	0.88	14.9 sec (Average delay)	B	27 m (Freemans Drive [W])	0.26	12.8 sec (Average delay)	A	16.7 m (Freemans Drive [E])
I-23	Freemans Drive/Martinsville Road	Give Way	0.51	26.5 sec (Martinsville Road [N])	B	16.8 m (Martinsville Road [N])	0.13	10.3 sec (Martinsville Road [N])	A	2.1 m (Martinsville Road [N])
I-24	Martinsville Road/Pringles Road	Give Way	0.02	6.9 sec (Martinsville Road [E])	A	0.1 m (Pringles Road [S])	0.02	7.9 sec (Martinsville Road [E])	A	0.1 m (Pringles Road [S])
I-25	Martinsville Road/Watagan Road	Give Way	0.02	7.4 sec (Martinsville Road [E])	A	0.1 m (Watagan Road [S])	0.02	7.3 sec (Martinsville Road [E])	A	0.1 m (Watagan Road [S])
I-26	Watagan Forest Road/Martinsville Hill Road	Give Way	0.01	4.8 sec (Martinsville Hill Road [N])	A	0.1 m (Martinsville Hill Road [N])	0.00	4.6 sec (Watagan Forest Road [E])	A	0 m (Watagan Forest Road [E])
I-28	Freemans Drive/Mount Faulk Road	Give Way	0.09	7.7 sec (Freemans Drive [E])	A	0.2 m (Freemans Drive [E])	0.10	7.6 sec (Freemans Drive [E])	A	0.3 m (Freemans Drive [E])
I-57	Freemans Drive/Newport Road	Give Way	0.26	13.5 sec (Newport Road [E])	A	8.5 m (Newport Road [E])	0.10	10 sec (Newport Road [E])	A	2.9 m (Newport Road [E])
I-58	Freemans Drive/Mount Nellinda Road	Give Way	0.12	8.9 sec (Mount Nellinda Road [W])	A	0.4 m (Mount Nellinda Road [W])	0.12	8.8 sec (Mount Nellinda Road [W])	A	0.2 m (Mount Nellinda Road [W])

Table 4-10 2024 Weekday PM peak hour intersection performance – State road intersections

ID	Intersection	Control	Road network peak hour				HTP traffic peak hour			
			DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach	DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach
Intersections with the State road network										
I-01a	New England Highway / Hebden Road	Give way	0.41	13.4 sec (New England Highway [S])	A	2.9 m (New England Highway [S])	0.39	12.9 sec (New England Highway [S])	A	3.2 m (New England Highway [S])
I-02	New England Highway/Lemington Road	Stop	0.38	24.1 sec (Lemington Road [S])	B	12.3 m (Lemington Road [S])	0.36	24.3 sec (Lemington Road [S])	B	11.6 m (Lemington Road [S])
I-02a	New England Highway/Pikes Gully Road	Give Way	0.38	13.1 sec (New England Highway [E])	A	3.2 m (New England Highway [E])	0.35	12 sec (New England Highway [E])	A	2.7 m (New England Highway [E])
I-03	Golden Highway/Lemington Road	Give Way	0.09	8.4 sec (Lemington Road [N])	A	2.6 m (Lemington Road [N])	0.06	8.3 sec (Lemington Road [N])	A	0.7 m (Lemington Road [N])
I-04	Golden Highway/Comleroi Road	Give Way	0.14	10.5 sec (Comleroi Road [N])	A	0.5 m (Comleroi Road [N])	0.09	8.6 sec (Comleroi Road [N])	A	0.1 m (Comleroi Road [N])
I-06	Golden Highway/Long Point Road	Give Way	0.24	17.3 sec (Long Point Road West [N])	B	0.4 m (Long Point Road West [N])	0.13	10.6 sec (Long Point Road West [N])	A	0.1 m (Long Point Road West [N])
I-07	Golden Highway/Gouldsville Road	Give Way	0.24	10.6 sec (Golden Highway [E])	A	1.2 m (Golden Highway [E])	0.13	9.4 sec (Gouldsville Road [N])	A	0.8 m (Golden Highway [E])
I-08a	Jerrys Plains Road (NB Ramp)/Putty Road	Stop	0.54	16 sec (Mount Thorley Road [S])	B	11.8 m (Mount Thorley Road [S])	0.41	15.9 sec (Mount Thorley Road [S])	B	6.5 m (Mount Thorley Road [S])
I-08b	Jerrys Plains Road (SB Ramp)/Putty Road	Give Way	0.25	13.4 sec (Mount Thorley Road [N])	A	0.2 m (Mount Thorley Road [N])	0.04	13 sec (Mount Thorley Road [N])	A	0.9 m (Woodland Road [E])
I-09	Putty Road/Broke Road	Give Way	0.44	10.7 sec (Mount Thorley Road [S])	A	7.2 m (Broke Road [S])	0.29	12.9 sec (Broke Road [S])	A	9.4 m (Broke Road [S])
I-10	Putty Road/Mitchell Line of Road	Give Way	0.55	35.2 sec (Broke Road [S])	C	36.2 m (Putty Road [W])	0.38	27.9 sec (Mitchell Line of Road [S])	B	14.6 m (Putty Road [W])
I-10b	Golden Highway/Range Road	Stop	0.51	122.6 sec (Range Road [N])	F	11.7 m (Range Road [N])	0.26	27.2 sec (Golden Highway [W])	B	1.2 m (Range Road [N])
I-14	Wine Country Drive/Broke Road	Stop	1.15	183 sec (Broke Road [S])	F	272.9 m (Broke Road [S])	0.66	27.3 sec (Broke Road [S])	B	31.2 m (Broke Road [S])
I-16a	Wollombi Road/Allandale Road	Signal	0.88	26 sec (Average delay)	B	88.9 m (Singleton Street [N])	0.66	23.9 sec (Average delay)	B	55.2 m (Singleton Street [N])
I-16b	Wollombi Road/Vincent Street	Signal	0.70	28.1 sec (Average delay)	B	61.5 m (Maitland Road [E])	0.64	26.5 sec (Average delay)	B	51.9 m (Maitland Road [E])
I-27	Mandalong Road/Freemans Drive/Wyee Road	Roundabout	0.91	38.7 sec (Freemans Drive [N])	C	139.7 m (Mandalong Road [W])	0.53	14.4 sec (Freemans Drive [N])	A	31.8 m (Mandalong Road [W])
I-29a	Wangi Road/Rocky Point Road (west)	Give Way	0.07	6.2 sec (Wangi Road [S])	A	0.1 m (Wangi Road [S])	0.02	6.6 sec (Wangi Road [S])	A	0.1 m (Wangi Road [S])
I-29b	Wangi Road/Rocky Point Road (east)	Give Way	0.08	6.4 sec (Rocky Point Road [E])	A	2.8 m (Rocky Point Road [W])	0.02	5.9 sec (Rocky Point Road [W])	A	0.7 m (Rocky Point Road [W])
I-32	Golden Highway/ Existing Track Across Rail Track	Give Way	0.25	10.3 sec (Existing track [E])	A	0.1 m (Existing track [E])	0.14	9.4 sec (Existing track [E])	A	0.1 m (Golden Highway [S])
I-33	Golden Highway/Unknown Road (east of Lemington Road)	Give way	0.09	7.5 sec (Golden Highway [S])	A	0.1 m (Golden Highway [S])	0.0	0.0 sec (No turning movements)	A	0 m
I-59	New England Highway/Thomas Mitchell Drive	Stop	0.46	15.8 sec (Thomas Mitchell Dr [S])	B	19.3 m (Thomas Mitchell Dr [S])	0.34	14.2 sec (Thomas Mitchell Dr [S])	A	11.6 m (Thomas Mitchell Dr [S])
I-60	Denman Road/Thomas Mitchell Drive	Give Way	0.53	15.3 sec (Thomas Mitchell Dr [S])	B	24.9 m (Thomas Mitchell Dr [S])	0.35	12.6 sec (Thomas Mitchell Dr [S])	A	12.3 m (Thomas Mitchell Dr [S])
I-61	Denman Road/Edderton Road	Stop	0.09	12.8 sec (Edderton Road [S])	A	2.0 m (Edderton Road [S])	0.08	12.0 sec (Edderton Road [S])	A	2.0 m (Edderton Road [S])

Table 4-11 2024 Weekday PM peak hour intersection performance – Regional and local road intersections

ID	Intersection	Control	Road network peak hour				HTP traffic peak hour			
			DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach	DoS	Delay & approach	LoS	Worst 95th %ile queue (m) & approach
Intersections with the regional and local road network										
I-05	Comleroi Road/Private Road/Driveway (Hunter Valley Operations)	Stop	0.07	9.5 sec (HVO Driveway [S])	A	1.9 m (Comleroi Road [E])	0.07	9.5 sec (HVO Driveway [S])	A	1.7 m (HVO Driveway [S])
I-11	Wollombi Road/Singleton Street	Stop	0.05	8.9 sec (Singleton Street [N])	A	1 m (Singleton Street [N])	0.04	7.5 sec (Singleton Street [N])	A	0.9 m (Singleton Street [N])
I-12	Broke Road/Hermitage Road	Stop	0.05	9.7 sec (Hermitage Road [N])	A	1.3 m (Hermitage Road [N])	0.04	9.3 sec (Hermitage Road [N])	A	1 m (Hermitage Road [N])
I-13a	Broke Road/McDonalds Road (west)	Roundabout	0.23	9.4 sec (Broke Road [N])	A	3.7 m (Broke Road [N])	0.11	9.1 sec (Broke Road [N])	A	1.7 m (Broke Road [N])
I-13b	Broke Road/McDonalds Road (east)	Roundabout	0.22	9.1 sec (Broke Road [S])	A	3.6 m (McDonalds Road [W])	0.12	9 sec (Broke Road [S])	A	1.7 m (McDonalds Road [W])
I-15	McDonalds Road/Pokolbin Mountains Road	Give Way	0.04	6.9 sec (Oakey Creek Road [SE])	A	0.1 m (Pokolbin Mountain Road [SW])	0.04	6.9 sec (Oakey Creek Road [SE])	A	0.1 m (McDonalds Road [NW])
I-17	Wollombi Road/Mount View Road (Cessnock)	Give Way	0.35	13.1 sec (Mount View Road [N])	A	10.7 m (Wollombi Road [E])	0.34	13 sec (Mount View Road [N])	A	10.9 m (Wollombi Road [E])
I-18	Wollombi Road/West Avenue	Give Way	0.69	25.9 sec (West Road [S])	B	48.1 m (Wollombi Road [W])	0.63	41.3 sec (West Road [S])	C	42.6 m (Wollombi Road [W])
I-19	Wollombi Road/Mount View Road (Millfield)	Give Way	0.06	6.1 sec (Wollombi Road [E])	A	1 m (Wollombi Road [E])	0.04	5.6 sec (Wollombi Road [E])	A	0.9 m (Wollombi Road [E])
I-20	Wollombi Road/Hayes Road	Give Way	0.03	5.9 sec (Wollombi Road [E])	A	0 m (Hayes Road [S])	0.02	5.7 sec (Hayes Road [S])	A	0.1 m (Wollombi Road [W])
I-21a	Cessnock Road/Oakley Lane	Give Way	0.04	7.8 sec (Oakley Lane [S])	A	0.1 m (Oakley Lane [W])	0.03	7.8 sec (Oakley Lane [S])	A	0.1 m (Oakley Lane [W])
I-22a	Freemans Drive/Alton Road	Signal	0.88	14.9 sec (Average delay)	B	27 m (Freemans Drive [W])	0.78	15.9 sec (Average delay)	B	29.9 m (Freemans Drive [W])
I-23	Freemans Drive/Martinsville Road	Give Way	0.55	34.8 sec (Martinsville Road [N])	C	16.8 m (Martinsville Road [N])	0.35	22.7 sec (Martinsville Road [N])	B	9.7 m (Martinsville Road [N])
I-24	Martinsville Road/Pringles Road	Give Way	0.03	7.9 sec (Martinsville Road [E])	A	0.1 m (Pringles Road [S])	0.02	6.9 sec (Martinsville Road [E])	A	0.1 m (Pringles Road [S])
I-25	Martinsville Road/Watagan Road	Give Way	0.03	7.1 sec (Martinsville Road [E])	A	0.3 m (Watagan Road [S])	0.02	6.9 sec (Martinsville Road [E])	A	0.1 m (Watagan Road [S])
I-26	Watagan Forest Road/Martinsville Hill Road	Give Way	0.00	4.6 sec (Watagan Forest Road [E])	A	0.1 m (Martinsville Hill Road [N])	0.00	4.6 sec (Watagan Forest Road [E])	A	0.1 m (Martinsville Hill Road [N])
I-28	Freemans Drive/Mount Faulk Road	Give Way	0.13	7 sec (Freemans Drive [W])	A	0.4 m (Mount Faulk Road [N])	0.11	7 sec (Freemans Drive [W])	A	0.3 m (Freemans Drive [E])
I-57	Freemans Drive/Newport Road	Give Way	0.27	14.8 sec (Newport Road [E])	B	9 m (Freemans Drive [S])	0.21	10.6 sec (Newport Road [E])	A	6.5 m (Freemans Drive [S])
I-58	Freemans Drive/Mount Nellinda Road	Give Way	0.13	9.3 sec (Mount Nellinda Road [W])	A	0.5 m (Freemans Drive [N])	0.11	8.7 sec (Mount Nellinda Road [W])	A	0.3 m (Freemans Drive [N])

4.4 Freight

4.4.1 Heavy vehicle road network restrictions

The heavy vehicle restrictions on construction routes within the traffic and transport study area are illustrated in **Figure 4-2**.

General Access Vehicles (GAV) which comply with mass and dimension requirements do not require a notice or permit to operate on the road network. Heavy vehicles other than GAV are subject to road network restrictions according to the following vehicle types:

– Restricted Access Vehicles (RAV) (i.e. 19 metres, 23 metres, and 25/26 metres B-doubles)

– OSOM vehicles, which are defined as a vehicle (or vehicle combination) that exceeds any general access mass or dimension limits.

Key highways that would be utilised as a OSOM construction route for the project are part of the existing gazetted OSOM network. While approval for OSOM vehicles to travel on the road network is still required, this assures that these roads are the designated route for oversized vehicles travelling through the traffic and transport study area.

It is to be noted that the last-mile road sections to the project are generally not gazetted as approved OSOM routes, such as Freemans Drive and Martinsville Road.

Some of the regional roads such as Broke Road (east of Broke) and Wollombi Road provide approved access for restricted access vehicles (specifically 25/26-metre-long B-Double trucks). The regional road of Cessnock Road is currently not approved for these vehicles to access.

Local roads such as Freemans Drive and Mandalong Road provide approved access for restricted access vehicles (specifically 25/26-metre-long B-Double trucks).

Along the construction routes, some of the local roads provide approved access for restricted access vehicles (specifically 25/26-metre-long B-Double trucks).

Most local roads along construction access routes or OSOM construction routes are not part of the existing approved RAV and OSOM network.

A OSOM route assessment has been prepared by an OSOM transport contractor and is provided in **Appendix E**. This OSOM route assessment includes an assessment of Freemans Drive and Martinsville Road.

4.4.2 Freight rail lines and level crossings

Based on TfNSW's Public Level Crossing Finder (TfNSW 2025a), the proposed construction routes do not interact with any level crossings. The HTP corridor crosses the Whittingham to Mount Thorley rail line (operated by Australian Rail Track Corporation (ARTC)) at two locations near the corner of Putty Road (Golden Highway) and on Broke Road. This line provides coal transport to Mount Thorley, Wambo, and Bulga mining operations.

Figure 4-2 Restricted access vehicle and OSOM approved routes in study area

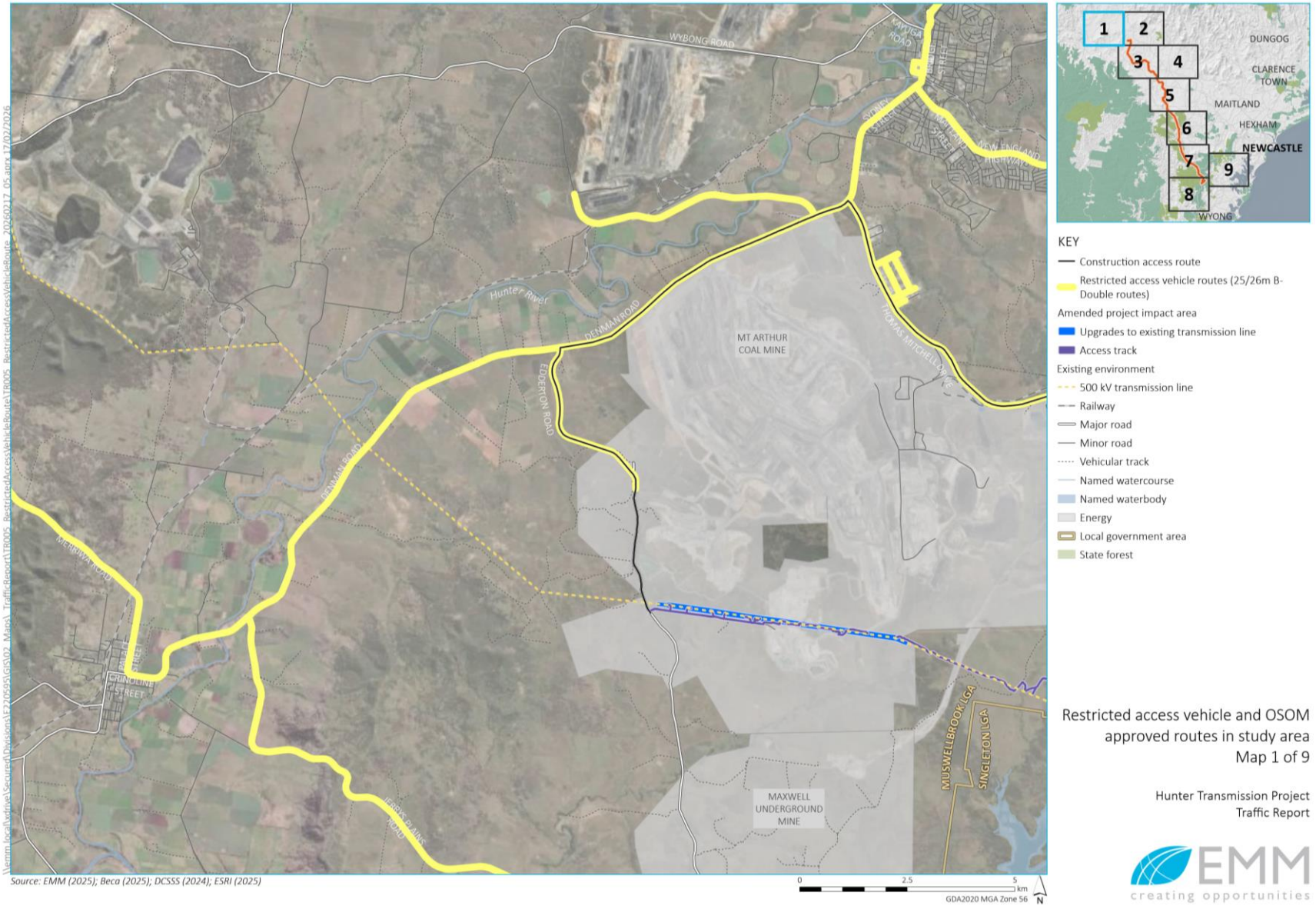
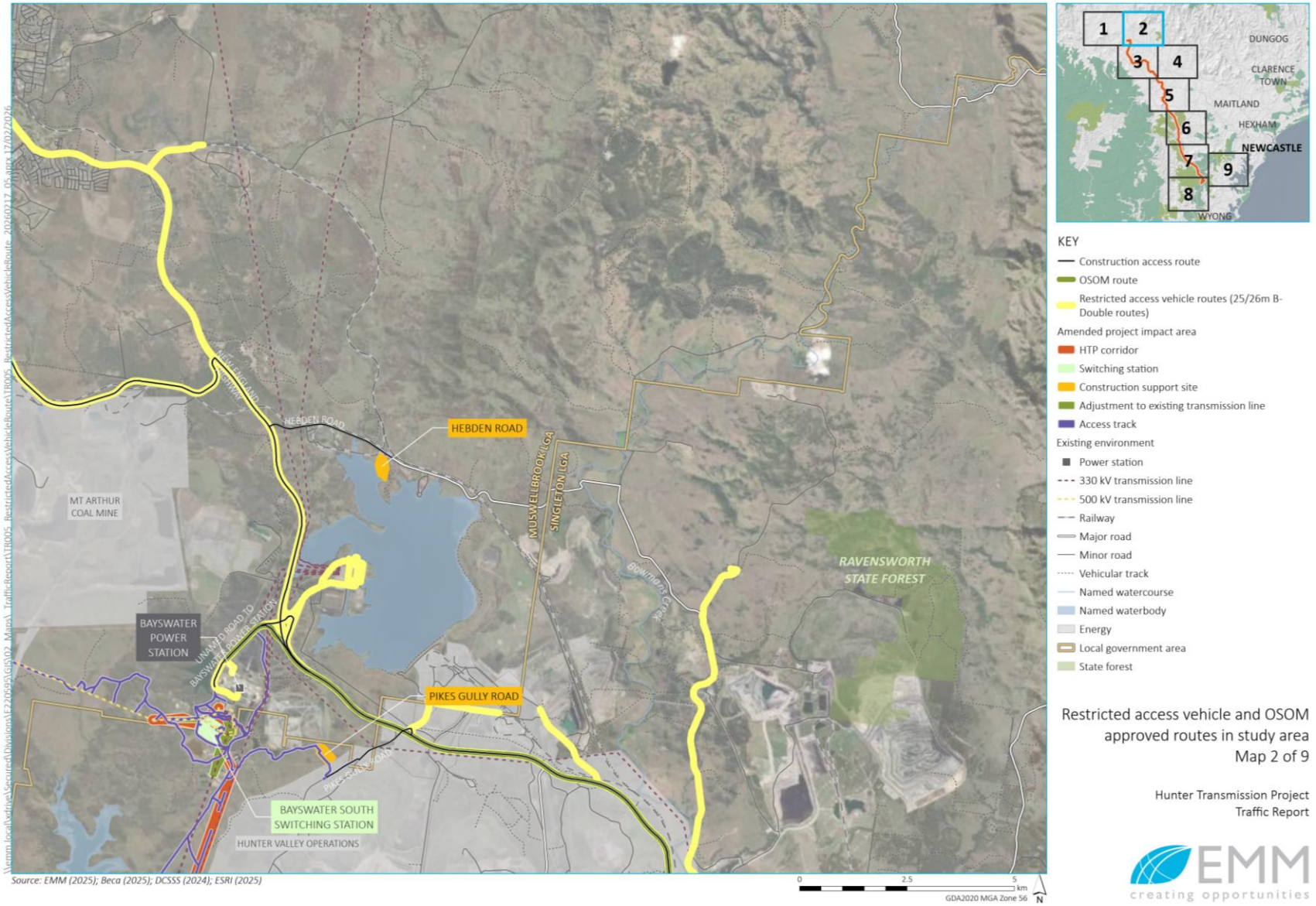


Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)



Restricted access vehicle and OSOM approved routes in study area
Map 2 of 9

Hunter Transmission Project
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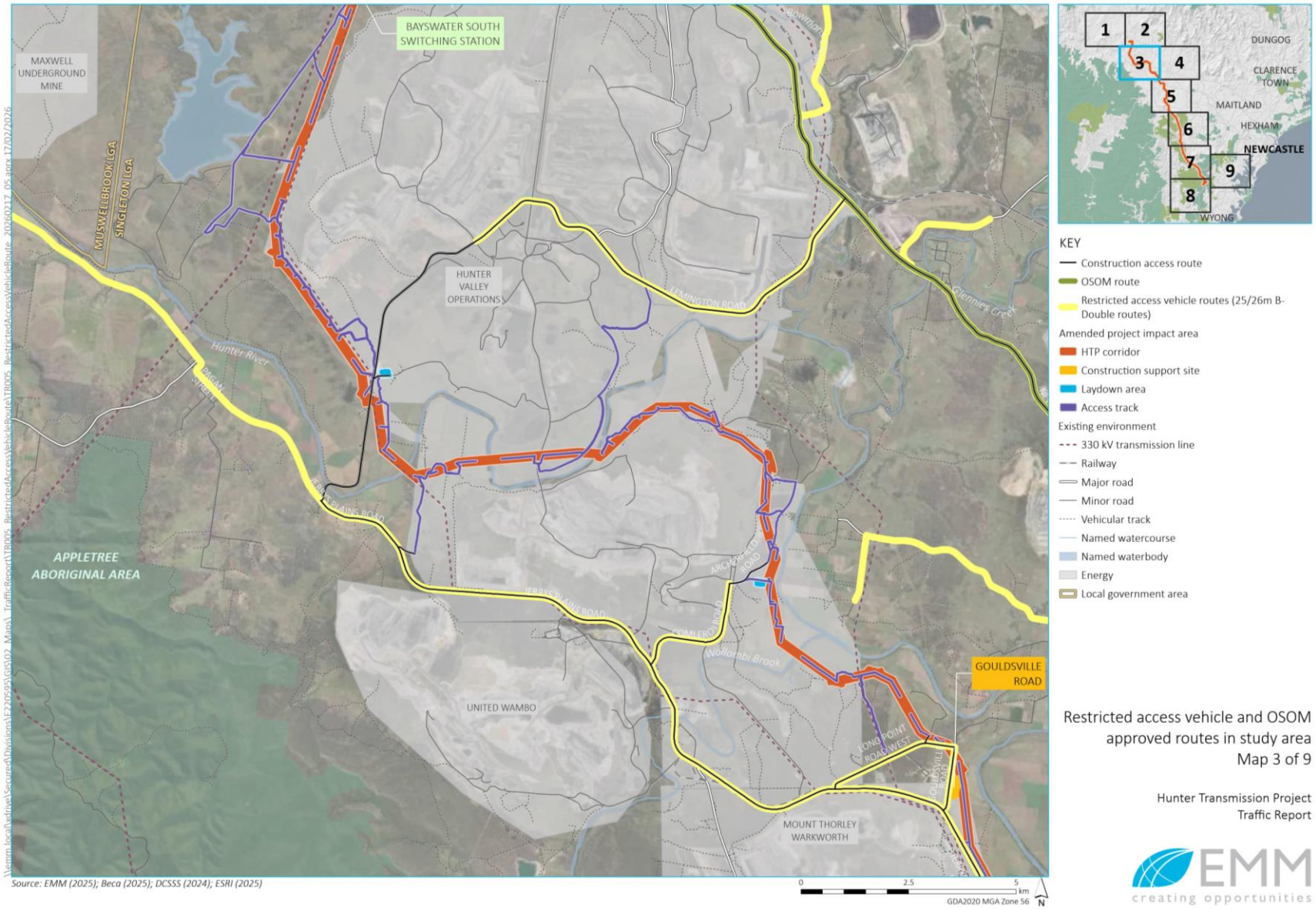
Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)



Restricted access vehicle and OSOM approved routes in study area
Map 3 of 9

Hunter Transmission Project
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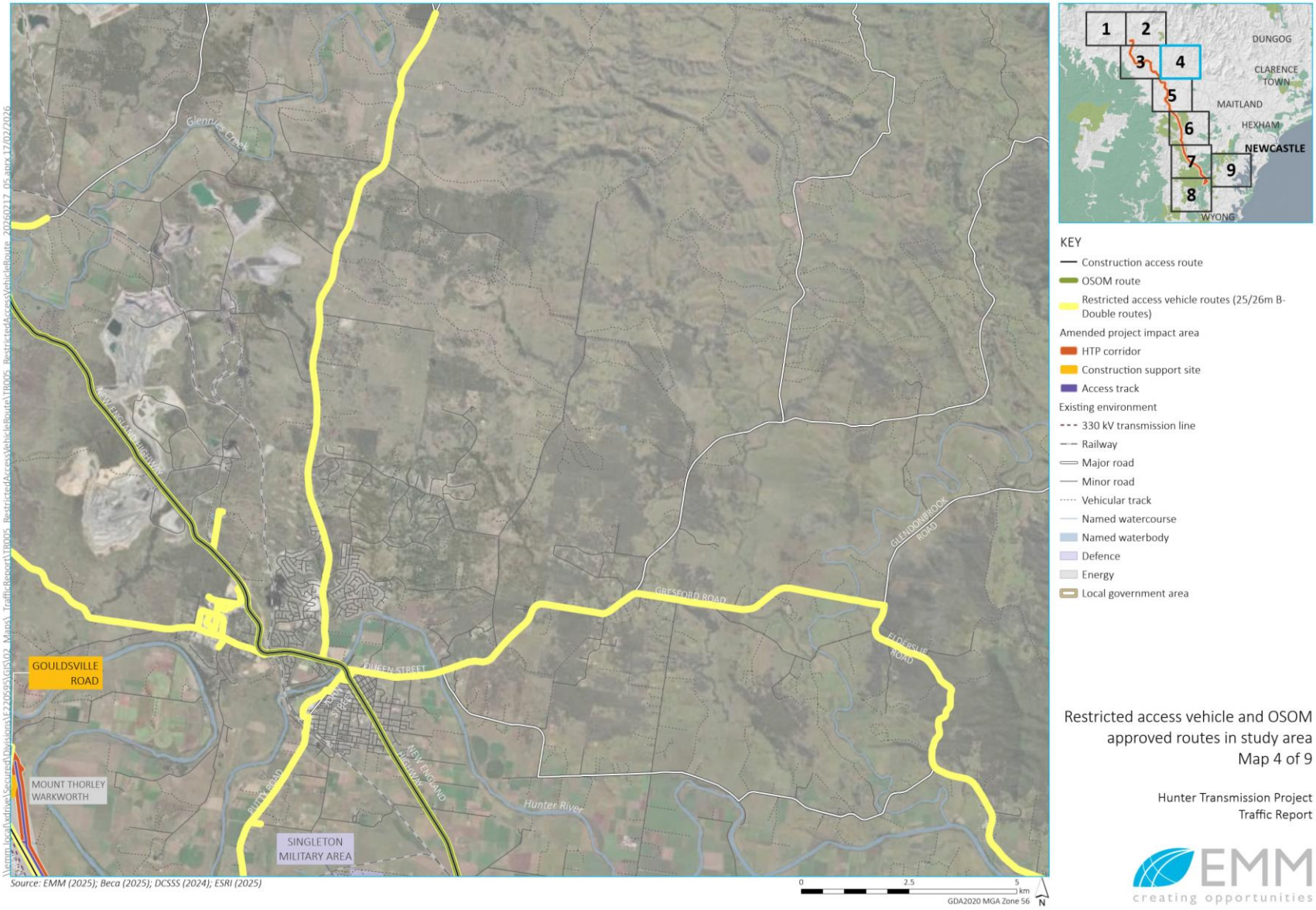
Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)



Restricted access vehicle and OSOM approved routes in study area
Map 4 of 9

Hunter Transmission Project
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Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)

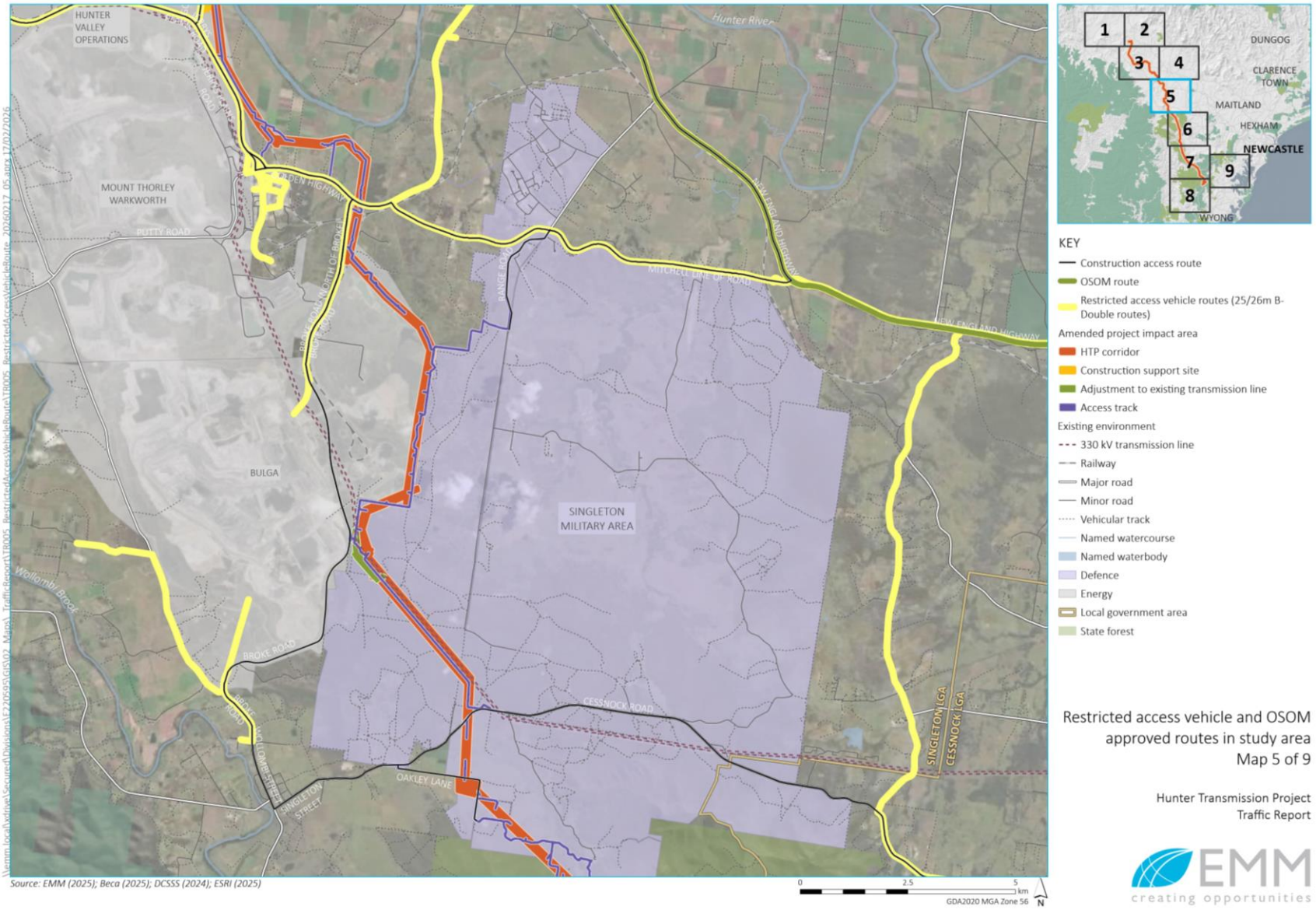
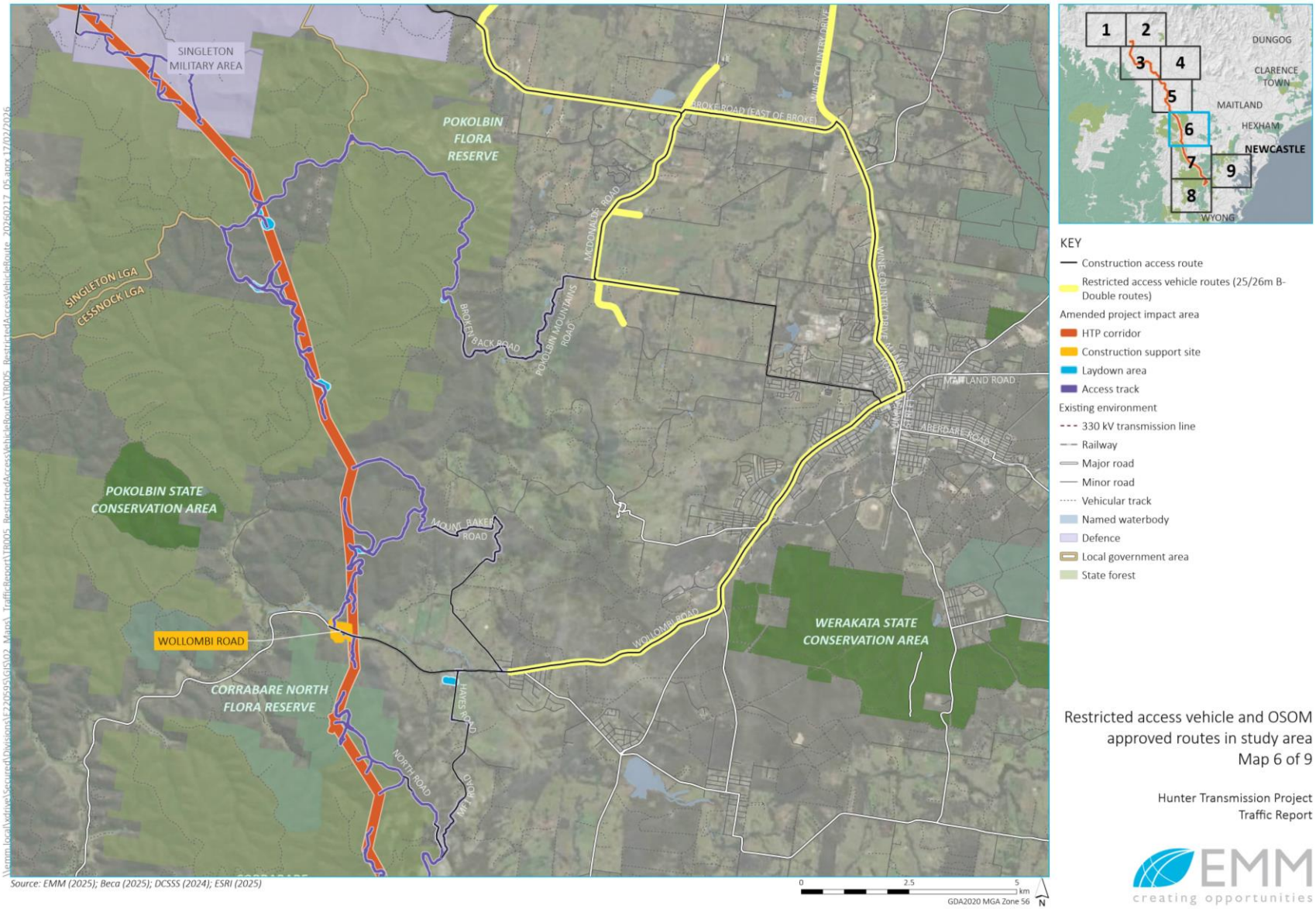


Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)



KEY

- Construction access route
- Restricted access vehicle routes (25/26m B-Double routes)

Amended project impact area

- HTP corridor
- Construction support site
- Laydown area
- Access track

Existing environment

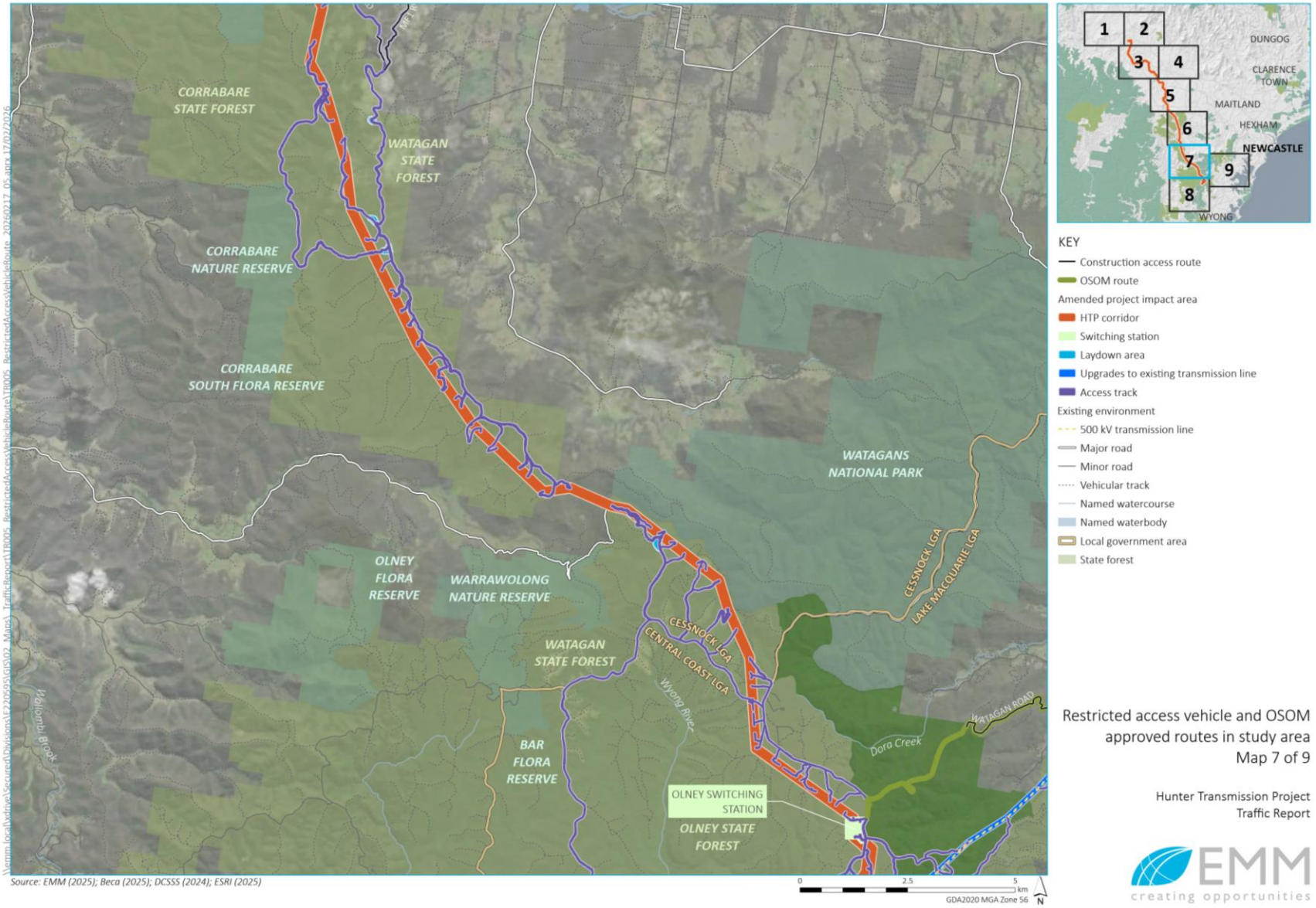
- 330 kV transmission line
- Railway
- Major road
- Minor road
- Vehicular track
- Named waterbody
- Defence
- Local government area
- State forest

Restricted access vehicle and OSOM approved routes in study area
Map 6 of 9

Hunter Transmission Project
Traffic Report

EMM creating opportunities

Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)

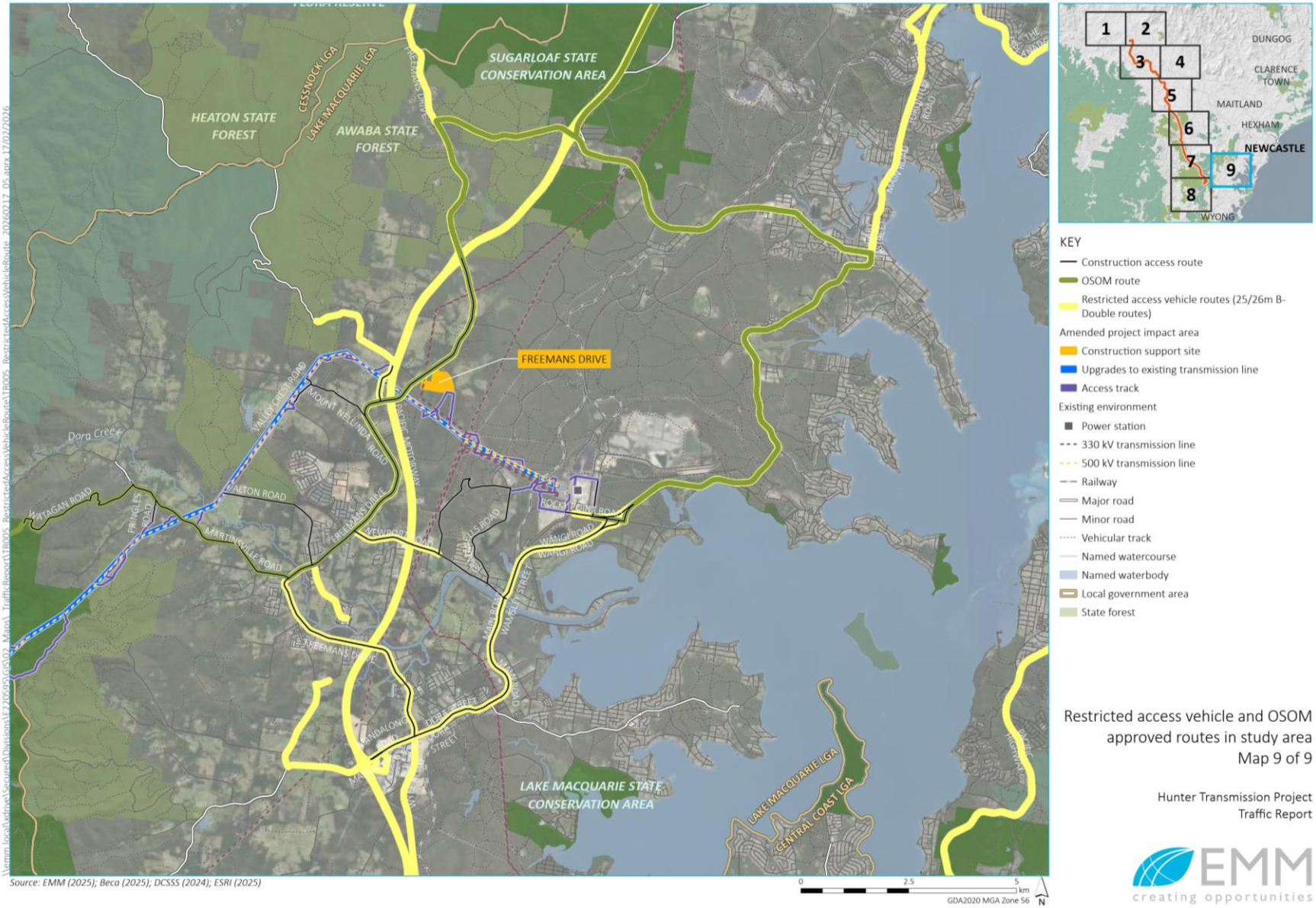


Restricted access vehicle and OSOM approved routes in study area
Map 7 of 9

Hunter Transmission Project
Traffic Report

Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)

Figure 4-2 Restricted access vehicle and OSOM approved routes in study area (continued)



4.5 Crash analyses

This section summarises the crash history along the main proposed construction routes, reported by degree of crash severity and location. The tables are separated according to NSW Road Classifications (State, regional and local) given the large traffic and transport study area and the heavy usage of these roads by the public.

Figure 4-3 to **Figure 4-5** show the recorded crashes along the main proposed construction routes within the traffic and transport study area for the five year period from 2020 to 2024.

4.5.1 Crashes on State roads

Table 4-12 to **Table 4-15** show the crashes that have occurred between 2020 and 2024 on the proposed construction routes for the State roads, namely sections of the New England Highway, Golden Highway, Wine Country Drive and Wangi Road respectively.

The New England Highway (between Pikes Gully Road and the Golden Highway) recorded 104 crashes with five fatal crashes (5%).

Table 4-12 New England Highway – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**5**	0	3	0	0	1	1	0	0	0	0
Serious injury	**14**	0	0	3	2	3	4	0	1	0	1
Moderate injury	**39**	11	10	2	5	9	1	1	0	0	0
Minor/other injury	**17**	7	3	2	2	3	0	0	0	0	0
No casualty	**29**	4	9	2	6	5	2	1	0	0	0
Total	**104**	22	25	9	15	21	8	2	1	0	1

The Golden Highway (between the New England Highway and Lemington Road) recorded 36 crashes with two fatal crashes (6%).

Table 4-13 Golden Highway – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**2**	0	1	0	1	0	0	0	0	0	0
Serious injury	**11**	1	5	0	0	3	2	0	0	0	0
Moderate injury	**15**	5	5	2	1	2	0	0	0	0	0
Minor/other injury	**0**	0	0	0	0	0	0	0	0	0	0
No casualty	**8**	0	2	1	0	3	1	1	0	0	0
Total	**36**	6	13	3	2	8	3	1	0	0	0

Wine Country Drive (between Broke Road and Wollombi Road) recorded 34 crashes with no fatal crashes.

Table 4-14 Wine Country Drive – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**0**	0	0	0	0	0	0	0	0	0	0
Serious injury	**12**	2	1	1	3	4	1	0	0	0	0
Moderate injury	**11**	3	1	0	2	4	1	0	0	0	0
Minor/other injury	**5**	1	0	0	0	3	0	1	0	0	0
No casualty	**6**	2	0	0	3	1	0	0	0	0	0
Total	**34**	8	2	1	8	12	2	1	0	0	0

Wangi Road (between Freemans Drive and Rocky Point Road, including Main Road and Dora Street) recorded 49 crashes with no fatal crashes.

Table 4-15 Wangi Road – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**0**	0	0	0	0	0	0	0	0	0	0
Serious injury	**13**	5	1	0	3	0	1	0	3	0	0
Moderate injury	**14**	5	2	1	2	3	1	0	0	0	0
Minor/other injury	**8**	5	0	0	2	1	0	0	0	0	0
No casualty	**14**	7	3	0	4	0	0	0	0	0	0
Total	**49**	22	6	1	11	4	2	0	3	0	0

4.5.2 Crashes on regional roads

Table 4-16 to **Table 4-18** show the crashes that have occurred between 2020 and 2024 on the proposed construction routes for the regional roads, namely sections of Wollombi Road, Cessnock Road and Broke Road respectively.

Wollombi Road (between Hayes Road and Wine Country Drive) recorded 62 crashes with one fatal crash.

Table 4-16 Wollombi Road – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**1**	0	0	0	0	1	0	0	0	0	0
Serious injury	**10**	4	2	1	0	1	1	0	0	0	1
Moderate injury	**25**	10	1	0	5	4	2	0	3	0	0
Minor/other injury	**8**	2	3	0	2	1	0	0	0	0	0
No casualty	**18**	1	3	1	8	3	0	1	1	0	0
Total	**62**	17	9	2	15	10	3	1	4	0	1

Cessnock Road (east of Broke to Wine Country Drive, including Broke Road east) recorded 13 crashes with no fatal crashes.

Table 4-17 Cessnock Road – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**0**	0	0	0	0	0	0	0	0	0	0
Serious injury	**4**	0	2	0	0	0	1	1	0	0	0
Moderate injury	**4**	0	2	1	0	1	0	0	0	0	0
Minor/other injury	**3**	0	1	1	1	0	0	0	0	0	0
No casualty	**2**	2	0	0	0	0	0	0	0	0	0
Total	**13**	2	5	2	1	1	1	1	0	0	0

Broke Road (north of Broke to Putty Road) recorded four crashes with no fatal crashes.

Table 4-18 Broke Road – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**0**	0	0	0	0	0	0	0	0	0	0
Serious injury	**1**	0	0	1	0	0	0	0	0	0	0
Moderate injury	**2**	1	0	0	1	0	0	0	0	0	0
Minor/other injury	**0**	0	0	0	0	0	0	0	0	0	0
No casualty	**1**	0	0	0	0	0	0	1	0	0	0
Total	**4**	1	0	1	1	0	0	1	0	0	0

4.5.3 Crashes on local roads

Crashes on the local roads along the proposed construction access routes accounted for 83 crashes, with three fatal crashes (3%). The most common type of crash was off-path crashes, accounting for a significant portion (33%) of the total. The number of crashes on each local road are shown in **Table 4-19**.

Table 4-19 Number of crashes on local roads

Road	Crashes	Road	Crashes
Freemans Drive	54	Oakey Creek Road	3
Mount View Road (in Cessnock)	12	McDonalds Road	3
Thomas Mitchell Drive	6	Lemington Road	3

Freemans Drive recorded the highest number of crashes on local roads – 54 crashes with one fatal crash, as seen in **Table 4-20**.

Table 4-20 Freemans Drive – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**1**	0	0	0	1	0	0	0	0	0	0
Serious injury	**20**	3	5	2	5	2	2	0	1	0	0
Moderate injury	**17**	4	7	1	2	1	2	0	0	0	0
Minor/other injury	**3**	2	0	0	1	0	0	0	0	0	0
No casualty	**13**	4	4	0	4	1	0	0	0	0	0
Total	**54**	13	16	3	13	4	4	0	1	0	0

On the other local roads, a combined 27 crashes were recorded with two fatal crashes, as shown in **Table 4-21.**

Table 4-21 – Other local roads – crash summary along construction route by road user movement and severity

Severity	Total	Rear end	Vehicle - Object	Rollover	Other angle	Right angle	Head-on	Vehicle - Animal	Vehicle - Pedestrian	Person - Object	Other
Fatal	**2**	0	1	0	0	0	1	0	0	0	0
Serious injury	**8**	0	3	0	0	2	2	1	0	0	0
Moderate injury	**7**	0	1	0	1	1	4	0	0	0	0
Minor/other injury	**2**	2	0	0	0	0	0	0	0	0	0
No casualty	**8**	2	5	0	1	0	0	0	0	0	0
Total	**27**	4	10	0	2	3	7	1	0	0	0

Figure 4-3 Crashes on the project construction routes (2020-2024) – Map 1 of 3

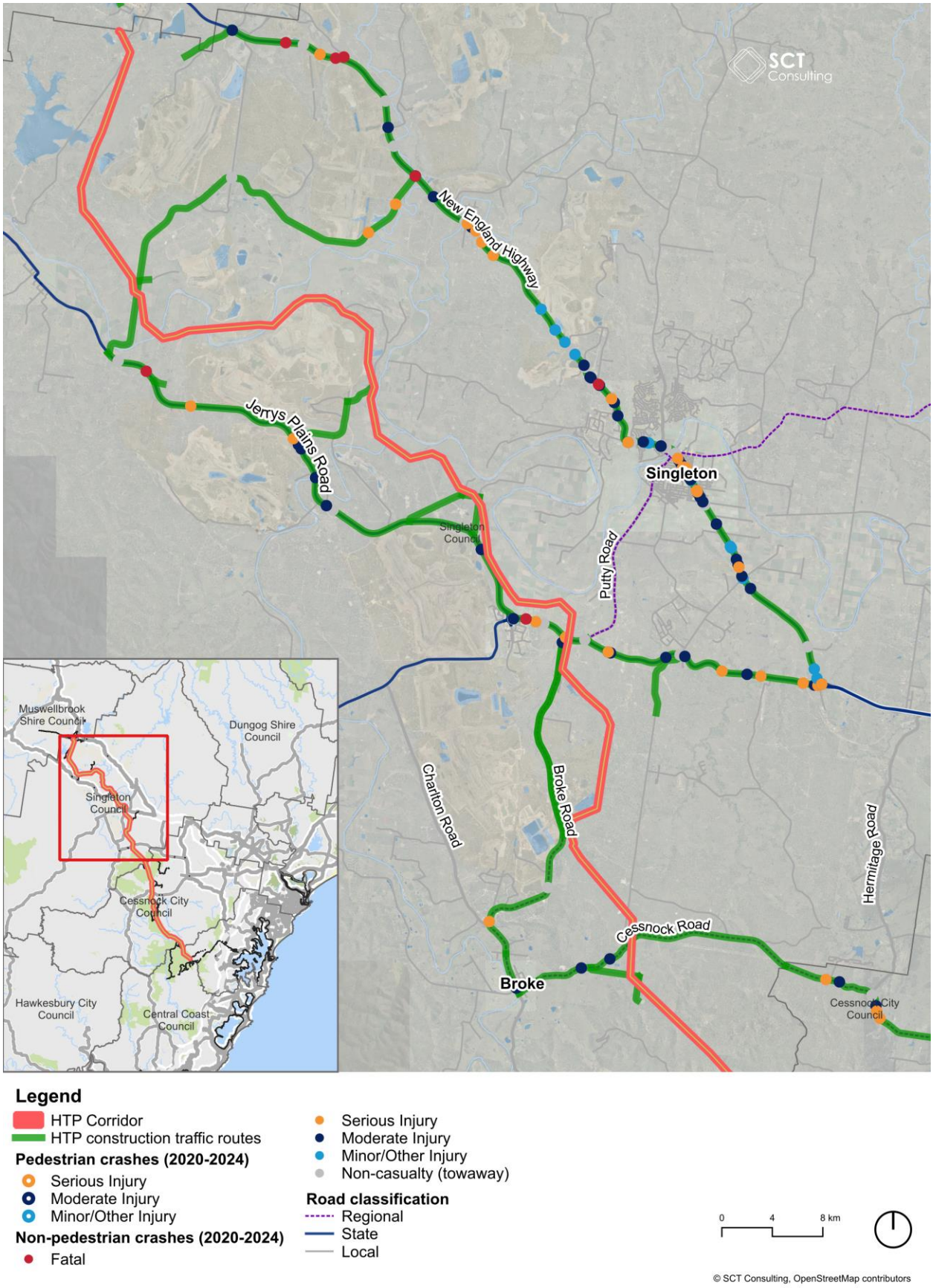


Figure 4-4 Crashes on the project construction routes (2020-2024) – Map 2 of 3

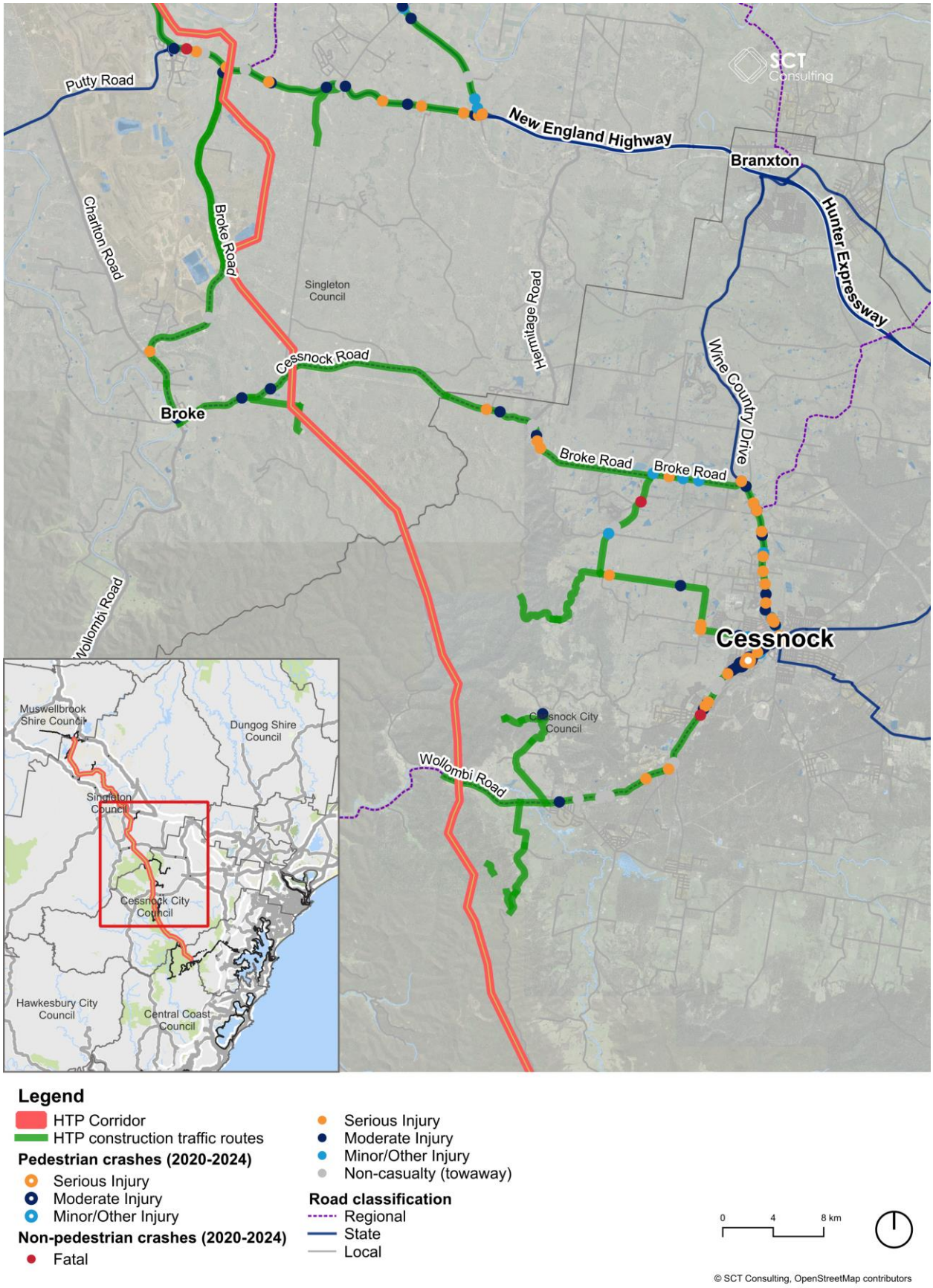
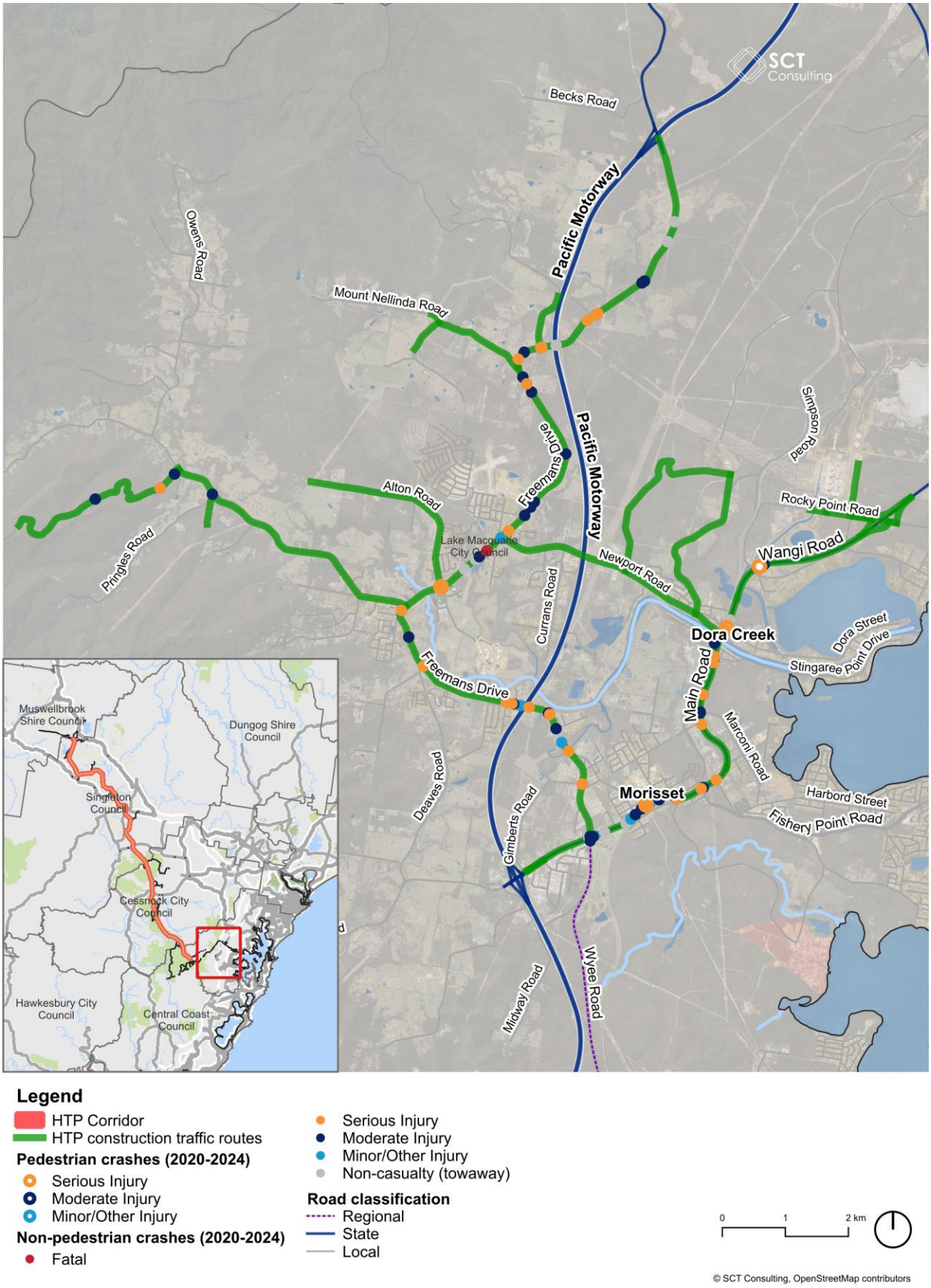


Figure 4-5 Crashes on the project construction routes (2020-2024) – Map 3 of 3



4.6 Public transport

4.6.1 Regional trains

Regional passenger trains are provided on the Sydney to Newcastle Rail Line, which travels through the Eraring and Dora Creek areas in a north-south direction with railway stations at Dora Creek and Morisset.

4.6.2 Public buses

Bus route maps are shown in **Figure 4-6** to **Figure 4-9**, and the route services and frequencies are detailed in **Table 4-22**. There are also school bus routes in the traffic and transport study area which serve local schools and the community (see **Table 4-23**).

Table 4-22 Bus services within the traffic and transport study area

Route No.	Route	Network and operator	Service frequency
160	Cessnock to Newcastle	Hunter Buses Network (Rover Coaches)	Five services per day on weekdays, in each direction
161	Cessnock to Hospital Hill and Vineyard Grove (Loop Service)	Hunter Buses Network (Rover Coaches)	Four services per day on weekdays, in each direction
162	Abernethy to Cessnock via Kearsley	Hunter Buses Network (Rover Coaches)	Five services per day on weekdays, in each direction
163	Cessnock to Morisset via Kurri Kurri	Hunter Buses Network (Rover Coaches)	Two services per day on weekdays, in each direction
164	Cessnock to Maitland via Kurri Kurri	Hunter Buses Network (Rover Coaches)	Seventeen services per day on weekdays, in each direction
165	Cessnock to West Cessnock (Loop Service)	Hunter Buses Network (Rover Coaches)	Four services per day on weekdays
167	Cessnock to Nulkaba (Loop Service)	Hunter Buses Network (Rover Coaches)	Three services per day on weekdays
168	Cessnock to Millfield (Loop Service)	Hunter Buses Network (Rover Coaches)	Eight services per day on weekdays
280	Cooranbong to Morisset	Hunter Buses Network (CDC NSW)	Sixteen services per day on weekdays, in each direction
281	Wangi Wangi to Lake Haven	Hunter Buses Network (CDC NSW)	One service per day on weekdays, in each direction

Table 4-23 School bus services within the traffic and transport study area

Route No.	Route
6310	Hebden to Singleton Heights PS
6314	Bulga to Singleton Heights PS
6319	Singleton PS to Jerrys Plains
6336	Warkworth to Singleton PS
6339	Singleton PS to Hebden
6341	Singleton Heights PS to Bulga
6349	Singleton PS to Warkworth
6352	Jerrys Plains to St Catherines College
S850	Rover Depot, Vincent St to Mount View HS

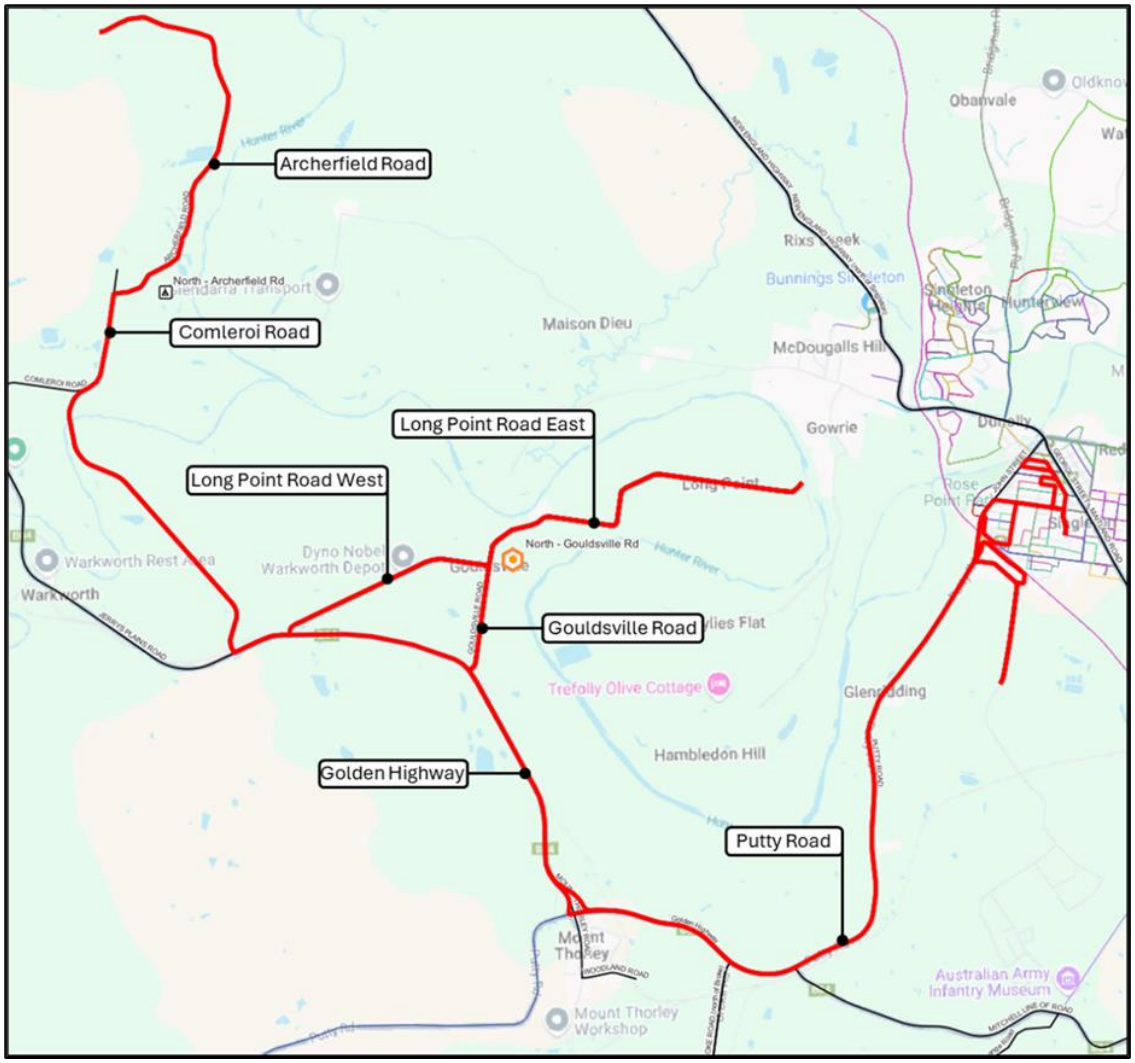
Route No.	Route
S853	Rover Depot, Vincent St to Linuwel School via Hunter Valley Grammar School
S854	Linuwel School to Vincent St opposite Rover Depot
S855	Rover Depot, Vincent St to Maitland Christian School
S857	Allandale Rd before O'Connors Rd to Hunter Valley Grammar School
S859	Murray Run Rd before Wollombi Rd to Congewai PS via St Philips College
S860	Mount View HS to Murrays Run Rd after Wollombi Rd via St Philips College
S861	St Philips College to Murrays Run Rd after Wollombi Rd via Mount View HS
S863	Rover Depot, Vincent St to Hunter Christian School
S864	Rover Depot, Vincent St to All Saints College Maitland
S867	All Saints College Maitland to Bellbird PS
S868	Mount View HS to Old Maitland Rd opp James Lane via Kurri Kurri
S869	Mount View HS to Old Maitland Rd opp James Lane via Kurri Kurri Hospital
S870	Rover Depot, Vincent St to Kurri Kurri HS via Maitland
S871	Middle Rd after Dunlop Dr to Mount View HS via The Paxton
S873	Mount View HS to Bellbird Hotel
S874	Ellalong Rd before Pelton Rd to Cessnock Swimming Club via Abernethy
S875	St Philips College to Wollombi Rd opposite Crawford Pl via Ellalong
S876	Bellbird PS to Cessnock PS via Mount View School
S877	St Philips College to Abermain PS via Pelaw Main and Cessnock HS
S878	Cessnock HS to Pelaw Main via Abernethy and St Philips College
S879	Millfield Rd opposite Irwin Cr to Cessnock PS via Abernethy
S880	St Philips College to Abernethy via Mount View HS
S881	St Philips College to Abernethy
S882	St Philips College to Abernethy via Cessnock PS
S883	East Branxton to Cessnock PS via Greta Main
S884	Mount View HS to Millfield via Bellbird, Ellalong and Paxton
S886	Pelton to Mount View HS via Ellalong
S887	Abermain to Nulkaba PS
S888	Mount View HS to Vincent St opp Rover Depot via Ellalong
S889	Cessnock Rd at Scone St to Holy Spirit PS
S893	Branxton to Cessnock PS via North Rothbury and Nulkaba
S894	St Patricks PS to Branxton via North Rothbury
S895	Mount View HS to Branxton via North Rothbury
S896	Cessnock HS to Branxton via North Rothbury
S897	Sandy Creek at Quorronbolong Rd to Cessnock HS via Mount View HS
S898	St Philips College to 165 Wollong Rd, Quorrobolong
S899	Mount View HS to 165 Wollong Rd, Quorrobolong via Nulkaba

Route No.	Route
S900	Greta to St Philips College
S901	Lovedale Rd at Camp Rd to Cessnock PS via Hunter Valley
S902	Mount View HS to Lovedale Rd at Camp Rd
S903	Mount View HS to Lovedale Rd at Camp Rd via Bellbird
S904	Northcote St after Kearsley St to St Philips College
S905	St Philips College to Branxton
S906	Mount View HS to Greta Main via Ellalong
S907	All Saints College to Vincent St opposite Rover Depot
S908	Rover Depot, Vincent St to Maitland Station
S909	St Philips College to Heddon Greta via Pokolbin
S910	St Philips College to Cessnock via Pokolbin
S911	Cessnock East PS to Mount View Rd after O'Shea Cct via Nulkaba PS
S912	St Philips College to Millfield via Abernethy and Ellalong
S913	Cessnock HS to Bellbird Heights via St Philips College
S915	Trebbiano Dr at Merlot St to St Philips College
S916	Mount View HS to Bellbird
S917	Cessnock HS to Quorrobolong via St Philips College
S918	St Philips College to Quorrobolong via Cessnock HS
S919	St Philips College to Vincent St opposite Rover Depot via Maitland
S920	St Philips College to Main Rd at Heddon St via Weston
S922	Elrington to All Saints College via Abernethy
S923	St Philips College to Abernethy via Branxton
S924	Quorrobolong to St Patricks PS
S925	11 Ellalong Rd, Pelton to All Saints College
S926	Kurri Kurri to St Patricks PS via Mount View HS
S927	St Philips College to Kurri Kurri via Greta and All Saints College
S928	Mount View HS to Kurri Kurri via Greta and All Saints College
S943	Rover Depot, Vincent St to Rutherford Technology HS via Weston PS
S949	Bellbird PS to Cessnock
6600	Avondale to Cooranbong PS
6601	Avondale School to Cooranbong
6602	Avondale School to Morisset PS
6606	Bay Peninsula to Avondale School
6607	Avondale School to Lake Munmorah
6608	Cooranbong to Avondale School
6609	Avondale School to Cooranbong
6611	Avondale School to Bonnells Bay

Route No.	Route
6613	Avondale School to Norah Head
6615	Avondale School to Morisset Park and Bonnells Bay
6617	Avondale School to Dora Creek
6618	Noraville to Avondale School
6620	Morisset Park to Avondale School
6622	Lake Munmorah to Avondale
6624	Toronto to Avondale
6625	Avondale to Cessnock and Kurri Kurri
6627	Avondale to Toronto
6631	Avondale to Dora Creek
6632	Avondale School to Morisset
6633	Eraring to Morisset and Avondale School
6634	Mandalong to Morisset PS
6635	Linuwel School to Morisset
6636	Martinsville to Morisset HS
6637	St John Vianney PS to Wyee
6638	Bonnells Bay to Avondale School
6639	Morisset to Gwandalan
6640	Morisset to Linuwel School
6641	Avondale to Toukley
6642	Morisset PS to Cooranbong PS
6646	Wyee to Morisset PS
6651	St John Vianney PS to Martinsville
6652	Gwandalan to St John Vianney PS
6654	Cessnock and Kurri to Avondale
6656	Toukley to Cooranbong PS
6659	St John Vianney PS to Mandalong
6660	Dora Creek to Avondale School
6661	Avondale to Bay Peninsula
6662	Dora Creek to St John Vianney PS
6665	St John Vianney PS to Freemans Drive
6668	Wyee Rd and Dora St to Morisset PS
6670	Wyee to Morisset
6676	Avondale School to Morisset PS
6677	St John Vianney PS to Wyee via Dora St
2710	Lakes Grammar to Swansea HS
6600	Avondale to Cooranbong PS

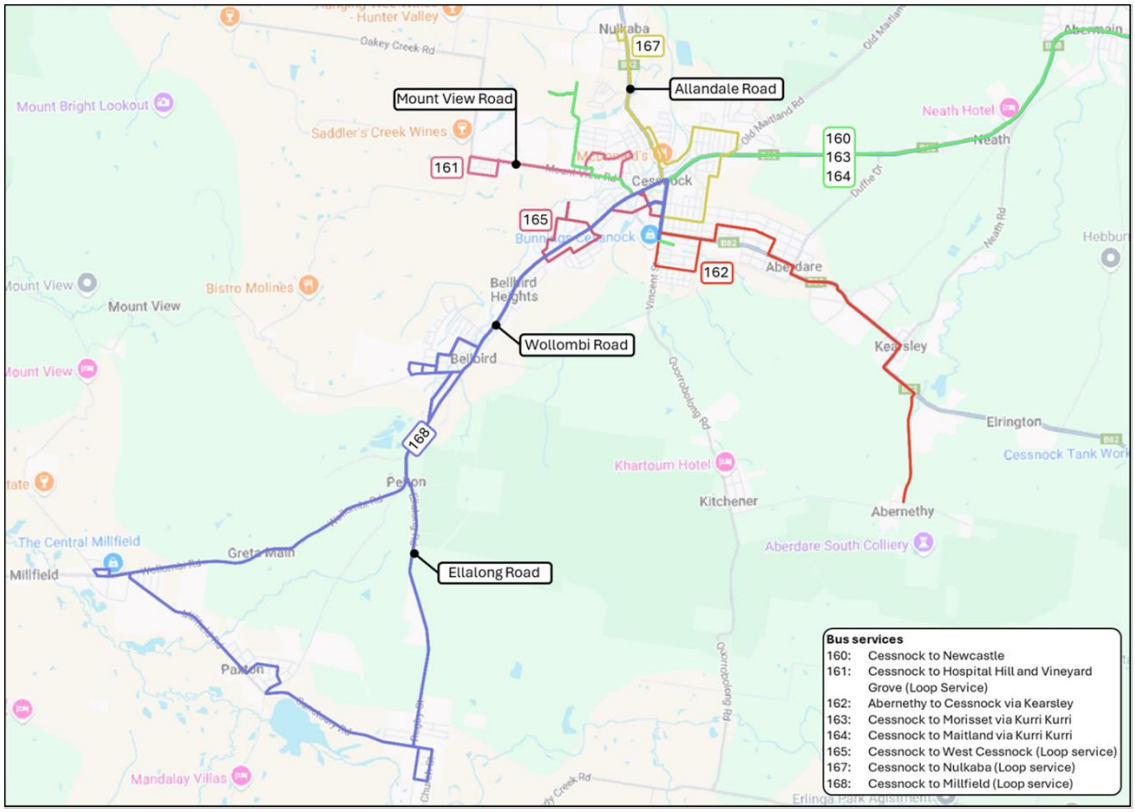
Route No.	Route
6601	Avondale School to Cooranbong
6602	Avondale School to Morisset PS
6606	Bay Peninsula to Avondale School
6607	Avondale School to Lake Munmorah
6608	Cooranbong to Avondale School
6609	Avondale School to Cooranbong
6611	Avondale School to Bonnells Bay
6613	Avondale School to Norah Head
6615	Avondale School to Morisset Park and Bonnells Bay
6617	Avondale School to Dora Creek
6618	Noraville to Avondale School
6620	Morisset Park to Avondale School
6622	Lake Munmorah to Avondale
6624	Toronto to Avondale
6625	Avondale to Cessnock and Kurri Kurri

Figure 4-6 Route map of bus services in the study area that interface with construction routes – Map 1 of 3



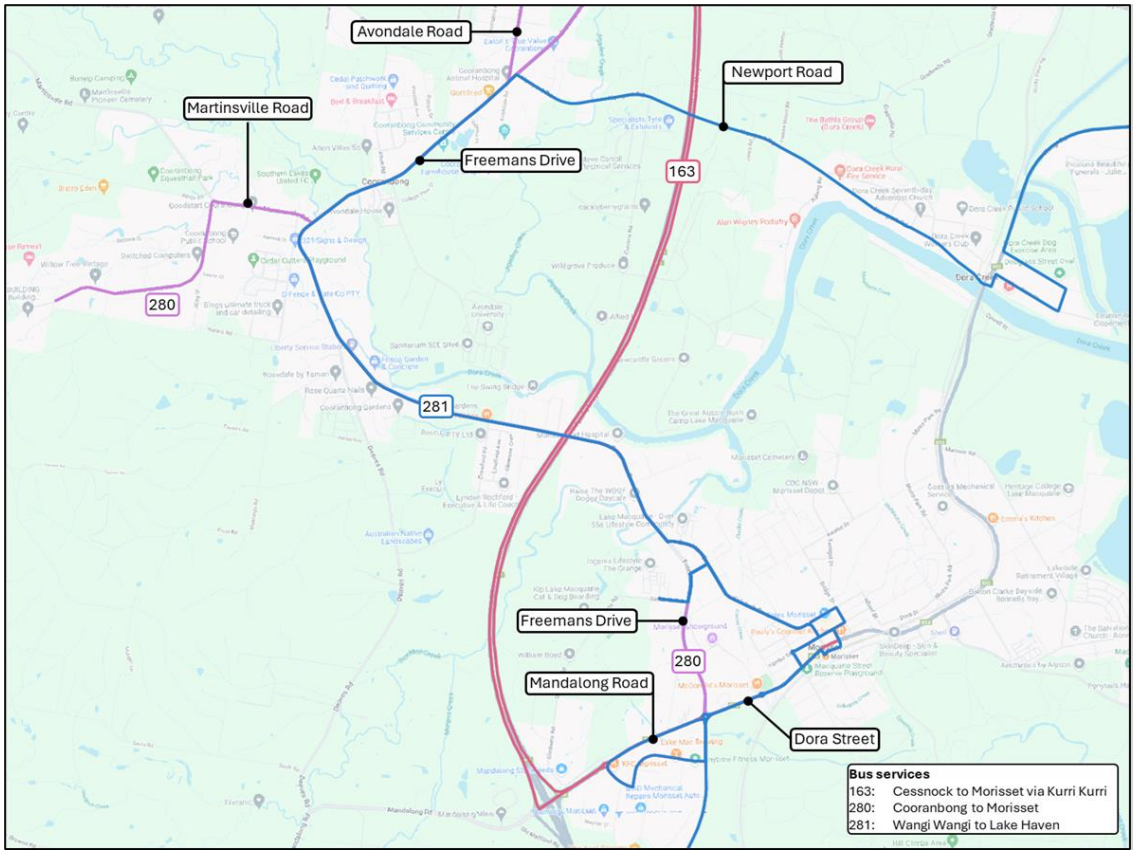
Source: WSP, August 2025, *Hunter Transmission Project EIS Traffic and Transport Impact Assessment*

Figure 4-7 Route map of bus services in the study area that interface with construction routes – Map 2 of 3



Source: WSP, August 2025, *Hunter Transmission Project EIS Traffic and Transport Impact Assessment*

Figure 4-8 Route map of bus services in the study area that interface with construction routes – Map 3 of 3



Source: WSP, August 2025, *Hunter Transmission Project EIS Traffic and Transport Impact Assessment*

Figure 4-9 Public transport links in the HTP study area

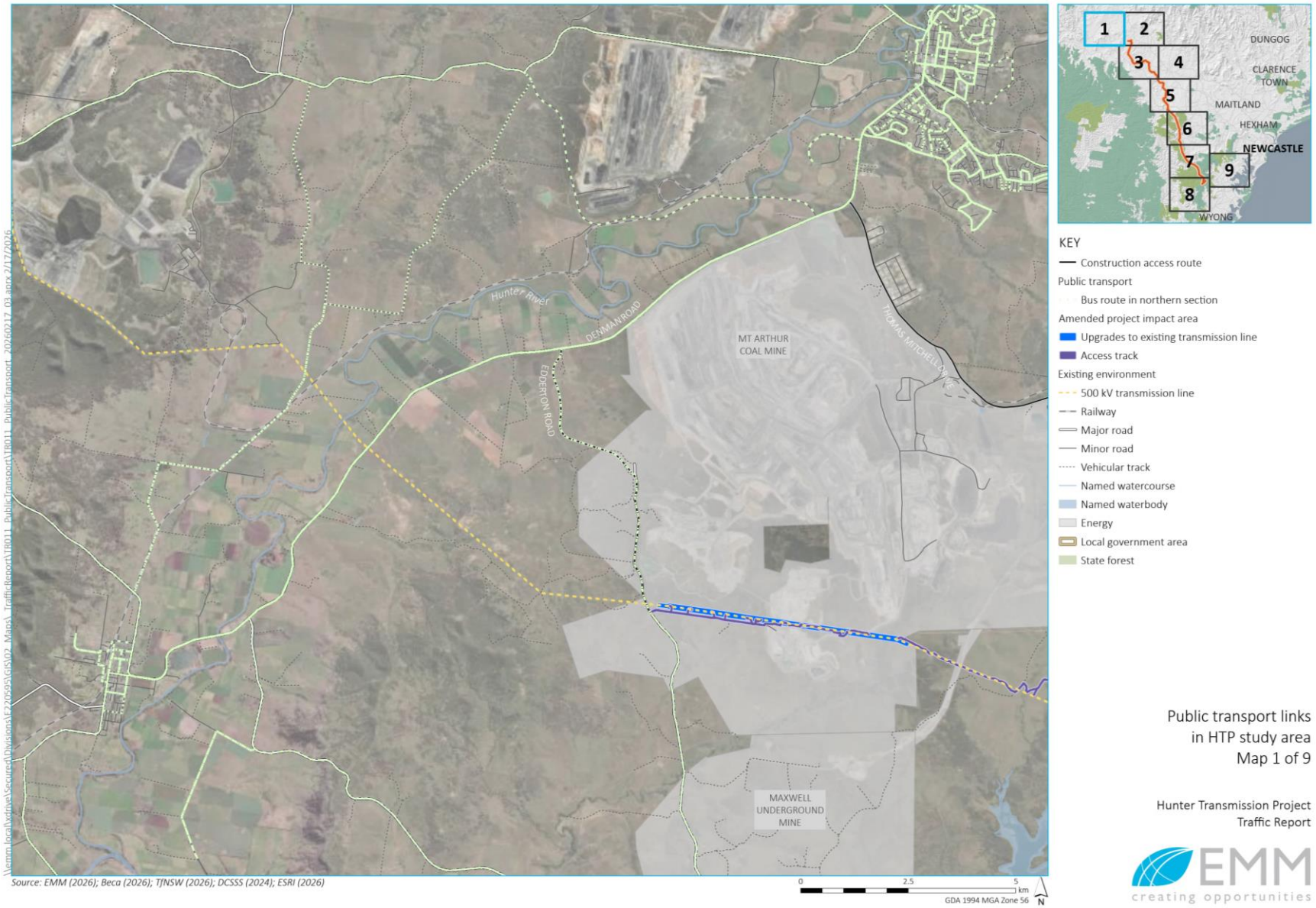


Figure 4-9 Public transport links in the HTP study area (continued)

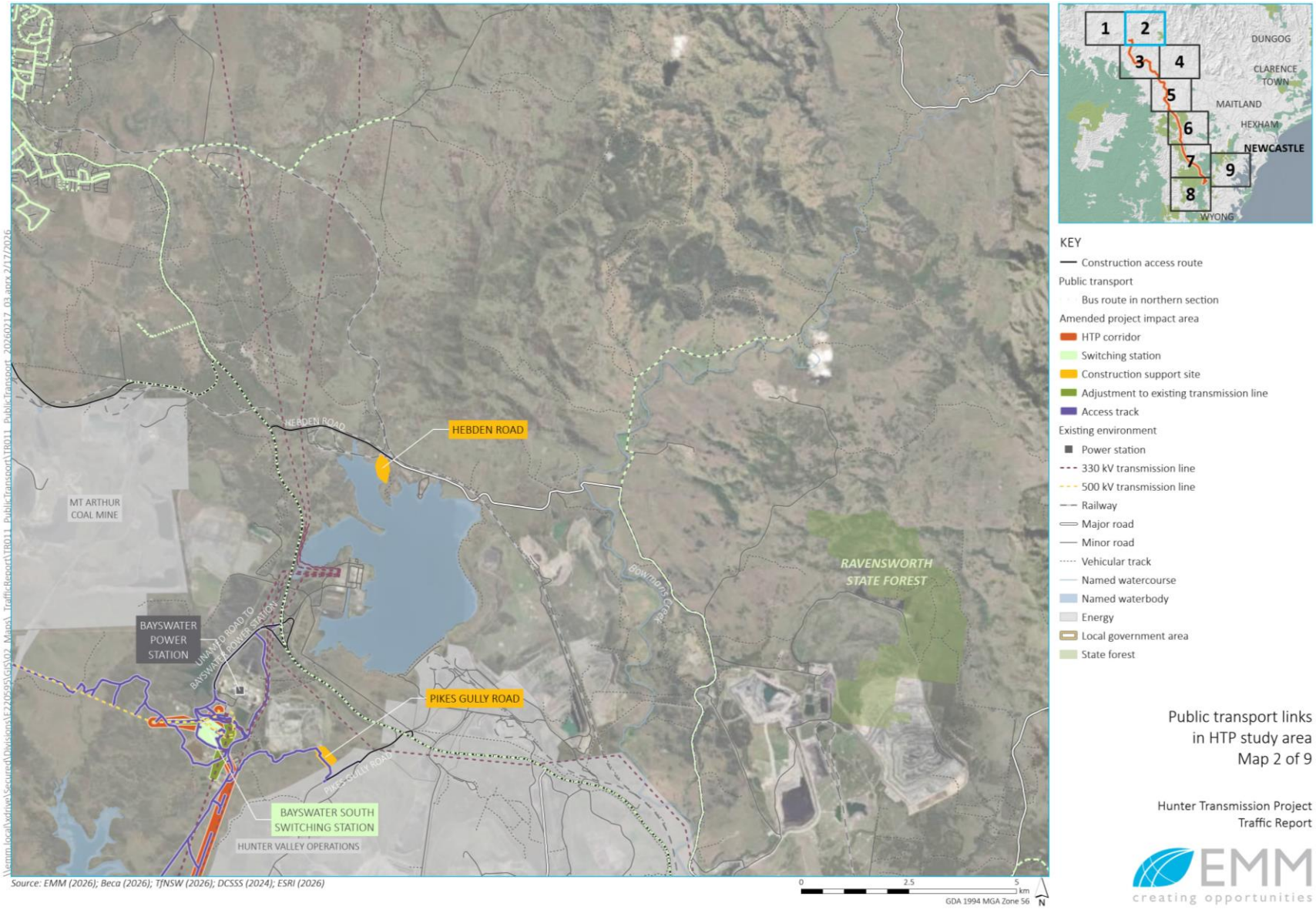


Figure 4-9 Public transport links in the HTP study area (continued)

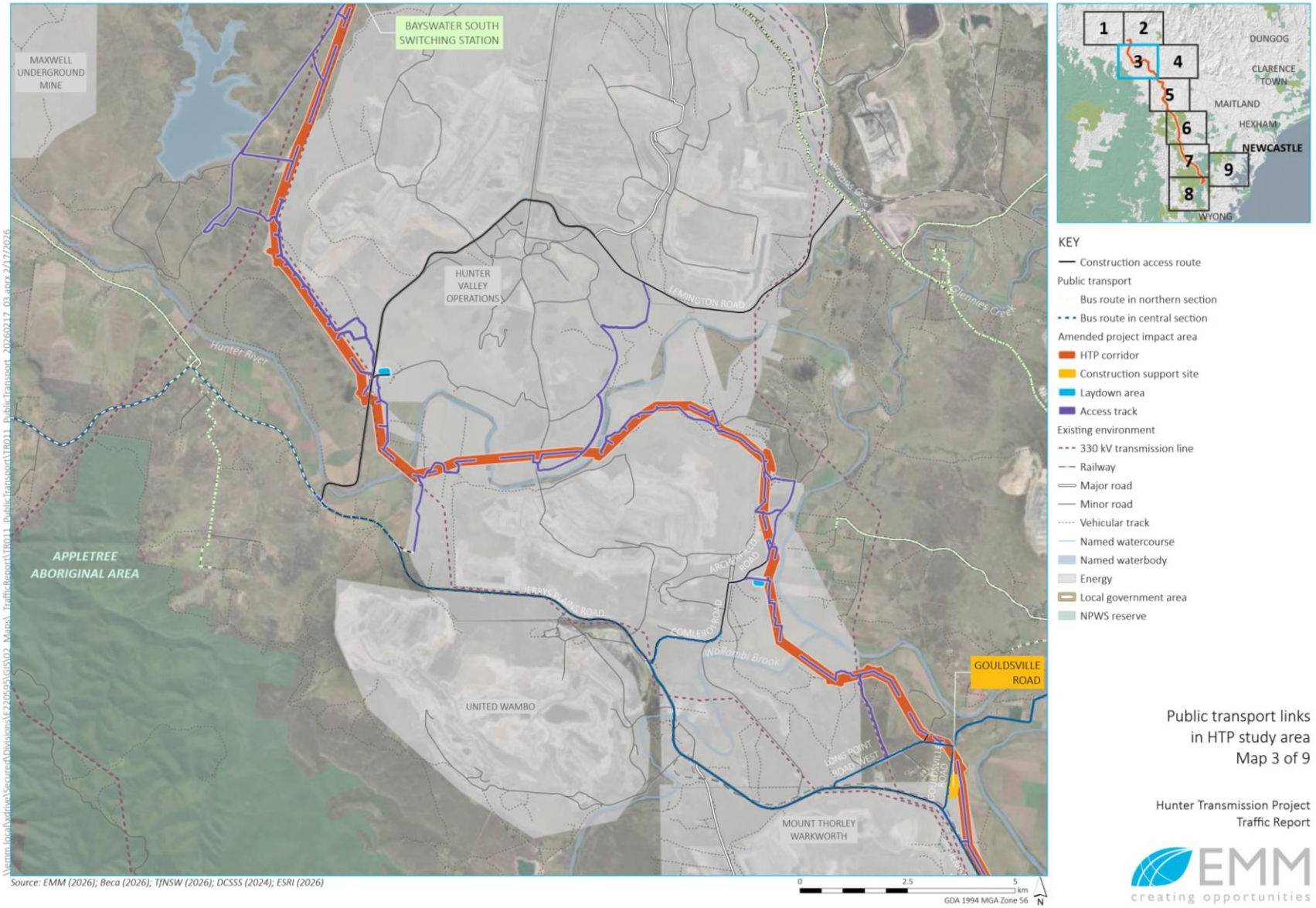
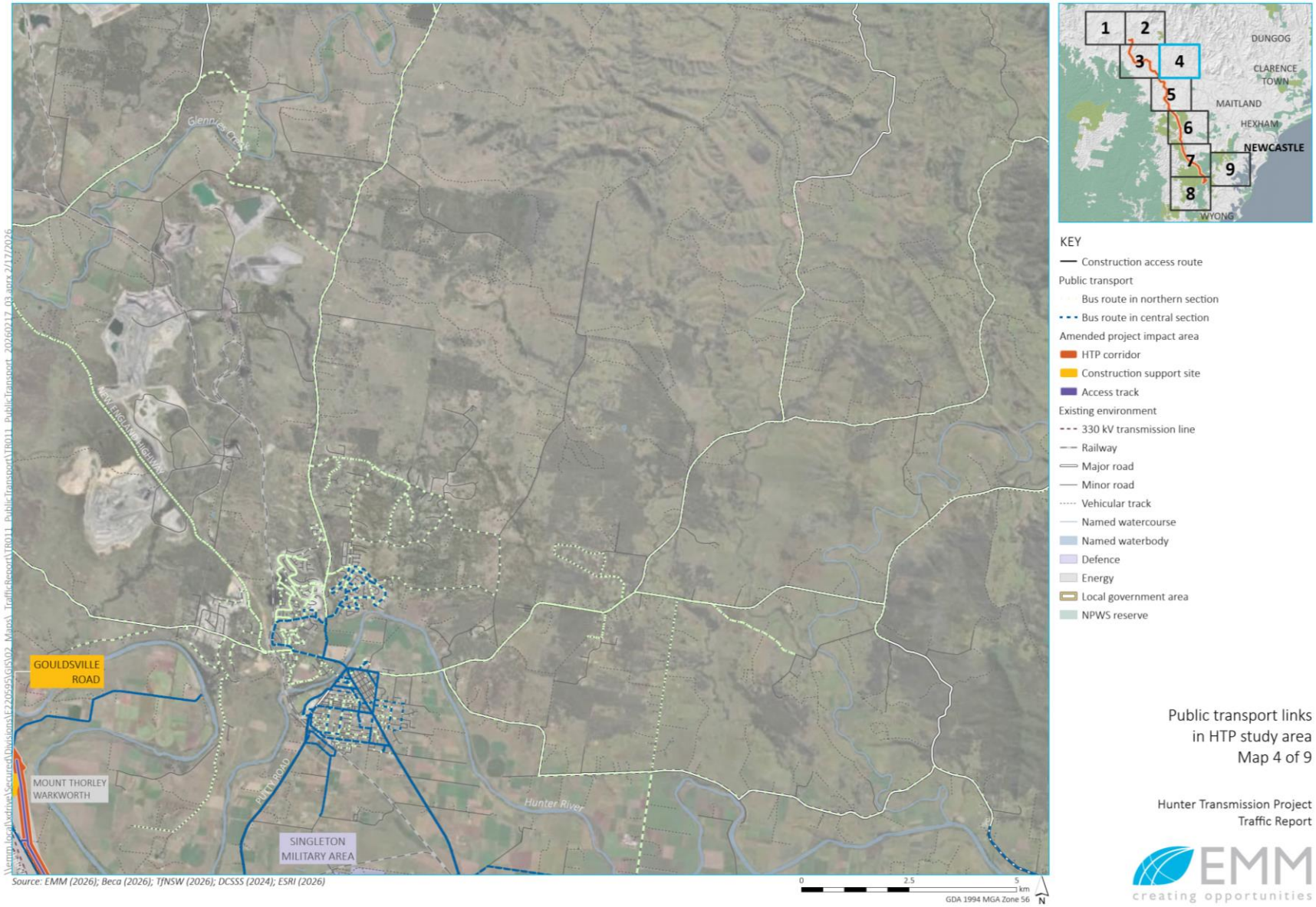


Figure 4-9 Public transport links in the HTP study area (continued)



Public transport links in HTP study area
Map 4 of 9

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Figure 4-9 Public transport links in the HTP study area (continued)

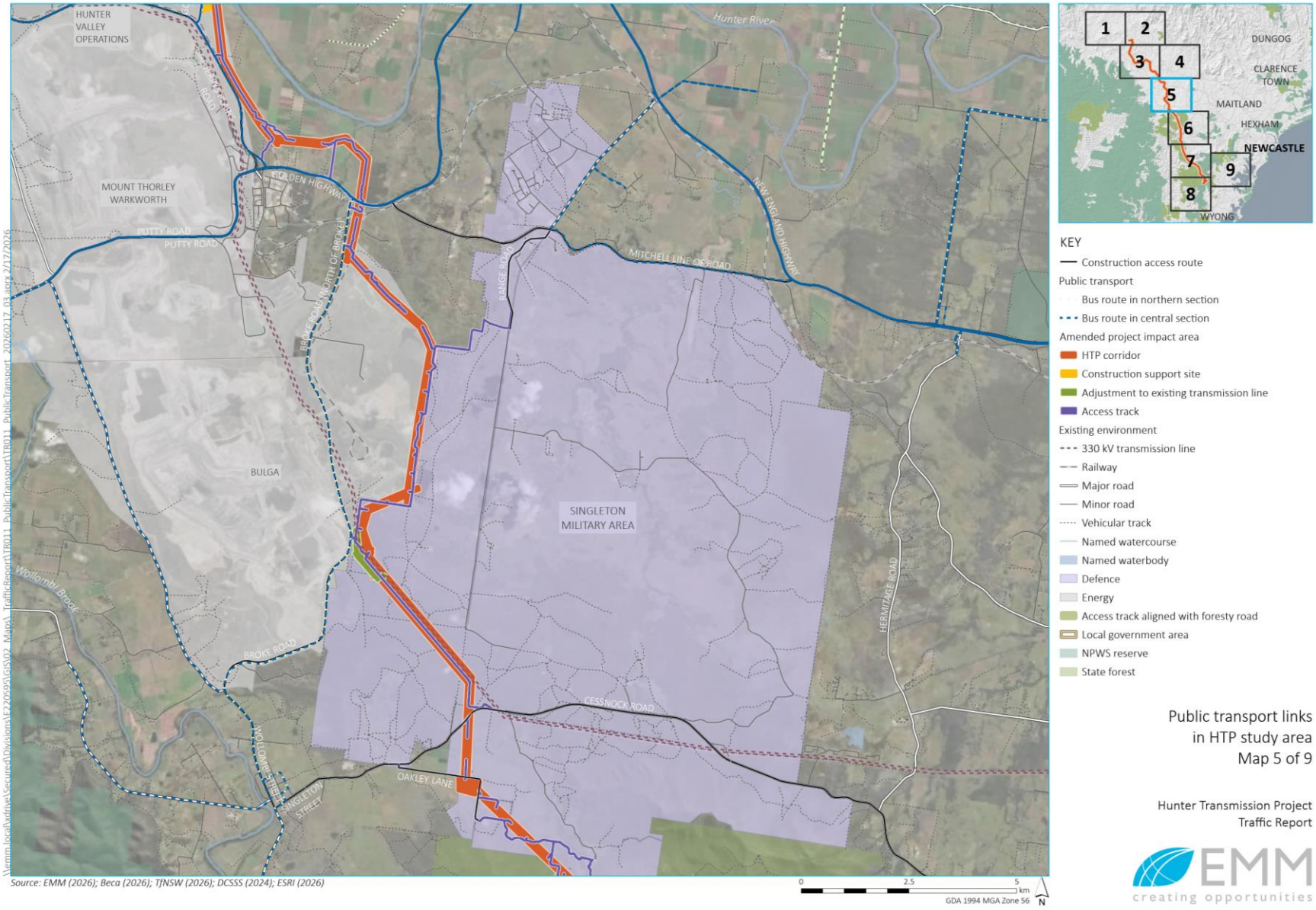
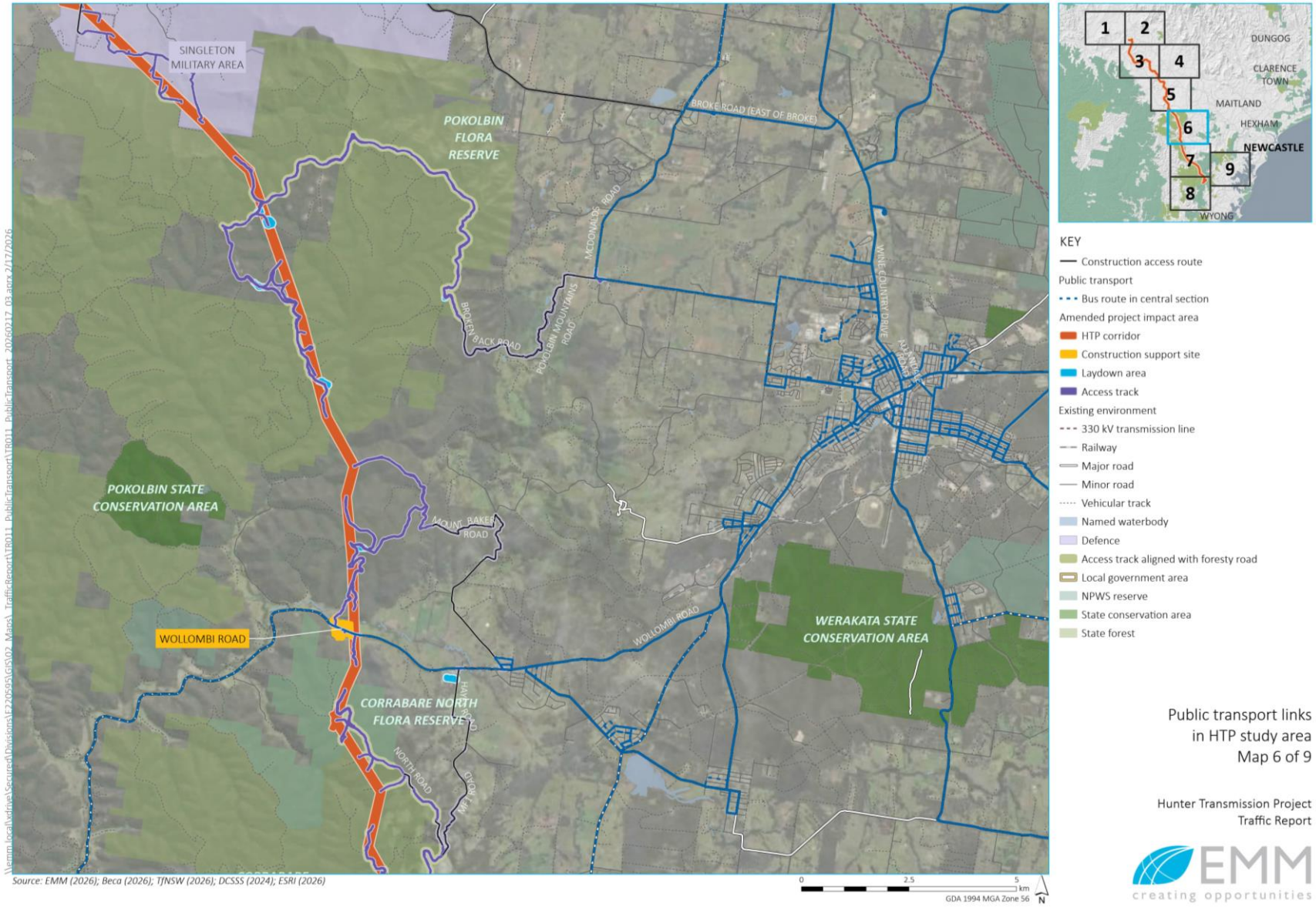


Figure 4-9 Public transport links in the HTP study area (continued)



Public transport links in HTP study area
Map 6 of 9

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Figure 4-9 Public transport links in the HTP study area (continued)

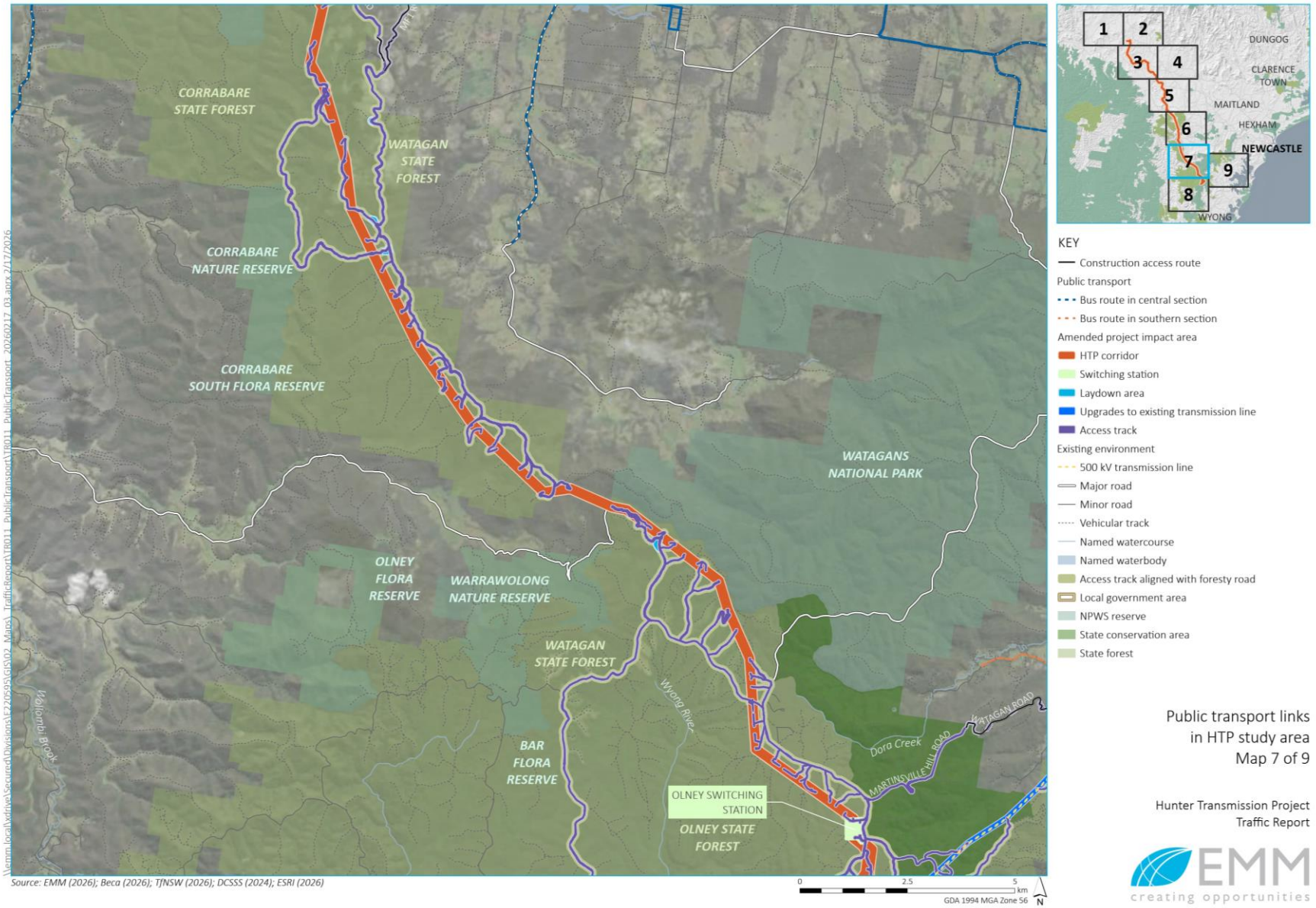


Figure 4-9 Public transport links in the HTP study area (continued)

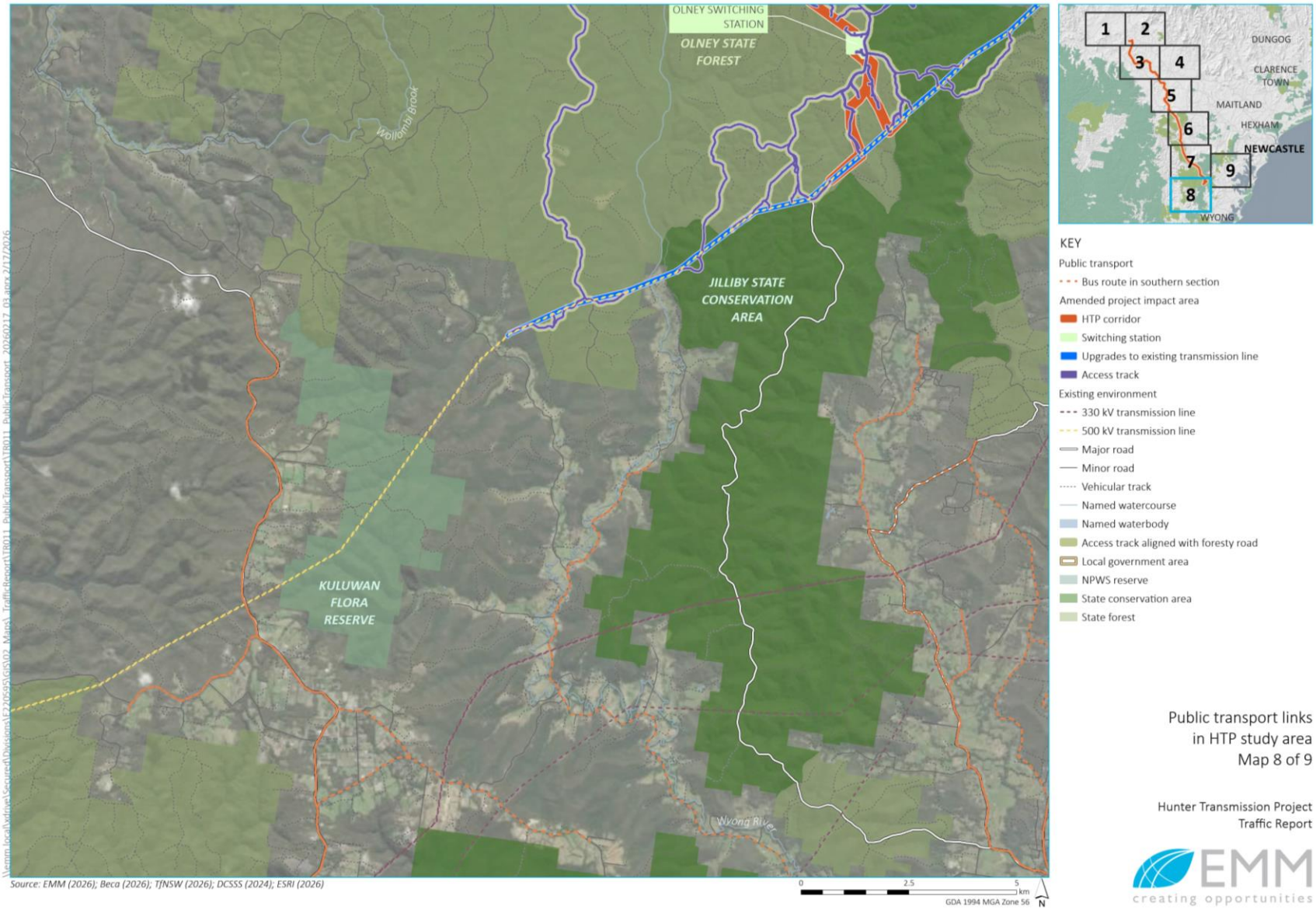
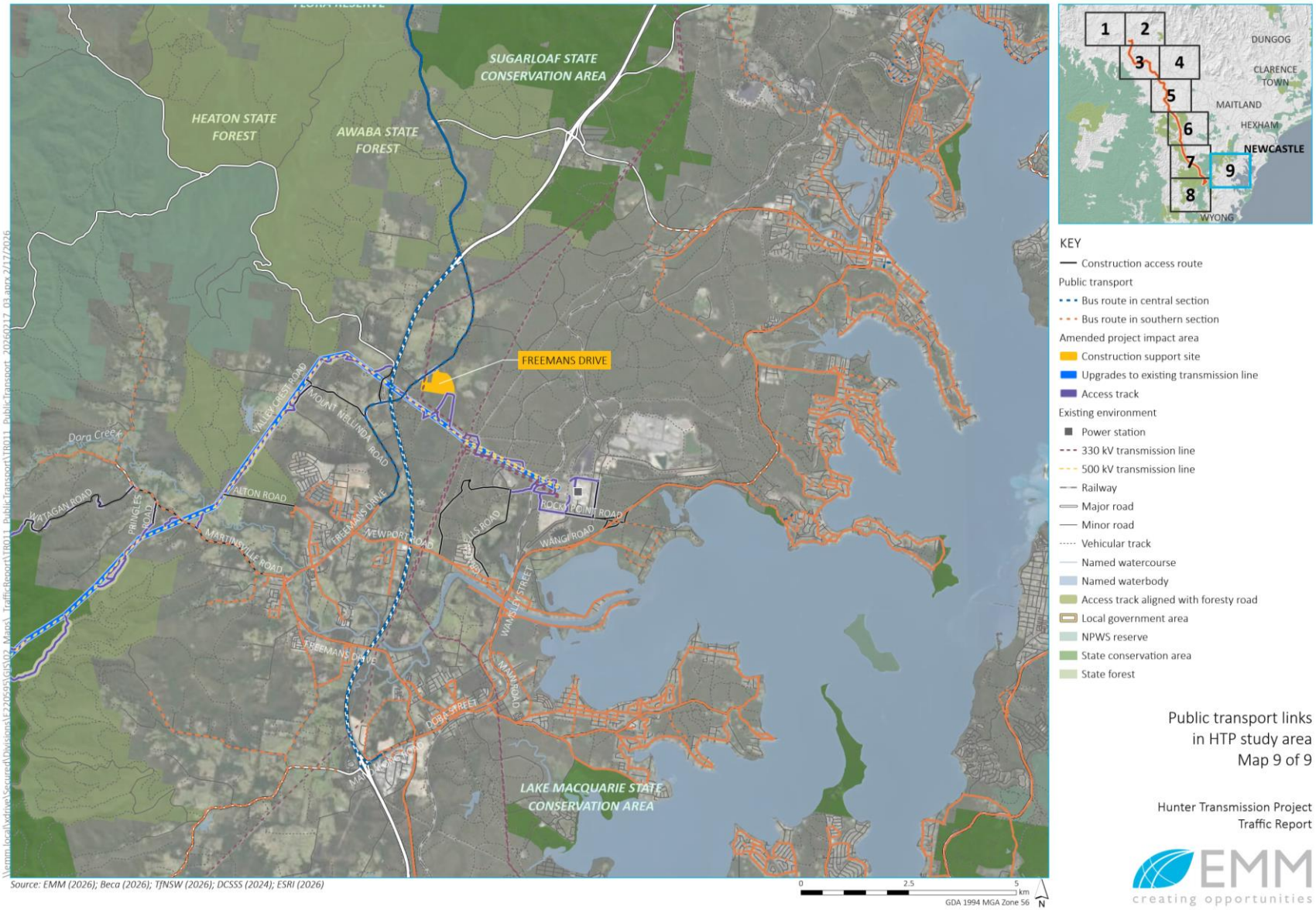


Figure 4-9 Public transport links in the HTP study area (continued)



4.7 Walking and cycling facilities

Walking and cycling facilities can be in the form of off-road or on-road facilities for pedestrians and cyclists to travel. These can be provided in mixed traffic conditions and can be visually or physically separated from the main traffic lanes or public transport corridor.

In the traffic and transport study area, footpath networks are typically provided in town centres, where separated walking facilities from the adjacent traffic lanes are provided. While cyclists can cycle on any roads, formal cycling facilities are much less established within the traffic and transport study area. Based on site visits and desktop analysis, including a review of TfNSW's Infrastructure Cycleway Data and the various councils' websites in relation to active transport plans and facilities, there are several bicycle facilities on the roads proposed to be used for construction routes. These are detailed in **Table 4-24**.

A bicycle lane refers to a dedicated facility for cyclists only, a high speed shoulder refers to a cycle facility within the road shoulder area on a high-speed road, mixed traffic refers to mix of vehicles and cyclist use, parking lane refers to where cyclists can travel within parking lanes allocated for vehicles, and shared use relates to a facility for pedestrians and cyclists only.

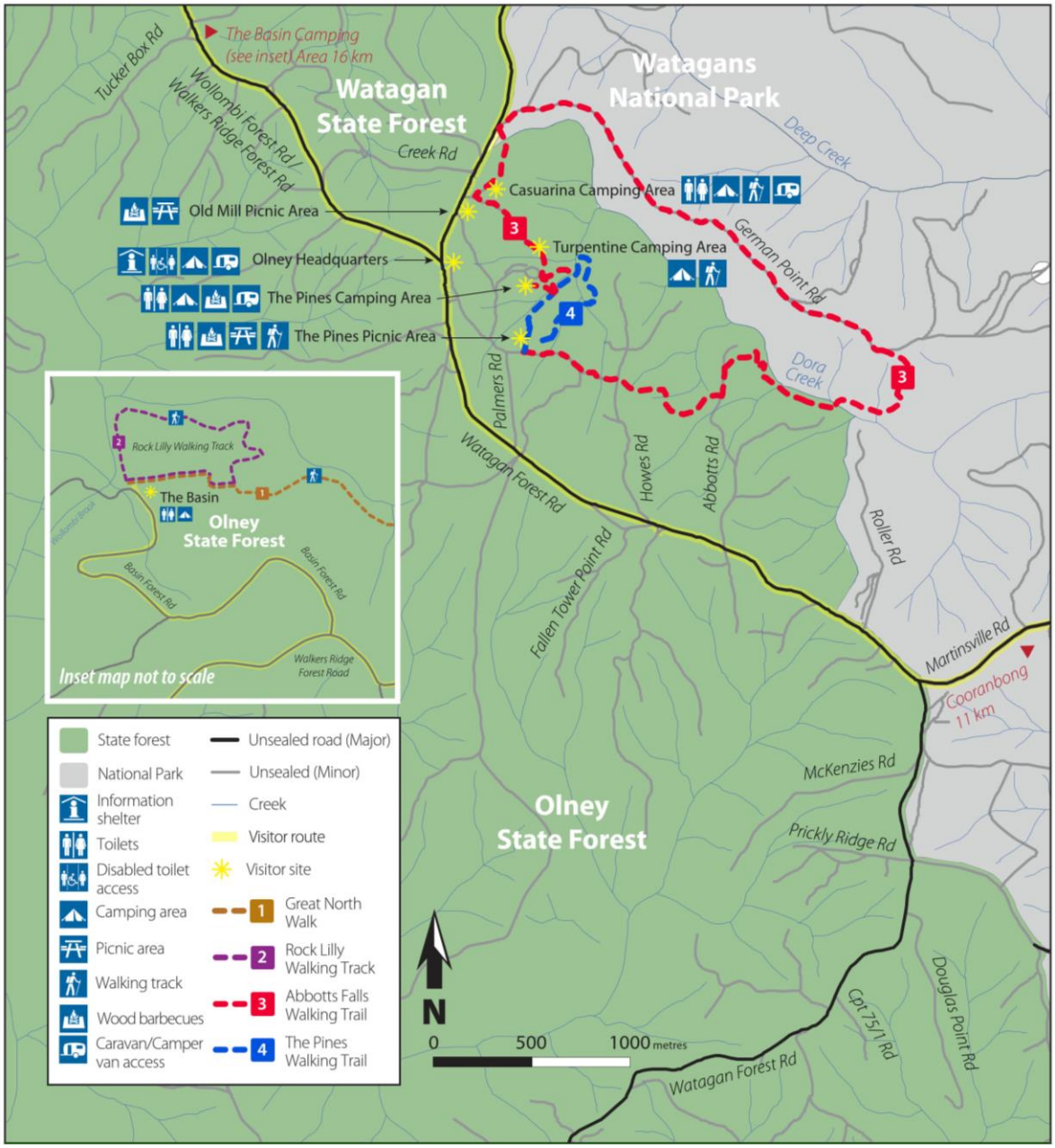
Table 4-24 Existing cycling facilities on roads proposed to be used for construction routes

Location	Facility type
Wollombi Street, Broke	Off-road shared path within Broke town centre.
McDonalds Road, Pokolbin	Bicycle lane on the road shoulder between Broke Road and Thompson Road. Off-road shared path and quietway between Thompson Road and Pokolbin Mountain Road. A Quietway is a low speed, low traffic and mixed traffic road where vehicles and cyclists are integrated.
Broke Road, Pokolbin	Bicycle lane on the road shoulder between McDonalds Road and Wine Country Drive. Signs and line marking are only provided at either end of Broke Road.
Allandale Road, Cessnock and Wine Country Drive, Pokolbin	Bicycle lane on the road shoulder between Broke Road and Boreas Street/Fleming Street. Off-road shared path between Boreas Street/Fleming Street and Dover Street. Plan by Cessnock Council to extend the shared path from Fleming Street to Lomas Lane.
Wollombi Road in Cessnock town centre and built-up residential areas (e.g. Bellbird Heights, Bellbird and Millfield)	Bicycle lane on Wollombi Road between Hickey Street/Francis Street and Darwin Street. Footpath and pedestrian crossing facilities (zebra and pedestrian refuges). Off-road shared path along Wollombi Road.
Freemans Drive, Cooranbong	Off-road shared path facility between Patrick Drive and Cooranbong Park. Bicycle lane treatment at Alton Road/Freemans Drive intersection.

Recreational activities such as mountain biking and bush walking are popular within the State forests. These activities currently use roads proposed for construction routes such as Watagan Forest Road, Wollombi Forest Road, Pokolbin Mountains Road and others within the State forests or are used by the public to access these activities. Most of these roads are unsealed.

Camping grounds in Watagan State Forest and Olney State Forest are located near the construction impact area (see **Figure 4-10**).

Figure 4-10 Recreational areas in Watagan and Olney State Forest



Source: Forestry Corporation of NSW, *Olney State Forest Map*, <forestrycorporation.com.au/__data/assets/pdf_file/0020/440183/olney-sf-map.pdf>, accessed 12 November 2025

5.0 Assessment of construction impacts

This chapter provides an overview of the typical work activities during pre-construction and construction. It then presents the assessment of the potential traffic and transport impacts during the construction phases of the project.

5.1 Pre-construction overview

Some activities associated with the project delivery would be defined as pre-construction minor works as their purpose is to make the key construction sites ready and to manage specific features or issues of the project. Pre-construction minor works are activities with a low potential for environmental and community impacts that may be permissible in advance of construction and without the requirement for an approved environmental management strategy. Pre-construction minor works would be managed in accordance with environmental work method statements or similar environmental management documents.

Pre-construction minor works may include:

– Delivery of equipment to construction support sites/laydown areas (excluding oversize equipment)

– Installation of certain mitigation measures (e.g. erosion and sediment controls, temporary exclusion fencing for sensitive areas, monitoring equipment)

– Preparation of existing access roads that require minimal work such as road grading and vegetation trimming

– Property surveys and the installation of property fencing and security gates, as required

– Utility investigations.

The contractors would prepare construction work method statements/procedures or similar environmental management documents for these activities. Any work that is not considered to be of minor/low environmental impact, or otherwise provided for in the conditions of approval, would be carried out in accordance with an approved environmental management strategy and environmental management subplans as part of the main construction work.

In terms of traffic and transport impacts, the construction traffic volumes generated in the pre-construction activities would be lower than those generated during peak construction periods, which are assessed in **Section 5.3**. Recommendations to upgrade certain intersections based on manoeuvrability and/or performance based on the peak construction movements are detailed in **Section 5.4**.

5.2 Construction overview

Chapter 2 provides a summary of the amendments and refinements proposed for the project. This section discusses the revised proposed construction activities relevant to traffic and transport matters, which include construction workforce and hours, construction support site locations (including temporary worker accommodation), construction routes and access requirements, construction traffic generation and the impact of these on the road network.

5.2.1 Construction program, workforce, hours and staging

Construction of the HTP is expected to start in 2027 and commence operation by the end of 2029. It is anticipated that overall construction would take around 2.5 years, subject to weather conditions. The construction program would continue to be refined throughout detailed design in consultation with the appointed construction contractors.

The proposed construction workforce is anticipated to peak in mid-2028 with a total of 830 workers.

Construction works are expected to be undertaken during the following hours:

– Monday to Friday: 7.00 am–6.00 pm

– Saturday: 8.00 am–1.00 pm

– Sunday or public holidays: No work.

Most construction workers will travel to the construction site in the morning between 6am and 7am and leave in the afternoon between 5pm and 6pm.

Out of hours work would typically be done on an as-needed basis to minimise interruption to the road network and the road users. This includes stringing works above roads and the rail network (see **Sections 5.3.5** and **5.3.6**).

Construction of the project would be carried out in two stages – being early works and main construction works. Early works are activities that are required to facilitate the main construction works, and may include the construction and establishment of construction support sites (including worker accommodation) and laydown areas, and the road and intersection upgrades and/or other access track work as required and in accordance with an agreed staging plan.

In terms of traffic and transport impacts, the construction traffic volumes generated in the early works activities would be lower than those generated during peak main construction periods, which are assessed in **Section 5.3**.

5.2.2 Construction support sites

Construction support sites would include:

- Material, plant, and waste storage
- Processing facilities (concrete batching, aggregate crushing, grinding, and screening)
- Maintenance facilities/workshops
- Staff facilities (office, lunchroom and amenities)
- Helicopter landing pad and support facilities
- Workforce accommodation facilities (at four construction support sites)
- Access and parking
- Utilities.

There are five construction support sites proposed, with four proposed to include temporary worker accommodation (see **Table 5-1**). The temporary worker accommodation would provide sufficient accommodation for all construction workers, including during the peak construction period. Food and recreation facilities and first aid facilities would be provided. The layout of the temporary worker accommodation would be finalised during detailed design.

The provision of temporary worker accommodation at construction support sites would reduce the need for the construction workforce to seek rental or short-term accommodation solutions in the local area, which has the potential to lead to higher rental prices in nearby towns during the construction period. As such, temporary worker accommodation was deemed appropriate to house the construction workforce as required. It is anticipated that at the commencement of construction, before the operation of the temporary worker accommodation, construction workers would utilise existing local hotels, motels, and rental accommodations.

During operation of the temporary worker accommodation, a range of general activities would be undertaken to support the functions of the facility and minimise its impacts on the surrounding environment, such as general grounds maintenance, deliveries and waste removal. In addition, worker movements would be limited where possible to minimise impacts on the surrounding road network. Where practicable, workers would be transported between the temporary worker accommodation and construction impact area via shuttle buses and/or carpooling to help minimise potential traffic impacts of the project on local roads. This would mainly occur at the start and end of the working day.

Table 5-1 Construction support sites

Construction support site	Location, key features, and access roads
Hebden Road	Located adjacent to Lake Liddell off Hebden Road and the New England Highway in the northern portion of the project. It would be located on greenfield land currently zoned SP2 – Infrastructure associated with the Bayswater Power Station and would be around 11 hectares in size. Worker accommodation with capacity for 150 workers and helicopter/helipad facilities would be provided at this site.
Pikes Gully Road	Located off Pikes Gully Road and the New England Highway southeast of Bayswater Power Station in the northern portion of the project. It would be located on greenfield land currently zoned RU1 – Primary Production and would be about 10 hectares in size. Helicopter/helipad facilities would be provided at this site.
Gouldsville Road	Located off Gouldsville Road and the Golden Highway to the east of the Mount Thorley Warkworth mining complex. It would be located on land currently zoned RU1 – Primary Production and would be around 9 hectares in size.

Construction support site	Location, key features, and access roads
Wollombi Road (A and B)	Located off Wollombi Road west of Millfield in the central portion of the project. It would be located on existing agricultural land currently zoned RU1 – Primary Production and would be around 15 hectares in size. Wollombi Road A and B construction support sites would be separated by Wollombi Road, with site A to the north and site B to the south of the road. Worker accommodation with capacity for 300 workers would be provided at this site
Freemans Drive	Located off Freemans Drive northwest of Eraring Power Station in the southern portion of the project. It would be located on land currently zoned RU1 – Primary Production and would be around 20 hectares in size. Worker accommodation with capacity for 300 workers and helicopter/helipad facilities would be provided at this site

5.2.3 Ancillary works

Ancillary construction support facilities would be required along the HTP corridor. These would include:

– Stringing sites, which are required at any of the following transmission tower locations with the following parameters:

  - At transmission tower sites with line turnoff angles
  - At the top and bottom of large elevation changes
  - At either side of a major crossing such as a highway, rail line or river
  - To ensure that stringing distances are no more than three drums in total length (3,200 metres per drum)

  The stringing of lines onto the towers would be undertaken either by land or air (drones or helicopters), as required

– Laydown areas, which allow for flexibility in construction and minimise the need for vehicle movements to and from the construction support sites, where possible. The laydown areas are situated to act as central locations to enable temporary staging, stockpiling and complex plant setup areas, and traffic management, and are generally located at the transition from more accessible to less accessible zones.

  The laydown areas have been designed and located to allow for approximately one hectare of useable area and a general maximum grade of five to 10 per cent across the site. The laydown areas may contain the following infrastructure:

  - Construction support facilities including vehicle, equipment and materials storage, maintenance sheds, generators, chemical and fuel stores, firefighting equipment, waste bins and potential stockpile areas
  - Staff facilities (office and amenities)
  - Parking areas
  - Potable water tanks
  - Security and lighting.

5.2.4 Construction plant and equipment

Proposed construction plant and equipment would include:

- Dozers
- Excavators (various sizes)
- Hydraulic hammers
- Dump trucks
- Cranes (various sizes)
- Rollers
- Chainsaws
- Drum mulchers
- Stringing blocks and winches
- Concrete trucks
- Diesel generators
- Delivery trucks
- Helicopters/stringing drones
- Scrapers
- Spider excavators
- Graders
- Elevated work platforms
- Compactors
- Water Carts
- Tub grinders/mulchers
- Pavement laying machines
- Asphalt truck and sprayers
- Smooth drum rollers
- Power tools
- Mobile concrete batching plant
- Dewatering equipment
- Crushing and screening equipment
- Washdown facilities
- Wastewater treatment plants.

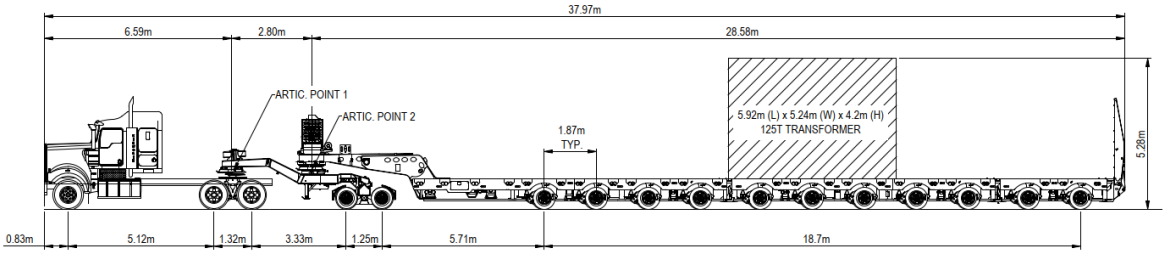
5.2.5 Construction vehicle types and transportation need

The proposed construction vehicle types and the activity they would be used for are:

- 19 m semi-trailer or equivalent articulated vehicle – transportation of construction materials from construction support sites or ancillary facilities including laydown areas and stringing sites.
- Truck and dog – transportation of construction materials in constrained areas and delivery of concrete to steep tower sites inaccessible to conventional concrete trucks.
- Heavy rigid – transportation of construction materials from laydown areas to tower assembly areas. This vehicle profile has also been used as a proxy for heavy crane movements.
- Mobile cranes – movement of construction materials, tower, and switching station construction
- 4-wheel drive – Light vehicle access for construction.
- 26 m B-double – transportation of construction materials from/to construction support sites. Potential transportation of construction materials to Olney 500 kV switching station.
- Various size OSOM truck and trailers– transportation of the approximately 20 m long by 4 m wide auxiliary services building to Bayswater South and Olney 500 kV switching stations (likely to be two deliveries). OSOM vehicles are highly customisable and varied to each site/situation. For the swept path analysis presented in **Appendix F**, an OSOM vehicle of around 31.5 m in length with a 4.3m width was assessed. Additional push or pull vehicles may be required where steep terrain is encountered.
- OSOM truck and low trailer – transportation of transformers from Port of Newcastle to Eraring Power Station is likely to be over seven deliveries. Shunt reactors from Port of Newcastle to Bayswater South switching station likely to be around three deliveries .The largest OSOM vehicle is associated with the transportation of transformers. The indicative dimensioned vehicle configuration as applied in the swept path analysis in Appendix F is provided in Figure 5-1. Additional push or pull vehicles may be required where steep terrain is encountered.

Further information on the OSOM vehicles is provided in the OSOM route transport assessment in **Appendix E** and the OSOM swept path analysis in **Appendix F**.

Figure 5-1 Transformer OSOM vehicle profile for swept path analysis



Source: Beca 2026

5.2.6 Construction traffic routes and roads

Routes and roads that may be used during the construction of the project are presented in **Table 5-2**, categorised by State, regional and local, Forestry and private roads. The roads that are planned to be used on a regular basis between the construction support sites and work sites are described in **Section 5.2.7**, while those that are to be used for project OSOM movements are described in **Section 5.2.8**.

Table 5-2 Roads proposed to be used by construction traffic during the construction of the project

Road name	Location (suburb)
State roads	
Allandale Road	Cessnock
Denman Road	Muswellbrook
Freemans Drive	Cooranbong
Golden Highway	Mount Thorley
Jerrys Plains Road	Warkworth
Mandalong Road	Morisset
Dora Street	Morisset
Main Road	Morisset
Mitchell Line Of Road	Mount Thorley
New England Highway	Muswellbrook
Wangi Road	Dora Creek
Wine Country Drive	Nulkaba
Regional, local and crown roads	
Alton Road	Cooranbong
Archerfield Road	Warkworth
Broke Road (east of Broke)	Pokolbin
Broke Road (north of Broke)	Mount Thorley
Cessnock Road	Broke
Comleroi Road	Warkworth
Construction Road	Eraring

Road name	Location (suburb)
Edderton Road	Muswellbrook
Freemans Drive (south of the M1 Pacific Motorway)	Cooranbong
Gouldsville Road	Gouldsville
Gradwells Road	Dora Creek
Hayes Road	Millfield
Hawke Mount Road	Dora Creek
Hebden Road	Muswellbrook
Lemington Road	Lemington
Long Point Road West	Warkworth
Martinsville Road	Martinsville
Martinsville Hill Road	Martinsville
McDonalds Road	Pokolbin
Mf1 Road	Millfield
Mount Baker Road	Millfield
Mount Faulk Road	Cooranbong
Mount Nellinda Road	Cooranbong
Mount View Road	Millfield
Newport Road	Dora Creek
Oakey Creek Road	Pokolbin
Oakley Lane	Broke
Old Lemington Road	Lemington
Pikes Gully Road	Muswellbrook
Pokolbin Mountains Road	Pokolbin
Range Road	Singleton Military Area
Rocky Point Road	Dora Creek
Singleton Street	Broke
Thomas Mitchell Drive	Muswellbrook
Valley Crest Road	Cooranbong
Watagan Road	Martinsville
Pringles Road	Martinsville
Wollombi Road	Millfield
Wollombi Street	Broke
Forestry roads	
Barwicks Road	Olney
Broken Back Road	Pokolbin
Broken Back Trail	Cedar Creek
Cabans Road	Corrabare

Road name	Location (suburb)
Campbell Springs Trail	Cedar Creek
Cedar Ridge Road	Corrabare
Crumps Road	Corrabare
Farrells Road	Olney
Farrells No 2 Road	Olney
Fig Road	Corrabare
Flick Road	Corrabare
Halls Road	Olney
Hearns Road	Corrabare
Langans Road	Corrabare
Mahogany Road	Corrabare
McGowans Road	Olney
North Road	Millfield
Old Mill Road	Olney
Trig Road	Corrabare
Turpentine Point Road	Corrabare
Unnamed Roads Off Langans Road	Corrabare
Walkers Ridge Road	Ravensdale
Watagan Creek Road	Olney
Watagan Forest Road	Ravensdale
Wollombi Forest Road	Ravensdale
Private roads	
Unnamed Road To Bayswater Power Station	Muswellbrook

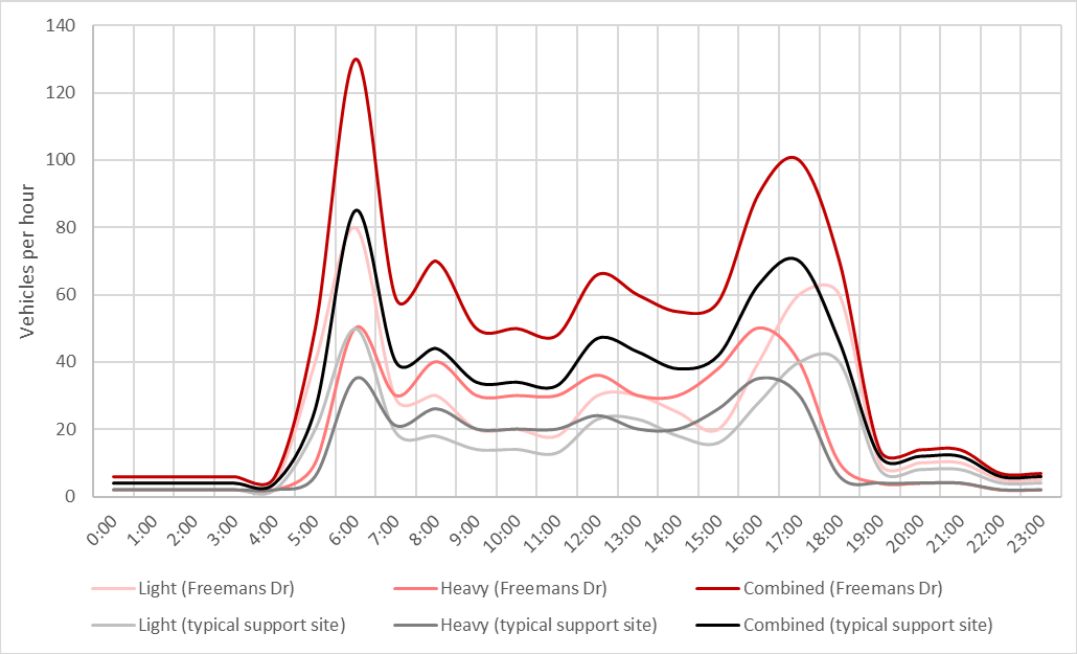
5.2.7 Construction support site traffic generation and routes

An estimate of the daily profile for the trip generation for the construction support sites is summarised in **Figure 5-2**. The support sites were classified into two types:

– Typical support sites: this includes Hebden Road, Pikes Gully Road, Gouldsville Road, and Wollombi Road construction support sites and temporary worker accommodation (except for Pikes Gully Road), which would generate a similar number of trips due to their planned size

– Freemans Drive support site: this is expected to have higher trips generated from the site, being the largest construction support site (and including worker accommodation), and supporting most of the construction activities to the southern end of the project.

Figure 5-2 Trip generation estimates at construction support sites



Based on the proposed activities and construction schedule, estimates of the traffic movements to/from the construction support sites, temporary worker accommodation, laydown areas, switching stations and the HTP corridor were developed. The peak hours of project-related construction movements from the temporary worker accommodation would occur from 6am to 7am and from 5pm to 6pm.

The estimates of traffic movements considered:

– Movements of workers, which would mainly occur in the morning and afternoon peaks

– Material transfers distributed throughout the day

– Deliveries

– Typical movements at laydown areas, switching stations, and access points along the transmission line corridor.

Traffic movements from the construction support sites with temporary worker accommodation were assumed to account for most outbound movements to the construction impact area in the morning peak. The reverse is assumed for movements in the afternoon peak periods.

Table 5-3 shows the maximum hourly movements forecast to be generated to/from the respective construction support sites at the peak construction period. These movements would be distributed on the construction access routes shown in **Figure 5-3**.

Table 5-3 Construction support sites

Peak period	Construction support site	Light vehicle (movements per hour)	Heavy vehicle (movements per hour)	Total (movements per hour)
AM peak (6-7am)	Hebden Road	60	43	**103**
	Pikes Gully Road	50	35	**85**
	Gouldsville Road[1]	50	38	**88**
	Wollombi Road	60	35	**95**
	Freemans Drive	80	50	**130**
PM peak (5-6pm)	Hebden Road	50	36	**86**
	Pikes Gully Road	40	30	**70**
	Gouldsville Road[1]	40	36	**76**
	Wollombi Road	50	30	**80**
	Freemans Drive	60	40	**100**

1. For the purposes of this assessment, the traffic modelling has retained 60 light vehicle movements in the AM peak and 50 light vehicle movements in the PM peak for the Gouldsville Road construction support site

Figure 5-3 Construction access routes

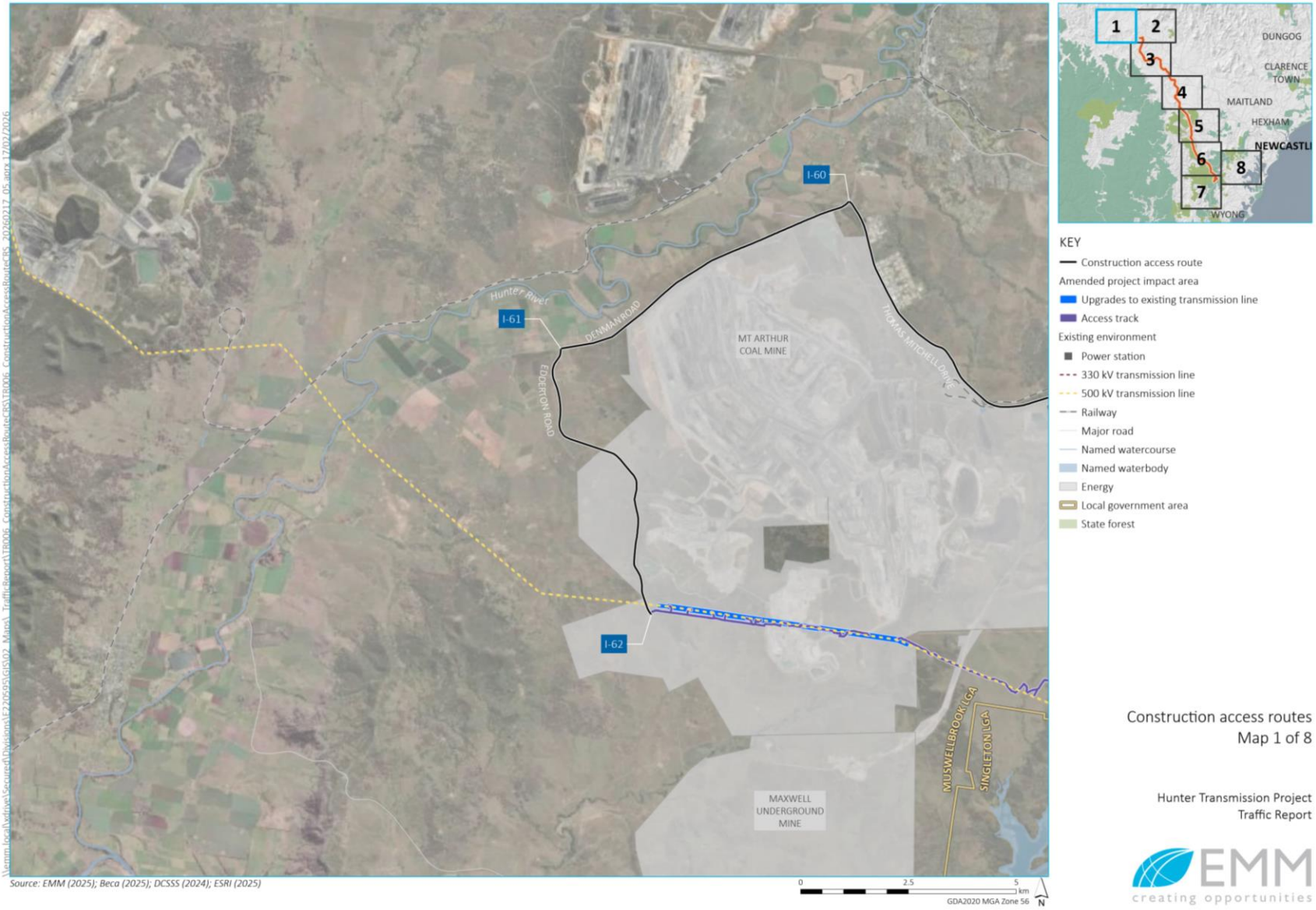


Figure 5-3 Construction access routes (continued)

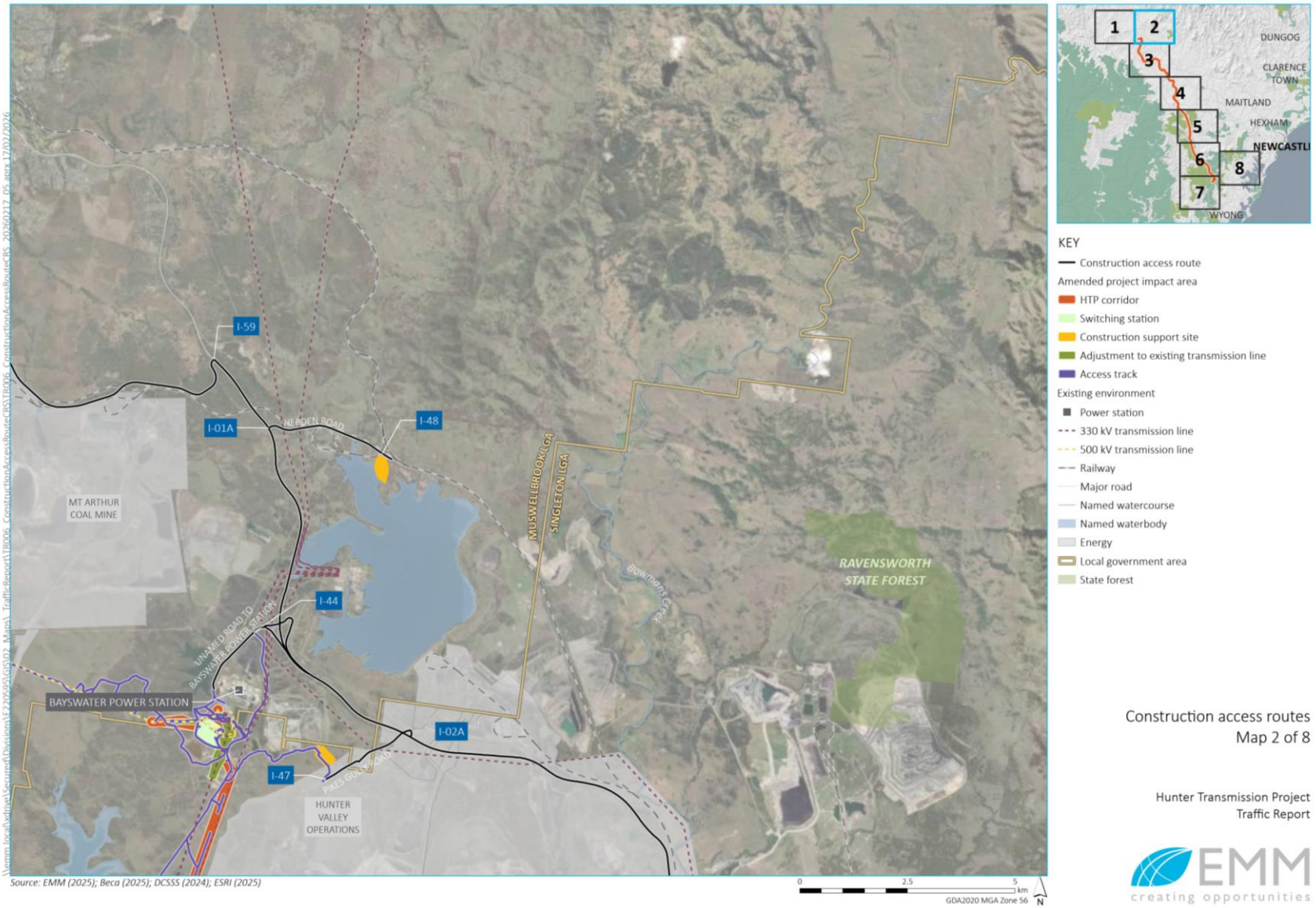


Figure 5-3 Construction access routes (continued)

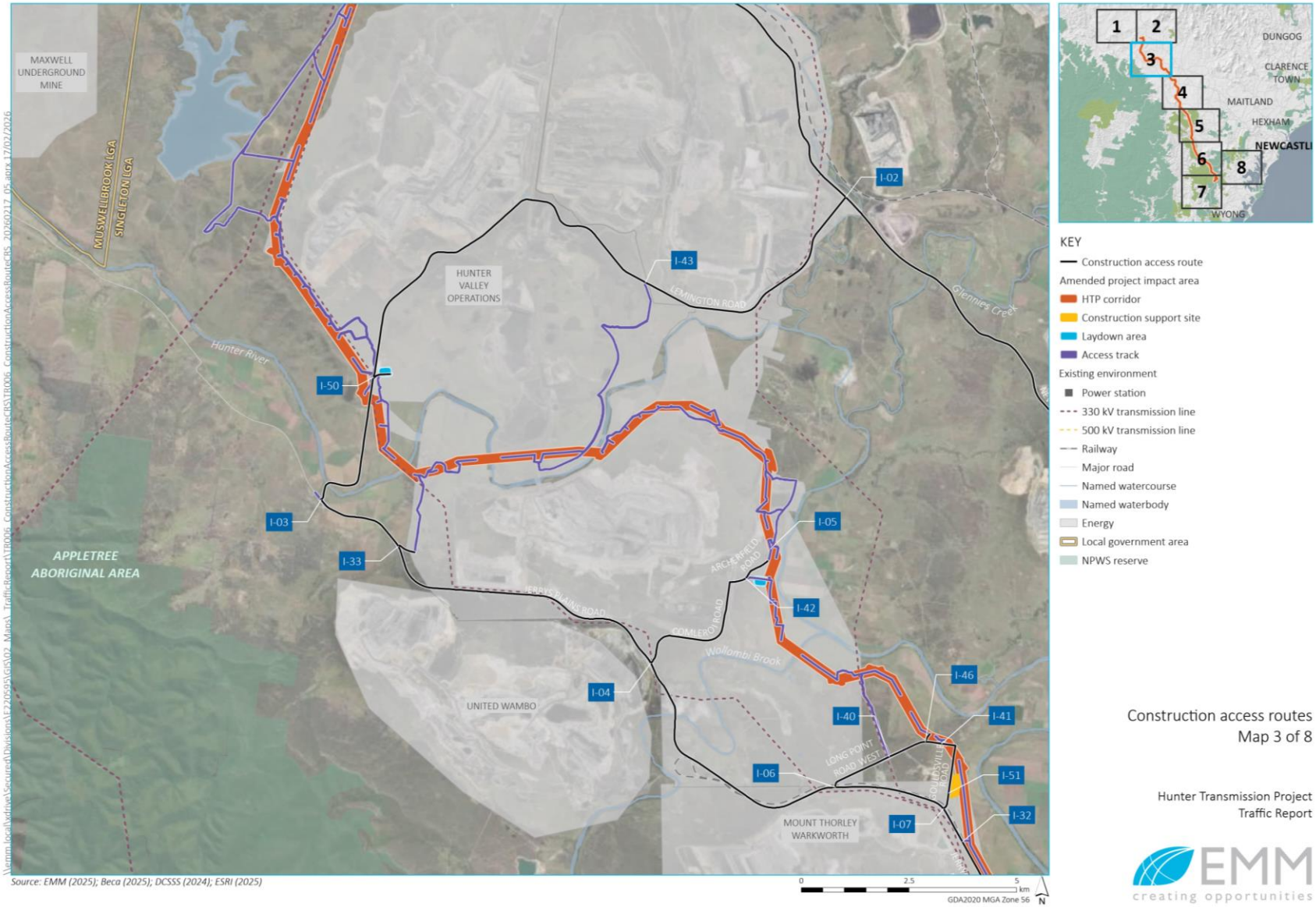
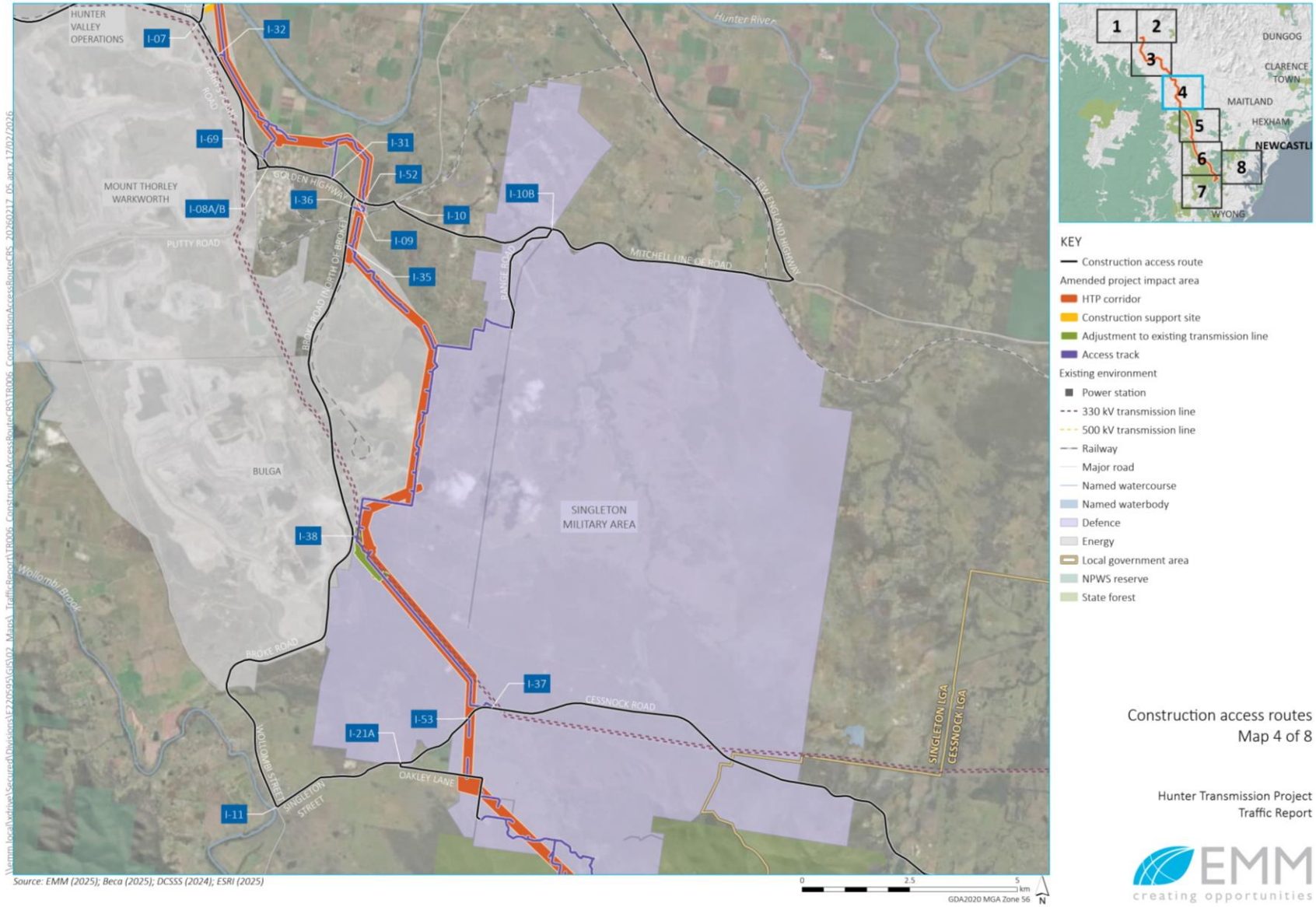


Figure 5-3 Construction access routes (continued)



Construction access routes
Map 4 of 8

Hunter Transmission Project
Traffic Report

Figure 5-3 Construction access routes (continued)

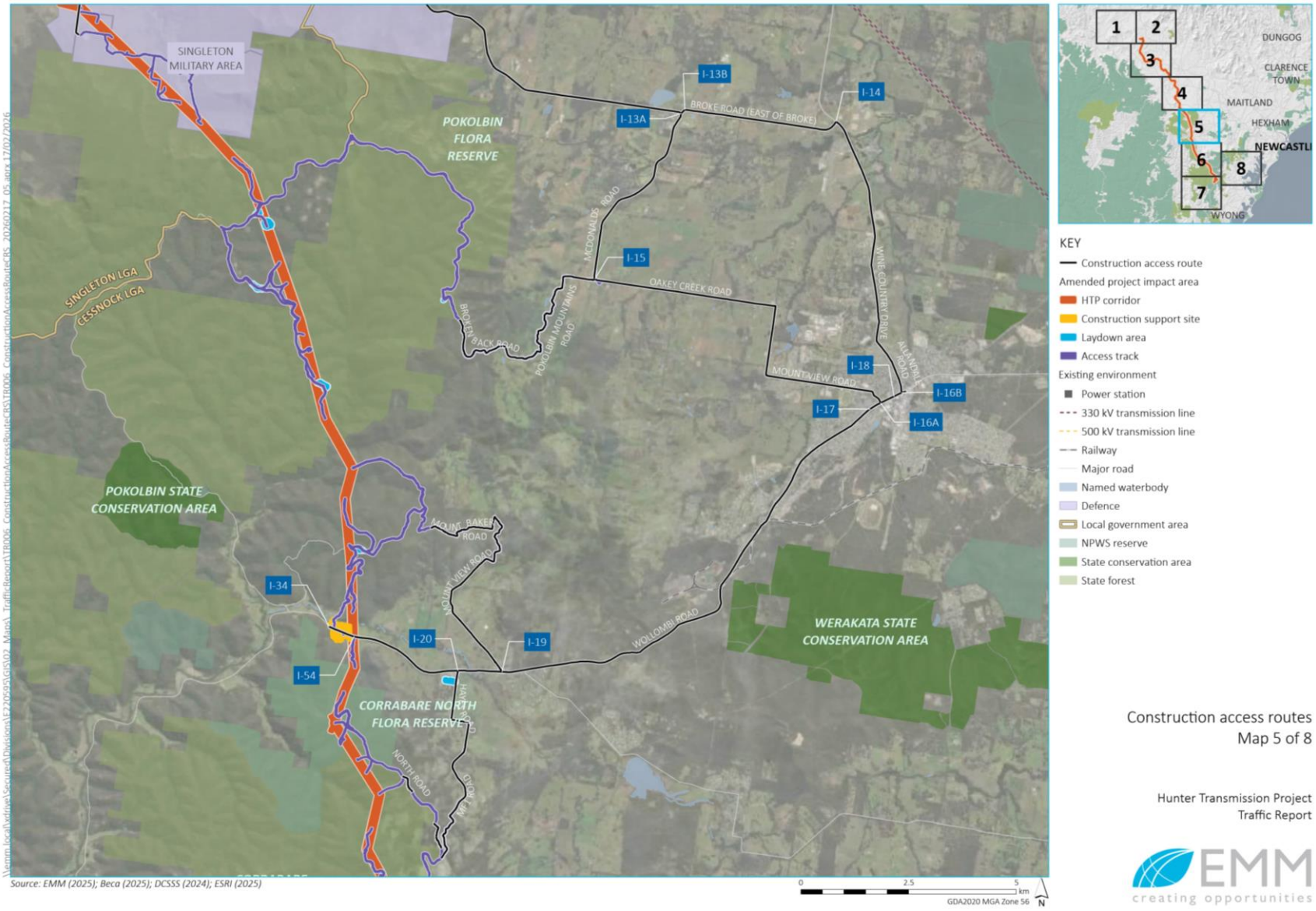


Figure 5-3 Construction access routes (continued)

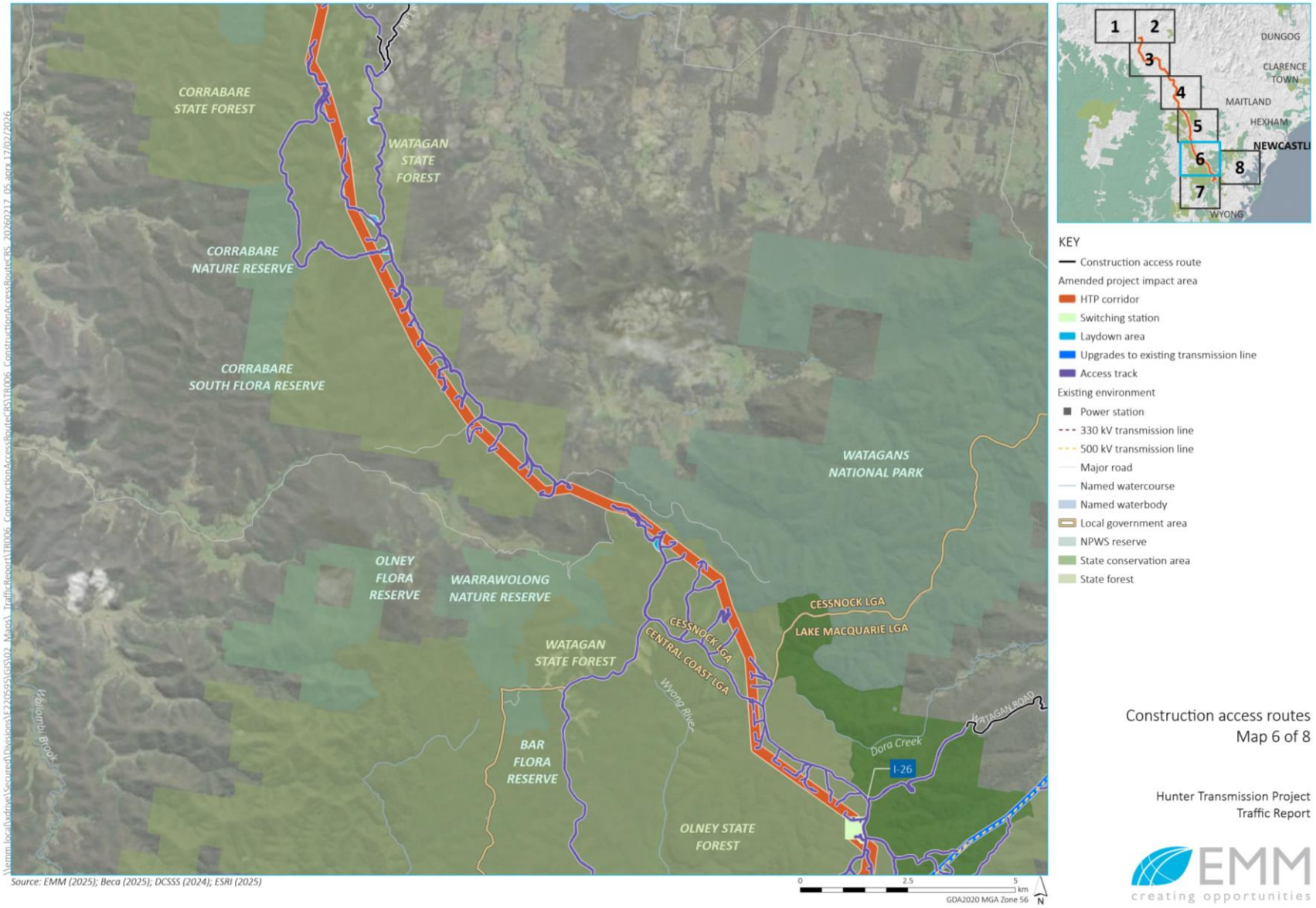


Figure 5-3 Construction access routes (continued)

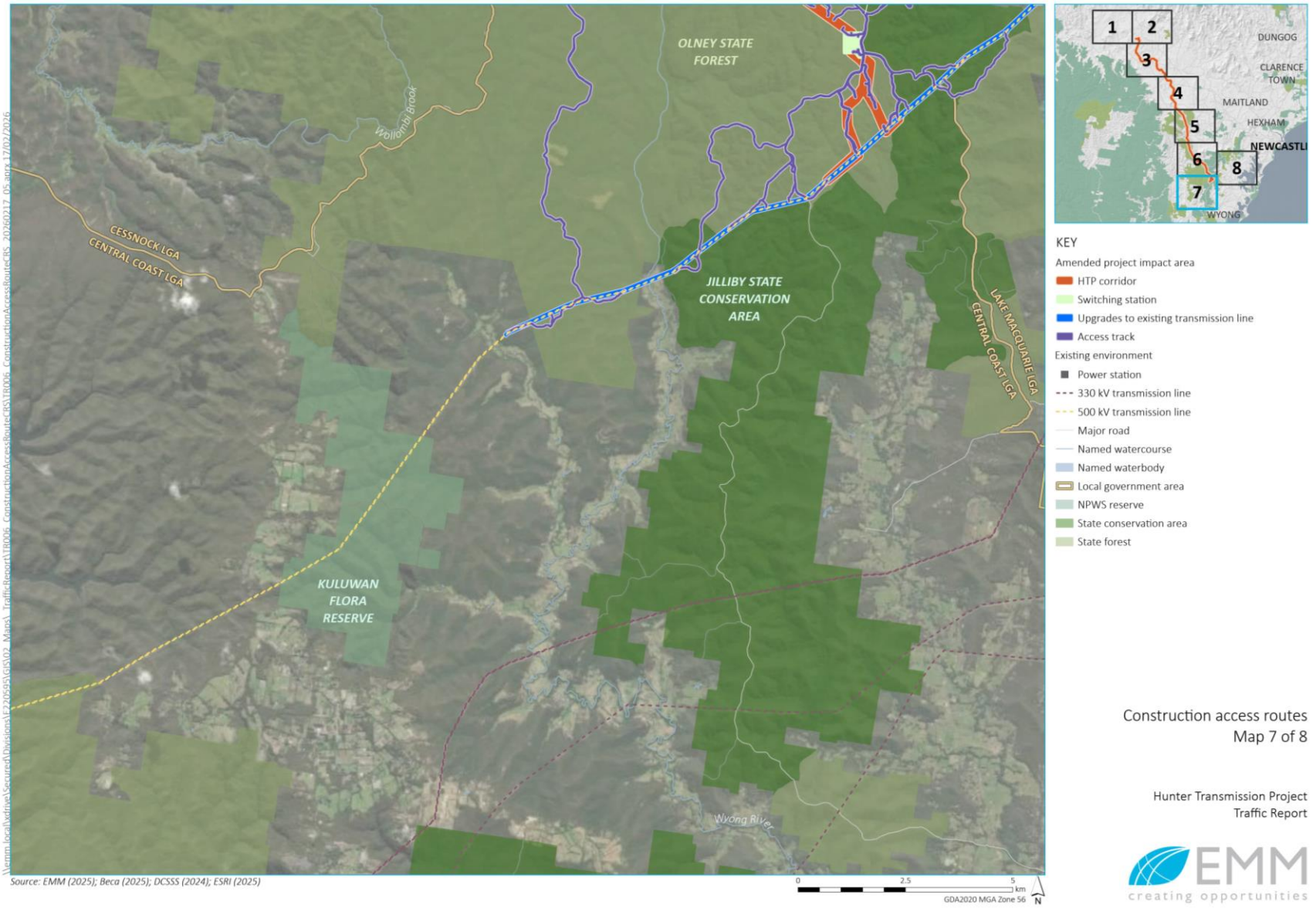
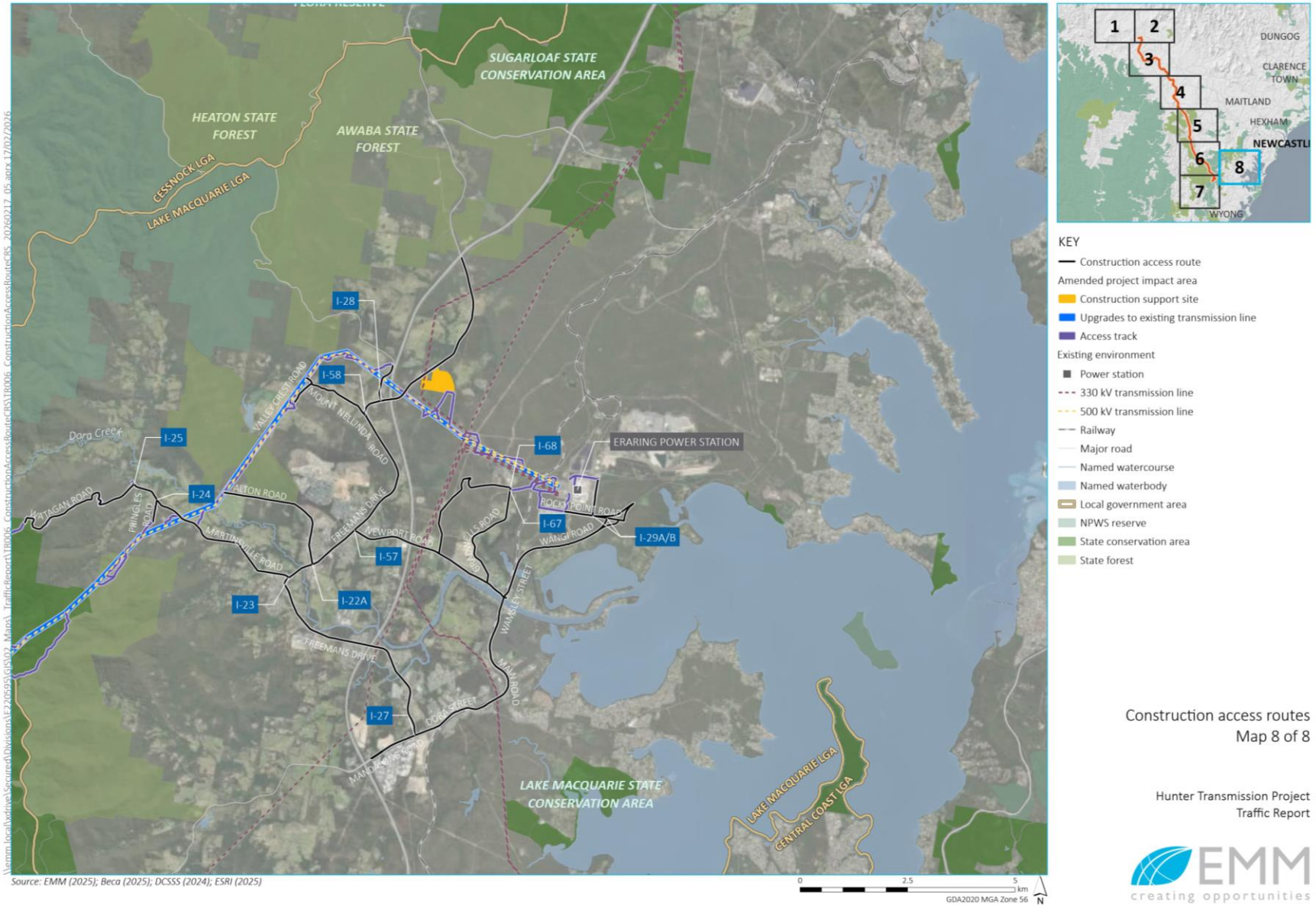


Figure 5-3 Construction access routes (continued)



5.2.8 Construction OSOM traffic generation and routes

Oversize and over mass (OSOM) vehicles would be required to transport large or heavy equipment from the Port of Newcastle.

Transportation of transformers would be required from Port of Newcastle to Eraring Power Station. Transportation of reactors would be required from Port of Newcastle to the Bayswater South switching station, and transportation of an auxiliary services building to each of the new switching stations at Bayswater South and Olney.

The indicative OSOM vehicle movements for these equipment deliveries would be an estimated seven OSOM movements to Eraring Power Station, one OSOM movement to Olney switching station, and four OSOM movements to Bayswater South switching station. Each delivery would also require OSOM plant including large cranes to support the unloading and placement of large equipment. The OSOM route transport assessment is provided in **Appendix E**.

In July 2020, the National Heavy Vehicle Regulator (NHVR) released an Exemption Notice ('Notice') to support the oversize over mass (OSOM) vehicle movements to transport mining equipment across the Hunter Valley. This is the New South Wales Class 1 Load Carrying Combination (Hunter Region) Mass and Dimension Exemption Notice Operators Guide.

The Notice is the largest mass and dimension notice in the country, covering vehicles up to 184.5 tonnes for a combination up to 39.9 m long, 5.9 m wide, and 5.2 m high, travelling across the local government areas of Newcastle, Port Stephens, Singleton, Maitland, Upper Hunter and Warrumbungle. The Notice is aimed at reducing the processes and providing certainty for the local mining and freight industry.

Based on the above Notice, permits will not be required for any vehicle combinations less than 40 m in length to Bayswater South switching station. Permits will be required for vehicle combinations over 40 metres in length to any of the three locations, that is Bayswater South switching station, Eraring Power Station, and Olney switching station.

OSOM delivery routes and roads from the Port of Newcastle, and if they are approved OSOM routes, are presented in **Table 5-4** and **Figure 5-4**.

Table 5-4 Roads along the proposed OSOM routes

Local government area	Location (suburb)	Road name	Road classification	Approved OSOM route
All routes (common)				
Newcastle City	Mayfield North	Quayside Close	Local road	Yes
	Mayfield North	Selwyn Street	Local road	Yes
	Mayfield North	George Street	Local road	Yes
	Mayfield	Industrial Drive	State road	Yes
	Sandgate	Maitland Road (Pacific Highway)	State road	Yes
	Sandgate	Newcastle Inner City Bypass	State road	Yes (with conditions)
	Wallsend	Newcastle Road	State road	Yes (with conditions)
	Wallsend	Thomas Street	State road	Yes (with conditions)
	Wallsend	Newcastle Link Road	State road	Yes (with conditions)
Route from Port of Newcastle to Bayswater switching station				
Lake Macquarie	Cameron Park	Newcastle Link Road	State road	Yes (with conditions)
Cessnock, Singleton	Cameron Park to Belford	Hunter Expressway	State road	Yes (with conditions)
Singleton	Belford to Muswellbrook	New England Highway	State road	Yes (with conditions)
	Muswellbrook	Unnamed road to Bayswater Power Station	Private road	N/A

Local government area	Location (suburb)	Road name	Road classification	Approved OSOM route
Route from Port of Newcastle to Eraring substation				
Lake Macquarie	Cameron Park to Freemans Waterhole	M1 Pacific Motorway	State and National road	Yes
	Freemans Waterhole to Awaba	Cessnock Road	State road	Yes
	Awaba to Toronto	Awaba Road	State road	Yes
	Toronto to Eraring	Wangi Road	State road	Yes
	Eraring	Rocky Point Road	Local road	No
Route from Port of Newcastle to Olney switching station				
Lake Macquarie	Cameron Park to Freemans Waterhole	M1 Pacific Motorway	State and National road	Yes
	Freemans Waterhole	Palmers Road	Local road	Yes
	Freemans Waterhole	Freemans Drive	State road	Yes
	Freemans Waterhole to Cooranbong	Freemans Drive (south of the M1 Pacific Motorway)	Local road	No
	Cooranbong to Cooranbong	Martinsville Road	Local road	No
	Martinsville	Watagan Road	Local road	No

Figure 5-4 OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring

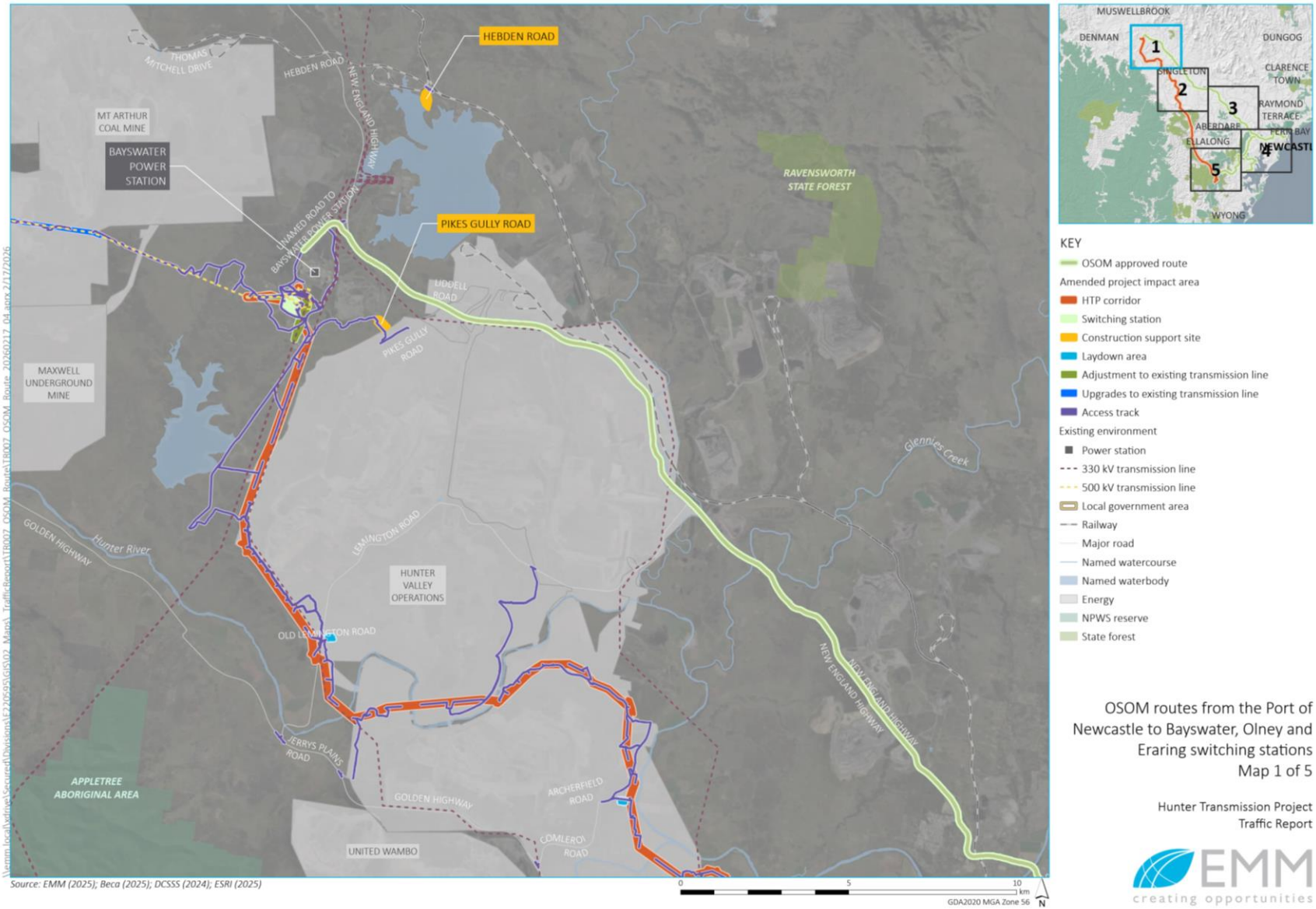


Figure 5-4 OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring (continued)

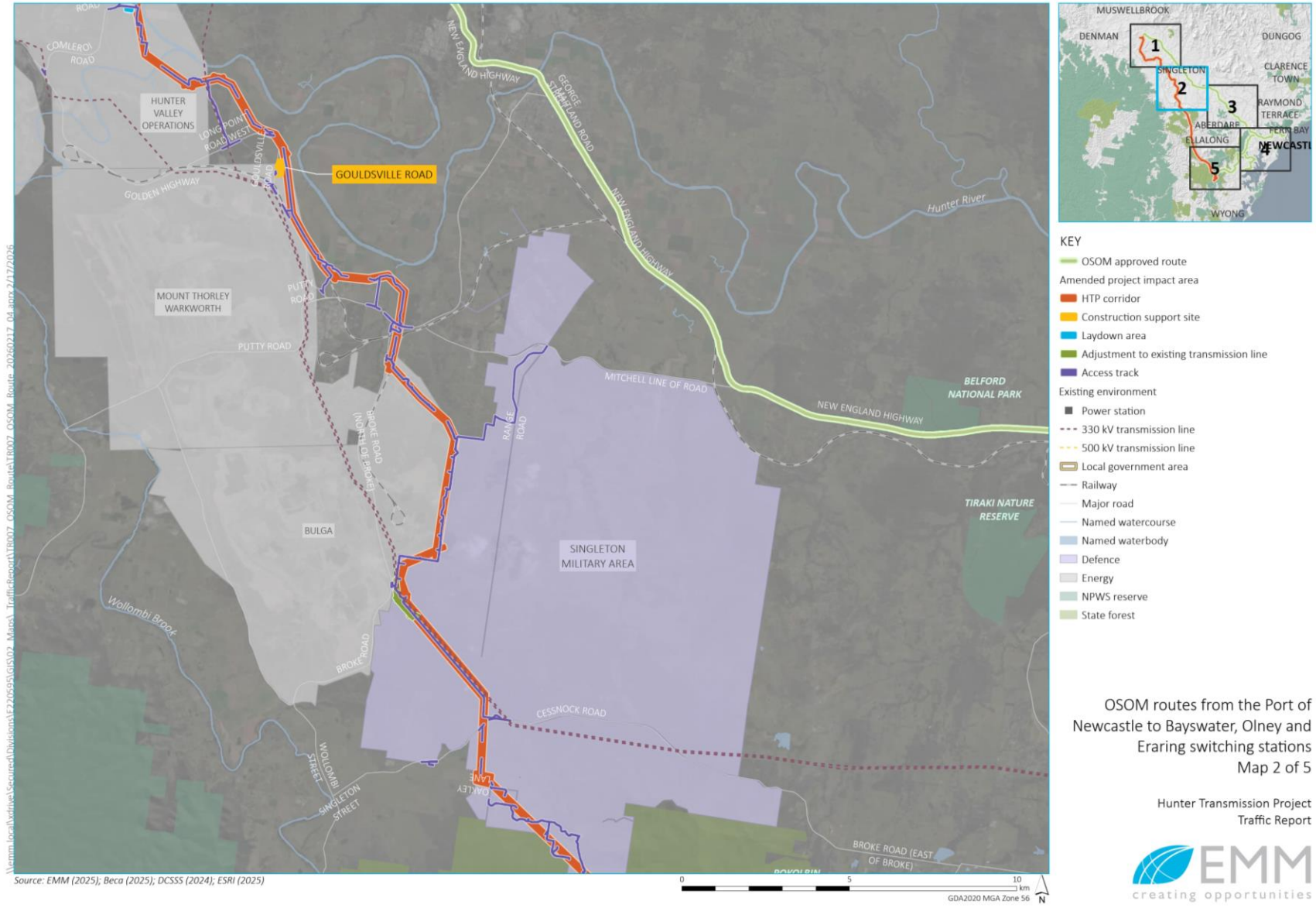


Figure 5-4 OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring (continued)

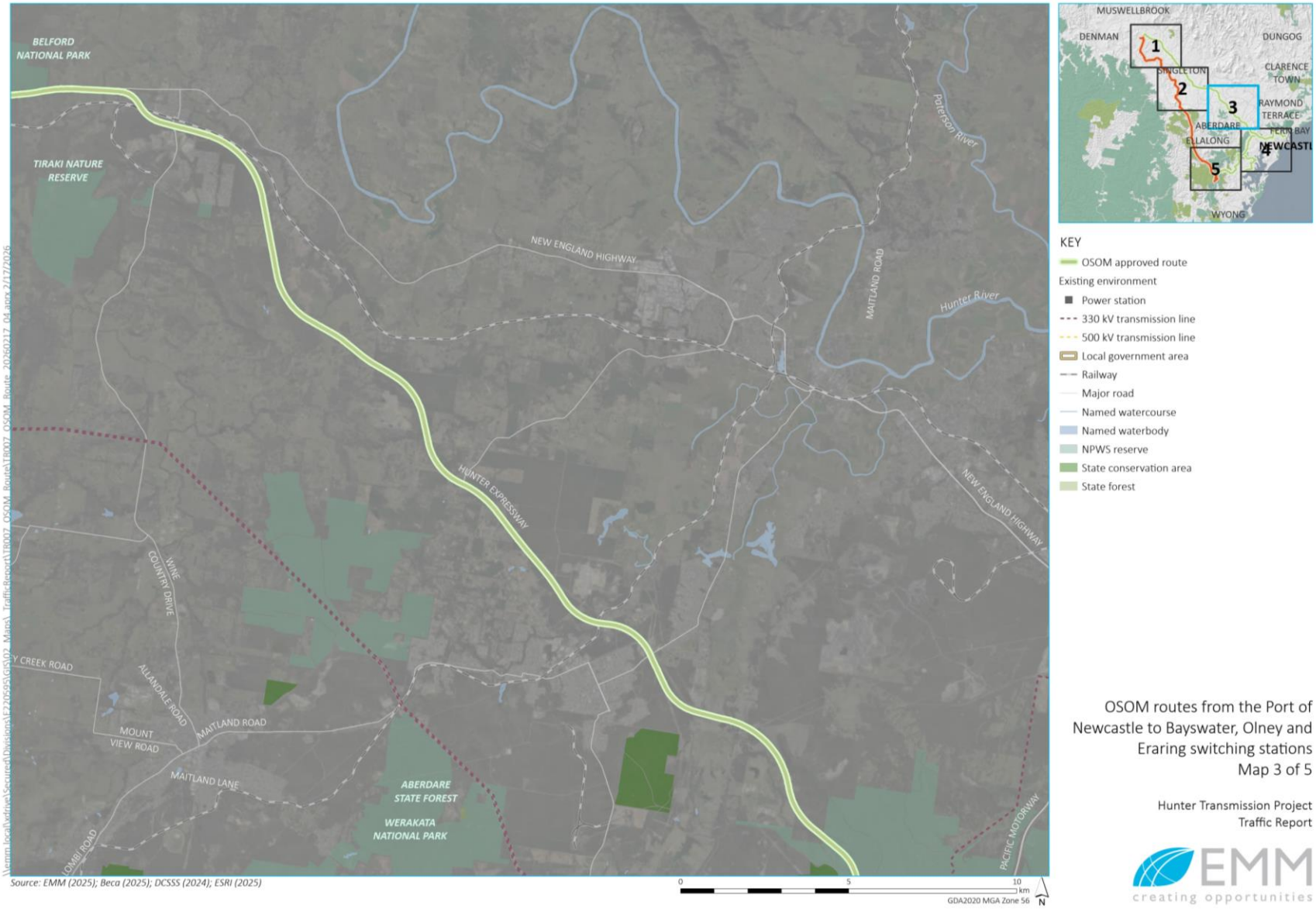


Figure 5-4 OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring (continued)

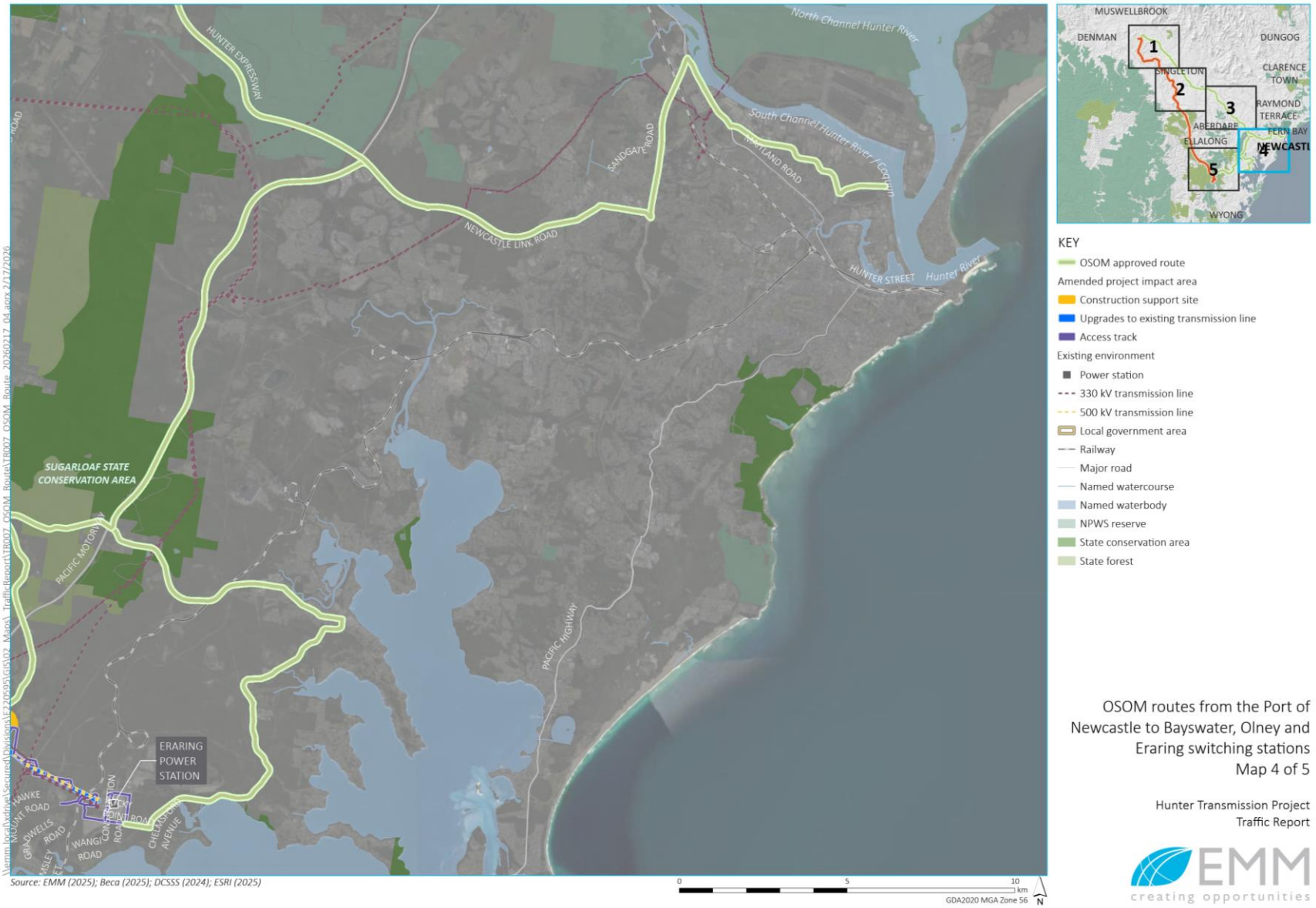
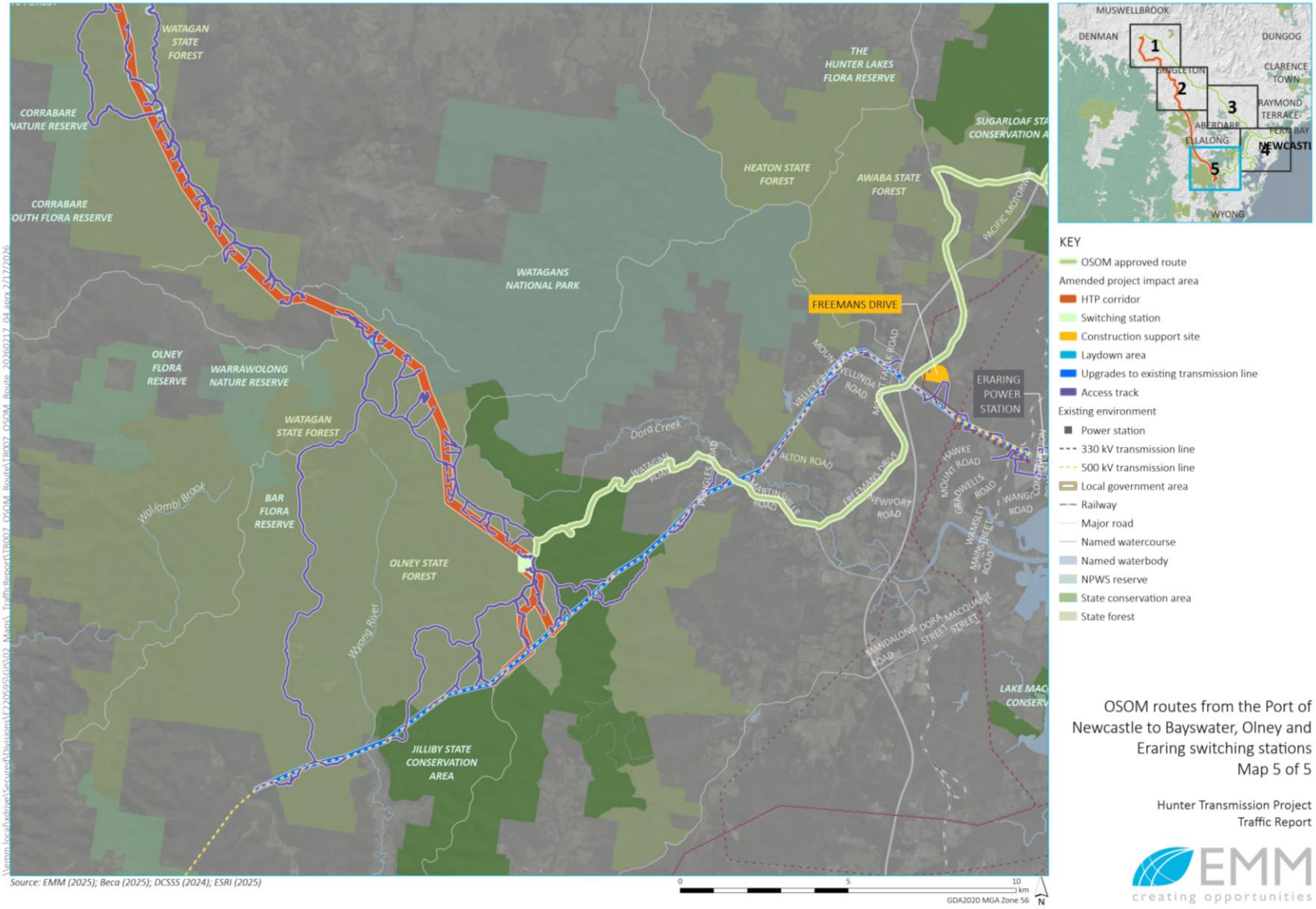


Figure 5-4 OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring (continued)



OSOM routes from the Port of Newcastle to Bayswater, Olney and Eraring switching stations
Map 5 of 5

Hunter Transmission Project
Traffic Report

5.2.9 Construction and upgrade of access tracks

The project would require the use of a combination of new and existing access tracks on private properties and public land. Access track locations were chosen in consultation with landowners (see Chapter 6 (Engagement) of the EIS). Individual land use needs were considered to enable the landowner's continued land use, as well as to minimise the overall environmental impacts. The requirements to retain or reinstate access tracks at the end of construction would be determined with continued consultation with landowners during property access negotiations and ahead of the commencement of operation.

5.2.9.1 Existing tracks

Some of the existing access tracks proposed would require upgrades to accommodate construction vehicles and machinery. The upgrades required to existing access tracks would vary depending on the condition of individual tracks. They would generally need to be up to six metres wide and be able to accommodate a 19-m semi-trailer (or similar vehicle).

Existing tracks include forest roads and tracks maintained by Forestry Corporation of NSW or Transgrid, or unsealed private property access tracks, generally suitable for heavy vehicles. Some existing access tracks may require maintenance activities or upgrades along the formation, such as widening, resurfacing or grading, or drainage work. Vegetation removal and pruning/trimming may be required in some locations where vegetation may be considered a hazard. Where pruning/trimming is required, it would be undertaken to avoid impacts on the long-term viability of the vegetation where possible.

Other existing access tracks may require upgrades for safety and suitability. These tracks typically consist of unsealed property access tracks of varying conditions, from well-established sections to rarely used, barely visible sections (i.e. requiring substantial upgrade). Upgraded access tracks are expected to require more substantial work to allow their use during construction compared with existing tracks/roads. Work may include earthworks to improve gradients, grading or resurfacing, formation widening or realignment, drainage work or upgrades to waterway crossings. Vegetation clearing or pruning/trimming may be required for widening/formation work or where vegetation may be considered a roadside hazard. The total clearing width would generally be up to 10m, with some limited areas (e.g. steep terrain, passing bays) requiring a clearing width of up to 20m for batters and in limited areas up to 30m.

The access tracks would generally be required to meet the following parameters, as shown in **Figure 5-5**:

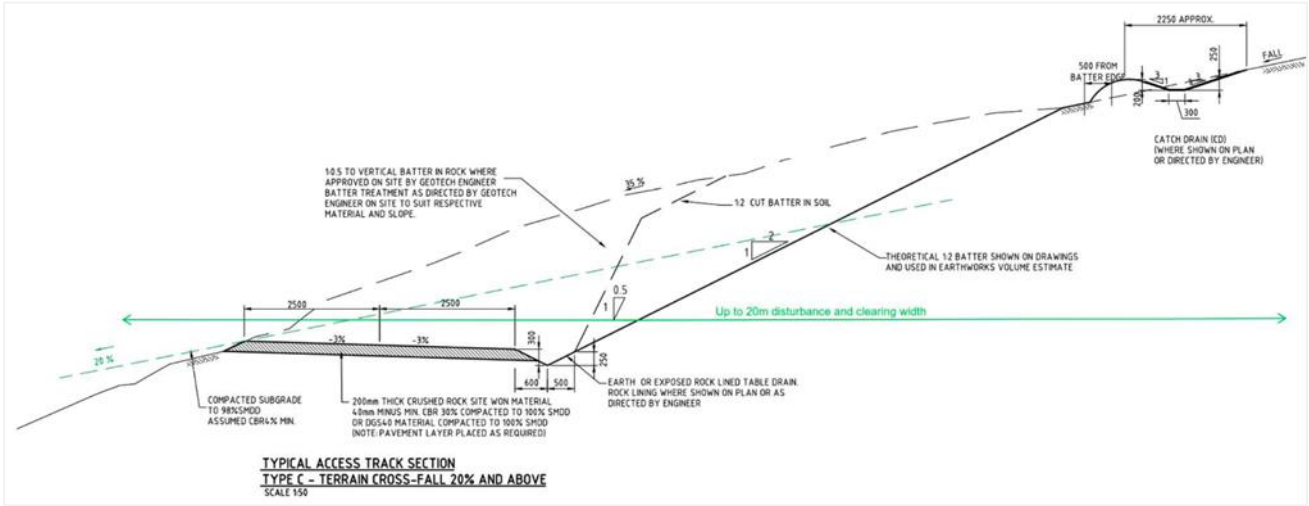
– 6-m-wide access

– maximum longitudinal grade of 15 per cent

– 5-m-wide access track to tower pads with a 1 in 2 batter interfacing with the existing ground as per Transgrid's typical access track. Where the existing terrain is too steep, a 1 in 1 batter may be used, pending geotechnical condition

– general construction maximum size vehicle movements for 19 m semi-trailer or equivalent articulated vehicle.

Figure 5-5 Typical section for access track



Source: Hunter Transmission Project, HTP1 Constructability Strategy Report, Beca, 2024

5.2.9.2 New tracks

New access tracks would need to be constructed where there are no suitable existing access tracks that provide access to the new transmission line corridor and where existing conditions, such as terrain, prevent access along the transmission line corridor. New access tracks would vary depending on the condition of the terrain and construction sites, but as per the existing tracks, would generally need to be up to six metres wide and be able to accommodate a 19-metre semi-trailer (or similar vehicle).

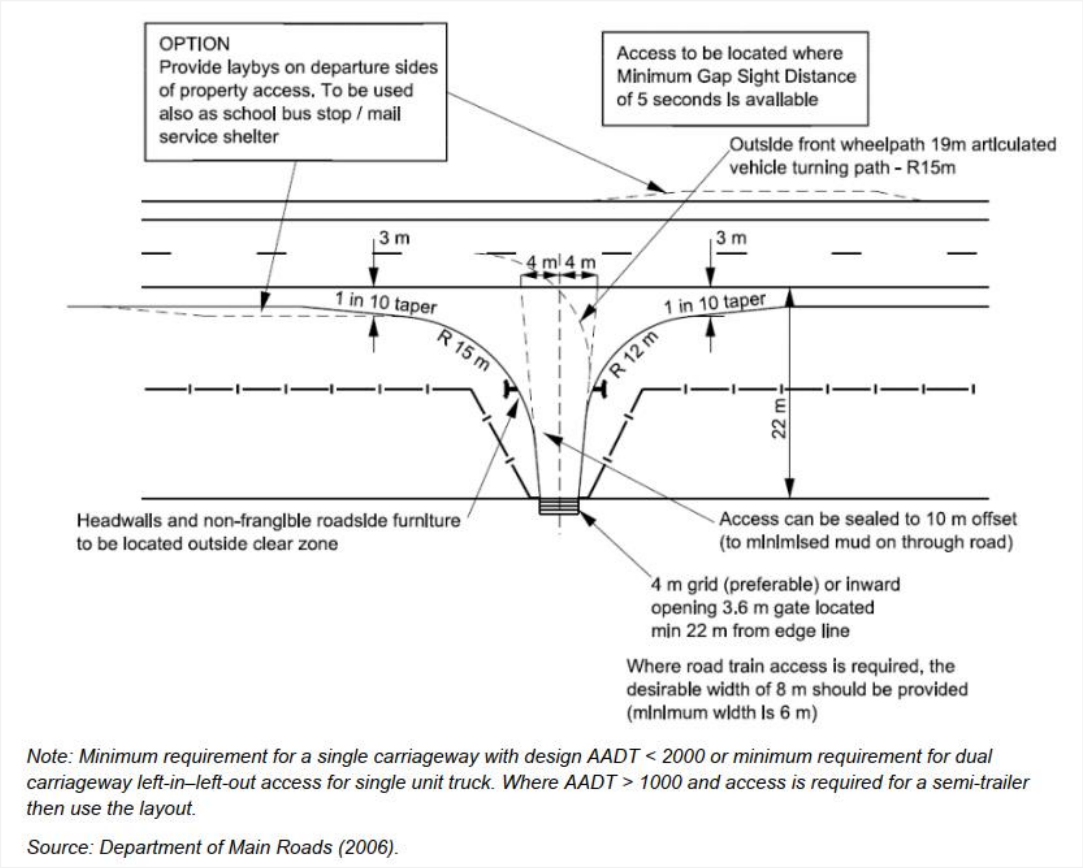
The locations of new access tracks have generally been selected to minimise environmental and property impacts, and wherever possible, these new tracks would be within existing disturbed areas. New tracks have been designed to include running the track along fence lines, using movement paths preferred by landowners, and going through existing property gates. Establishing the new tracks would typically include earthworks, grading, drainage work and construction of waterway crossings. Fill material may be imported to provide a suitable capping material. To establish the new tracks, vegetation clearing or pruning/trimming may be required. The total clearing width would generally be up to 10 m, with some areas (e.g. steep terrain, passing bays) requiring a clearing width of up to 20 m and in limited areas up to 30 m.

The intersection design for the access point of the access tracks would correspond to the road types that they would intersect with. Design considerations are detailed in **Table 5-5** with access track intersection layouts with the public road network shown in **Figure 5-6** and **Figure 5-7**, based on Austroads guidelines for rural roads.

Table 5-5 Design considerations for access tracks with intersecting public roads

Intersecting road type	Design consideration
Highway or main road	– New access points at nominated locations. The access road is to be designed in accordance with Austroads Guide to Road Design. As a minimum, the design of the access driveway is to consider an articulated vehicle as shown in **Figure 5-6**. – Line marking and signage at access points to support the traffic management requirements.
Sealed local roads	– Upgrades to allow access for long vehicles (e.g. semi-trailers). An example of the minimum requirements for a rural intersection off a minor road is depicted in **Figure 5-7**. – Line marking and signage at access points to support the traffic management requirements. – Potential use of road plates, propping or similar over culverts.
Unsealed local roads	– Improvements to existing roads at new access points which may include importing or stabilising material. – Upgrades to allow access for long vehicles (e.g. semi-trailers). An example of the minimum requirements for a rural intersection off a minor road is depicted in **Figure 5-7**. – Line marking and signage at access points to support the traffic management requirements. – Potential use of road plates, propping or similar over culverts.

Figure 5-6 Example of rural access track connection layout with a public road designed for articulated vehicles

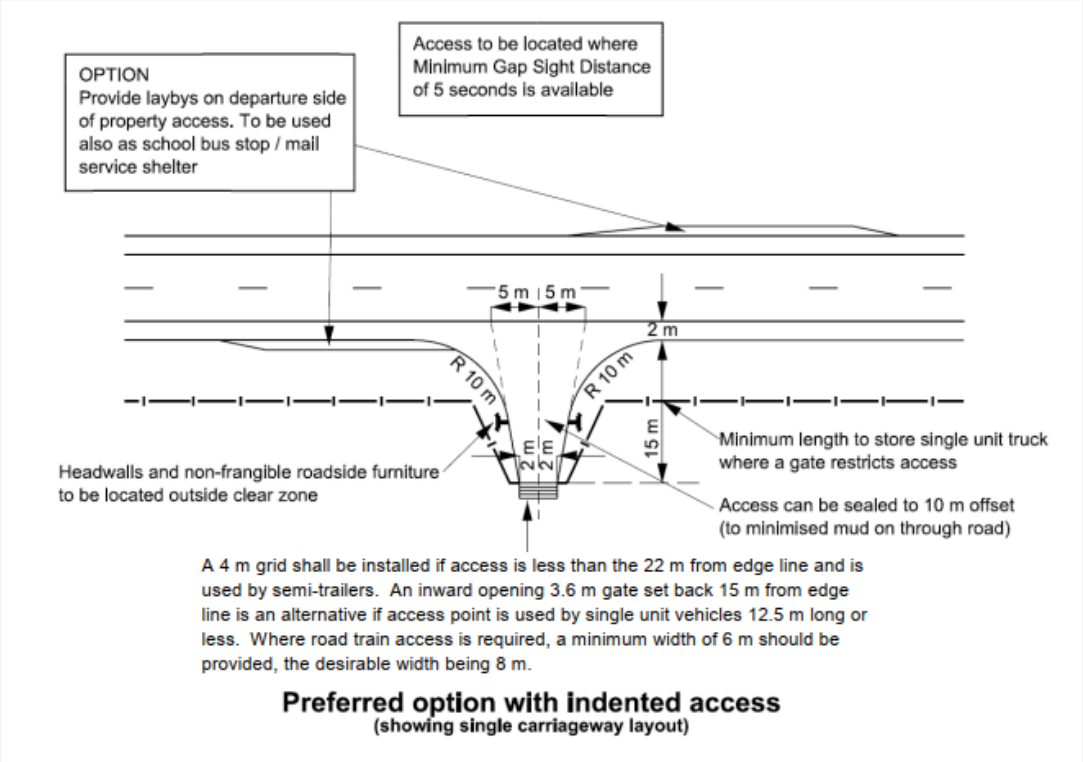


Note: Minimum requirement for a single carriageway with design AADT < 2000 or minimum requirement for dual carriageway left-in–left-out access for single unit truck. Where AADT > 1000 and access is required for a semi-trailer then use the layout.

Source: Department of Main Roads (2006).

Source: Austroads Guide to Road Design Part 4: Intersections and Crossings

Figure 5-7 Example of rural access track connection layout with a public road – preferred option with indented access



Source: Austroads Guide to Road Design Part 4: Intersections and Crossing

5.2.9.3 Passing bays

Several access roads are only suitable for one-lane movement of heavy vehicles; traffic control would be required during the construction period. To reduce disturbance to forestry operations and other users of these areas and improve construction traffic capacity, passing bays are proposed, as permitted by terrain and approved by the road authority.

A typical dimension of 5 m wide and 100 m long (160 m including tapers) as per *Austroads Guide Part 6B* Section 9.6 would be required. Generally, passing bays are proposed in flatter or relatively open locations in forest areas. Where the terrain is more constrained, passing bays are proposed on the 'cut side' of the slope to avoid introducing engineering fill down the slope. The locations of passing bays are shown and discussed in **Section 5.3.11**.

5.2.10 Upgrades to the existing road network

In addition to the provision of new access tracks, new passing bays and upgrades to existing access tracks, proposed upgrades have also been identified to cater safely for the proposed construction traffic volumes, ensure public road safety and reduce disturbance to the local communities.

This includes widening of existing roads to allow for heavy vehicles (19m semi-trailers) and OSOM vehicles. Swept paths of these heavy vehicles and OSOM vehicles are contained in **Appendix D**.

The locations of these road upgrades, including passing bays, as shown on **Figure 5-86**.

5.3 Construction impact assessment

5.3.1 Impacts on road capacity and efficiency

Table 5-6 provides the forecast 2028 mid-block traffic performance with and without construction traffic. This assessment has been completed for the construction access routes to be used for travel between the construction support sites, temporary worker accommodation, laydown areas, the HTP corridor, and switching stations.

Most roads were assessed to operate at LoS A or LoS B during network traffic peak in 2028 with and without construction traffic. The exceptions are:

– The New England Highway, west of Lemington Road, is forecast to operate at LoS C in the southbound direction in the PM peak hour with construction traffic.

– Freemans Drive, south of Martinsville Road, Cooranbong is forecast to operate at LoS C and LoS D by 2028 prior to the introduction of the HTP construction traffic. With HTP construction traffic, the road is forecast to operate at LoS D in both directions during both the AM and PM peak periods.

This indicates that the road network would continue to perform at acceptable levels of service during construction.

Table 5-6 Mid-block volume to capacity ratio and level of service for 2028 network peak hour with and without construction traffic

Survey ID	Location	Road classification	Lane capacity (vph/lane)	2028 network peak hour without construction (veh/hour)				2028 network peak hour without construction volume/capacity ratio and LoS				2028 network peak hour with construction (veh/hour)				2028 network peak hour with construction volume/capacity ratio and LoS			
				AM peak		PM peak		AM peak		PM peak		AM peak		PM peak		AM peak		PM peak	
				NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB	NB/WB	SB/EB
State roads																			
M-01	New England Highway, west of Lemington Road, Ravensworth	Highway	1,800	675	428	465	845	0.38 LoS B	0.24 Los A	0.26 Los A	0.47 LoS B	688	540	577	858	0.38 LoS B	0.30 Los A	0.32 LoS B	0.48 LoS C
M-03	Golden Highway, east of Gouldsville Road, Gouldsville	Highway	1,800	369	193	166	399	0.21 Los A	0.11 Los A	0.09 Los A	0.22 Los A	382	305	278	412	0.21 Los A	0.17 Los A	0.15 Los A	0.23 Los A
Regional and local roads																			
M-02	Lemington Road, west of HVO Entrance, Howick	Arterial	1,400	85	14	9	95	0.06 Los A	0.01 Los A	0.01 Los A	0.07 Los A	198	26	21	208	0.14 Los A	0.02 Los A	0.01 Los A	0.15 Los A
M-04	Broke Road, south of Bulga Surface Operations access road, Mount Thorley	Arterial	1,400	87	35	36	88	0.06 Los A	0.03 Los A	0.03 Los A	0.06 Los A	200	47	48	201	0.14 Los A	0.03 Los A	0.03 Los A	0.14 Los A
M-05	Cessnock Road, east of Oakley Lane, Singleton Military Area	Arterial	1,400	27	62	83	44	0.02 Los A	0.04 Los A	0.06 Los A	0.03 Los A	140	74	95	157	0.10 Los A	0.05 Los A	0.07 Los A	0.11 Los A
M-07	Wollombi Road, west of Middle Road, Pelton	Arterial	1,400	89	165	160	106	0.06 Los A	0.12 Los A	0.11 Los A	0.08 Los A	101	278	273	118	0.07 Los A	0.20 Los A	0.20 Los A	0.08 Los A
M-08	Freemans Drive, east of Mount Faulk Road, Cooranbong	Arterial	1,400	212	143	196	252	0.15 Los A	0.10 Los A	0.14 Los A	0.18 Los A	227	278	331	267	0.16 Los A	0.20 Los A	0.24 Los A	0.19 Los A
M-09	Martinsville Road, east of Pringles Road, Martinsville	Collector	1,000	34	55	56	45	0.03 Los A	0.05 Los A	0.06 Los A	0.04 Los A	169	70	71	180	0.17 Los A	0.07 Los A	0.07 Los A	0.18 Los A
M-10	Watagan Road, west of Martinsville Road, Martinsville	Local	900	5	6	11	4	0.01 LoS A	0.01 LoS A	0.01 Los A	0.00 Los A	140	21	26	139	0.16 Los A	0.02 Los A	0.03 Los A	0.15 Los A
M-11	Freemans Drive, south of Martinsville Road, Cooranbong	Collector	1,000	478	547	577	605	0.48 Los C	0.55 Los D	0.58 LoS D	0.60 LoS D	613	562	592	740	0.61 LoS D	0.56 LoS D	0.59 LoS D	0.74 LoS D
M-13	AGL Site Access – west of New England Hwy	Local	900	10	118	43	9	0.01 Los A	0.13 Los A	0.05 Los A	0.01 Los A	123	130	55	122	0.14 Los A	0.14 Los A	0.06 Los A	0.14 Los A

5.3.2 Impacts on intersections – State roads

This section assesses the impact of the project on key intersections located on construction access routes, including access to construction support sites, temporary worker accommodation and access gates along the HTP corridor. The section focuses on those intersections on state roads, which include the following 25 intersections:

- I-01a New England Highway / Hebden Road
- I-02 New England Highway / Lemington Road
- I-02a New England Highway / Pikes Gully Road
- I-03 Golden Highway / Lemington Road
- I-04 Golden Highway / Comleroi Road
- I-06 Golden Highway / Long Point Road
- I-07 Golden Highway / Gouldsville Road
- I-08a Jerrys Plains Road (NB Ramp) / Putty Road
- I-08b Jerrys Plains Road (SB Ramp) / Putty Road
- I-09 Golden Highway (Putty Road) / Broke Road
- I-10 Putty Road / Mitchell Line of Road
- I-10b Golden Highway / Range Road
- I-14 Wine Country Drive / Broke Road
- I-16a Wollombi Road / Allandale Road
- I-16b Wollombi Road / Vincent Street
- I-27 Mandalong Road / Freemans Drive / Wyee Road
- I-29 Wangi Road / Rocky Point Road
- I-31 Putty Road / Existing Access
- I-32 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth)
- I-33 Golden Highway / Unknown Road (east of Lemington Road)
- I-52 Putty Road / New Access
- I-59 New England Highway / Thomas Mitchell Drive
- I-60 Denman Road / Thomas Mitchell Drive
- I-61 Denman Road / Edderton Road
- I-69 Jerrys Plains Road (SB Ramp) / New Access track.

The following sub-sections describe the project role of each intersection and what the impact on each intersection's traffic volume, operational performance and safety (particularly relating to intersection turn treatments).

5.3.2.1 I-01a New England Highway / Hebden Road

Role

The New England Highway / Hebden Road intersection, shown in **Figure 5-8**, would be used by construction traffic travelling to and from:

– The Hebden Road construction support site to/from the HTP corridor and to/from the Bayswater South Switching Station (light and heavy vehicles)

– The Pikes Gully Road construction support site to/from the existing transmission line to support restringing/tower strengthening (passing through the intersection) (light and heavy vehicles).

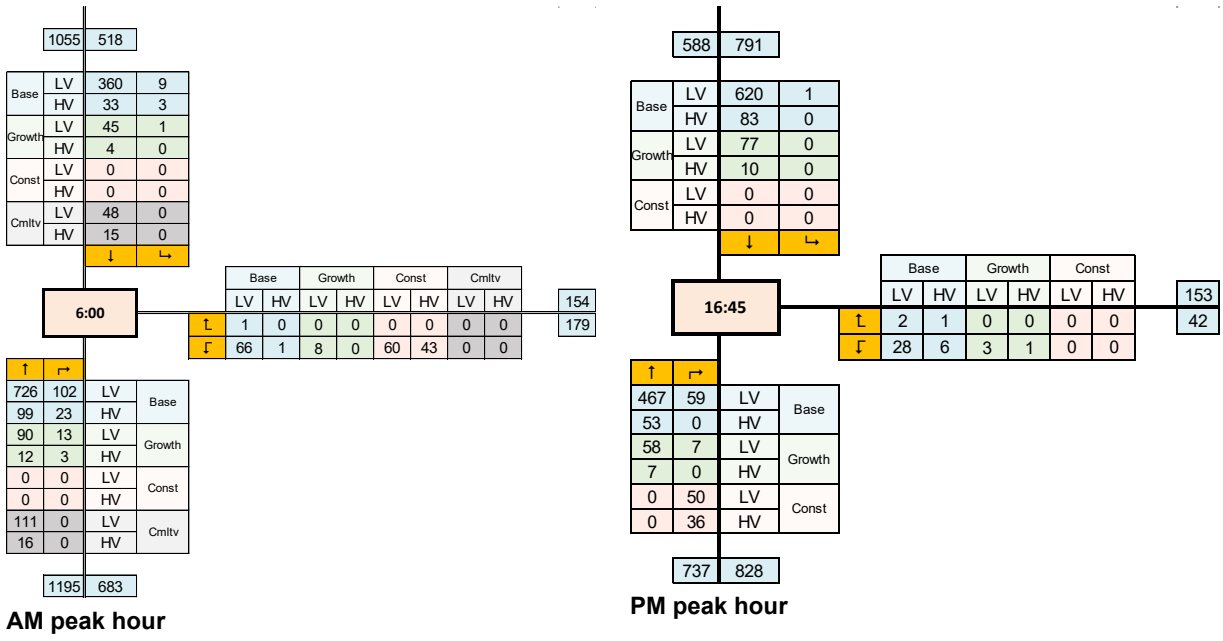
Figure 5-8 New England Highway / Hebden Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-9 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.45-6.45am and 4.45-5.45pm. The existing AM peak occurs before the proposed HTP construction period; therefore, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-9 New England Highway / Hebden Road 2028 with construction traffic volumes



Operational performance

Table 5-7 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to perform at LoS F in the weekday AM and PM peak hours due to a small number of right turning movements (less than 3) from Hebden Road onto the New England Highway. The intersection would continue to perform at LoS F following the introduction of construction traffic due to these future base conditions (i.e. not as a result of construction traffic).

Queuing along New England Highway would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-7 I-01a New England Highway / Hebden Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.26	81.6 (Hebden Rd (E)	F	6.7m (NEH (S))	0.32	94.0 (Hebden Rd (E))	F	11.5m (Hebden Rd (E))
PM peak hour (16.45-17.45)							
0.46	152.2 (Hebden Rd (E)	F	6.8m (Hebden Rd (E)	0.56	139.8 (Hebden Rd (E))	F	20.1m (NEH (S))

Safety (turn warrant assessment and SISD compliance)

Figure 5-10 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-8** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-10 New England Highway / Hebden Road turn warrant assessment

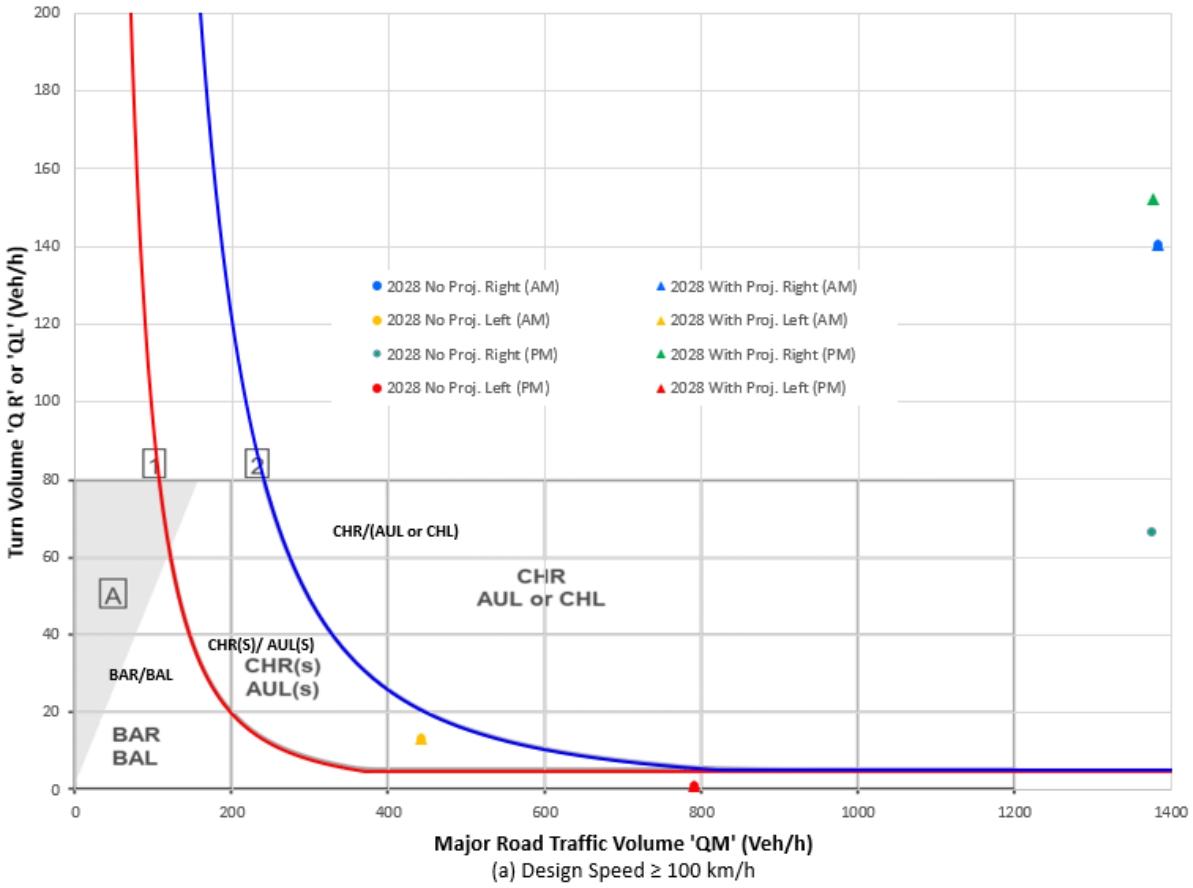


Table 5-8 I-01a New England Highway / Hebden Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
AUL / CHR	AUL / CHR	None	Yes

Summary

Notwithstanding that the construction traffic is not causing the poor intersection operational performance at the New England Highway / Hebden Road intersection, management measures will be put in place so that construction traffic will be left-out only in the AM project peak hour (6-7am) and right-in only during the PM network peak hour (4.45-5.45pm) so as to not contribute to the turning movements that cause the intersection to operate at LoS F under the future base conditions.

5.3.2.2 I-02 New England Highway / Lemington Road

Role

The New England Highway / Lemington Road intersection, shown in **Figure 5-11**, would be used by construction traffic travelling between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

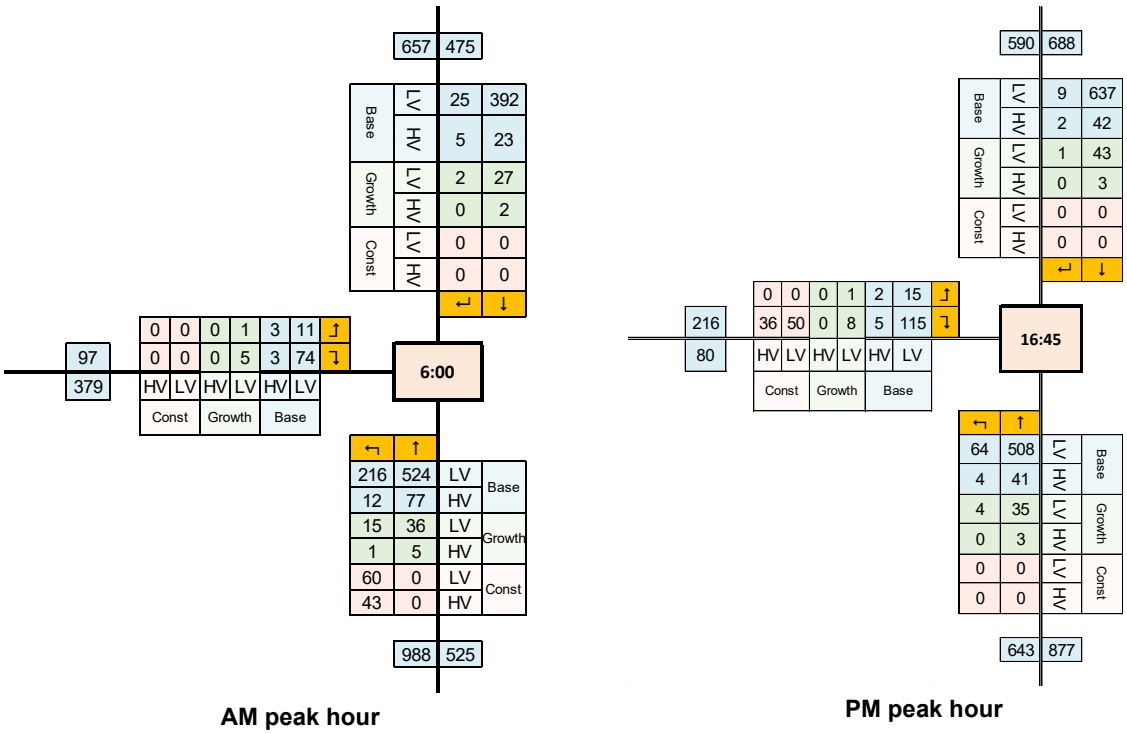
Figure 5-11 New England Highway / Lemington Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-12 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4.45-5.45pm. The existing AM peak occurs before the proposed HTP project hours; therefore, the AM peak assessment represents the peak HTP hour between 6-7 am.

Figure 5-12 New England Highway / Lemington Road 2028 with construction traffic volumes



Operational performance

Table 5-9 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to continue to operate at LoS C during the AM peak hour, similar to conditions without the construction of the HTP. However, during the PM peak hour, the condition is forecast to worsen to LOS E, due to construction volumes exiting right from Lemington Road onto the New England Highway.

Queuing along New England Highway would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-9 I-02 New England Highway / Lemington Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.42	33.2 (Lemington Rd (W))	C	12.1m (Lemington Rd (W))	0.49	38.4 (Lemington Rd (W))	C	13.9m (Lemington Rd (W))
PM peak hour (16.45-17.45)							
0.45	27.0 (Lemington Rd (W))	B	14.9m (Lemington Rd (W))	0.93	69.2 (Lemington Rd (W))	E	81.3m (Lemington Rd (W))

Safety (turn warrant assessment and SISD compliance)

Figure 5-13 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-10** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-13 New England Highway / Lemington Road turn warrant assessment

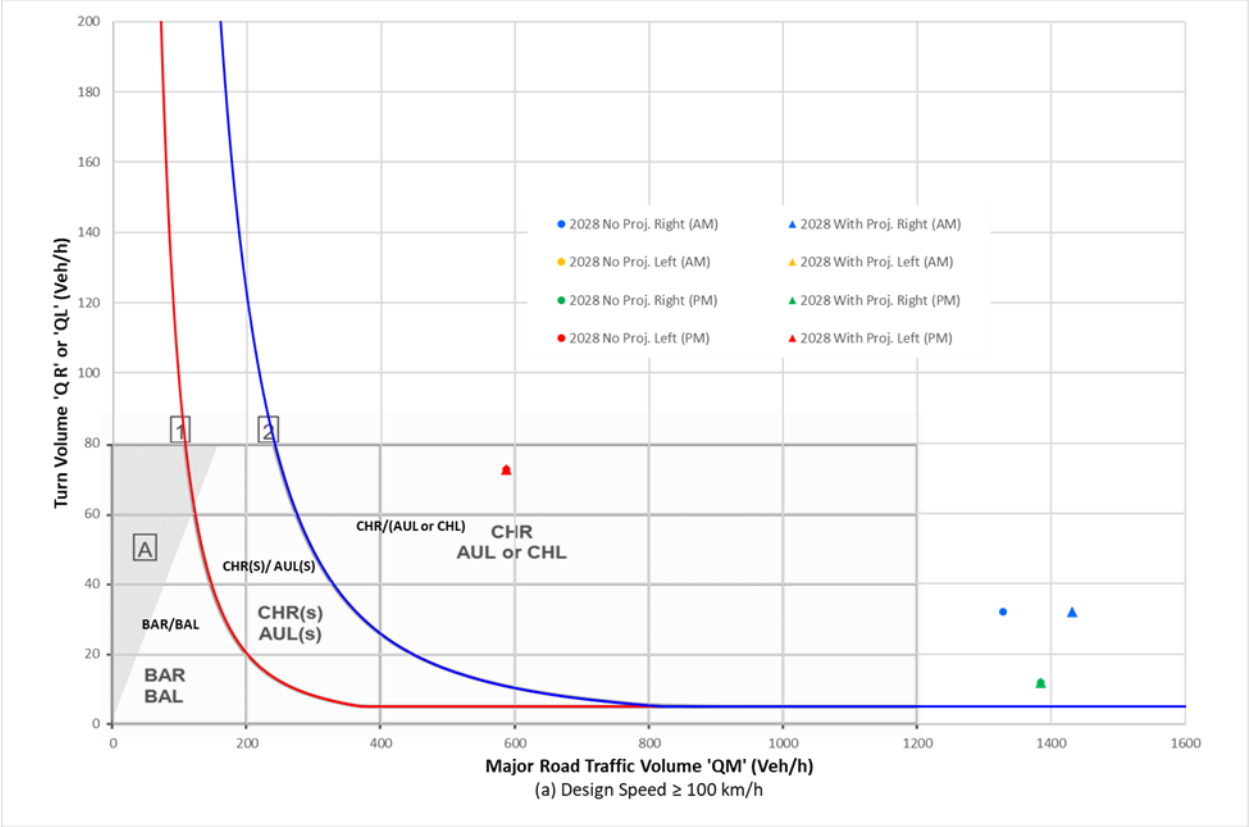


Table 5-10 I-02 New England Highway / Lemington Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
AUL / CHR	AUL / CHR	None	Yes

Summary

Given that the construction traffic is forecast to experience delays during the PM peak and impact the intersection operational performance at the New England Highway / Lemington Road intersection, management measures will be put in place to minimise / restrict construction vehicle activities at the intersection during the PM network peak hour (4.45-5.45pm).

5.3.2.3 I-02a New England Highway / Pikes Gully Road

Role

The New England Highway / Pikes Gully Road intersection, shown in **Figure 5-14**, would be used by construction traffic travelling between the Pikes Gully Road construction support site and the HTP corridor, as well as the existing transmission line to support restringing / tower strengthening, for HTP construction vehicles (light and heavy vehicles).

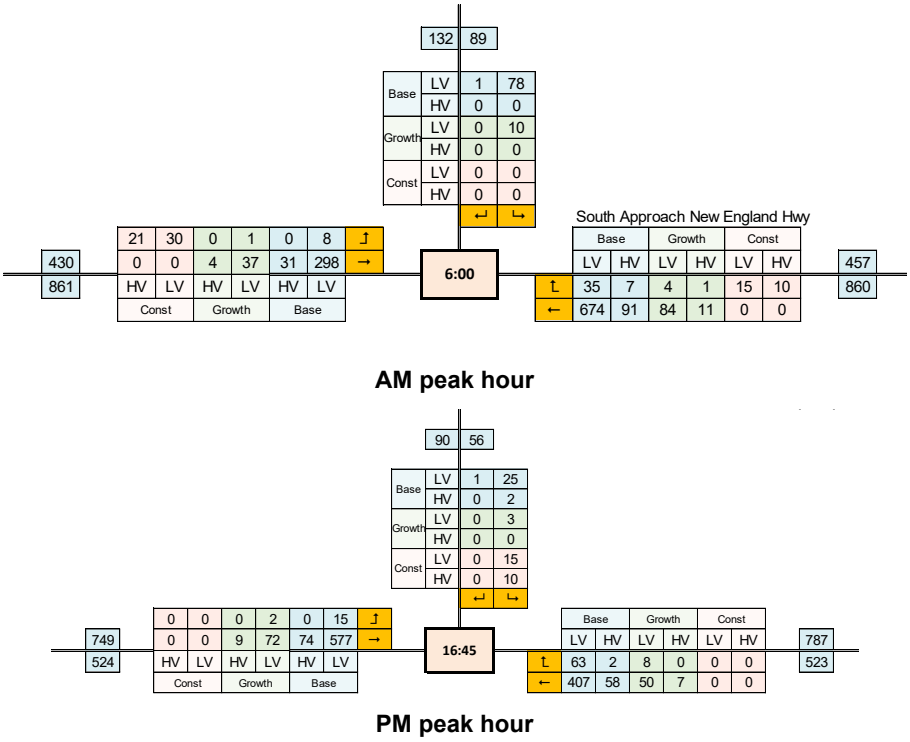
Figure 5-14 New England Highway / Pikes Gully Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-15 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4.45-5.45pm. The existing AM peak occurs before the HTP construction hours; therefore, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-15 New England Highway / Pikes Gully Road 2028 with construction traffic volumes



Operational performance

Table 5-11 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to worsen to LoS E during the AM peak hour due to an eight second delay increase for a single vehicle on Pikes Gully Road turning right from Pikes Gully Road to New England Highway. It is noted that with all remaining movements are forecast to operate at LOS A. During the PM peak hour, the intersection is forecast to operate at a similar level to the without construction scenario.

Queuing along New England Highway would be minimal during both the peak hours with all turning vehicles retained within the turn bays.

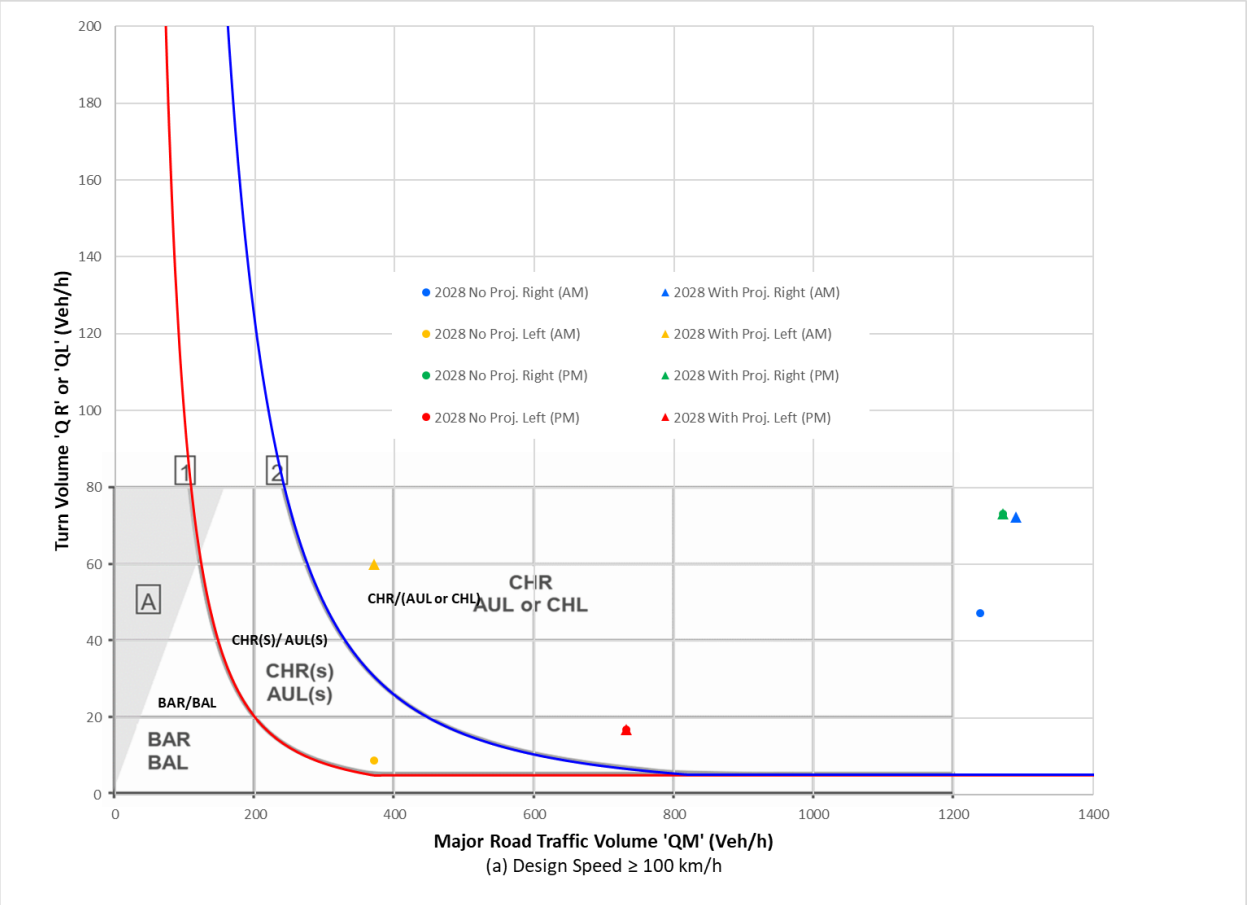
Table 5-11 I-02a New England Highway / Pikes Gully Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.50	52.9 (Pikes Gully Rd (N))	D	2.9 (Pikes Gully Rd (N))	0.50	60.7 (Pikes Gully Rd (N))	E	3.5m (NEH (E))
PM peak hour (16.45-17.45)							
0.42	49.5 (Pikes Gully Rd (N))	D	4.1m (NEH (E))	0.42	51.8 (Pikes Gully Rd (N))	D	4.7m (Pikes Gully Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-16 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-12** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-16 New England Highway / Pikes Gully Road turn warrant assessment



(a) Design Speed ≥ 100 km/h

Table 5-12 I-02a New England Highway / Pikes Gully Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
AUL / CHR	AUL / CHR	None	Yes

Summary

The poor intersection performance forecast for the AM peak hour is limited to a single vehicle movement, and the increase in delay is only eight seconds. Notwithstanding that the construction traffic is not causing the poor intersection operational performance at the New England Highway / Pikes Gully Road intersection, management measures will be put in place so that construction traffic will be left-out only in the AM project peak hour (6-7am) so as to not contribute to the turning movement that causes the intersection to operate at LoS E.

5.3.2.4 I-03 Golden Highway / Lemington Road

Role

The Golden Highway / Lemington Road intersection, shown in **Figure 5-17**, would be used by construction traffic travelling between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

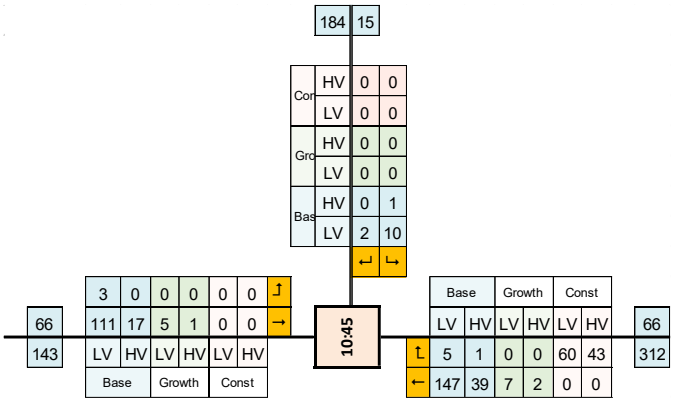
Figure 5-17 Golden Highway / Lemington Road intersection

Source: Nearmap, December 2025

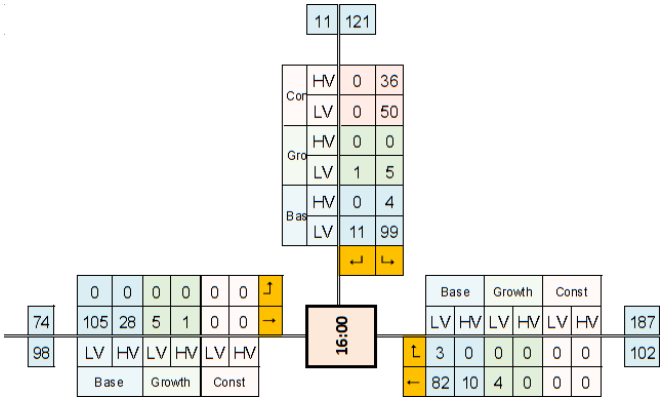
Traffic volumes

Figure 5-18 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 10.45-11.45am and 4-5pm, and were the hours tested.

Figure 5-18 Golden Highway / Lemington Road 2028 with construction traffic volumes



AM peak hour



PM peak hour

Operational performance

Table 5-13 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the intersection is forecast to continue to perform at LoS A during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Golden Highway would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-13 I-03 Golden Highway / Lemington Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (10.45-11.45)							
0.12	8.8 (Lemington Rd (N))	A	0.4m (Golden Hwy (E))	0.22	9.5 (Lemington Rd (N))	A	8.1m (Golden Hwy (E))
PM peak hour (16.00-17.00)							
0.90	8.5 (Lemington Rd (N))	A	2.6m (Lemington Rd (N))	0.17	9.1 (Lemington Rd (N))	A	6.0m (Lemington Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-19 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-14** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. For SISD, the assessment identified that sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).

Figure 5-19 Golden Highway / Lemington Road turn warrant assessment

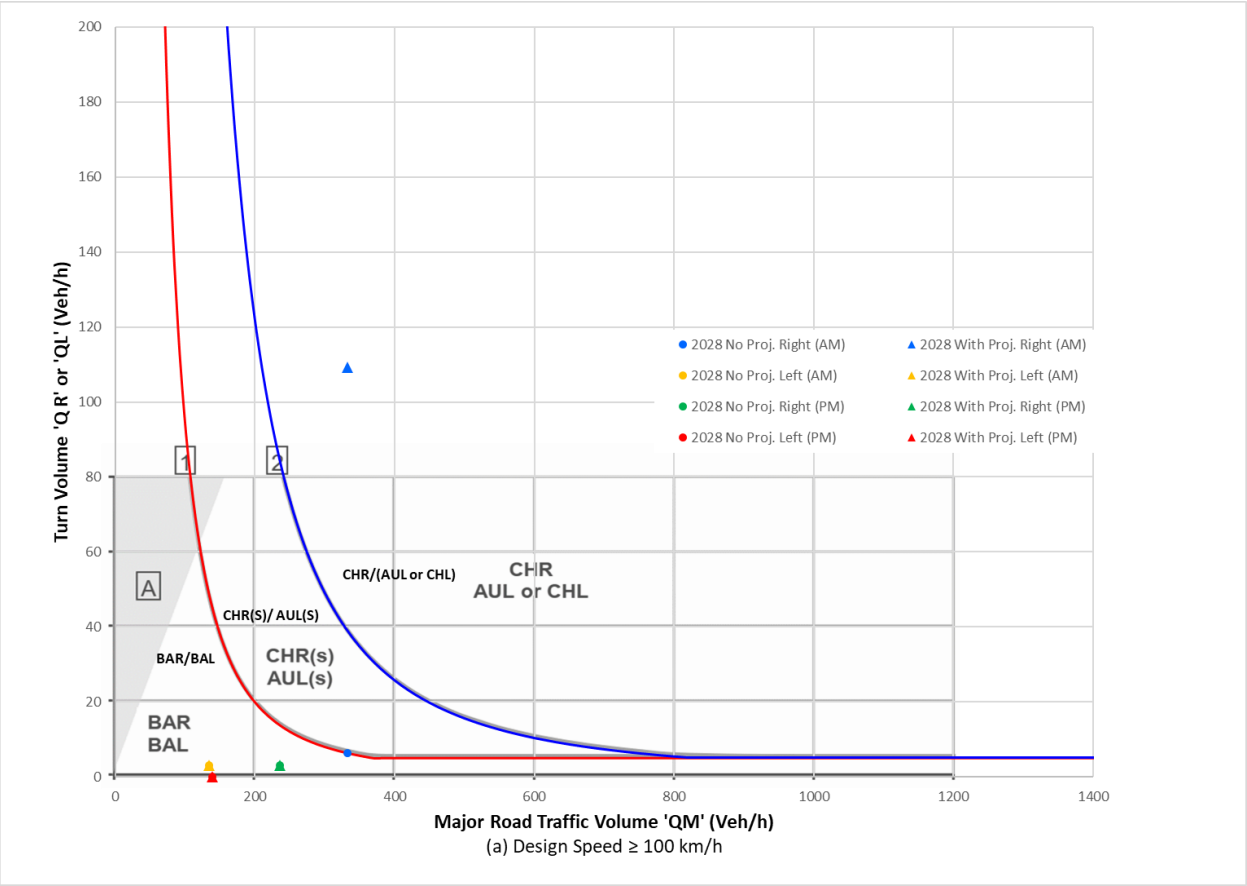


Table 5-14 I-03 Golden Highway / Lemington Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAR / BAL	CHR	Yes	No

Summary

Construction vehicles at the intersection are unlikely to impact the operational performance of the intersection during the weekday AM and PM peak periods. However, due to the increased traffic volumes, the intersection warrants a channelised right turn bay (CHR) for vehicles entering Lemington Road from the Golden Highway. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.5 I-04 Golden Highway / Comleroi Road

Role

The Golden Highway / Comleroi Road intersection, shown in **Figure 5-20**, would be used by construction traffic travelling between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

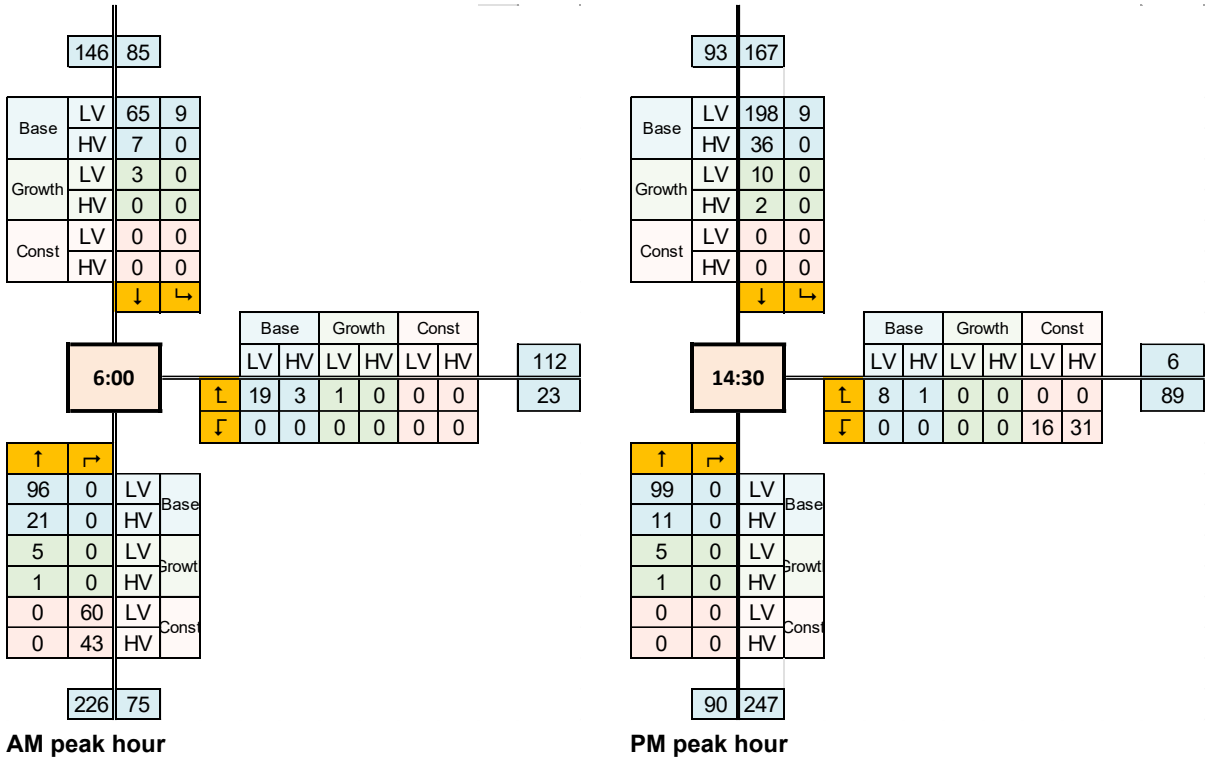
Figure 5-20 Golden Highway / Comleroi Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-21 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 2.30-3.30pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7 am.

Figure 5-21 Golden Highway / Comleroi Road 2028 with construction traffic volumes



Operational performance

Table 5-15 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the intersection is forecast to continue to perform at LoS A during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Golden Highway would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-15 I-04 Golden Highway / Comleroi Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.13	9.2 (Comleroi Rd (N))	A	0.2m (Comleroi Rd (N))	0.13	9.5 (Comleroi Rd (N))	A	4m (Golden Hwy (E))
PM peak hour (14.30-15.30)							
0.14	10.5 (Comleroi Rd (N))	A	0.5m (Comleroi Rd (N))	0.14	11.0 (Comleroi Rd (N))	A	4.5m (Comleroi Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-22 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-16** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-22 Golden Highway / Comleroi Road turn warrant assessment

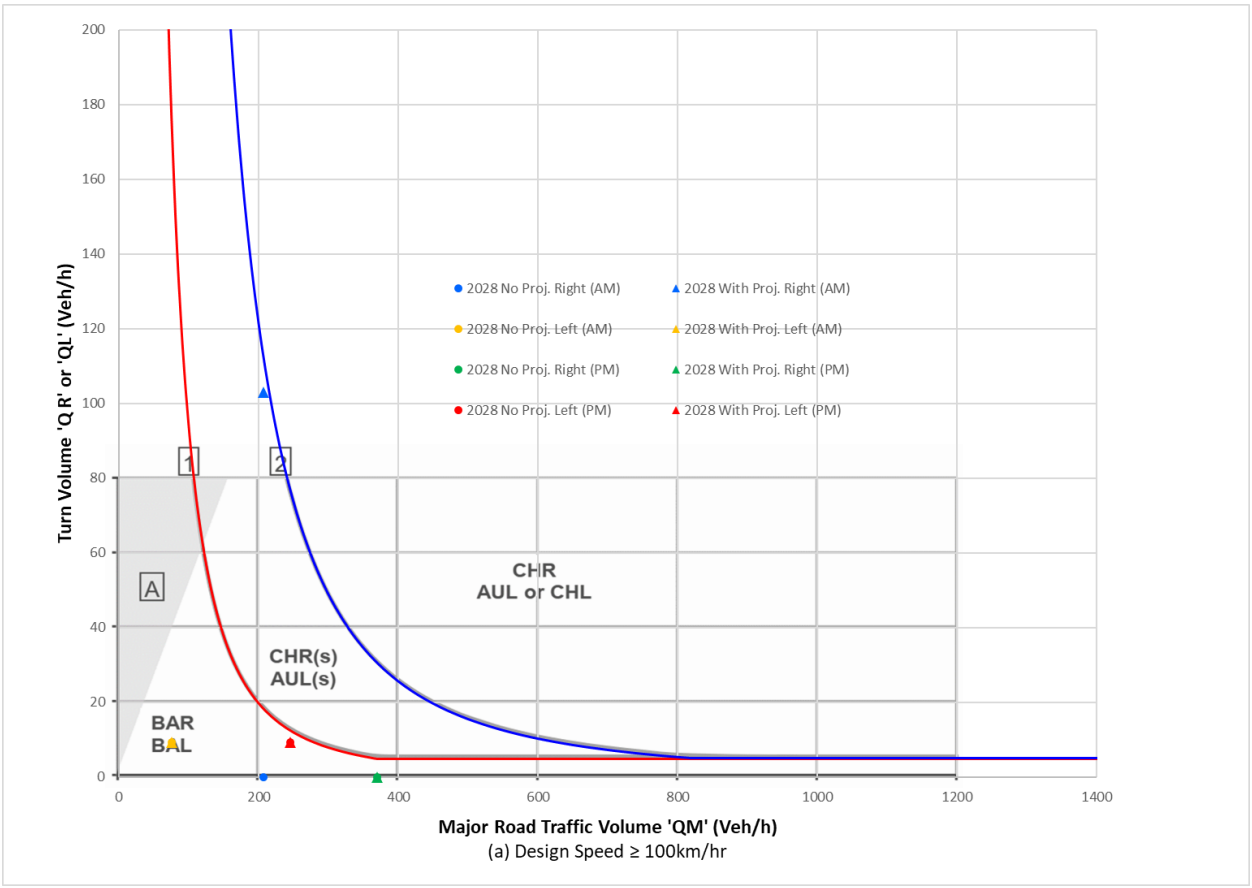


Table 5-16 I-04 Golden Highway / Comleroi Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAR / AUL	CHR(s)	Yes	Yes

Summary

Construction vehicles at the intersection do not impact the operational performance of the intersection during the weekday AM and PM network peak hours. However, due to the increased traffic volumes, the intersection warrants a short channelised right turn bay (CHR(s)) for vehicles entering Comleroi Road from the Golden Highway. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.6 I-06 Golden Highway / Long Point Road

Role

The Golden Highway / Long Point Road intersection, shown in **Figure 5-23**, would be used by HTP construction vehicles (light and heavy vehicles) while travelling between the Gouldsville Road construction support site and the HTP corridor.

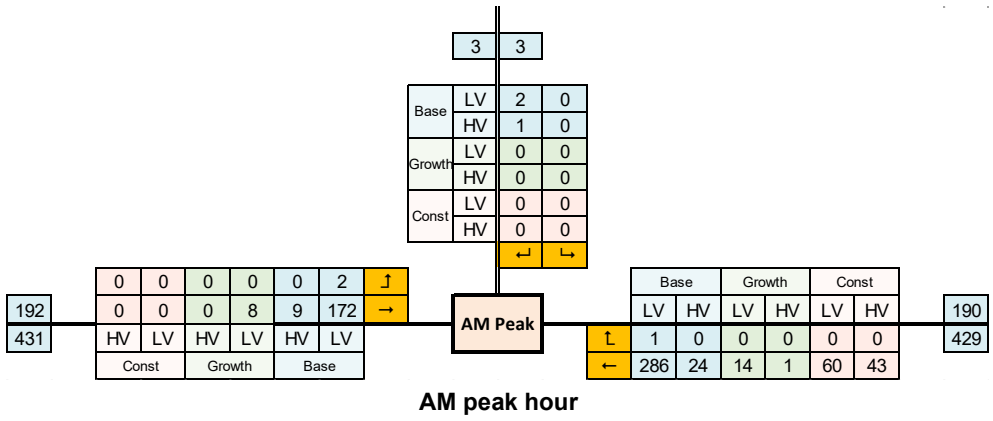
Figure 5-23 Golden Highway / Long Point Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-24 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-24 Golden Highway / Long Point Road 2028 with construction traffic volumes



Operational performance

Table 5-17 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to continue to perform at LoS B during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Golden Highway would be minimal during the peak hours, with all turning vehicles retained within the turn bays.

Table 5-17 I-06 Golden Highway / Long Point Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.18	14.5 (Long Point Rd (N))	A	0.2m (Long Point Rd (N))	0.26	17.3 (Long Point Rd (N))	B	0.3m (Long Point Rd (N))
PM peak hour (16.00-17.00)							
0.25	18.1 (Long Point Rd (N))	B	0.4m (Long Point Rd (N))	0.31	21.7 (Long Point Rd (N))	B	0.4m (Long Point Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-25 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-18** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-25 Golden Highway / Long Point Road turn warrant assessment

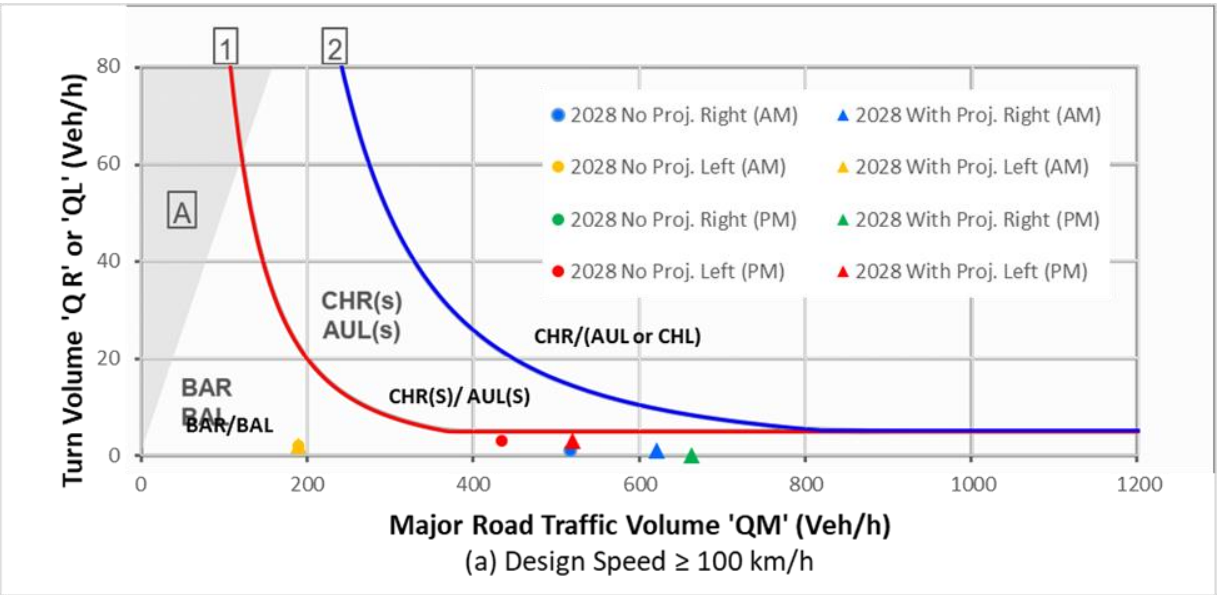


Table 5-18 I-06 Golden Highway / Long Point Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR (s) / BAL	None	No	Yes

Summary

Construction vehicles at the intersection do not impact the operational performance of the intersection during the weekday AM and PM network peak hours. In addition, the increase in construction vehicles at the intersection would not warrant any additional intersection treatments.

5.3.2.7 I-07 Golden Highway / Gouldsville Road

Role

The Golden Highway / Gouldsville Road intersection, shown in **Figure 5-23**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

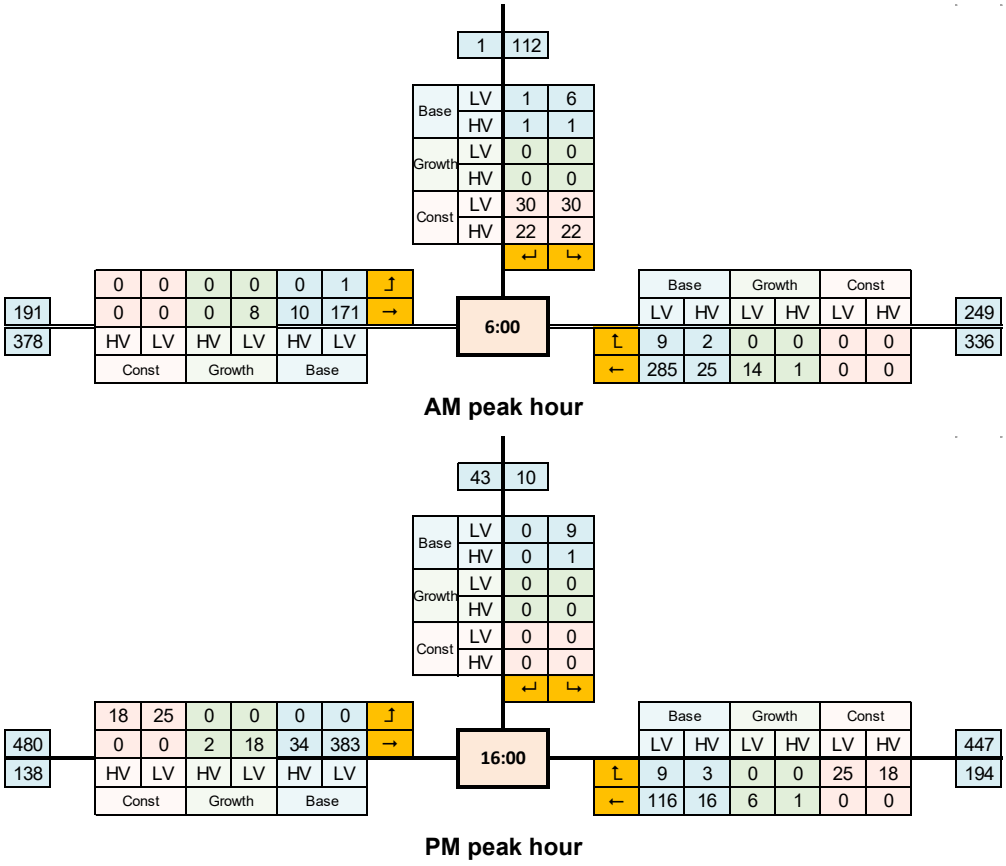
Figure 5-26 Golden Highway / Gouldsville Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-27 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-27 Golden Highway / Gouldsville Road 2028 with construction traffic volumes



Operational performance

Table 5-19 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to continue to perform at LoS A during the weekday AM and PM peak hours with construction traffic. In addition, queuing along the Golden Highway would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-19 I-07 Golden Highway / Gouldsville Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.19	13.3 (Gouldsville Rd (N))	A	0.8m (Golden Hwy (E))	0.19	13.6 (Gouldsville Rd (N))	A	0.6m (Gouldsville Rd (N))
PM peak hour (16.00-17.00)							
0.25	10.8 (Golden Hwy (E))	A	1.2m (Golden Hwy (E))	0.28	12.3 (Golden Hwy (E))	A	6.2m (Golden Hwy (E))

Safety (turn warrant assessment and SISD compliance)

Figure 5-28 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-20** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection.

Due to the increase in traffic volumes of the HTP construction vehicles, the intersection warrants a channelised right turn lane and a full auxiliary left turn lane.

For SISD, the assessment identified that sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).

Figure 5-28 Golden Highway / Gouldsville Road turn warrant assessment

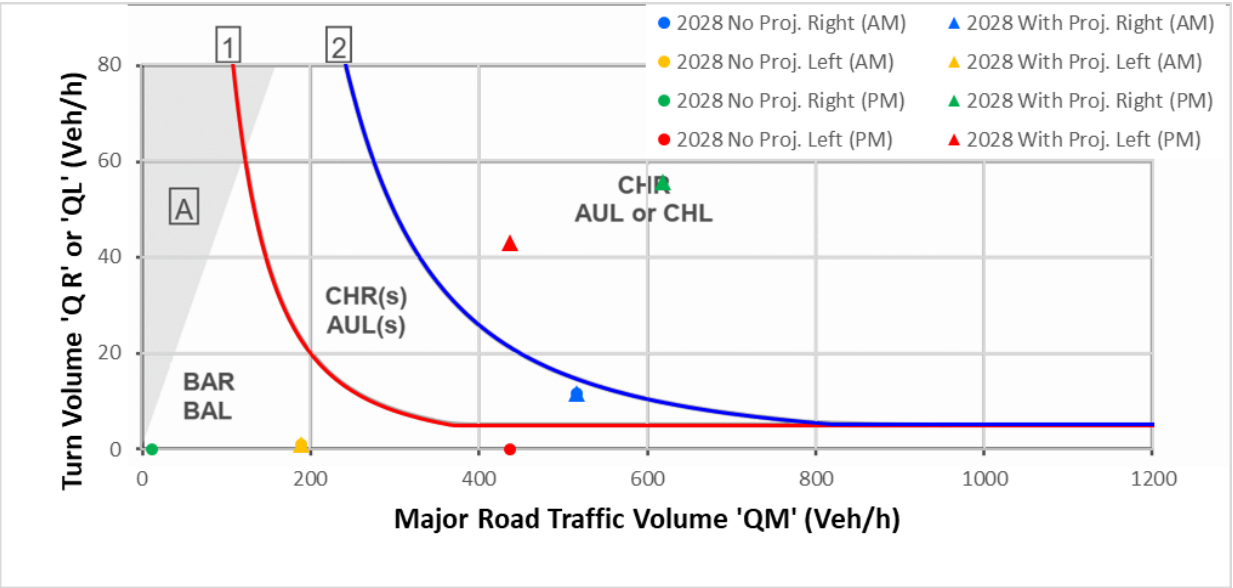


Table 5-20 I-07 Golden Highway / Gouldsville Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAR / AUL (s)	CHR / AUL	Yes	No

Summary

Construction vehicles do not impact the operational performance of the intersection during the weekday AM and PM network peak hours. However, due to the increased traffic volumes, the intersection warrants a channelised right turn lane and auxiliary left turn lane for vehicles entering Gouldsville Road from the Golden Highway. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.8 I-08a Jerrys Plains Road (NB Ramp) / Putty Road

Role

The Jerrys Plains Road (NB Ramp) / Putty Road intersection, shown in **Figure 5-29**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

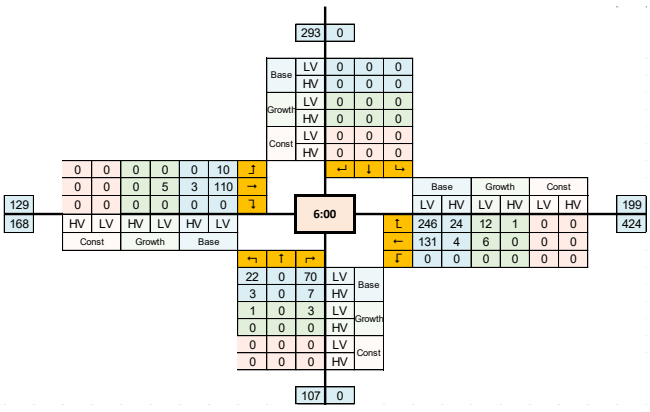
Figure 5-29 Jerrys Plains Road (NB Ramp) / Putty Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-30 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 3.30-4.30pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-30 Jerrys Plains Road (NB Ramp) / Putty Road 2028 with construction traffic volumes



Operational performance

Table 5-21 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to continue to perform at LoS B during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Putty Road would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-21 I-08a Jerrys Plains Road (NB Ramp) / Putty Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.23	18.0 (Mt Thorley Rd (S))	B	7.4m (Putty Road (E))	0.23	18.0 (Mt Thorley Rd (S))	B	7.4m (Putty Road (E))
PM peak hour (15.30-16.30)							
0.66	18.5 (Mt Thorley Rd (S))	B	46.4m (Mt Thorley Rd (S))	0.80	26.8 (Mt Thorley Rd (S))	B	66.5m (Mt Thorley Rd (S))

Safety (turn warrant assessment and SISD compliance)

Figure 5-31 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-22** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-31 Jerrys Plains Road (NB Ramp) / Putty Road turn warrant assessment

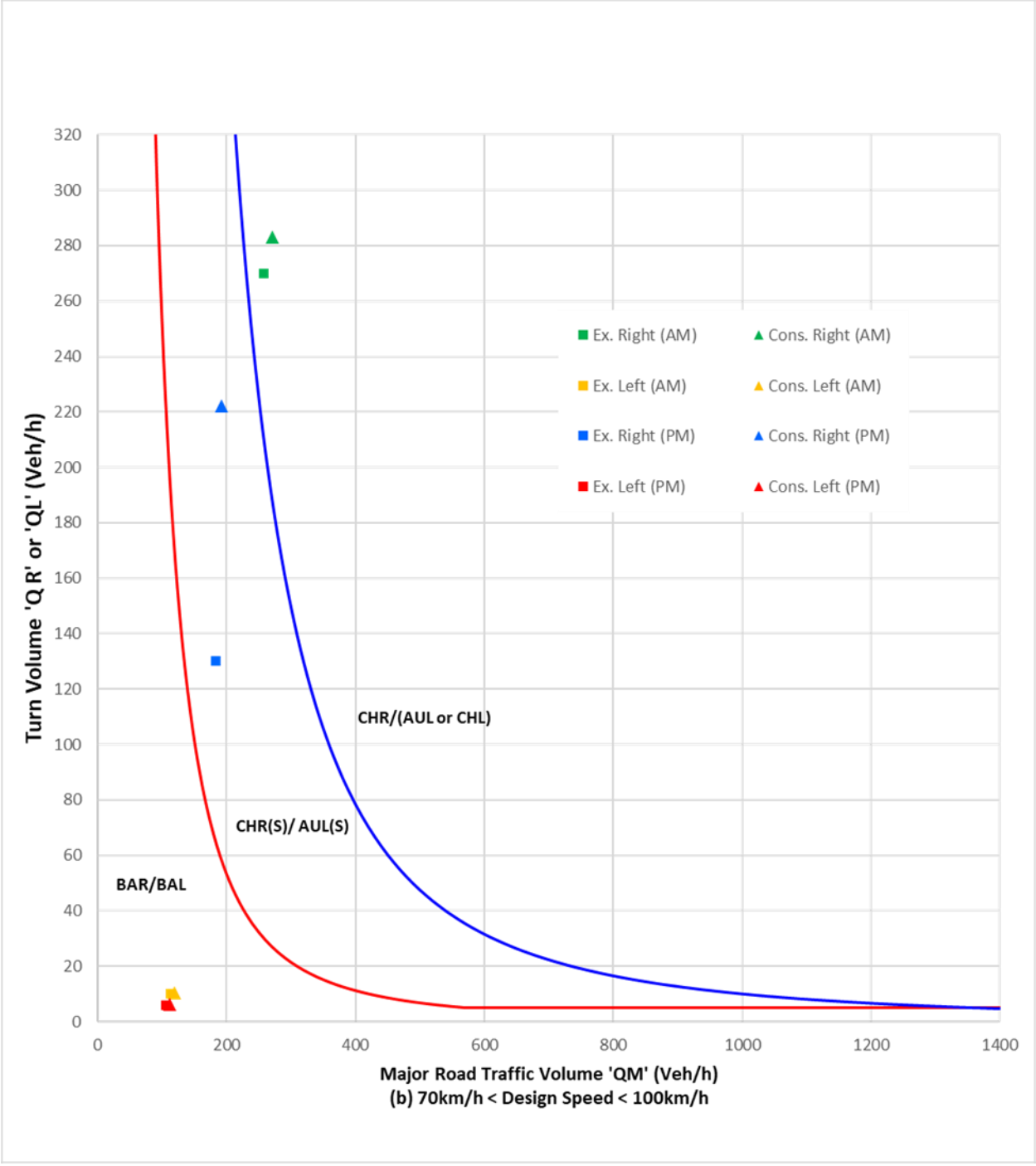


Table 5-22 I-08a Jerrys Plains Road (NB Ramp) / Putty Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	AUL / CHR	None	Yes

Summary

Construction vehicles at the intersection of Jerrys Plains Road (NB Ramp) / Putty Road do not impact the operational performance of the intersection during the weekday AM and PM network peak hours. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.9 I-08b Jerrys Plains Road (SB Ramp) / Putty Road

Role

The Jerrys Plains Road (SB Ramp) / Putty Road intersection, shown in **Figure 5-32**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

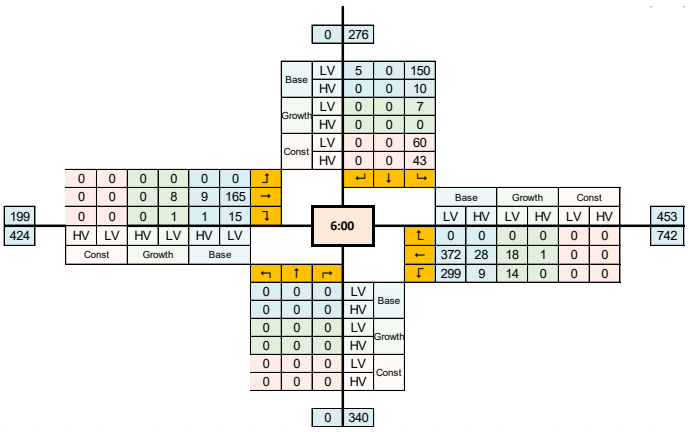
Figure 5-32 Jerrys Plains Road (SB Ramp) / Putty Road intersection

Source: Nearmap, December 2025

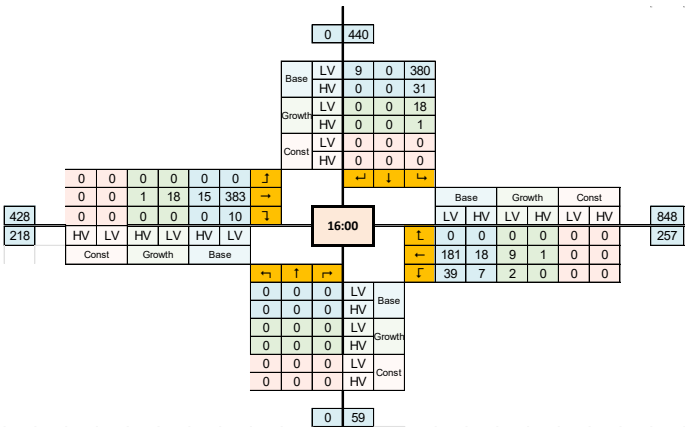
Traffic volumes

Figure 5-33 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-33 Jerrys Plains Road (SB Ramp) / Putty Road 2028 with construction traffic volumes



AM peak hour



PM peak hour

Operational performance

Table 5-23 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to operate at LoS A / B during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Putty Road would be minimal during the peak hours with all turning vehicles retained within the turn bays.

Table 5-23 I-08b Jerrys Plains Road (SB Ramp) / Putty Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.24	13.6s (Mt Thorley Rd (N))	A	0.5m (Putty Rd (W))	0.24	13.6s (Mt Thorley Rd (N))	A	0.5m (Putty Rd (W))
PM peak hour (16.00-17.00)							
0.26	14.1s (Mt Thorley Rd (N))	A	0.6m (Mt Thorley Rd (N))	0.26	16.6s (Mt Thorley Rd (N))	B	0.7m (Mt Thorley Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-34 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-24** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-34 Jerrys Plains Road (SB Ramp) / Putty Road turn warrant assessment

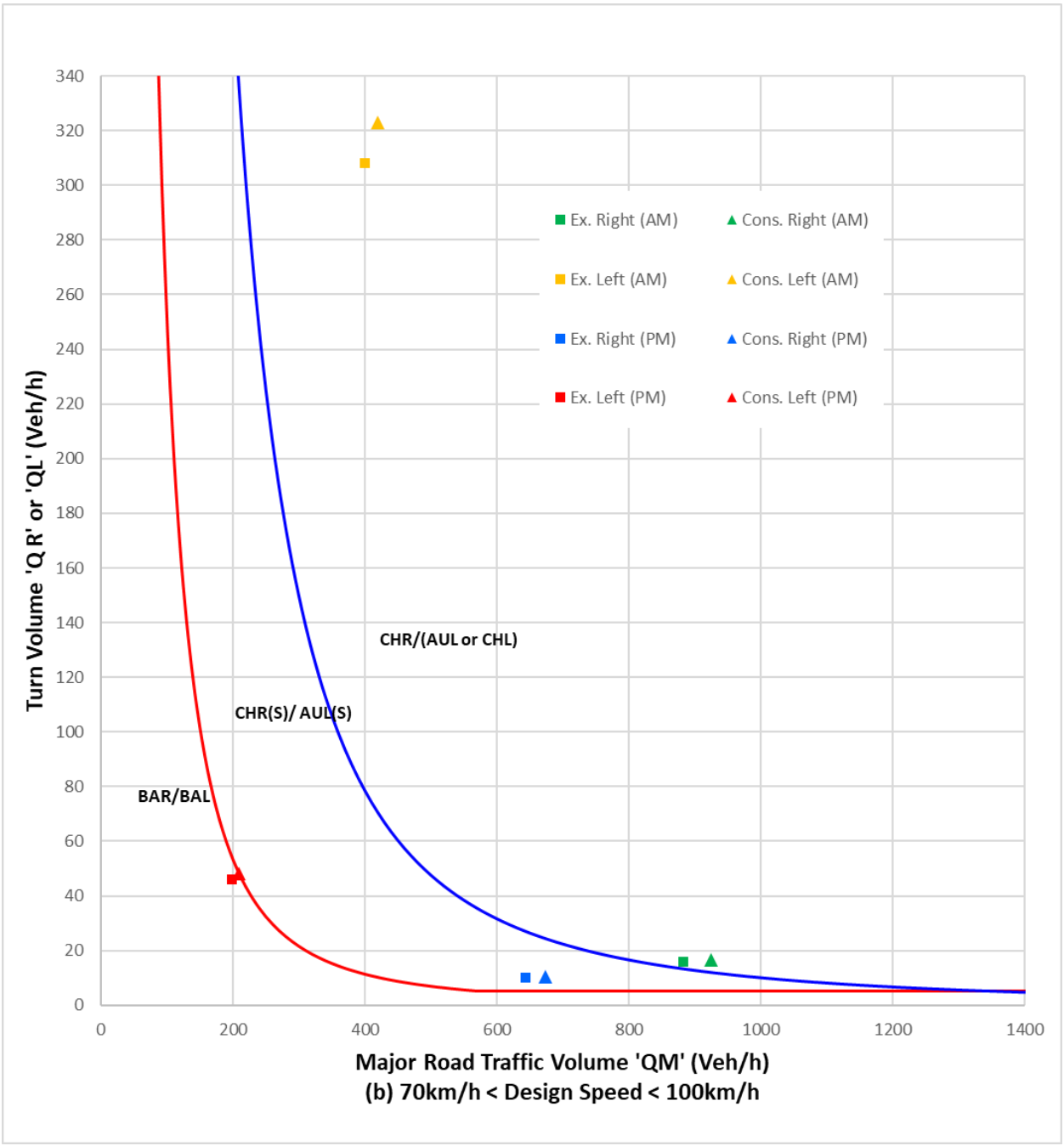


Table 5-24 I-08b Jerrys Plains Road (SB Ramp) / Putty Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	CHR / CHL	None	Yes

Summary

Construction vehicles at the intersection of Jerrys Plains Road (NB Ramp) / Putty Road do not impact the operational performance of the intersection during the weekday AM and PM network peak hours. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.10 I-09 Golden Highway (Putty Road) / Broke Road

Role

The Golden Highway (Putty Road) / Broke Road intersection, shown in **Figure 5-35**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

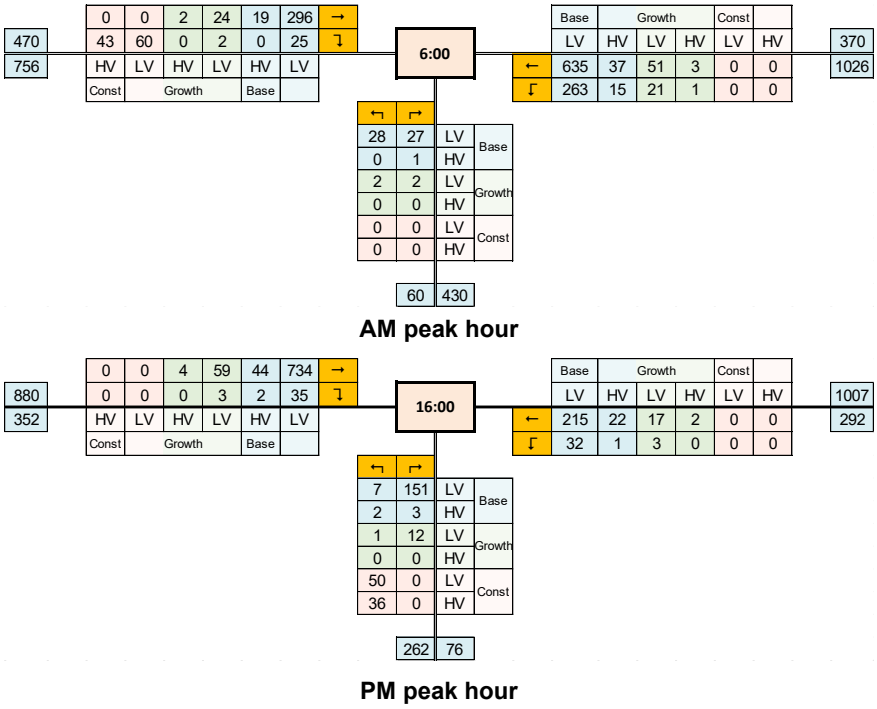
Figure 5-35 Golden Highway (Putty Road) / Broke Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-36 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-36 Golden Highway (Putty Road) / Broke Road 2028 with construction traffic volumes



Operational performance

Table 5-25 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection performance during the AM peak hour is forecast to worsen from LoS B to LoS D due to the additional construction vehicle demands turning right into Broke Road from the western approach of Putty Road. Although the delays are forecast to increase, the maximum resultant queues of this movement would be contained within the existing auxiliary lane. For the PM peak hour, the intersection is forecast to continue to operate LoS A.

Table 5-25 I-09 Golden Highway (Putty Road) / Broke Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.41	25.8s (Broke Rd (S))	B	5.2m (Broke Rd (S))	0.73	44.4s (Putty Rd (W))	D	28.9m (Putty Rd (W))
PM peak hour (16.00-17.00)							
0.47	11.1s (Broke Rd (S))	A	1.1m (Broke Rd (S))	0.47	12.0s (Broke Rd (S))	A	16.9 (Broke Rd (S))

Safety (turn warrant assessment and SISD compliance)

Figure 5-37 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-26** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-37 Golden Highway (Putty Road) / Broke Road turn warrant assessment

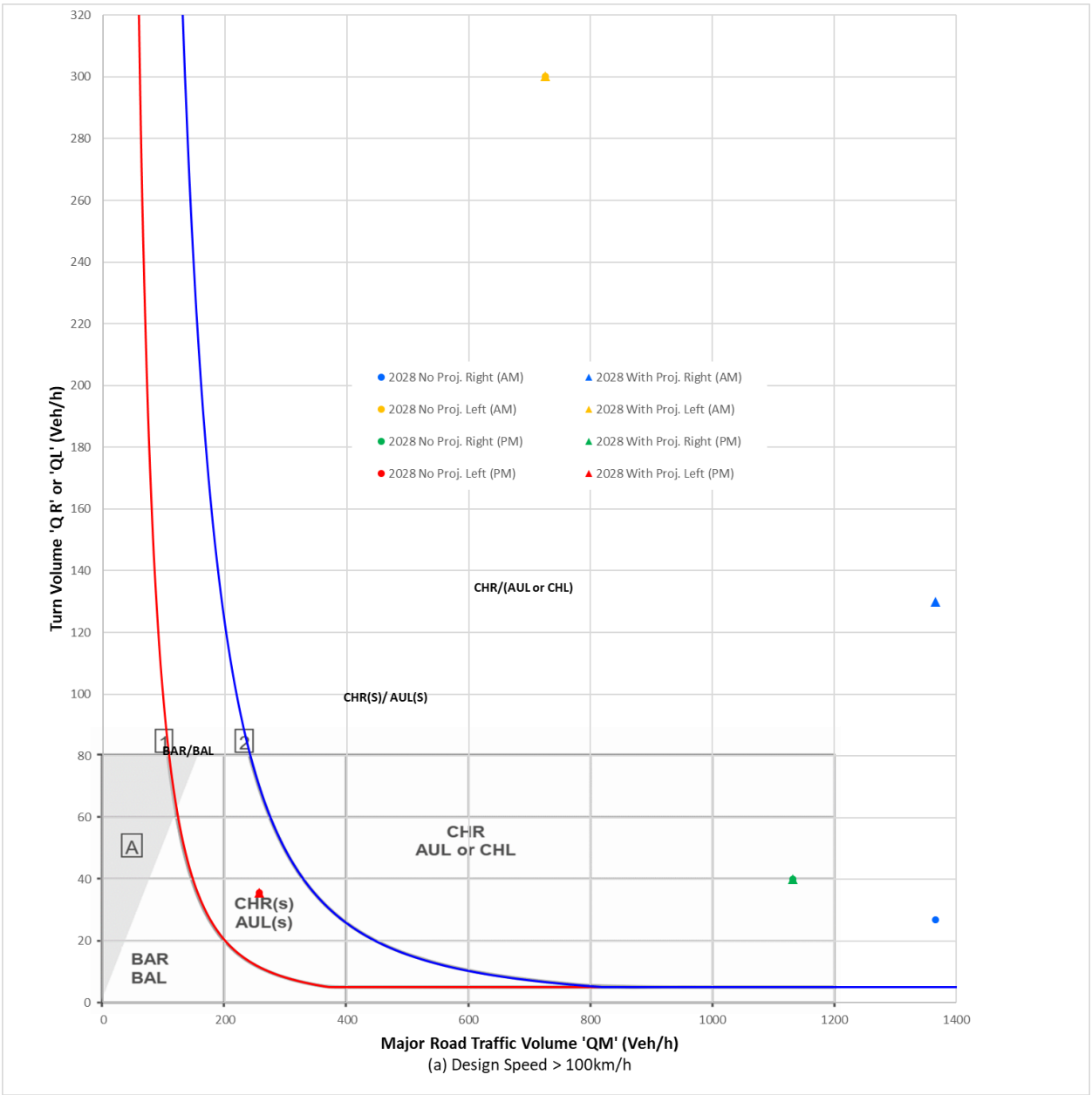


Table 5-26 I-09 Golden Highway (Putty Road) / Broke Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	CHR / CHL	None	Yes

Summary

Construction vehicles at the Putty Road / Broke Road intersection are likely to increase the delay at the intersection, especially during the AM network peak hour. However, the operational performance would still be within acceptable levels. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.11 I-10 Putty Road / Mitchell Line of Road

Role

The Putty Road / Mitchell Line of Road intersection, shown in **Figure 5-38**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

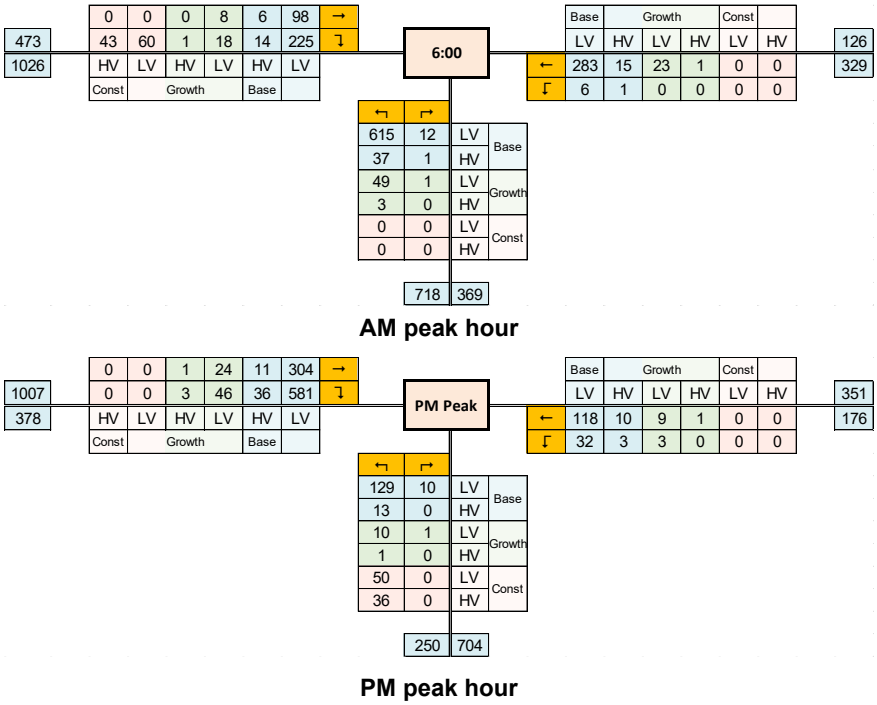
Figure 5-38 Putty Road / Mitchell Line of Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-39 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-39 Putty Road / Mitchell Line of Road 2028 with construction traffic volumes



Operational performance

Table 5-27 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The results show that there would be no difference in performance levels with the introduction of the HTP construction vehicles at the intersection during the weekday AM and PM network peak hours. In addition, queuing along the Putty Road would be retained within the turn bays.

Table 5-27 I-10 Putty Road / Mitchell Line of Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.42	19.1s (Mitchell Line (S))	B	9.4m (Putty Rd (W))	0.43	23.4s (Mitchell Line (S))	B	21.8m (Putty Rd (W))
PM peak hour (16.00-17.00)							
0.61	43.2s (Mitchell Line (S))	D	48.7m (Putty Rd (W))	0.61	43.2s (Mitchell Line (S))	D	48.7m (Putty Rd (W))

Safety (turn warrant assessment and SISD compliance)

Figure 5-40 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-28** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

For SISD, the assessment identified that sightlines may be impeded by an existing advance direction sign and existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).

Figure 5-40 Putty Road / Mitchell Line of Road turn warrant assessment

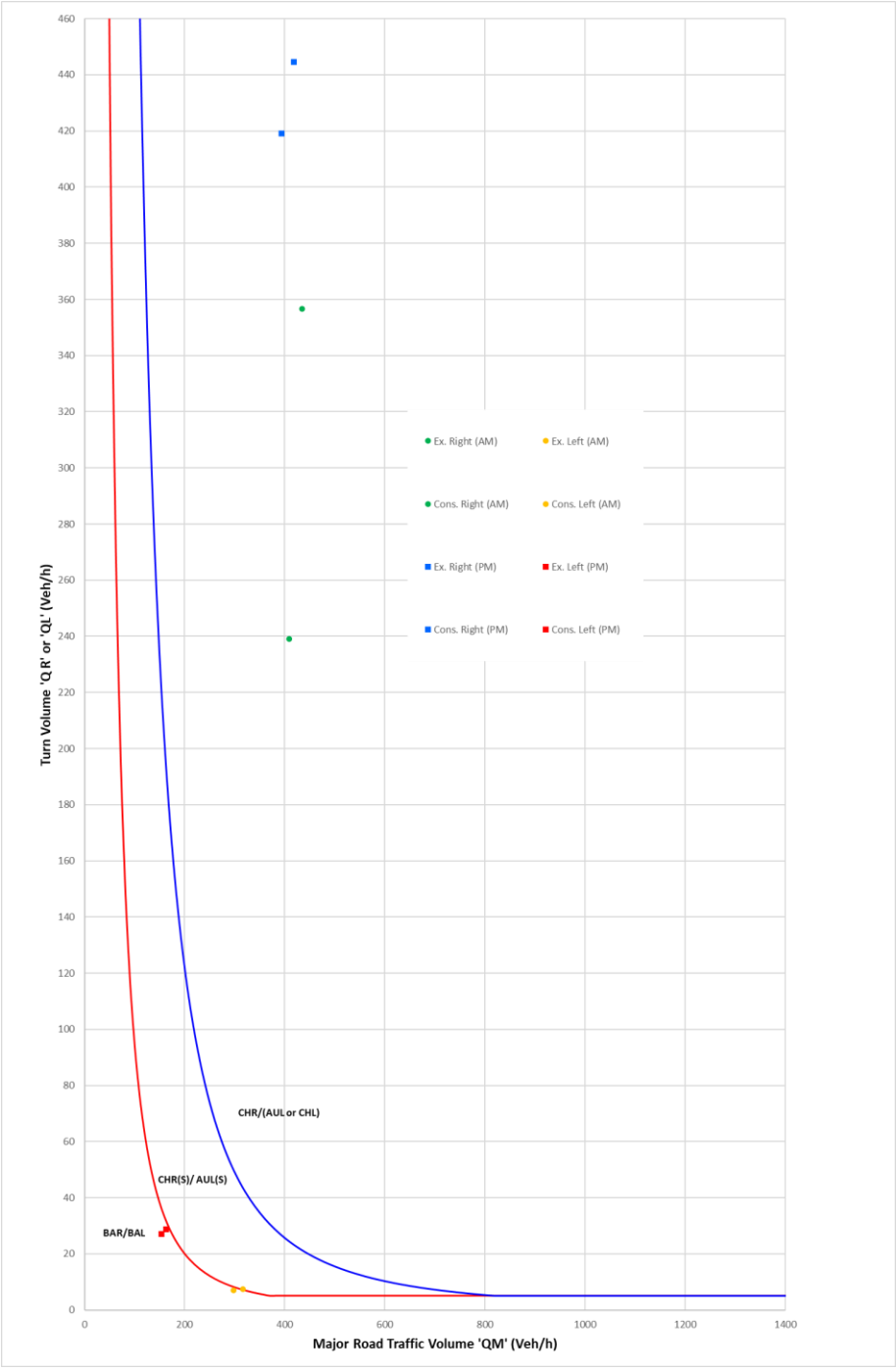


Table 5-28 I-10 Putty Road / Mitchell Line of Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / AUL	CHR / AUL (S)	None	No

Summary

Construction vehicles at the Putty Road / Mitchell Line of Road intersection do not impact negatively on the intersection performance levels of the weekday AM and PM network peak hours. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.12 I-10b Golden Highway / Range Road

Role

The Golden Highway / Range Road intersection, shown in **Figure 5-41**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

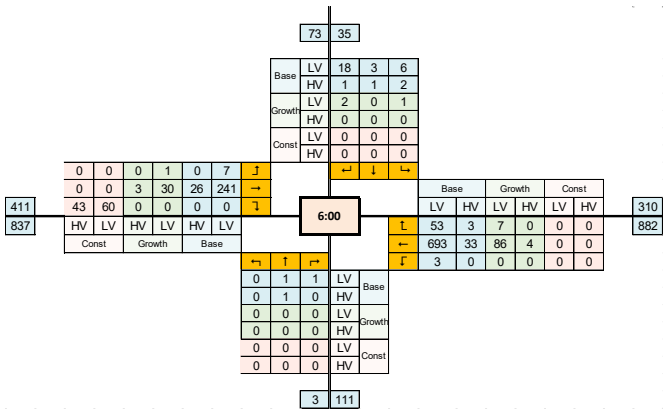
Figure 5-41 Golden Highway / Range Road intersection

Source: Nearmap, December 2025

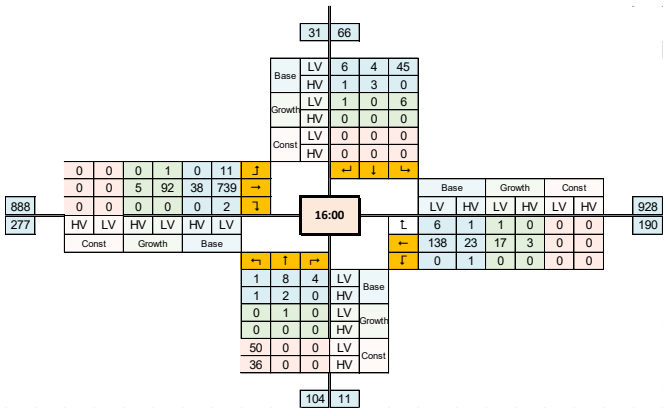
Traffic volumes

Figure 5-42 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-42 Golden Highway / Range Road 2028 with construction traffic volumes



AM peak hour



PM peak hour

Operational performance

Table 5-29 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection is forecast to operate at LoS F by 2028, even without the HTP construction vehicles at the intersection. Increased demands of the construction vehicles would only worsen the forecast intersection performance levels during both the AM and PM periods.

Table 5-29 I-10b Golden Highway / Range Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.91	339.1s (Range Rd (N))	F	25.1m (Range Rd (N))	9.37	>600s (Golden Hwy (W))	F	633.6m (Golden Hwy (W))
PM peak hour (16.00-17.00)							
0.99	228.0s (Range Rd (N))	F	39.7m (Range Rd (N))	1.10	348.4s (Range Rd (N))	F	58.7m (Range Rd (N))

A review of the traffic flows at the intersection indicates that the peak periods are concentrated in two-hour windows and that the flows during the adjacent hours of 7-8am and 3-4pm are notably lower. Based on this, the peak construction demands were assessed for these periods as a potential mitigation measure. This is summarised in **Table 5-30**.

The results show that for the AM peak hour, the intersection would operate at LoS B in both scenarios. For the PM peak, the delays for traffic turning right onto the Golden Highway on the northern approach of Range Road would experience an increased delay of 16 seconds. It is noted that the demand for this movement is only nine vehicles, and all other movements operate at LoS C or better.

Table 5-30 I-10b Golden Highway / Range Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM hour (7.00-8.00)							
0.19	20.7s (Range Rd (N))	B	4.6m (Range Rd (N))	0.22	25.5s (Range Rd (N))	B	5.8m (Range Rd (N))
PM hour (15.00-16.00)							
0.33	53.3s (Range Rd (N))	D	7.4m (Range Rd (N))	0.33	69.5s (Range Rd (N))	E	8.3m (Range Rd (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-43 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-31** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

For SISD, the assessment identified that sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).

Figure 5-43 Golden Highway / Range Road turn warrant assessment

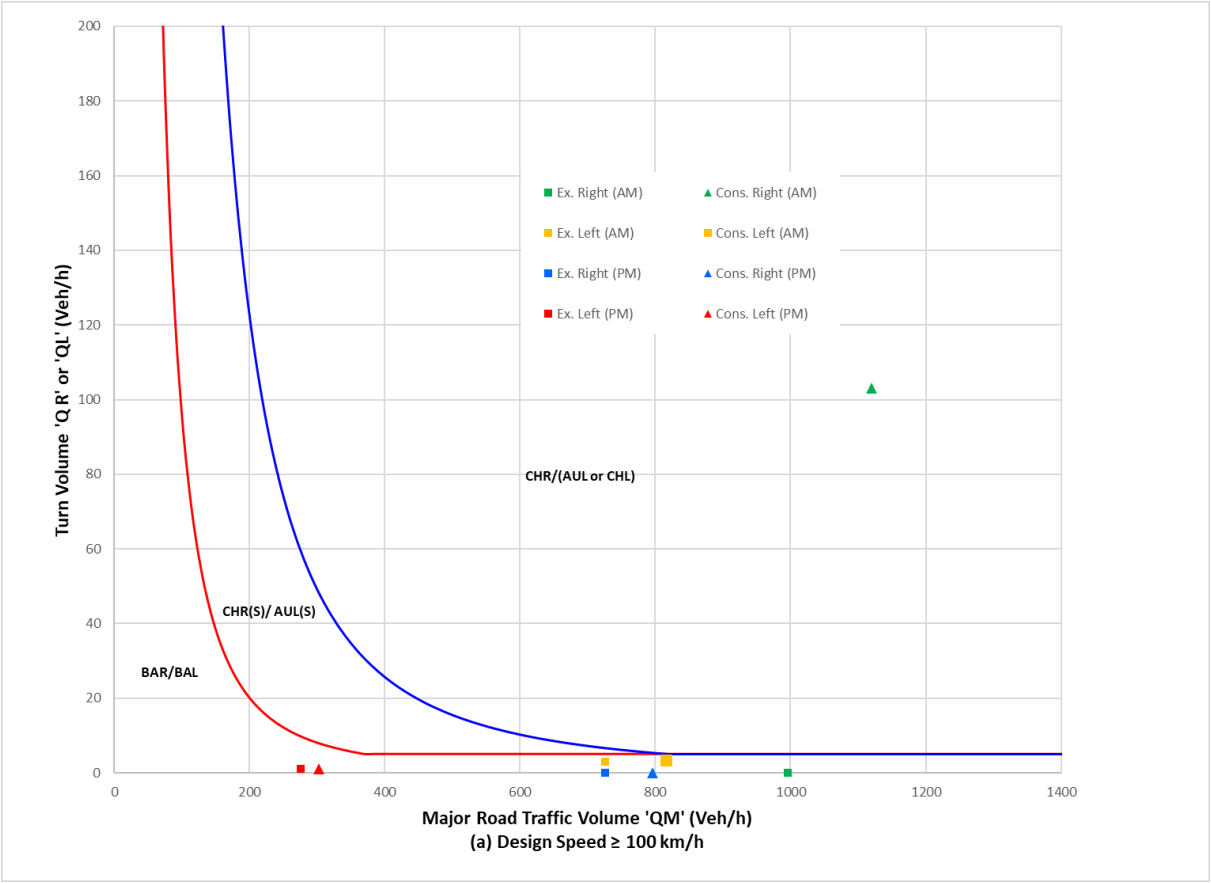


Table 5-31 I-10b Golden Highway / Range Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / AUL	CHR / BAL	None	No

Summary

While the construction traffic is not causing the poor intersection operational performance at the Golden Highway / Range Road intersection, mitigation measures would be put in place so that construction traffic is prohibited at this intersection before 7am and between 4pm and 5pm to avoid the road network AM and PM peak hours. Advanced Variable Message Signs (VMS) will also be installed to warn of construction vehicle activity at the intersection.

5.3.2.13 I-14 Wine Country Drive / Broke Road

Role

The Wine Country Drive / Broke Road intersection, shown in **Figure 5-44**, would provide access between the Wollombi Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

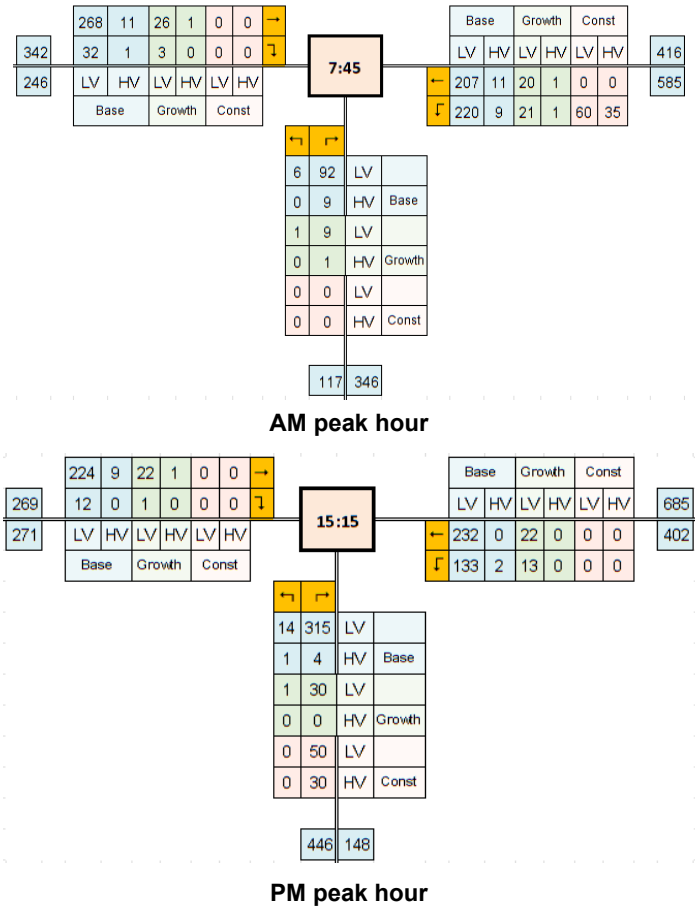
Figure 5-44 Wine Country Drive / Broke Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-45 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 7.45-8.45am and 3.15-4.15pm, and were the hours tested.

Figure 5-45 Wine Country Drive / Broke Road 2028 with construction traffic volumes



Operational performance

Table 5-32 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The intersection performance during the AM network peak hour is forecast to operate well with construction traffic.

For the PM peak hour, it is forecast that the intersection would perform poorly by 2028 with just the assumed background traffic growth. It is noted that construction PM peak traffic volumes are unlikely to occur during the network peak of 3.15-4.15pm. As such, the construction peak hour of 5-6pm is presented for comparison, which shows better conditions than the network peak hour without the construction vehicles.

A scenario with light vehicles using an alternative route (via Mount View Road, Oakey Creek Road, and McDonalds Road) between the Wollombi Road construction support site and the HTP corridor and therefore not travelling through the intersection was tested. With only the 30 heavy vehicles turning right from Broke Road into Wine Country Drive, the intersection is forecast to operate at an acceptable LoS D in the construction peak hour.

Table 5-32 I-14 Wine Country Drive / Broke Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	Delay (s)	LoS	Worst queue (m)	DoS	Delay (s)	LoS	Worst queue (m)
AM peak hour (7.45-8.45)							
0.44	27.8s (Broke Rd (W))	B	15.4m (Broke Rd (W))	0.49	31.3s (Broke Rd (W))	C	17.2m (Broke Rd (W))
PM peak hour (15.15-16.15)							
1.16	188.8s (Broke Rd (W))	F	302.9m (Broke Rd (W))	1.58	554.8s (Broke Rd (W))	F	825.4m (Broke Rd (W))
PM peak hour (15.15-16.15) – with HTP heavy vehicles only							
-	-		-	1.42	412.6s (Broke Rd (W))	F	609.5m (Broke Rd (W))
PM hour (17.00-18.00)							
-	-	-	-	1.02	89.4s (Broke Rd (W))	F	161.1m (Broke Rd (W))
PM hour (17.00-18.00) – with HTP heavy vehicles only							
-	-	-	-	0.87	42.0s (Broke Rd (W))	D	73.4m (Broke Rd (W))

Safety (turn warrant assessment and SISD compliance)

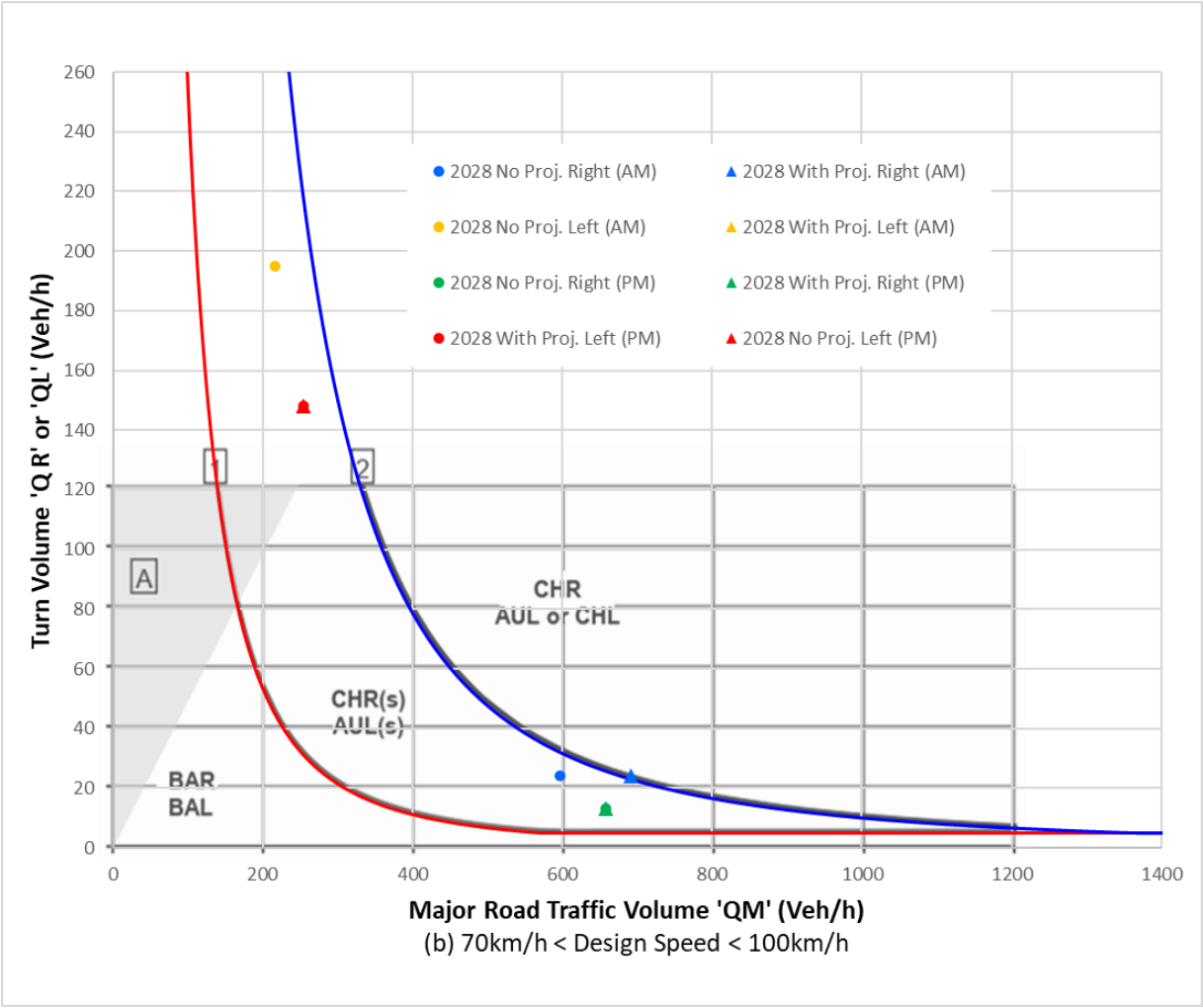
Figure 5-46 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-33** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

The SISD non-compliance is due to an existing tourism sign/wall on private property.

Table 5-33 I-14 Wine Country Drive / Broke Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	CHR / AUL(s)	None	No

Figure 5-46 Wine Country Drive / Broke Road turn warrant assessment



Summary

The PM network peak hour (3.15-4.15pm) is noted to occur considerably earlier than the project PM peak hour (5-6pm), and the peak construction flows are unlikely to occur during the PM network peak hour. Nevertheless, mitigation measures would be put in place to minimise construction flows and reduce the project impact during the PM network peak hour (3.15-4.15pm), with light construction vehicles being directed to use an alternative route (via Mount View Road, Oakey Creek Road, and McDonalds Road) between the Wollombi Road construction support site and the HTP corridor. The impact of using this alternative route on those local road intersections has been tested and is presented in **Section 5.3.3**.

Heavy construction vehicles would remain using this intersection as the use of the higher order roads (Wine Country Drive (State road) and Broke Road (regional road)) is more appropriate for these vehicles than the alternative local road route along Mount View Road, Oakey Creek Road, and McDonalds Road.

Discussions held with TfNSW also determined that physical road upgrades would not be required given constraints at the intersection and that advanced VMS warning signs should be installed warning of construction vehicle activity at the intersection.

5.3.2.14 I-16a Wollombi Road / Allandale Road

Role

The Wollombi Road / Allandale Road intersection, shown in **Figure 5-47**, is a signalised intersection that would provide access between the Wollombi Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

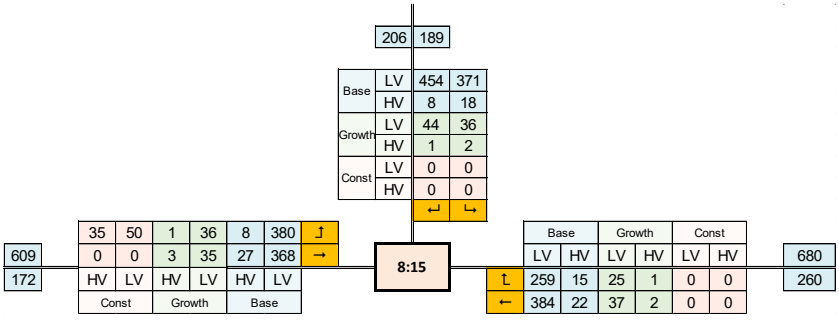
Figure 5-47 Wollombi Road / Allandale Road intersection

Source: Nearmap, December 2025

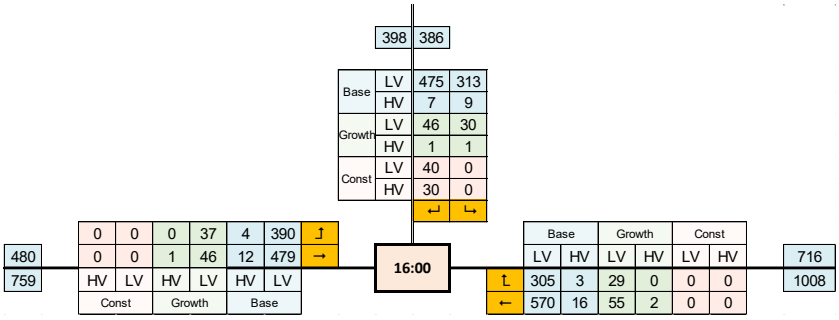
Traffic volumes

Figure 5-48 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours occur between 8.15-9.15am and 4-5pm, and were the hours tested.

Figure 5-48 Wollombi Road / Allandale Road 2028 with construction traffic volumes



AM peak hour



PM peak hour

Operational performance

Table 5-34 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The results show there would be no difference in performance levels with the introduction of the HTP construction vehicles at the intersection during the weekday AM and PM peak hours.

Table 5-34 I-16a Wollombi Road / Allandale Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (8.15-9.15)							
0.73	20.5s	B	85.1m (Allandale Rd (N))	0.73	20.2s	B	11.9m (Allandale Rd (N))
PM peak hour (16.00-17.00)							
0.79	21.6s	B	91.0m (Allandale Rd (N))	0.84	23.2s	B	118.6m (Allandale Rd (N))

Summary

Construction vehicles at the Wollombi Road / Allandale Road intersection do not impact negatively on the intersection performance levels of the weekday AM and PM peak hours, as it is forecast that the intersection would continue to operate at LoS B with the introduction of construction vehicles.

5.3.2.15 I-16b Wollombi Road / Vincent Street

Role

The Wollombi Road / Vincent Street intersection, shown in **Figure 5-49**, is a signalised intersection that would provide access between the Wollombi Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

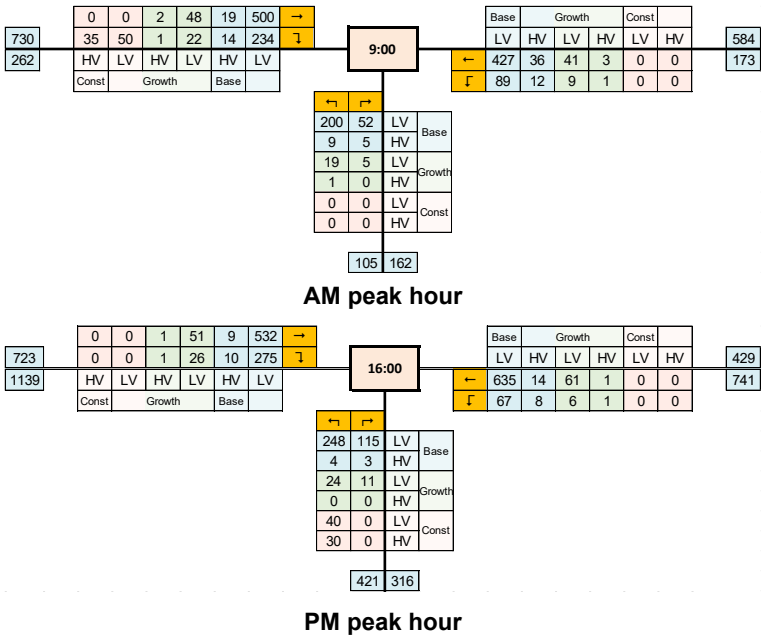
Figure 5-49 Wollombi Road / Vincent Street intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-50 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours occur between 9-10am and 4-5pm

Figure 5-50 Wollombi Road / Vincent Street 2028 with construction traffic volumes



Operational performance

Table 5-35 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The results show that there would be no difference in performance levels with the introduction of the HTP construction vehicles at the intersection during the weekday AM and PM peak hours. Queuing on the western approach is noted to extend beyond the adjacent intersection of Wollombi Road and Allandale Road, even without HTP construction vehicles. With the construction vehicles, this queue is forecast to increase by approximately 30m. Nevertheless, the intersection is forecast to operate at LoS B during both the AM and PM peak hours.

Table 5-35 I-16b Wollombi Road / Vincent Street intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (9.00-10.00)							
0.65	19.0s	B	58.0m (Maitland Rd (W))	0.69	21.1s	B	90.2m (Maitland Rd (W))
PM peak hour (16.00-17.00)							
0.78	20.7s	B	73.8m (Maitland Rd (W))	0.78	20.5s	B	73.4m (Maitland Rd (W))

Summary

Construction vehicles at the Wollombi Road / Vincent Street intersection do not impact negatively on the intersection performance levels of the weekday AM and PM peak hours, as it is forecast that the intersection would continue to operate at LoS B with the introduction of construction vehicles.

5.3.2.16 I-27 Mandalong Road / Freemans Drive / Wyee Road

Role

The Mandalong Road / Freemans Drive / Wyee Road intersection, shown in **Figure 5-51**, is a roundabout controlled intersection that would provide access for HTP construction vehicles (light and heavy vehicles) between the following sites:

- HTP corridor
- Olney switching station
- Eraring substation upgrade
- Existing transmission line to support restringing and tower strengthening
- Port of Newcastle (as an OSOM access route).

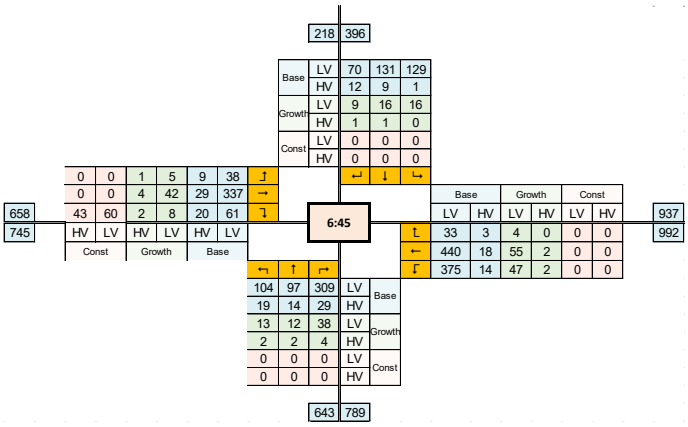
Figure 5-51 Mandalong Road / Freemans Drive / Wyee Road intersection

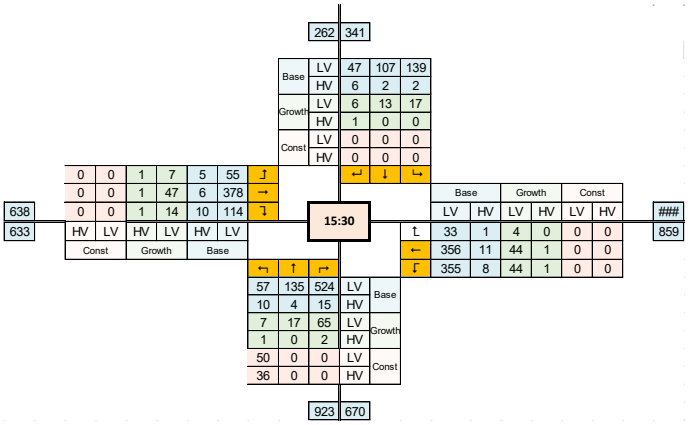
Source: Nearmap, December 2025

Traffic volumes

Figure 5-52 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours occur between 6.45-7.45am and 3.30-4.30pm, and were the hours tested.

Figure 5-52 Mandalong Road / Freemans Drive / Wyee Road 2028 with construction traffic volumes





Operational performance

Table 5-36 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The results show that the existing intersection layout would operate with Degree of Saturation exceeding 1.0 and LoS F by 2028, based on the projected background growth rate. With the construction vehicle demands, the conditions would only worsen at the intersection.

Table 5-36 I-27 Mandalong Road / Freemans Drive / Wyee Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.45-7.45)							
1.07	107.3s (Wyee Rd (S))	F	400.9m (Wyee Rd (S))	1.14	160.0s (Wyee Rd (S))	F	693.7m (Dora St (E))
PM peak hour (15.30-16.30)							
1.09	122.1s (Mandalong Rd (W))	F	498.1m (Wyee Rd (S))	1.31	303.7s (Mandalong Rd (W))	F	971.8m (Mandalong Rd (W))

With the limitation of the existing roundabout intersection identified, TfNSW has investigated upgrade options along Mandalong Road between the M1 Pacific Motorway and Ourimbah Street to improve traffic flow and safety for all users while helping meet the future needs of an increased population and employment in the Morisset area. A preferred design at the Mandalong Road / Freemans Drive / Wyee Road intersection has been developed by TfNSW for the proposed upgrade and this signalised intersection layout was assessed for the 2028 projected volumes.

The results of the signalised intersection performance are summarised in **Table 5-37**. Signalising the intersection would provide spare capacity to accommodate the peak traffic volumes with and without construction traffic.

Table 5-37 I-27 Mandalong Road / Freemans Drive / Wyee Road signalised intersection performance (with future signalisation)

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.45-7.45)							
0.82	32.2s	C	92.4m (Dora St (E))	0.82	36.4s	C	102.9m (Dora St (E))
PM peak hour (15.30-16.30)							
0.79	36.7s	C	104.3m (Wyee Rd (S))	0.88	38.6s	C	116.2m (Wyee Rd (S))

Summary

Assessment of the existing roundabout intersection layout identified that the intersection would operate at capacity during both the AM and PM peak hours in 2028, based on the projected background traffic growth. A potential signalised layout was assessed for the intersection, which shows that there is spare capacity under the signalised layout to accommodate the peak traffic volumes generated by the HTP project during the AM and PM peak hours.

This intersection is important in providing access to and from the construction impact area, particularly the Eraring substation and transmission line corridor. However, to minimise pressure on this intersection, alternative access routes to/from the Freemans Drive construction support site have been included for construction traffic that can avoid this intersection (being traffic travelling to/from the construction impact areas west of the M1 Motorway). Consultation with TfNSW concerning the timing for these works will occur during construction planning and preparation of the traffic management plan (mitigation measure TT1).

5.3.2.17 I-29 Wangi Road / Rocky Point Road

Role

The Wangi Road / Rocky Point Road intersection, shown in **Figure 5-53**, comprises two intersections east and west of the Wangi Road overpass. This interchange would provide access for HTP construction vehicles (light and heavy vehicles) between the Freeman Drive construction support site and the Eraring Substation upgrade and Port of Newcastle (as an OSOM access route).

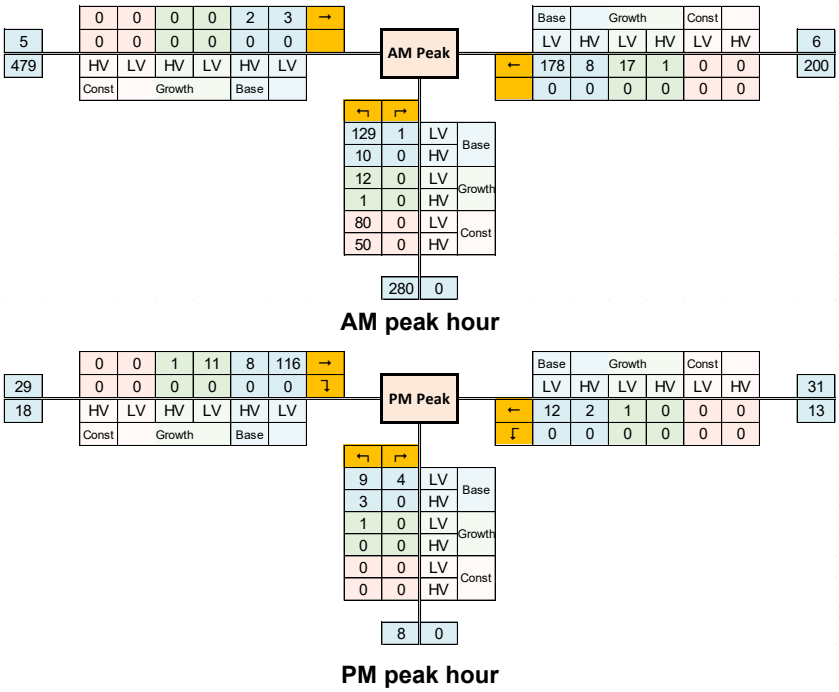
Figure 5-53 Wangi Road / Rocky Point Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-54 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours occur between 6-7am and 2.45-3.45pm, and were the hours tested.

Figure 5-54 Wangi Road / Rocky Point Road 2028 with construction traffic volumes



Operational performance

Table 5-38 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the interchange is forecast to continue to perform at LoS A during the weekday AM and PM peak hours with the addition of construction traffic. In addition, queuing along the Rocky Point Road would be minimal during the peak hours.

Table 5-38 I-29 Wangi Road / Rocky Point Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.12	7.2s (Rocky Pt Rd (W))	A	0.2m (Rocky Pt Rd (W))	0.19	7.2s (Rocky Pt Rd (W))	A	0.2m (Rocky Pt Rd (W))
PM peak hour (14.45-15.45)							
0.09	6.4s (Rocky Pt Rd (E))	A	3.1m (Rocky Pt Rd (W))	0.16	6.4s (Rocky Pt Rd (E))	A	6.7m (Rocky Pt Rd (W))

Safety (turn warrant assessment and SISD compliance)

Figure 5-55 and **Figure 5-56** presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-39** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. No turn treatment upgrades are required.

Figure 5-55 Wangi Road / Rocky Point Road turn warrant assessment – western ramp

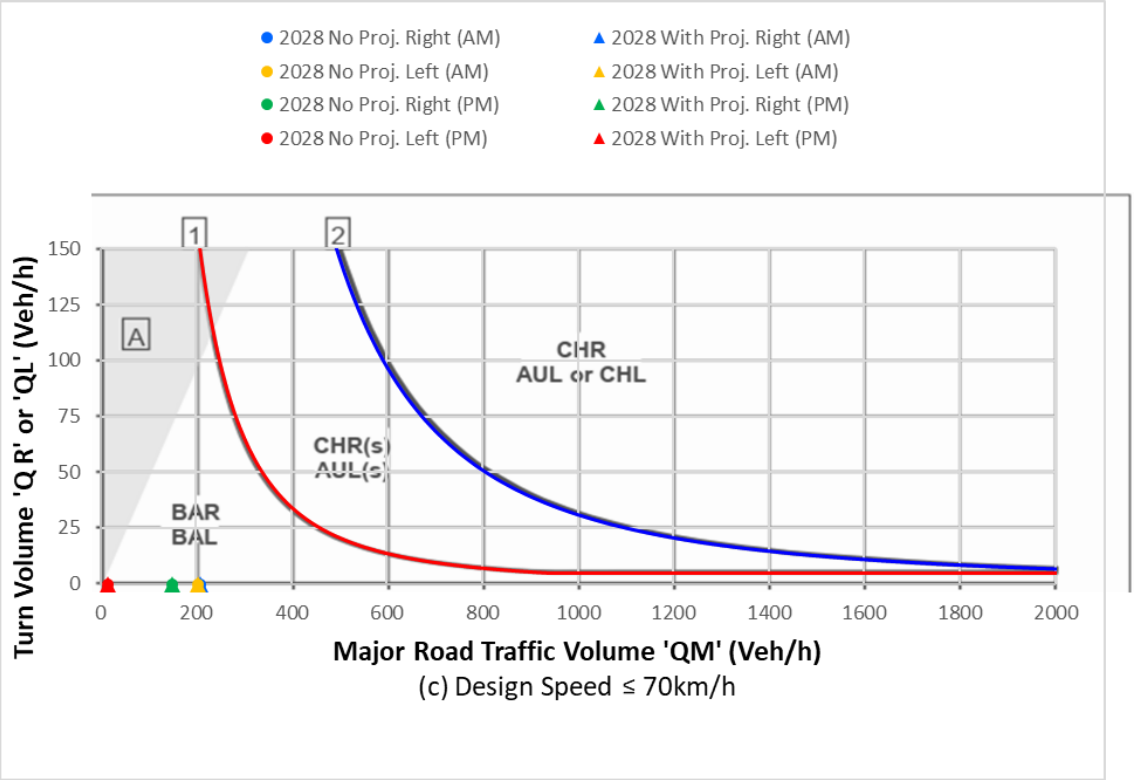


Figure 5-56 Wangi Road / Rocky Point Road turn warrant assessment – eastern ramp

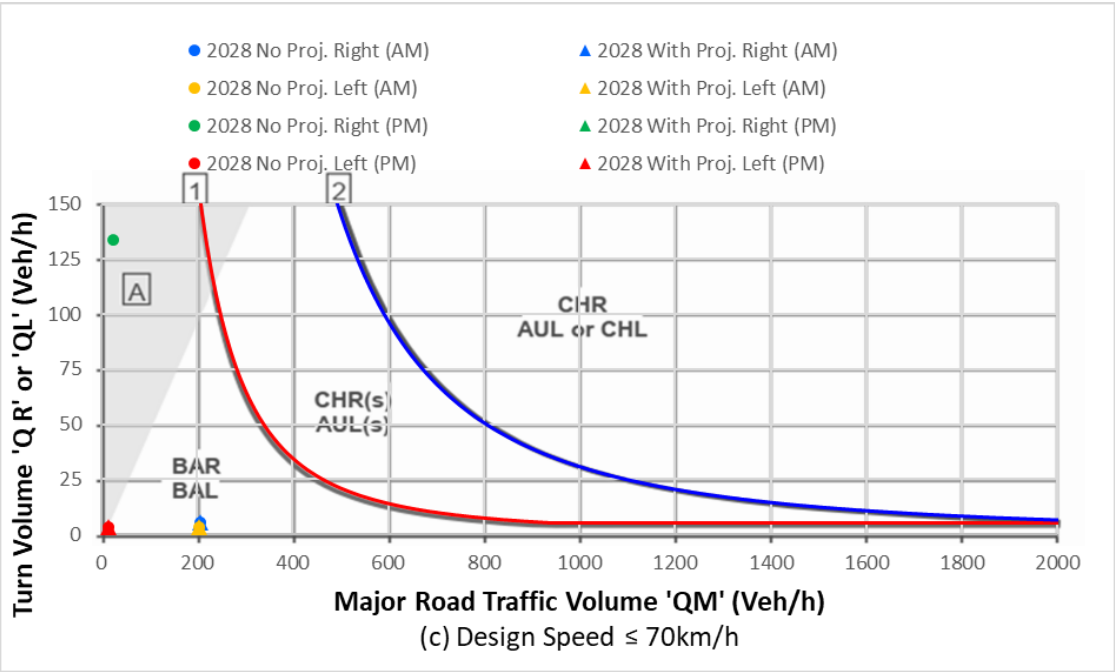


Table 5-39 I-29 Wangi Road / Rocky Point Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
T-junction	T-junction	None	Yes

Summary

Construction vehicles at the interchange do not impact the operational performance of the interchange during the weekday AM and PM peak periods. In addition, the increase in construction vehicles at the intersection would not warrant any additional intersection treatments.

5.3.2.18 I-31 Putty Road / Existing Access

Role

The Putty Road / Existing Access intersection, shown in **Figure 5-57**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

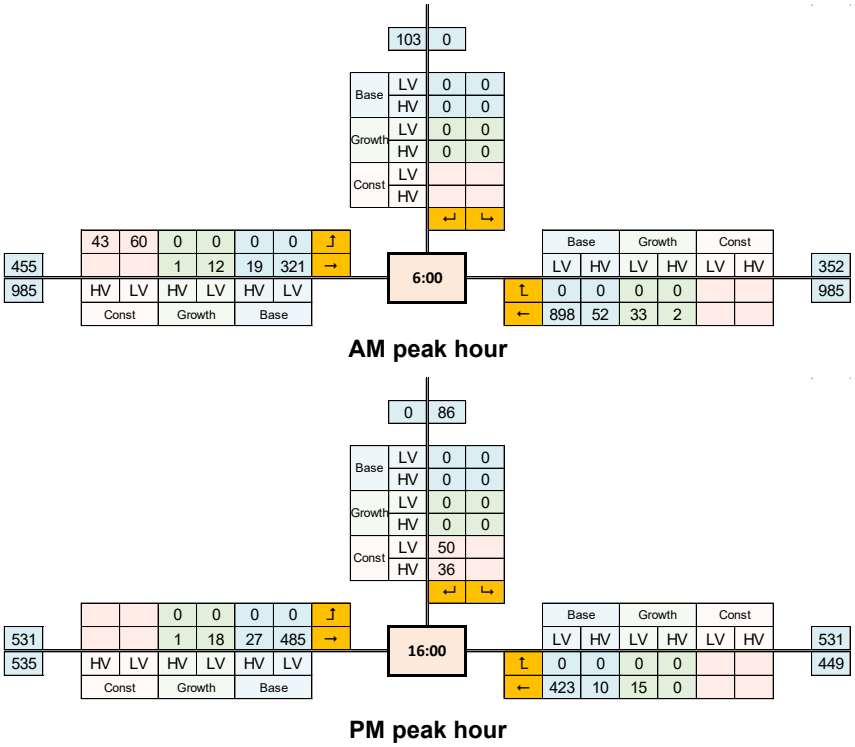
Figure 5-57 Putty Road / Existing Access intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-58 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak hour occurs before the start of the proposed HTP project hours, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-58 Putty Road / Existing Access 2028 with construction traffic volumes



Operational performance

Table 5-40 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the intersection is forecast to continue to operate well at LoS A and B during the weekday AM and PM peak hours. The increased delay during the PM peak is due to the construction vehicles exiting onto the Golden Highway from the minor approach of the northern access road under priority control.

Table 5-40 I-31 Putty Road / Existing Access intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.20	0	A	0	0.41	8.9s (Golden Hwy (W))	A	0
PM peak hour (16.00-17.00)							
0.48	0	A	0	0.48	25.8s (Northern access (N))	B	12.7m (Northern access (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-59 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-41** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. With the addition of construction vehicles, an auxiliary left turn lane onto the new access is warranted at the proposed intersection.

Figure 5-59 Putty Road / Existing Access turn warrant assessment

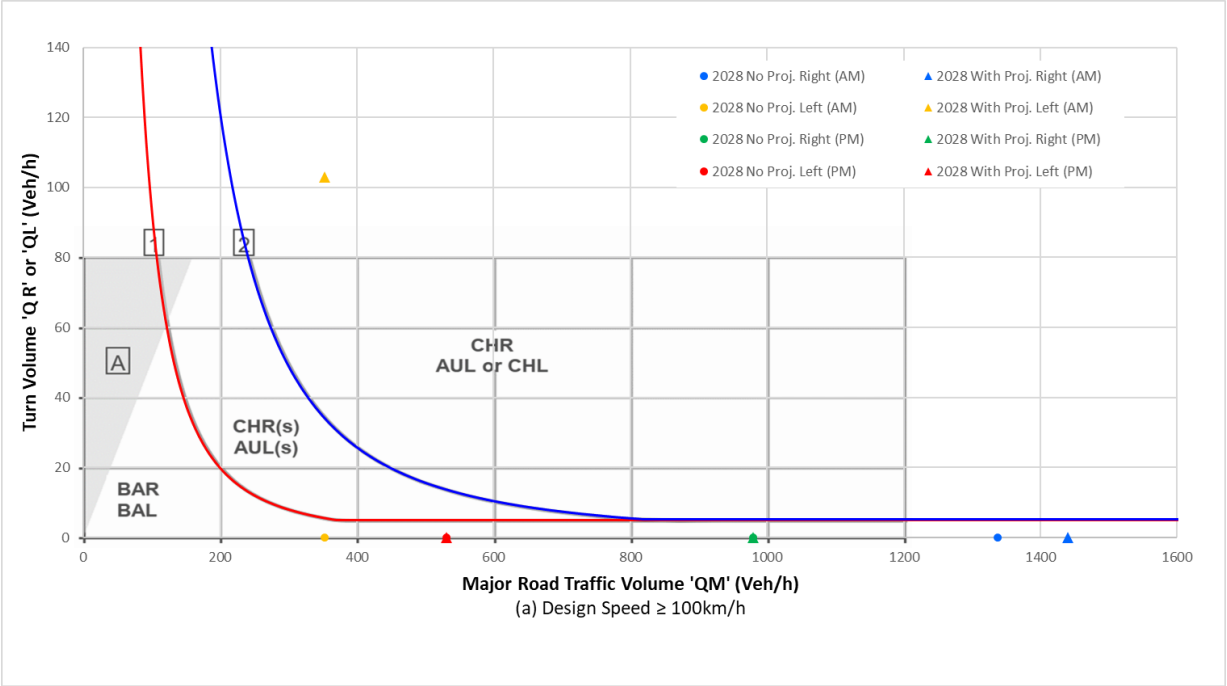


Table 5-41 I-31 Putty Road / Existing Access turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAR / BAL	AUL	Yes	Yes

Summary

Construction vehicles at the intersection do not negatively impact the operational performance of the intersection during the weekday AM and PM peak periods. However, the volume of construction vehicles entering the access road warrants an auxiliary left-turn lane for vehicles entering from the western approach on Putty Road. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.19 I-32 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth)

Role

The Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) intersection, shown in **Figure 5-60**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

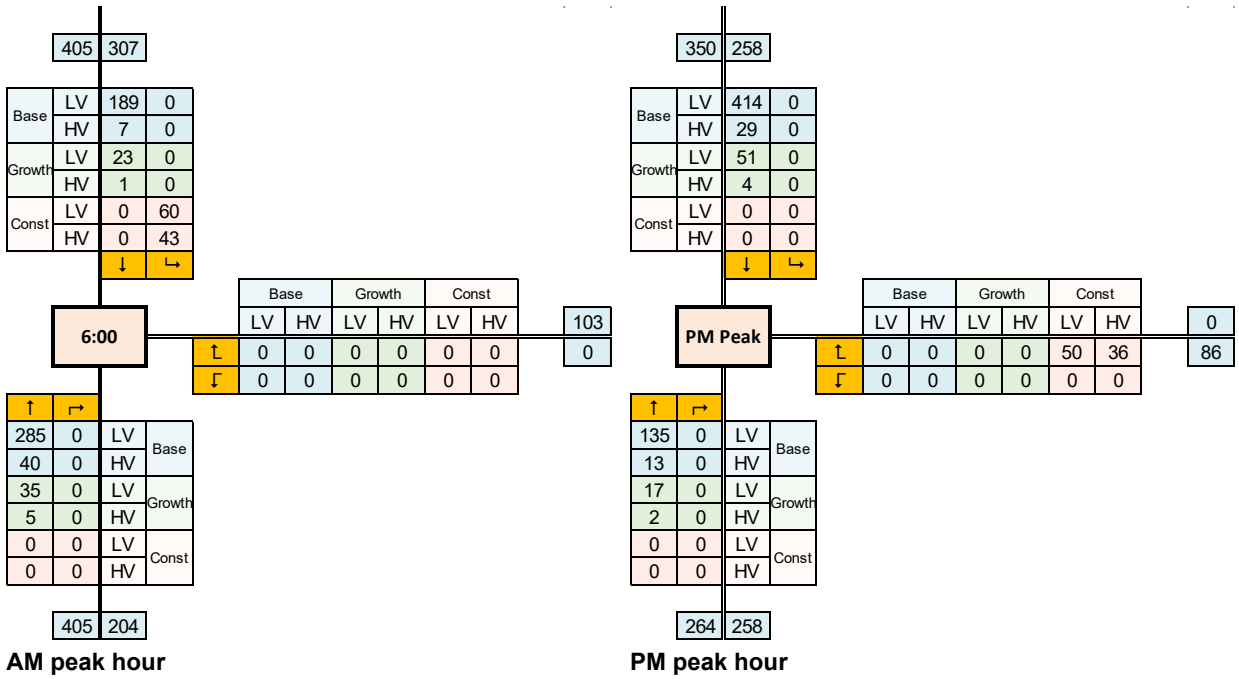
Figure 5-60 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-61 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.30-6.30am and 4.15-5.15pm. As the existing AM network peak hour occurs before the proposed HTP construction period, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-61 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) 2028 with construction traffic volumes



Operational performance

Table 5-42 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the intersection is forecast to still operate well at LoS A during the weekday AM and PM peak hours with construction vehicle movements.

Table 5-42 I-32 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.21	7.8s (Golden Hwy (N))	A	0	0.21	8.9s (Golden Hwy (N))	A	0
PM peak hour (16.15-17.15)							
0.28	7.9s (Golden Hwy (N))	A	0	0.28	13.5s (Existing track (E))	A	7.0m (Existing track (E))

Safety (turn warrant assessment and SISD compliance)

Figure 5-62 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-43** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. With the addition of construction vehicles, an auxiliary left turn lane onto the existing access road is warranted at the intersection.

Figure 5-62 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) turn warrant assessment

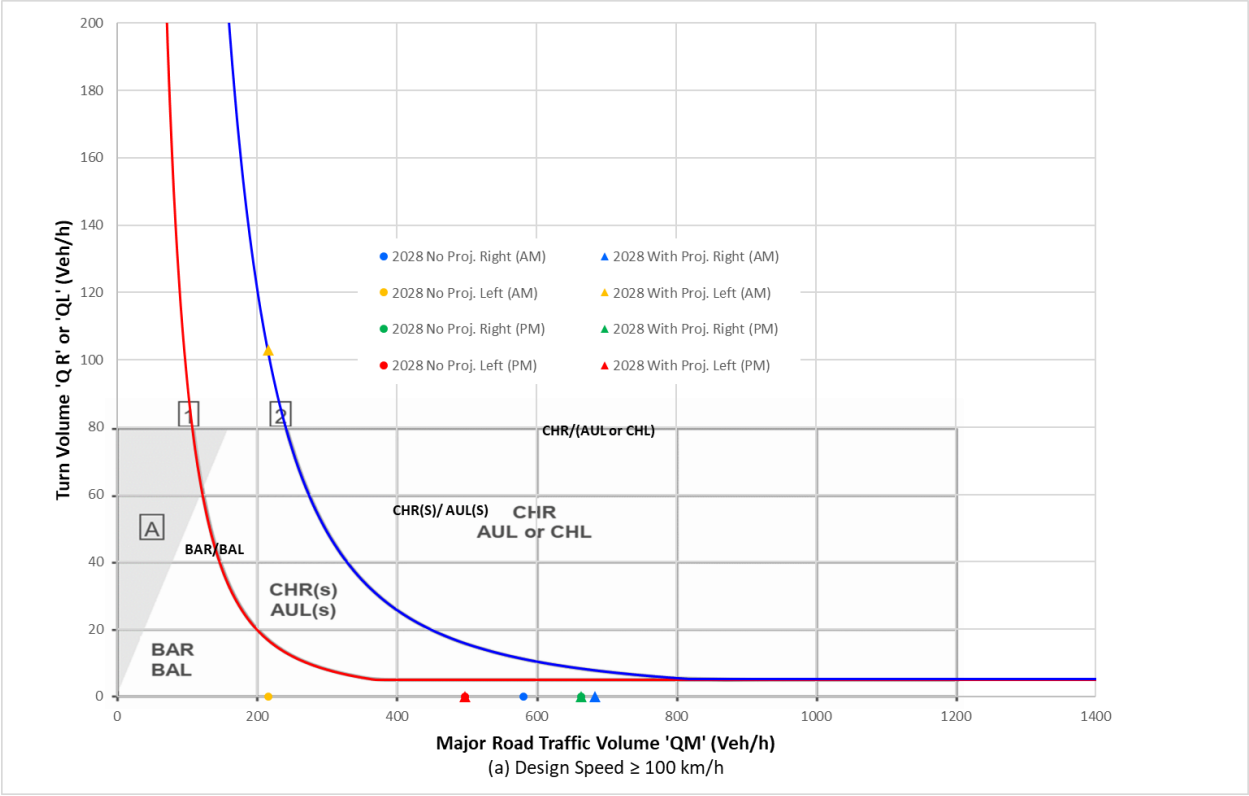


Table 5-43 I-32 Golden Highway / Existing Access Across Rail Track (Mount Thorley, Warkworth) turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAR / BAL	AUL	Yes	Yes

Summary

Construction vehicles at the intersection do not negatively impact the operational performance of the intersection during the weekday AM and PM peak periods. However, the volume of construction vehicles entering the access road warrants an auxiliary left-turn lane (AUL) for vehicles entering from the western approach on the Golden Highway. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.20 I-33 Golden Highway / Unknown Road (east of Lemington Road)

Role

The Golden Highway / Unknown Road (east of Lemington Road) intersection, shown in **Figure 5-63**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

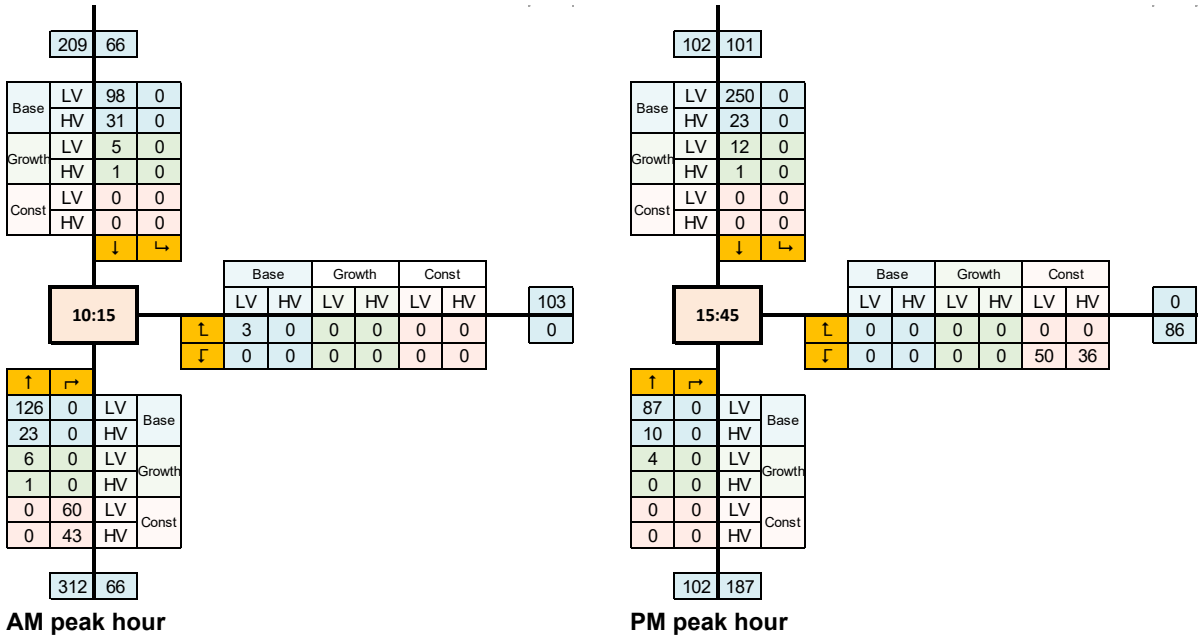
Figure 5-63 Golden Highway / Unknown Road (east of Lemington Road) intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-64 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. Based on the traffic surveys, the existing network peak hours were identified to occur between 10.15-11.15am and 3.45-4.45pm, and were the hours tested.

Figure 5-64 Golden Highway / Unknown Road (east of Lemington Road) 2028 with construction traffic volumes



Operational performance

Table 5-44 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. It shows that the intersection is forecast to still operate well at LoS A during the weekday AM and PM peak hours with construction vehicle movements.

Table 5-44 I-33 Golden Highway / Unknown Road (east of Lemington Road)

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (10.15-11.15)							
0.09	7.8s (Golden Hwy (S))	A	0	0.19	9.4s (Golden Hwy (S))	A	7.3m (Golden Hwy (S))
PM peak hour (15.45-16.45)							
0.09	7.8s (Golden Hwy (S))	A	0	0.09	7.8s (Golden Hwy (S))	A	3.1m (Unknown Rd (E))

Safety (turn warrant assessment and SISD compliance)

Figure 5-65 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-45** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. With the addition of construction vehicles, an auxiliary left turn lane onto the unknown road is warranted at the intersection.

Figure 5-65 Golden Highway / Unknown Road (east of Lemington Road) turn warrant assessment

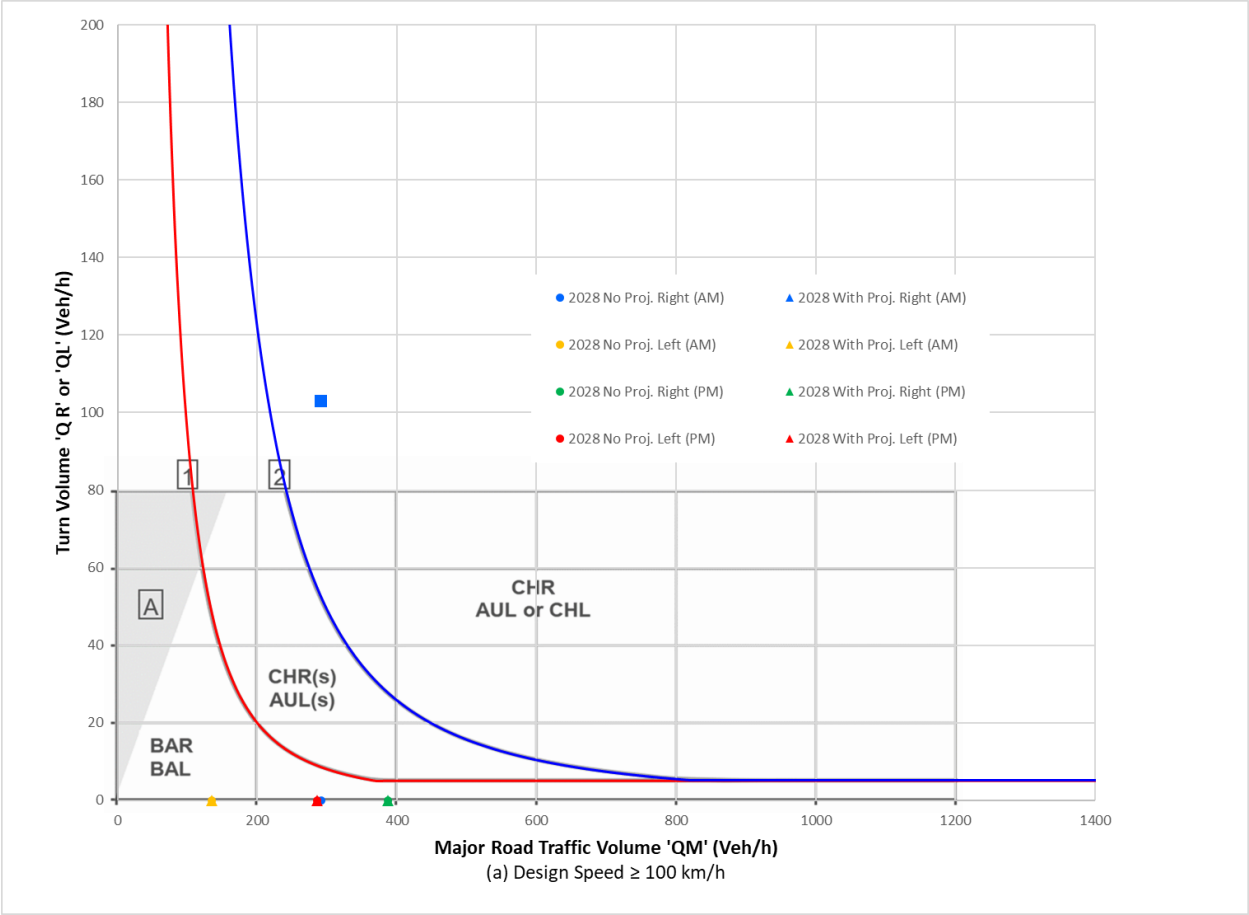


Table 5-45 I-33 Golden Highway / Unknown Road (east of Lemington Road) turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
BAL / BAR	CHR	Yes	Yes

Summary

Construction vehicles do not negatively impact the operational performance of the intersection during the weekday AM and PM peak periods. However, the volume of construction vehicles entering the unknown road warrants an auxiliary left-turn lane for vehicles entering from the western approach on the Golden Highway. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.2.21 I-52 Putty Road / New Access

Role

The Putty Road / New access intersection, the location of which is shown in **Figure 5-66**, would provide access between the Gouldsville Road construction support site and the HTP corridor for HTP construction vehicles (light and heavy vehicles).

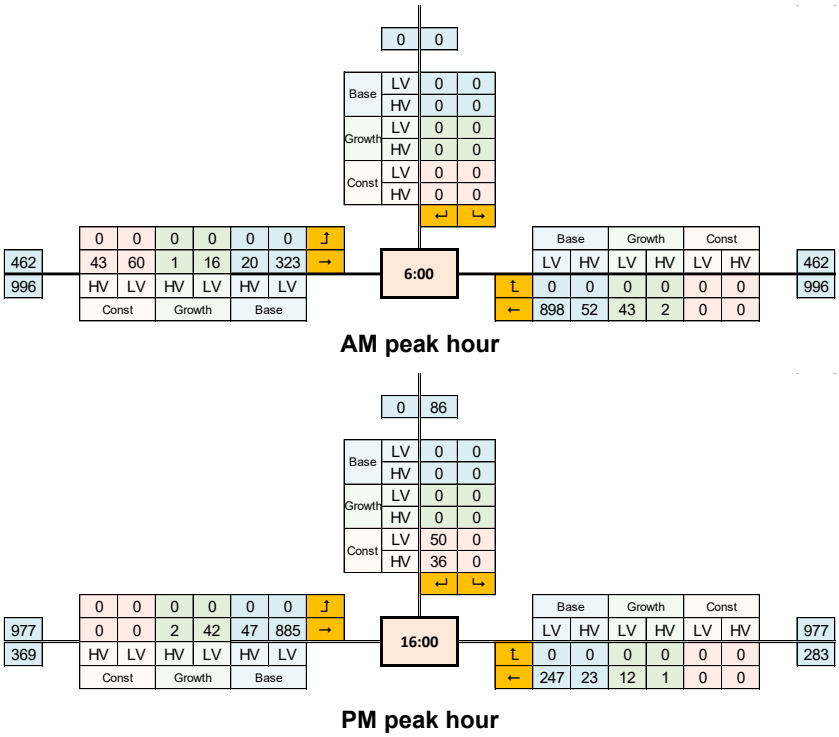
Figure 5-66 Putty Road / New access intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-67 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The AM and PM peak hours, identified from the existing adjacent intersection, are 6-7am and 4-5pm, and were the hours tested.

Figure 5-67 Putty Road / New Access 2028 with construction traffic volumes



Operational performance

Table 5-46 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The comparison shows that the intersection is forecast to operate well at LoS A during the AM network peak hour.

However, during the PM network peak hour, delays are forecast on the new northern access track, which results in the intersection reporting LoS F for the PM peak hours. Analysis of the adjacent PM peak hour shows minor decrease in delays resulting in LoS E. Nevertheless, movements along the Putty Road are forecast to experience minimal delays and congestion would only be contained within the project's access road.

Table 5-46 I-52 Putty Road / New access intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	Delay (s)	LoS	Worst queue (m)	DoS	Delay (s)	LoS	Worst queue (m)
AM peak hour (6.00-7.00)							
-	-	-	-	0.56	7.4s (Putty Rd (W))	A	0
PM peak hour (16.00-17.00)							
-	-	-	-	1.21	292.5s (New access (N))	F	128.1m (New access (N))
PM hour (15.00-16.00)							
				0.72	57.2s (New access (N))	E	27.3m (New access (N))

Safety (turn warrant assessment and SISD compliance)

Figure 5-68 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-47** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. The SISD is non-compliant and an auxiliary left-turn lane is required at the intersection.

Figure 5-68 Putty Road / New access turn warrant assessment

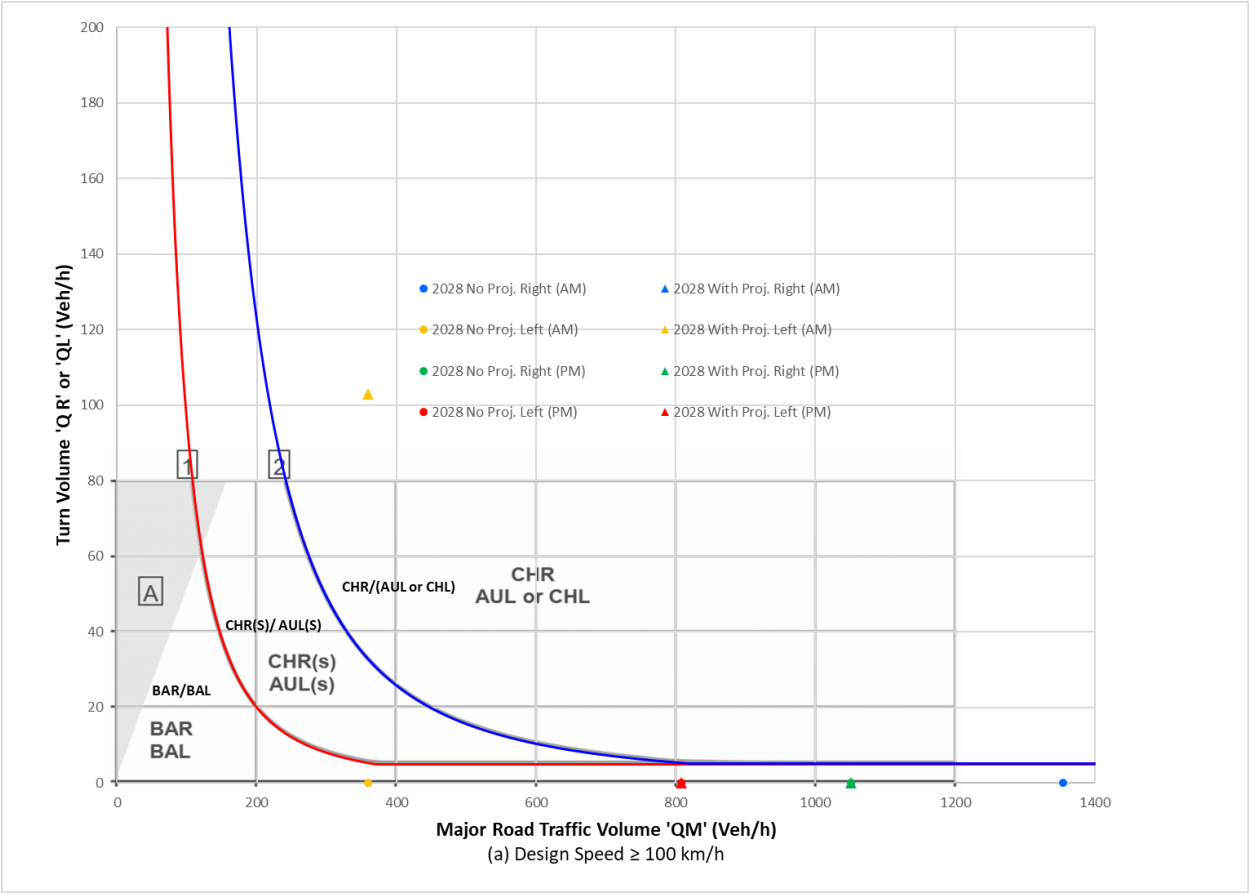


Table 5-47 I-52 Putty Road / New Access turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
N/A	AUL	Yes	No

Summary

Due to the highlighted issues at this proposed access, in particular SISD non-compliance, as a mitigation measure, this access is no longer proposed.

5.3.2.22 I-59 New England Highway / Thomas Mitchell Drive

Role

The New England Highway / Thomas Mitchell Drive intersection, shown in **Figure 5-69**, would provide access for HTP construction vehicles (light and heavy vehicles) between the Pikes Gully Road construction support site and the existing transmission lines to support restringing and tower strengthening. These works would fall outside of the peak project traffic generation phase and would only generate 10 light vehicles and 5 heavy vehicles to the worksite in the HTP AM peak hour and the same vehicles returning from the worksite in the HTP PM peak hour.

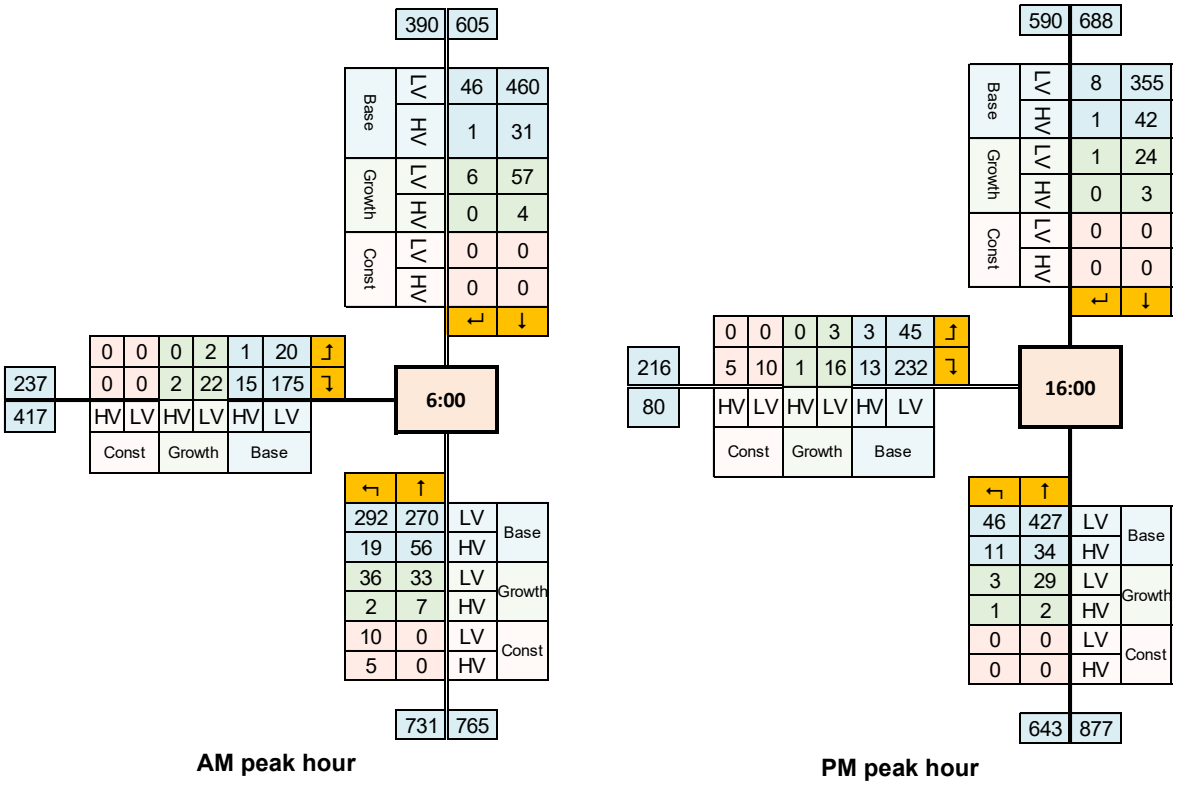
Figure 5-69 New England Highway / Thomas Mitchell Drive intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-70 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.45-6.45am and 4-5pm. As the existing AM peak occurs before the proposed HTP construction period, the AM peak assessment represents the peak HTP hour between 6-7 am.

Figure 5-70 New England Highway / Thomas Mitchell Drive 2028 with construction traffic volumes



Operational performance

Table 5-48 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The comparison shows that the intersection performance would remain unchanged with the introduction of the construction vehicles, with the intersection forecast to operate well at LoS B during the weekday AM and PM peak hours.

Table 5-48 I-59 New England Highway / Thomas Mitchell Drive intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.48	18.8s (Thomas Mitchell Dr)	B	19.7m (Thomas Mitchell Dr)	0.53	20.2s (Thomas Mitchell Dr)	B	23.4m (Thomas Mitchell Dr)
PM peak hour (16.00-17.00)							
0.58	19.1s (Thomas Mitchell Dr)	B	27.6m (Thomas Mitchell Dr)	0.63	21.0s (Thomas Mitchell Dr)	B	32.4m (Thomas Mitchell Dr)

Safety (turn warrant assessment and SISD compliance)

Figure 5-71 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-49** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection.

Figure 5-71 New England Highway / Thomas Mitchell Drive turn warrant assessment

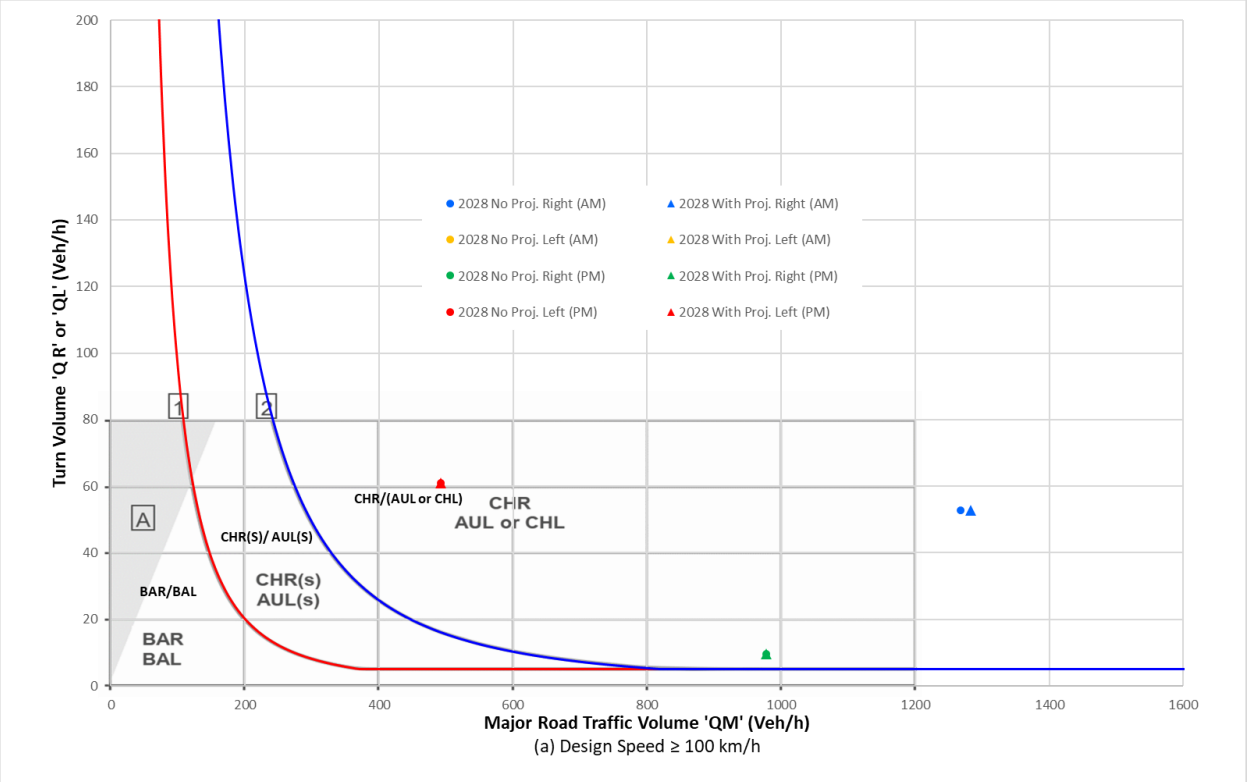


Table 5-49 I-59 New England Highway / Thomas Mitchell Drive turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	CHR / CHL	No	Yes

Summary

Construction vehicles at the New England Highway / Thomas Mitchell Drive intersection do not impact the operational performance of the intersection during the weekday AM and PM peak periods. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted

5.3.2.23 I-60 Denman Road / Thomas Mitchell Drive

Role

The Denman Road / Thomas Mitchell Drive intersection, shown in **Figure 5-72**, would provide access for HTP construction vehicles (light and heavy vehicles) between the Pikes Gully Road construction support site and the existing transmission lines to support restringing and tower strengthening. These works would fall outside of the peak project traffic generation phase and would only generate 10 light vehicles and 5 heavy vehicles to the worksite in the HTP AM peak hour and the same vehicles returning from the worksite in the HTP PM peak hour.

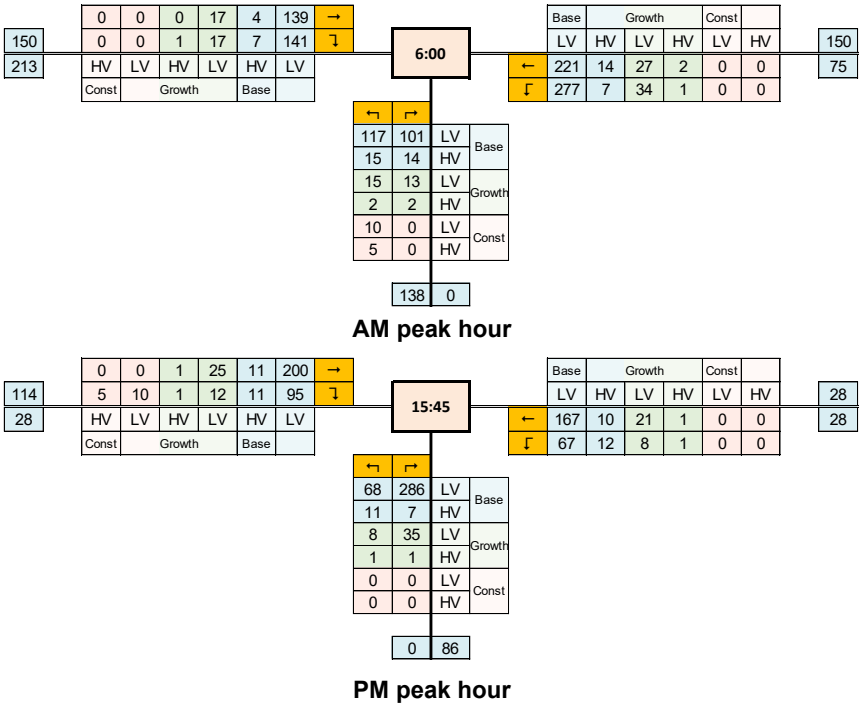
Figure 5-72 I-60 Denman Road / Thomas Mitchell Drive intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-73 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.30-6.30am and 3.45-4.45pm. As the existing AM peak occurs before the proposed HTP construction period, the AM peak assessment represents the peak HTP hour between 6-7am.

Figure 5-73 I-60 Denman Road / Thomas Mitchell Drive 2028 with construction traffic volumes



Operational performance

Table 5-50 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The comparison shows that the intersection performance would remain unchanged with the addition of the construction vehicles and that the intersection would continue to operate well at LoS B during the weekday AM and PM peak hours.

Table 5-50 I-60 Denman Road / Thomas Mitchell Drive intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.38	18.9s (Thomas Mitchell Dr (E))	B	12.6m (Thomas Mitchell Dr (E))	0.39	19.5s (Thomas Mitchell Dr (E))	B	13.0m (Thomas Mitchell Dr (E))
PM peak hour (15.45-16.45)							
0.66	18.8s (Thomas Mitchell Dr (E))	B	36.0m (Thomas Mitchell Dr (E))	0.67	19.5s (Thomas Mitchell Dr (E))	B	37.4m (Thomas Mitchell Dr (E))

Safety (turn warrant assessment and SISD compliance)

Figure 5-74 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-51** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection.

Figure 5-74 I-60 Denman Road / Thomas Mitchell Drive turn warrant assessment

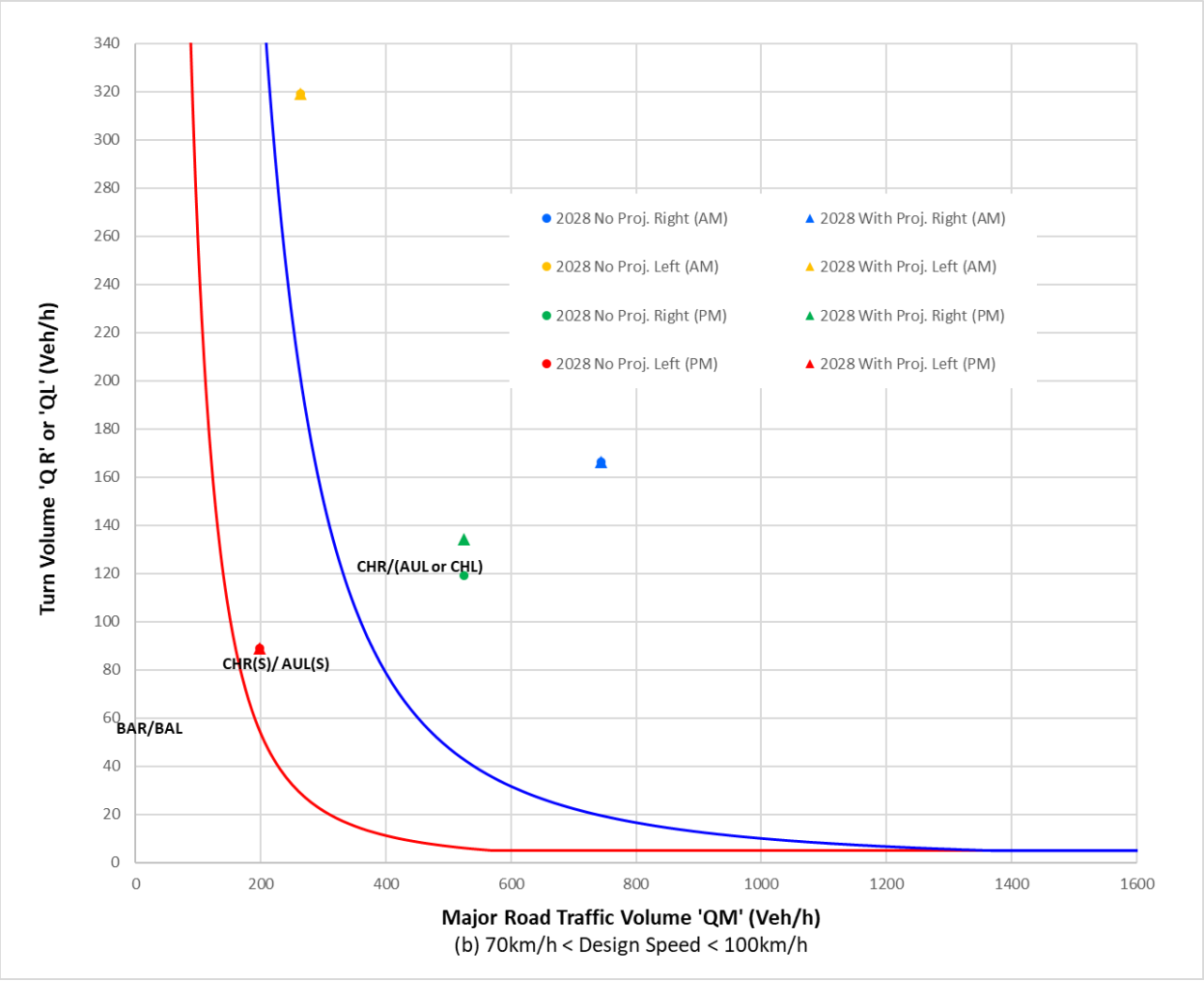


Table 5-51 I-60 Denman Road / Thomas Mitchell Drive turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / CHL	CHR / CHL	No	Yes

Summary

Construction vehicles at the Denman Road / Thomas Mitchell Drive intersection do not impact the operational performance of the intersection during the weekday AM and PM peak periods. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.24 I-61 Denman Road / Edderton Road

Role

The Denman Road / Edderton Road intersection, shown in **Figure 5-75**, would provide access for HTP construction vehicles (light and heavy vehicles) between the Pikes Gully Road construction support site and the existing transmission lines to support restringing and tower strengthening. These works would fall outside of the peak project traffic generation phase and would only generate 10 light vehicles and 5 heavy vehicles to the worksite in the HTP AM peak hour and the same vehicles returning from the worksite in the HTP PM peak hour.

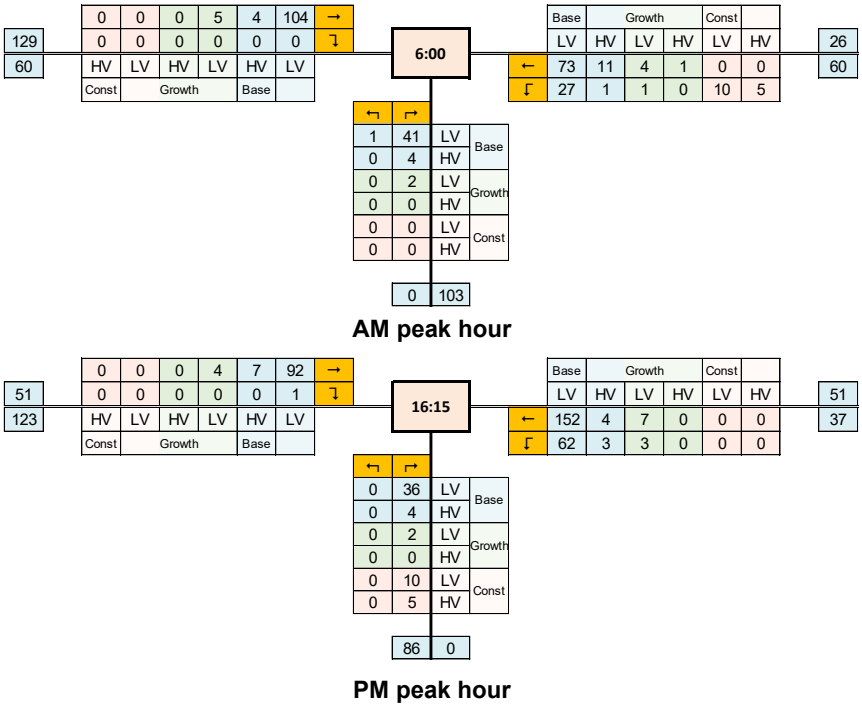
Figure 5-75 I-61 Denman Road / Edderton Road intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-76 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. The existing network peak hours were identified to occur between 5.30-6.30am and 4.15-5.15pm. As the existing AM peak occurs before the proposed HTP construction period, the AM peak assessment represents the peak HTP hour between 6-7 am.

Figure 5-76 I-61 Denman Road / Edderton Road 2028 with construction traffic volumes



Operational performance

Table 5-52 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The comparison shows that the intersection performance would remain unchanged with the addition of the construction vehicles and that the intersection would continue to operate well at LoS A during the weekday AM and PM peak hours.

Table 5-52 I-61 Denman Road / Edderton Road intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	**Delay (s)**	**LoS**	**Worst queue (m)**	**DoS**	**Delay (s)**	**LoS**	**Worst queue (m)**
AM peak hour (6.00-7.00)							
0.08	12.0s (Edderton Rd (S))	A	2.2m (Edderton Rd (S))	0.08	12.0s (Edderton Rd (S))	A	2.2m (Edderton Rd (S))
PM peak hour (16.15-17.15)							
0.10	13.2s (Edderton Rd (S))	A	2.3m (Edderton Rd (S))	0.12	13.9s (Edderton Rd (S))	A	3.4m (Edderton Rd (S))

Safety (turn warrant assessment and SISD compliance)

Figure 5-77 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-53** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection.

Figure 5-77 I-61 Denman Road / Edderton Road turn warrant assessment

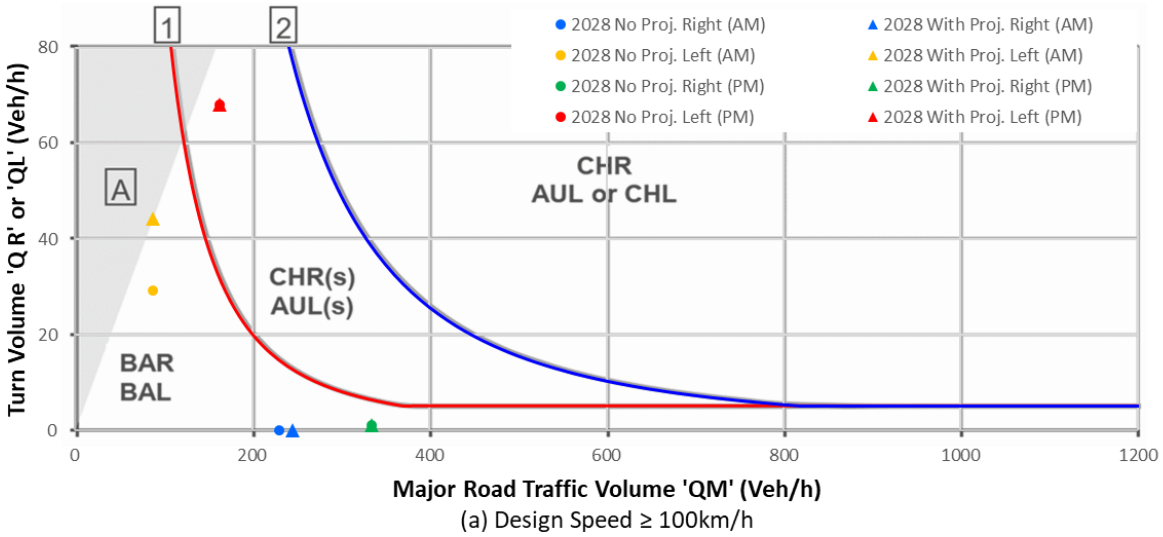


Table 5-53 I-61 Denman Road / Edderton Road turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
CHR / AUL	CHR (S)	No	Yes

Summary

Construction vehicles at the Denman Road / Edderton Road intersection are unlikely to impact the operational performance of the intersection during the weekday AM and PM peak periods. In addition, as the intersection already accommodates channelised turn lanes, no additional intersection treatments are warranted.

5.3.2.25 I-69 Jerrys Plains Road (SB Ramp) / New Access track

Role

The Jerrys Plains Road (SB Ramp) / New access track intersection, shown in **Figure 5-78**, would provide access for HTP construction vehicles (light and heavy vehicles) between the Gouldsville Road construction support site and the realignment of the existing transmission line at Mount Thorley. It would operate as a left-in, left-out only intersection.

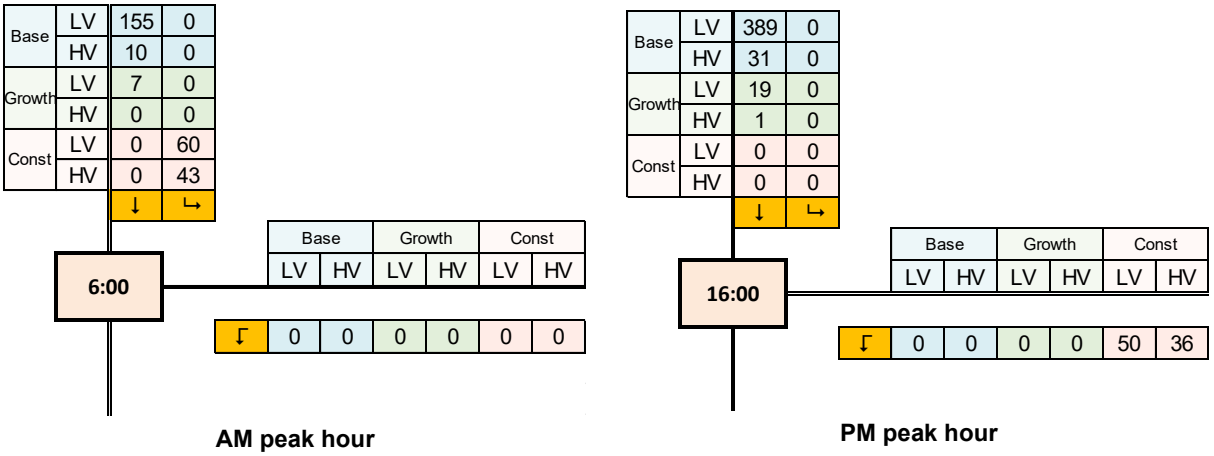
Figure 5-78 I-69 Jerrys Plains Road (SB Ramp) / New access track intersection

Source: Nearmap, December 2025

Traffic volumes

Figure 5-79 presents the base, growth and construction traffic volumes in the 2028 AM and PM peak hours. Based on the adjacent road network, existing network peak hours were identified to occur between 5.15-6.15am and 4-5pm. As the existing AM peak occurs before the proposed HTP construction period, the AM peak assessment represents the peak HTP hour between 6-7 am.

Figure 5-79 I-69 Jerrys Plains Road (SB Ramp) / New access track 2028 with construction traffic volumes



Operational performance

Table 5-54 compares the intersection performance with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours. The comparison shows that the intersection would operate well at LoS A during the weekday AM and PM peak hours.

Table 5-54 I-69 Jerrys Plains Road (SB Ramp) / New access track intersection performance impact

2028 without construction traffic				2028 with construction traffic			
DoS	Delay (s)	LoS	Worst queue (m)	DoS	Delay (s)	LoS	Worst queue (m)
AM peak hour (6.00-7.00)							
-	-	-	-	0.17	7.7s (SB Ramp (N))	A	0 m
PM peak hour (16.00-17.00)							
-	-	-	-	0.12	9.3s (New Access Rd (E))	A	4.4m (New Access Rd (E))

Safety (turn warrant assessment and SISD compliance)

Figure 5-80 presents the turn warrant assessment for the 2028 existing and construction traffic scenarios, while **Table 5-55** provides a summary of the existing turn treatment, construction turn treatment requirements and required upgrades, as well as SISD compliance at the intersection. A short auxiliary left-turn lane is required. For SISD, the assessment identified that sightlines may be impeded by an existing sign, which may need to be relocated.

Figure 5-80 I-69 Jerrys Plains Road (SB ramp) / New access track turn warrant assessment

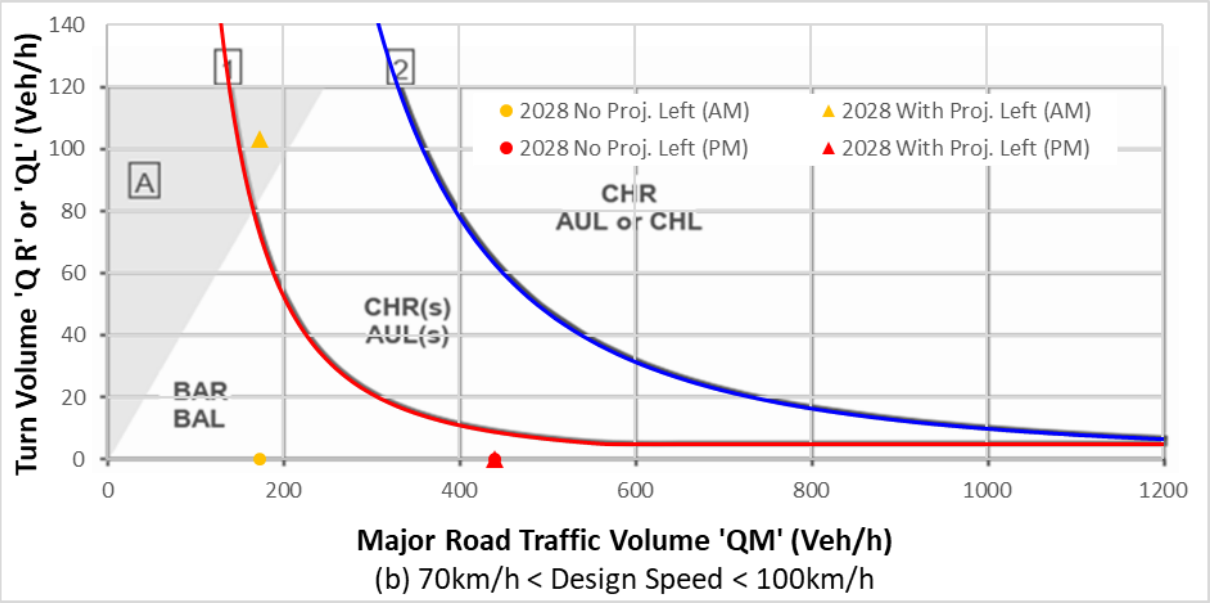


Table 5-55 I-69 Jerrys Plains Road (SB Ramp) / New access track turn warrant assessment and SISD compliance summary

Existing turn treatments	Construction traffic turn treatments required	Turn treatment upgrades required	SISD compliant
-	AUL(s)	Yes	No

Summary

Construction vehicles at the I-69 Jerrys Plains Road (SB Ramp) / New Access track intersection are forecast to operate at a good level of service during the weekday AM and PM peak periods. However, based on the turn warrant assessment, a short auxiliary left-turn lane is required for construction vehicles entering the new access road from the Jerrys Plains Road southbound ramp. This is included as part of the project and summarised in **Section 5.3.12**.

5.3.3 Impacts on intersections – Regional / local roads

This section assesses the impact of the project on the regional / local road intersections, including access to construction support sites, temporary worker accommodation and access gates along the HTP corridor.

5.3.3.1 Layout and turn warrant impact assessment

Table 5-56 provides a summary of the turn warrant requirements for all existing and proposed intersections on the regional and local road network, where construction traffic would turn. The intersection turn warrants are based on the existing network peak hour flows with the peak HTP construction vehicles.

Table 5-56 Existing intersection layouts, turn warrant requirements with project, and SISD compliance on the regional and local road network

ID	Intersection name	Existing intersection layout	Turn warrant requirement (with project)	Intersection treatment warranted?	SISD compliant?
I-05	Comleroi Road/Private Road/Driveway (Hunter Valley Operations)	CHL/BAR	BAL/BAR	No	Yes
I-11	Wollombi Road/Singleton Street	BAL/BAR	BAL/BAR	No	Yes
I-13a/b	Broke Road/McDonalds Road	Roundabout	N/A	N/A	Yes
I-15	McDonalds Road/Pokolbin Mountains Road	BAL/BAR	BAL/BAR	No	Yes
I-17	Wollombi Road/Mount View Road (Eastern Intersection – Cessnock)[1]	BAL/CHR	AUL(s)/CHR	Yes	Yes
I-18	Wollombi Road/West Avenue[2]	BAL/BAR	AUL(s)/CHR	Yes	Yes
I-19	Wollombi Road/Mount View Road (Millfield)	BAL/BAR	BAL/BAR	No	Yes
I-20	Wollombi Road/Hayes Road	BAL/BAR	BAL/BAR	No	Yes
I-21a	Cessnock Road/Oakley Lane	AUL/AUR	BAL /BAR	No	No
I-22a	Freemans Drive/Alton Road	Signals	N/A	N/A	N/A
I-23	Freemans Drive/Martinsville Road	AUL/AUR	AUL(s)/CHR	Yes	No
I-24	Martinsville Road/Pringles Road	BAL/BAR	BAL/BAR	No	No
I-25	Martinsville Road/Watagan Road	BAL/BAR	BAL/BAR	No	No
I-26	Watagan Forest Road/Martinsville Hill Road	BAL/BAR	BAL/BAR	No	No
I-28	Freemans Drive/Mount Faulk Road	BAL/BAR	BAL/BAR	No	Yes
I-34	Wollombi Road / New & Existing Access to Construction Support Sites (Wollombi Road A & B)	N/A	BAL/BAR	No	No
I-35	Broke Road / Existing Access	BAL/BAR	BAL/BAR	No	No
I-36	Broke Road / Existing Access	BAL/BAR	BAL/BAR	No	Yes
I-37	Cessnock Road / New Access	N/A	BAL/BAR	No	No
I-38	Broke Road / Existing Access	BAL/BAR	BAL/BAR	No	No

[1] Cessnock Council is planning to upgrade this intersection to signals as part of the Stage 2 Wollombi Road Upgrade project. Construction is expected to commence in early 2026. Therefore, any identified intersection treatments have not been included as part of the HTP.
[2] Cessnock Council is planning to upgrade this intersection to signals as part of the Stage 2 Wollombi Road Upgrade project. Therefore, any identified intersection treatments have not been included as part of the HTP. Engagement with Cessnock City Council on the timing of these works will continue.

ID	Intersection name	Existing intersection layout	Turn warrant requirement (with project)	Intersection treatment warranted?	SISD compliant?
I-40	Long Point Road West / Existing Easement 1	BAL/BAR	BAL/BAR	No	No
I-41	Long Point Road West / Existing Easement 2	BAL/BAR	BAL/BAR	No	No
I-42	Archerfield Road / Existing Access	BAL/BAR	BAL/BAR	No	Yes
I-43	Lemington Road / Existing Access	BAL/BAR	BAL/BAR	No	Yes
I-45	Freemans Drive / New Access to Construction Support Site (Freemans Drive)	N/A	BAL/BAR	No	No
I-46	Long Point Road West / Existing Access	BAL/BAR	BAL/BAR	No	No
I-47	Pikes Gully Road / New Access to Construction Support Site (Pikes Gully Road)	N/A	BAL/BAR	No	Yes
I-48	Hebden Road / New Access to Construction Support Site (Hebden Road)	N/A	BAL/BAR	No	Yes
I-49	Lemington Road / New Access	N/A	BAL/BAR	No	Yes
I-50	Lemington Road/Old Lemington Road	BAL/BAR	BAL/BAR	No	Yes
I-51	Gouldsville Road / New Access to Construction Support Site (Gouldsville Road)	N/A	BAL/BAR	No	No
I-53	Cessnock Road / New Access	N/A	BAL/BAR	No	No
I-54	Wollombi Road / New Access	N/A	BAL/BAR	No	No
I-57	Freemans Drive/Newport Road	AUL(s)/CHR(s)	AUL(s)/CHR	No	No
I-58	Freemans Drive/Mount Nellinda Road	BAL/BAR	BAL/CHR(s)	Yes	No

The Edderton Road / McDonalds Road (private road), Newport Road / Gradwells Road and Gradwells Road / Hawke Mount Road intersections will be used for access for upgrades to existing towers and restringing of existing transmission lines, but these works would fall outside of the peak project traffic generation phase and require much lower traffic volumes (in the order of 10 light vehicles and five heavy vehicles in the HTP project peak hours). Therefore, no turn treatment upgrades are required at these intersections.

5.3.3.2 Performance impact assessment

Table 5-57 provides a comparison of the regional and local intersection performances with and without construction traffic, including predicted background traffic growth, for the 2028 weekday AM and PM peak hours.

The results demonstrate that the majority of intersections would continue to perform at an acceptable level of service, and similar to the without construction traffic scenario, except for the following two intersections:

– The Wollombi Road / West Avenue intersection (I-18) is forecast to worsen to LoS E during the PM peak hour due to increased westbound through movements along Wollombi Road, inducing delays on vehicles exiting West Avenue. However, Cessnock Council is planning to upgrade this intersection to signals as part of the Stage 2 Wollombi Road Upgrade project. This upgrade would reduce the delays for vehicles exiting from West Avenue.

– The Freemans Drive / Martinsville Road intersection (I-23) is forecast to operate at LoS F and LoS E during the AM and PM network peak hours respectively. For the AM peak, assessments of the shoulder hours with the inclusion of the peak construction hourly volumes show that the intersection would operate at an acceptable level (LoS C). Therefore, construction traffic should be minimised during the 8.15-9.15am network peak hour.

  For the PM peak hour, it was identified that the intersection is forecast to operate at LoS E without construction traffic. The movement forecast to operate at LoS E (right turn out of Martinsville Road) would operate with the same degree of saturation, delay and queue length, with or without the construction vehicles. The construction traffic would not therefore contribute to the turning movements that causes the intersection to operate at LoS E under the future base conditions and would have negligible impact on the intersection during the PM peak hour.

Table 5-57 Regional / local intersection performance comparison

ID	Intersection name	Assessed peak hour	2028 LoS without HTP	2028 LoS with HTP
I-05	Comleroi Road/Private Road/Driveway (Hunter Valley Operations)	06.00-07.00	B	B
		17.00-18.00	A	A
I-11	Wollombi Road/Singleton Street	06.30-07.30	A	A
		15.15-16.15	A	A
I-13a/b	Broke Road/McDonalds Road	06.15-07.15	A	A
		15.00-16.00	A	A
I-15	McDonalds Road/Pokolbin Mountains Road	08.00-09.00	A	A
		15.00-16.00	A	A
I-17	Wollombi Road/Mount View Road (Eastern Intersection – Cessnock)	08.15-09.15	B	C
		16.45-17.45	B	B
I-18	Wollombi Road/West Avenue	08.30-09.30	C	D
		16.15-17.15	C	E
I-19	Wollombi Road/Mount View Road (Millfield)	08.00-09.00	A	A
		15.00-16.00	A	A
I-20	Wollombi Road/Hayes Road	08.45-09.45	A	A
		15.00-16.00	A	A
I-21a	Cessnock Road/Oakley Lane	07.00-08.00	A	A
		16.15-17.15	A	A
I-22a	Freemans Drive/Alton Road (Signals)	08.15-09.15	B	B
		15.00-16.00	B	D

ID	Intersection name	Assessed peak hour	2028 LoS without HTP	2028 LoS with HTP
I-23	Freemans Drive/Martinsville Road	*07.00-08.00*	-	*C*
		08.15-09.15	C	F
		09.00-10.00	-	*B*
		15.00-16.00	E	E
I-24	Martinsville Road/Pringles Road	08.15-09.15	A	A
		15.00-16.00	A	A
I-25	Martinsville Road/Watagan Road	08.15-09.15	A	A
		15.00-16.00	A	A
I-26	Watagan Forest Road/Martinsville Hill Road	09.45-10.45	A	A
		12.15-13.15	A	A
I-28	Freemans Drive/Mount Faulk Road	06.15-07.15	A	A
		15.15-16.15	A	A
I-34	Wollombi Road / New & Existing Access to Construction Support Sites (Wollombi Road A & B)	08.45-09.45	A	A
		15.00-16.00	A	A
I-35	Broke Road / Existing Access	06.00-07.00	A	A
		16.00-17.00	A	A
I-36	Broke Road / Existing Access	06.00-07.00	A	A
		16.00-17.00	A	A
I-37	Cessnock Road / New Access	06.00-07.00	A	A
		15.00-16.00	A	A
I-38	Broke Road / Existing Access	06.00-07.00	A	A
		16.00-17.00	A	A
I-40	Long Point Road West / Existing Easement 1	06.00-07.00	A	A
		16.00-17.00	A	A
I-41	Long Point Road West / Existing Easement 2	06.15-07.15	A	A
		15.15-16.15	A	A
I-42	Archerfield Road / Existing Access	08.45-09.45	A	A
		15.00-16.00	A	A
I-43	Lemington Road / Existing Access	06.00-07.00	A	A
		17.00-18.00	A	A
I-45	Freemans Drive / New Access to Construction Support Site (Freemans Drive)	06.15-07.15	A	A
		15.15-16.15	A	A
I-46	Long Point Road West / Existing Access	06.15-07.15	A	A
		15.15-16.15	A	A
I-47	Pikes Gully Road / New Access to Construction Support Site (Pikes Gully Road)	06.15-07.15	A	A
		15.15-16.15	A	A

ID	Intersection name	Assessed peak hour	2028 LoS without HTP	2028 LoS with HTP
I-48	Hebden Road / New Access to Construction Support Site (Hebden Road)	08.45-09.45	A	A
		15.00-16.00	A	A
I-49	Lemington Road / New Access	10.45-11.45	A	A
		16.00-17.00	A	A
I-51	Gouldsville Road / New Access to Construction Support Site (Gouldsville Road)	06.00-07.00	A	A
		16.00-17.00	A	A
I-53	Cessnock Road / New Access	09.00-10.00	A	A
		15.00-16.00	A	A
I-54	Wollombi Road / New Access	08.45-09.45	A	A
		15.00-16.00	A	A
I-57	Freemans Drive/Newport Road	07.45-08.45	B	B
		15.15-16.15	B	C
I-58	Freemans Drive/Mount Nellinda Road	07.30-08.30	A	A
		15.15-16.15	A	A

As previously noted, the Edderton Road / McDonalds Road (private road), Newport Road / Gradwells Road and Gradwells Road / Hawke Mount Road intersections will only be used for access for upgrades to existing towers and restringing of existing transmission lines, but these works would fall outside of the peak project traffic generation phase and require much lower traffic volumes (in the order of 10 light vehicles and five heavy vehicles in the peak hours). Therefore, a minimal impact on intersection performance would occur at these intersections.

5.3.4 Impacts during oversize and over mass (OSOM) vehicle transportation

Appendix E contains an OSOM report that provides a list of likely works required to safely transport the key OSOM components for the project. These works and mitigations are summarised in **Table 5-58**. In addition, the following requirements will generally be applicable for all identified high-risk OSOM movements.

– A permit will be required from the NHVR prior to transportation of the component(s)

– In obtaining the permit, a Transport Management Plan (TMP) would be required to be developed by the nominated OSOM haulage contractor

– Night travel will be required

– Police escorts and additional pilot vehicles will be required

– Traversing of most intersections along the high-risk OSOM routes will require traffic to be stopped and managed during each manoeuvre. This would typically be for a short duration (less than 5 minutes).

Table 5-58 Road and intersection works required for OSOM transportation

Road/intersection location	Likely works required	OSOM component(s)
Newcastle Road, Jesmond to Wallsend	Tree trimming of roadside vegetation	Transformers bound for Eraring Reactors and auxiliary services building bound for Bayswater South Switching Station Auxiliary services building bound for Olney Switching Station
Palmers Rd exit, Freemans Waterhole (exit ramp off M1)	Removal of signs within medians temporarily	Transformers bound for Eraring Auxiliary services building bound for Olney Switching Station
The Boulevarde, Toronto (Awaba Street to Cary Street)	Remove signs and barriers temporarily	Transformers bound for Eraring
The Boulevarde / Cary Street intersection, Toronto	Potential relocation of traffic signals	Transformers bound for Eraring
Mount Waring Road, Toronto	Tree trimming of roadside vegetation	Transformers bound for Eraring
Unknown, Rathmines – roundabout at Dorrington and Wangi Road	Use opposite side of road through roundabout. Remove signs on median strips temporarily	Transformers bound for Eraring
Unknown, Eraring – entrance to Rocky Point Road (Wangi Road exit)	Tree trimming of roadside vegetation	Transformers bound for Eraring
Freemans Drive / Avondale Road intersection, Cooranbong	Remove signs and barriers temporarily on median refuge	Auxiliary services building bound for Olney Switching Station
Martinsville Road – from Freemans Drive to end destination	Likely road closure during haulage for single OSOM load	Auxiliary services building bound for Olney Switching Station
Watagan Road to Olney Switching Station entrance	Road widening and strengthening	Auxiliary services building bound for Olney Switching Station

5.3.5 Impacts during stringing of transmission lines across roads

Stringing sites are used for the preparation, assembly and operation of stringing equipment to connect the transmission line to the towers. To connect the transmission line, stringing sites would be positioned along the HTP corridor:

– Where there are angles in the line

– Where there are large elevation changes

– Where towers are either side of a major crossing such as a road, rail line or river

– At distances of no more than 10 km.

Various construction methods would be used in the stringing of the new transmission line in locations where it would cross existing lines. Methodologies would include the use of cranes to support existing conductors for crossings of 330 kV transmission lines and the use of hurdles (including rope and net) to protect existing 132 kV and 66 kV sub-transmission lines.

At locations where the new transmission line would cross the road network, a drone or helicopter would typically then be used to take a lead wire over the road/rail/watercourse to allow cables to then be pulled and strung to each tower within the stringing section. Hurdles (including net and rope) and cranes would also be used as required in stringing activities for road and rail crossings.

Stringing of transmission lines would be conducted to ensure vertical clearances above ground level in accordance with Austroads requirements, as well as other relevant standards. It is not expected that excavation or fill would be required immediately adjacent the road corridor to carry out stringing works. The indicative height clearances and location of stringing infrastructure in relation to the road reserve for the new transmission line crossing of state road (Putty Road) is shown in the stringing strategic design provided in **Appendix G**.

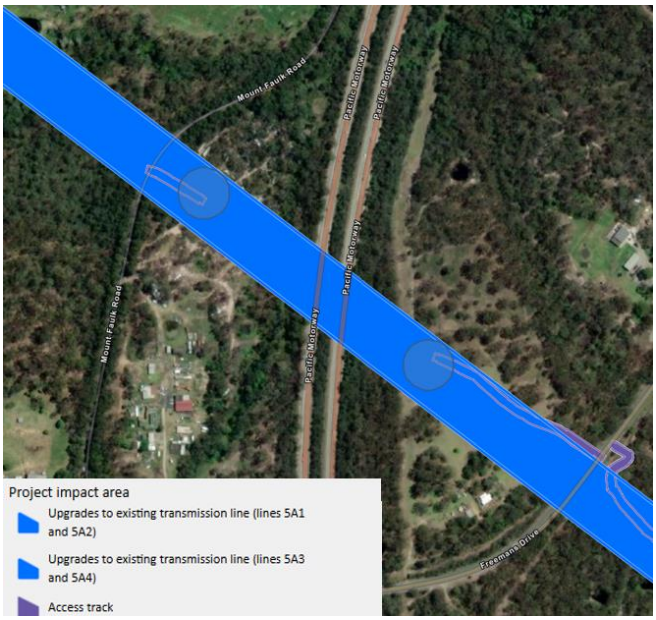
The new transmission line would cross the road network in various locations throughout the amended project impact area, including the State road network at Putty Road, east of Broke Road, and regional roads, such as Cessnock Road, east of Broke and Wollombi Road, west of Millfield. During stringing work over roads, traffic management would typically be required with specific arrangements to be confirmed during detailed design in consultation with the relevant road authority and subject to the requirements of a road occupancy licence. This may entail short-term road closure, implementing localised traffic controls (stop/go), and/or a reduction in speed limit.

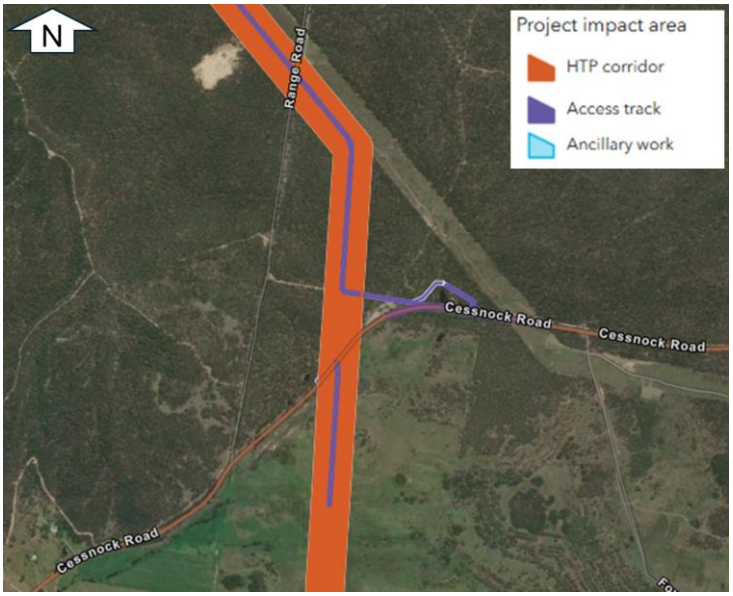
Road Occupancy Licence(s) would be sought for all temporary lane or road closures, as required. Any road closures that would result in a substantial impact (e.g. short-term full road closure and/or long-term temporary lane/road closures) would be assessed on a case-by-case basis, and approval would be sought from the relevant road authority and in consultation with emergency services, landowners and other relevant stakeholders. Where feasible, temporary lane closures would be planned outside of the traffic peak periods to minimise impact on the road network.

At locations where a new earthwire would be installed on the existing Transgrid transmission line, including over the Pacific Motorway, the existing transmission lines and a pully system would be used to guide the earthwire across the road corridor. For the crossing of the Pacific Motorway, activities would not require road closures, but traffic management would be in place as a risk management strategy and works would be carried out outside peak periods where feasible. Specific arrangements are to be confirmed during detailed design in consultation with TfNSW.

The location and potential treatment at which stringing would occur across State and regional roads are detailed in **Table 5-59**. Strategic design proposed for the Putty Road stringing location is also provided in **Appendix G**.

Table 5-59 Locations where stringing works are required across the state and regional road network

Location	Description
Pacific Motorway near Mount Faulk Road, Cooranbong	
 Circles denote approx. location of existing transmission towers (and do not represent disturbance footprint)	Stringing of a new earthwire across the Pacific Motorway near Mount Faulk Road, Cooranbong would be required for works on existing transmission line assets. The Pacific Motorway is a high-volume and high-speed motorway that carries over 70,000 vehicles per day. Stringing works across the motorway would need to be done with minimal interruption to the road network. This would typically be at night-time, with traffic management in place as a risk management strategy, as well as a road occupancy licence and contingency plan. No closure of the Pacific Motorway is proposed.
Putty Road, east of Broke Road	
	Stringing across Putty Road, east of Broke Road would be required for new transmission line works. Putty Road is a State road that forms part of the Golden Highway. It has a posted speed limit of 100 km/h and has an important transport function for the surrounding mines and industrial developments in Mount Thorley. Based on the survey done at the Broke Road / Putty Road intersection, Putty Road near the stringing works area carries about 1,700 vehicles per hour in the morning peak (5.15-6.15am) and 1,200 vehicles per hour in the afternoon peak (4-5pm), corresponding to the peak periods generated by mine operations in this area. Stringing works across this road would need to be done with minimal interruption to the road network. Any intermittent closures of Putty Road for stringing activities would not exceed 10-minute delays, with stoppages not exceeding 5 minutes for no more than six times per a day. These would occur outside of peak traffic periods.

Location	Description
Cessnock Road, east of Broke	
	Stringing across Cessnock Road, east of Broke would be required for new transmission line works. Cessnock Road is a regional road with a posted speed limit of 100 km/h. Cessnock Road links Broke with Pokolbin to the east and Mount Thorley to the north. Based on the survey done at the Singleton Street / Wollombi Road intersection in Broke, Cessnock Road has about 80 vehicles per hour travelling in the morning peak (6-7am) and 120 vehicles per hour travelling in the afternoon peak (3-4pm). Traffic control measures would be implemented during stringing works, subject to continued consultation with the local Council (Singleton Council).

Locations where stringing of the new transmission line is required across local roads include:

– Lemington Road, Lemington: the transmission line alignment would cross Lemington Road between the Golden Highway and the HVO North access driveway

– Archerfield Road, Warkworth: the transmission line alignment would cross over Archerfield Road nearby the HVO South office

– Long Point Road West and Gouldsville Road, Gouldsville: the transmission line alignment would cross both roads to the southwest of their intersection

– Oakley Lane, east of the town of Broke: the transmission line alignment would cross east of Cessnock Road.

Locations where stringing of the new earthwire on the existing transmission lines is required across local roads include:

– Freemans Drive, to the east of the M1 Pacific Motorway

– Mount Faulk Road, to the west of the M1 Pacific Motorway

– Mount Nellinda Road, near its intersection with Valley Crest Road

– Alton Road, near its end junction

– Martinsville Road, to the west of Martinsville

– Kemps Lane, south of Martinsville Road.

It is noted that the stringing of the new transmission line would also impact private mine access, mine haulage roads and forestry roads. Specific arrangements to manage disruptions to these roads would be confirmed during detailed design in consultation with impacted mine operators and the Forestry Corporation of NSW.

5.3.6 Impacts on rail

Stringing of the new transmission lines over rail lines would occur at two locations near the Putty Road / Broke Road intersection. This rail line is known as the Whittingham to Mount Thorley line and is operated by the Australian Rail Track Corporation (ARTC). This line provides coal transport to Mount Thorley Warkworth, Wambom and Bulga Coal Mine. Consultation has been carried out with ARTC regarding stringing (see *Chapter 6 (Engagement)* of the EIS). ARTC would continue to be engaged with regards to stringing activities across rail lines, which would likely be carried out during rail maintenance periods or rail possessions and therefore would not impact rail services.

Stringing of the new earthwire over the Sydney to Newcastle Rail Line would also be undertaken during maintenance periods or during rail possessions. Consultation has been carried out with TfNSW regarding stringing (see *Chapter 6 (Engagement)* of the EIS). Stringing locations over rail lines and locations where rail lines interface with the HTP corridor and access tracks are shown in **Figure 5-81**.

Locations where rail lines interface with the HTP corridor and/or access tracks and stringing locations include the Whittingham to Mount Thorley railway line at Putty Road and the Golden Highway, while there is an interface with the Main Northern railway line for the upgrade to existing transmission line (lines 5A1 and 5A2) near Eraring Power Station.

Figure 5-81 Railway interface locations

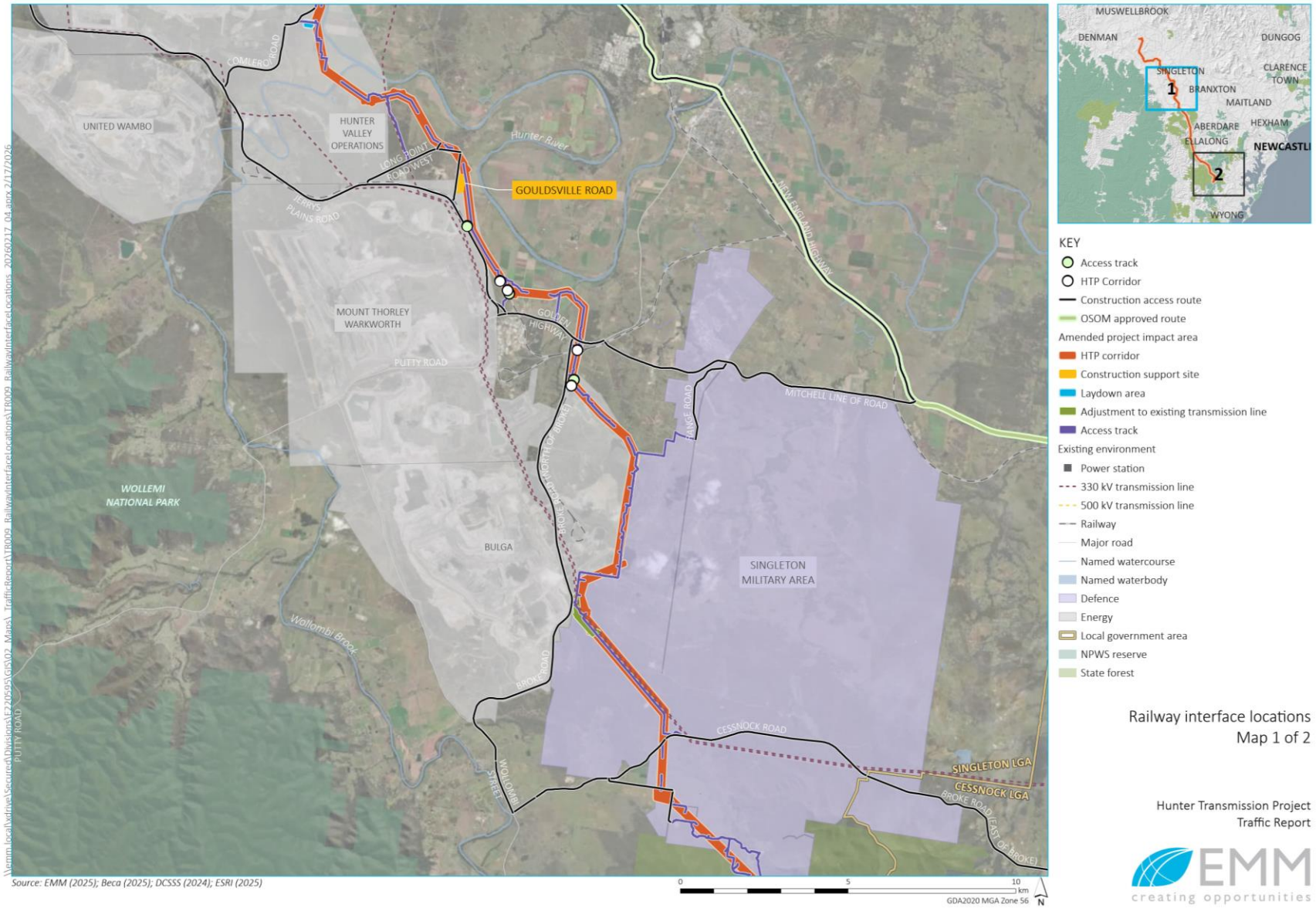
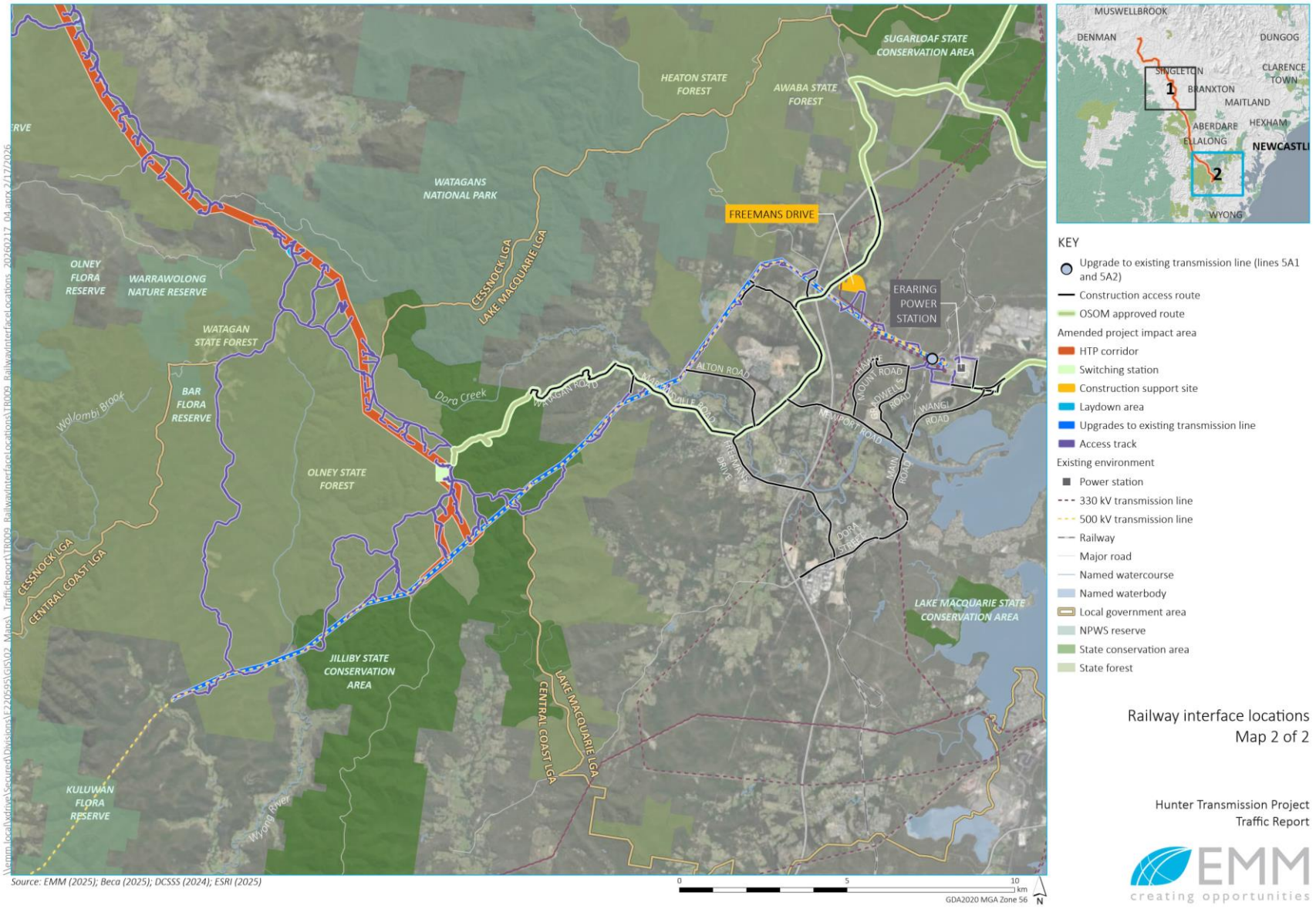


Figure 5-81 Railway interface locations (continued)



5.3.7 Impacts on road condition

The contribution of light vehicle movements on road pavement conditions would be negligible. However, pavement fatigue would generally occur as a result of repeated heavy vehicle traffic movements.

The project would only generate a minor increase in heavy vehicle movements using construction routes and the general impacts of these additional heavy vehicle movements would likely be minor. There is expected to be a larger increase in heavy vehicle traffic movements to and from construction support sites and the impact is expected to be moderate on the roads where the construction support sites are located, including Hebden Road, Pikes Gully Road, Gouldsville Road, Wollombi Road, and Freemans Drive. These are all local roads except for Wollombi Road, which is a regional road.

For unsealed local roads and forestry roads, including within State forests, light and heavy vehicle movements have the potential to impact road condition, including during wet weather or prolonged dry weather periods. This is discussed further below. Mitigation measures to manage road condition impacts throughout construction have been developed and are outlined in **Section 8.0**.

5.3.7.1 State roads

The State roads within the study area have been built to accommodate high volumes of traffic and their pavement and cross sections have been built for high proportions of heavy vehicle use as well as OSOM vehicles. The project would generate:

– A maximum of 406 heavy vehicle movements on a daily basis (associated with the Hebden Road construction support site), which equates to 2.8% of total daily traffic of 14,256 vehicles on the New England Highway

– A maximum of 406 heavy vehicle movements on a daily basis (associated with the Gouldsville Road construction support site), which equates to 6.3% of total daily traffic of 6,009 vehicles on the Golden Highway.

The percentage increase of vehicles due to construction traffic would have negligible impact on pavement condition.

5.3.7.2 Regional roads

The regional roads within the study area have been built to accommodate medium to high volumes of traffic and their pavement and cross sections have especially been built for high proportions of heavy vehicle use as well as OSOM vehicles.

The project would generate a maximum of 335 heavy vehicle movements on a daily basis (associated with the Wollombi Road construction support site), which equates to 11.2 % of total daily traffic of 2,983 vehicles on Wollombi Road.

The percentage increase of vehicles due to construction traffic would have minor impact on pavement condition.

5.3.7.3 Local roads

The local roads within the study area have been built to accommodate low to medium volumes of traffic and their pavement and cross sections have especially been built for lower proportions of heavy vehicle use. The project would generate:

– A maximum of 406 heavy vehicle movements on a daily basis (associated with the Hebden Road construction support site), which equates to 81% of total daily traffic of approximately 500 vehicles on Hebden Road.

– A maximum of 335 vehicles on a daily basis (associated the Pikes Gully Road construction support site), which equates to 67% of total daily traffic of approximately 500 vehicles on Pikes Gully Road.

– A maximum of 406 heavy vehicle movements on a daily basis (associated with the Gouldsville Road construction support site), which equates to 135% of total daily traffic of approximately 300 vehicles on Gouldsville Road.

– A maximum of 480 heavy vehicle movements on a daily basis (associated with the Freemans Drive construction support site), which equates to 12.2% of total daily traffic of 3,950 vehicles on Freemans Drive near Mount Faulk Road.

– A maximum of 480 heavy vehicle movements on a daily basis (associated with the Freemans Drive construction support site), which equates to 218% of total daily traffic of 220 vehicles on Watagan Road.

The moderate to high percentage increase of vehicles due to construction traffic would have a moderate impact on pavement condition. It should be noted that the large percentage increases are due to the very low background traffic volumes on each of these roads, with the exception of Freemans Drive.

The construction contractor would be required to undertake a road pre-condition survey to record the pavement condition along the construction routes, especially along local roads where concerns have been raised by local councils on pavement condition. Local roads are likely to be more susceptible to increased traffic and heavy vehicle use given their pavements are not built as strong as higher order roads nor are their cross sections as wide. Routine inspections and maintenance would be completed along all nominated construction access routes to ensure that construction routes, access tracks, construction support sites and temporary worker accommodation accesses are maintained to a safe standard during construction, in consultation with the relevant road authority.

Further, as described in section 5.2.10, upgrades to sections of some local unsealed roads would be required. Detailed design would take into further consideration factors such as road condition, drainage issues and road width to confirm the required works in consultation with the relevant road authorities.

5.3.7.4 Forestry roads

The forestry roads within the study area currently accommodate low volumes of traffic with heavy vehicle use for forestry purposes. The increase in vehicles due to construction traffic would have an impact on forestry roads, which are unsealed roads, and mitigation measures to manage road condition impacts throughout construction are proposed.

5.3.8 Impacts on road safety

For the most part, the construction works that would be undertaken along the HTP corridor and at the switching station locations and substations are outside of the road reserves and therefore do not interface with existing active transport facilities (pedestrian and cyclist facilities).

The interaction that the project traffic has with the road network would typically be at construction access points, road and intersection upgrades, which would be undertaken under construction traffic management to facilitate safe operations, and on the assigned construction access routes between the construction support sites and work areas. Safety for workers and road users at these locations is important for the success of the project. A summary of potential road safety issues, their associated impacts and potential mitigation strategies to minimise them is included in **Table 5-60**.

Table 5-60 Road safety impact and potential mitigation

Description of potential safety issue and *Safe System* classification	Degree of impact	Potential residual risk mitigation
Road network efficiency: Increased traffic on the road network and at intersections may impact the suitability of the road network to accommodate safe operations. **Safe system classification:** Safe roads	**Low impact**. The operation of intersections and mid-block capacity has been assessed with the addition of construction traffic movements. The assessment shows that the existing road network can generally accommodate additional trips generated by the construction activities. However, some intersections have been reported to operate poorly in the road network peaks and mitigations have been proposed for those. In the case of I-27 Mandalong Road / Freemans Drive / Wyee Road, the intersection performs poorly in the AM peak (with construction). With proposed signalisation, this intersection would perform at good levels of service within capacity.	At some intersections, mitigation would be to restrict the hours in which the construction traffic would travel through the intersection. These are outlined in **Section 8.0**. TfNSW are proposing to upgrade the Mandalong Road / Freemans Drive / Wyee Road intersection from a roundabout to signals in 2026/2027, which would remove the poor performance of this intersection during the construction phase of HTP. Should this upgrade not be finalised prior to HTP construction commencing, then project construction traffic would utilise the M1 Motorway / Freemans Drive interchange for access to Freemans Drive instead.
Road geometry constraint: Existing or proposed intersection layouts unable to meet	**Low impact**. The suitability of intersection locations based on their sight distances has been assessed. The assessment shows that most existing and proposed	To improve driver sight distances at these intersections, additional advance warning signs, reduced temporary

Description of potential safety issue and *Safe System* classification	Degree of impact	Potential residual risk mitigation
safe intersection sight distance (SISD) requirements. **Safe system classification:** Safe roads	intersection locations are compliant. Some intersections remain non-compliant with risk mitigation measures provided.	speed limits or clearing of vegetation would be implemented.
Road geometry constraint: Existing roads are unable to accommodate the proposed use of larger vehicles used during construction. **Safe system classification:** Safe roads	**Medium impact**. Swept path assessments have been undertaken for large vehicles including OSOM vehicles (see **Appendix D**). Swept path assessments for OSOM vehicles to be completed by appointed OSOM transport contractor once appointed to confirm intersection upgrades required based on the final equipment and transportation solution. Locations have been identified where road widening passing bays would be required on narrow roads.	Traffic controllers are proposed at locations where two-way traffic using the largest design vehicle cannot be accommodated. Transfer of materials requiring OSOM vehicles are to follow National Heavy Vehicle Regulator (NHVR) requirements, which would typically require the use of pilot vehicles and traffic controls. Swept path analyses to be completed to confirm vehicle manoeuvring suitability at intersections. Sections of local road widening and passing bays are proposed to allow for heavy vehicles (19m semi-trailers) and OSOM vehicles.
Driver fatigue: Extensive driving between different parts of the construction impact area. **Safe system classification:** Safe people	**Low impact**. The construction of HTP aims to spread the construction support sites (including temporary worker accommodation) at various locations throughout the construction impact area. This would provide for short driving distances (ideally less than 30 minutes) from the temporary worker accommodation to minimise driver fatigue for workers.	The use of shuttle buses to transfer workers from temporary worker accommodation to work areas would be used where practicable to do so to reduce the number of drivers required to drive on the road network.
Road conditions: Deteriorating road conditions resulting in crashes involving loss of control/run-off crashes. **Safe system classification:** Safe roads	**Low impact**. The increase in traffic due to construction activities is envisaged to have negligible impact on pavement loading on State and regional roads given the relatively low percentage increase in traffic on these roads. These roads are typically built to accommodate higher traffic volumes and heavy vehicle proportions in the network. The increase in traffic volume due to construction may be felt more on low-volume local and forestry roads, which may be unsealed or sealed with asphalt, which could be more susceptible to damage by traffic loading, leading to poor road quality and an increased likelihood of run off road or loss of vehicle control crashes.	To minimise this impact on road conditions, routine inspections and maintenance would be completed along all nominated routes to ensure that construction routes, tracks and accesses to construction support sites are maintained to a safe standard during the construction period.
Safety on construction routes: Increased construction vehicles around vulnerable users, such as school children **Safe system classification:** Safe people	**Medium impact**. As part of the traffic management plan, the contractor would review school locations that could potentially be impacted by construction traffic to ensure safety risks are minimised.	A construction traffic management plan would be developed, in discussion with affected stakeholders and road authorities, with site-specific traffic control measures (including signage) to manage and regulate traffic movement to ensure the safety of all users around schools and other sites with vulnerable users.

5.3.9 Impacts on public transport

Construction activities would have limited interactions with existing public transport services. Most construction activities would be undertaken within the HTP corridor, and at switching stations and substations outside of the road reserves. Construction of the project has the potential to interact with public transport services in the following areas:

– Where upgrades may be required to roads and intersections/accesses. Construction-related works at intersections may impact public transport services by way of short and temporary delays while under construction and are likely to be under traffic control, which would stop or slow passing traffic. However, these upgrades are typically able to maintain all traffic movements with reduced work area speed limits required to ensure workers' and public safety. No physical impact to existing bus stops is expected. Should this occur during detailed design, an appropriate location for a relocated bus stop will be agreed with TfNSW or the relevant local council and delivered through the development of the construction traffic management plan.

– On the assigned construction routes to be used by workers and delivery vehicles travelling to and from the construction support sites and laydown areas. However, additional traffic movement generated over the construction phase of the project is expected to have a negligible impact on the public transport network in the traffic and transport study area.

5.3.10 Impacts on active transport

Most construction activities would be undertaken along the HTP corridor and at switching stations and substations, which are outside of the road reserves associated with existing active transport facilities.

Construction of the project has the potential to interact with walking and cycling facilities along the assigned construction routes to be used by workers and delivery vehicles travelling between the construction support sites and work areas.

Table 5-61 summarises the locations of existing active transport facilities where interactions with construction activities or construction routes may occur. It also provides a discussion on the likely active transport activities and how the project can minimise impacts on safety and accessibility.

Table 5-61 Impact on existing walking and cycling facilities

Location	Facility Type	Interaction with project and impact
Wollombi Street, Broke	Off-road shared path within Broke town centre.	Limited interaction and impact. Construction traffic would use the road to travel between the Gouldsville Road construction support site and the HTP corridor off Cessnock Road, east of Broke. During construction, all workers would be educated on the activities along Wollombi Street and the safe driving practices to be expected on these roads.
McDonalds Road, Pokolbin	Bicycle lane on the road shoulder between Broke Road and Thompson Road. Off-road shared path and quietway between Thompson Road and Pokolbin Mountain Road.	Limited interaction and impact. However, there are accommodations, wineries and recreational places in this area where walking and cycling activities are observed. Construction traffic would use the road to travel between Wollombi Road, the Wollombi Road construction support site, and the HTP corridor off Pokolbin Mountain Road. During induction, all workers would be educated on the activities along McDonalds Road and Broke Road and the safe driving practices to be expected on these roads.
Broke Road, Pokolbin	Bicycle lane on road shoulder between McDonalds Road and Wine Country Drive. Signs and line marking are only provided at either end of Broke Road.	

Location	Facility Type	Interaction with project and impact
Allandale Road, Cessnock and Wine Country Drive, Pokolbin	Bicycle lane on the road shoulder between Broke Road and Boreas Street/Fleming Street. Off-road shared path between Boreas Street/Fleming Street and Dover Street. Plan by Cessnock Council to extend the shared path from Fleming Street to Lomas Lane.	Limited interaction and impact. However, Allandale Road is a built-up residential area where walking and cycling are carried out. Wine Country Drive has a school (St Philips Christian College), wineries, accommodation places, residential properties and community facilities. Construction traffic would use the road to travel between Wollombi Road, the Wollombi Road construction support site and the HTP corridor off Pokolbin Mountain Road. During induction, all workers would be educated on the activities along Wine Country Drive and within Cessnock town centre or built-up areas and the safe driving practices to be expected at these locations.
Wollombi Road in Cessnock town centre and built-up residential areas (e.g. Bellbird Heights, Bellbird and Millfield)	Bicycle lane on Wollombi Road between Hickey Street/Francis Street and Darwin Street. Footpath and pedestrian crossing facilities (zebra and pedestrian refuges) Off-road shared path along Wollombi Road	Limited interaction and impact. Construction traffic would use the road to travel to/from Wollombi Road and the Wollombi Road construction support site. During induction, all workers would be educated on the activities within Cessnock town centre or built-up areas and the safe driving practices to be expected at these locations.
Freemans Drive, Cooranbong	Off-road shared path facility between Patrick Drive and Cooranbong Park. Bicycle lane treatment at Alton Road/Freemans Drive intersection.	Limited interaction and impact. Construction traffic would use the road to travel to/from the Freemans Drive construction support site. During induction, all workers would be educated on the activities within Cooranbong built-up areas and the safe driving practices to be expected at these locations.
Watagan Road, Martinsville Hill Road, Watagan Forest Road, Wollombi Forest Road Martinsville (within Olney and Watagan State Forest areas) and Pokolbin Mountains Road	No formal walking or bicycle facilities on state forestry roads. Walkers and cyclists mix with general traffic along these roads, which are both sealed and unsealed and lead to mountain bike and walking and hiking trails.	Moderate interaction and impact particularly at peak season for recreational users. Construction traffic would use these roads to travel to/from the HTP corridor and Olney switching station. To minimise impacts to users of these recreational facilities, drivers of construction vehicles would follow Forestry Corporation of NSW requirements for safe driving practices on these roads by driving at a safe speed, ensuring visibility of vehicles (safe vehicles) and education for drivers and state forest visitors (safe people). The current driving and communication protocols set out by the Forestry Corporation of NSW are detailed in **Section 4.2.4**.

The increase in traffic numbers due to construction vehicles is considered to have a limited impact on the existing active transport facilities, most of which are physically or visually separated from the traffic lanes.

5.3.11 Impacts on property access

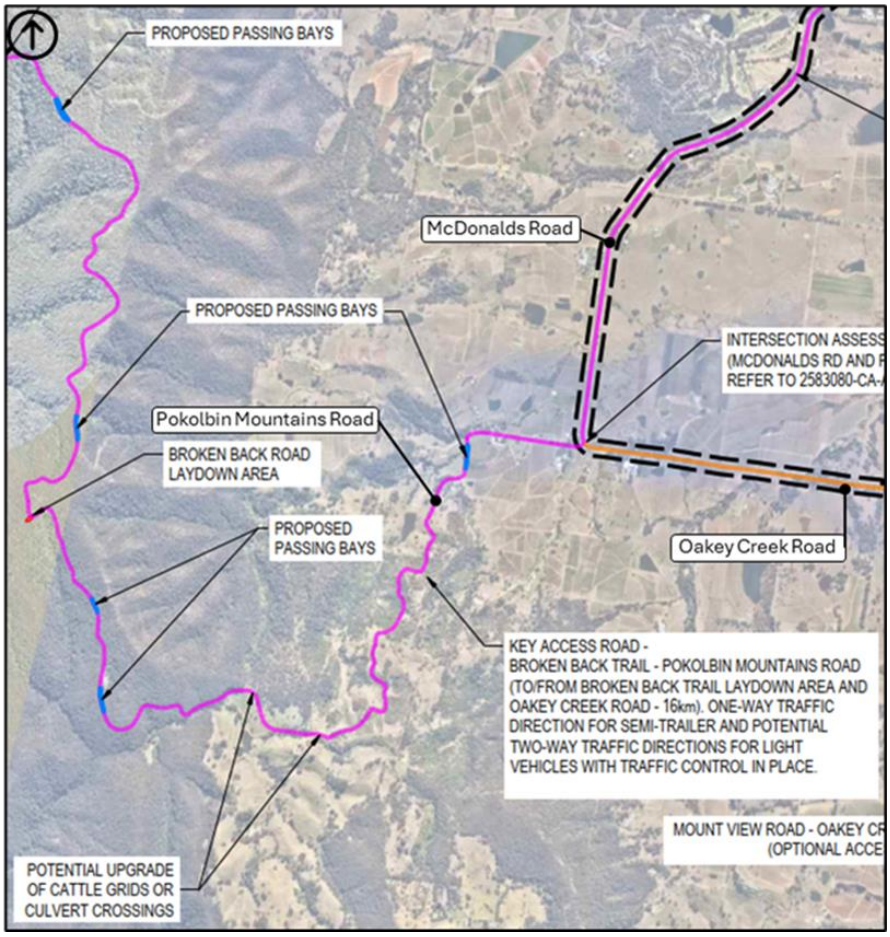
The project is expected to have some impact on property accesses during construction, particularly on roads only wide enough for one heavy vehicle to pass. These are typically unsealed roads in Pokolbin, Mount View, and Millfield, and the State forest roads in Pokolbin, Corrabare and Olney State forests. These roads often provide access to rural residential properties in the first few kilometres from its access point from a major road.

There are some risks involving two vehicles travelling in opposing directions colliding in a section of road where passing is not possible. While this is an existing risk on these roads, the increase in traffic movements and the use of heavy vehicles during construction has the potential to exacerbate this. Heavy vehicles are longer, larger and less mobile to allow sufficient passing room.

Widening of sections of these roads and traffic management, including passing bays, is proposed to manage this risk. This would require traffic controllers to be present at passing bays during working shifts to ensure the roads are only operating under one-way conditions to prevent mid-block passing, where required. Properties with driveway access between the two passing bays would be provided with a contact number to inform traffic controllers when exiting their properties to minimise the risk of mid-block passing. Additional controls would be developed in consultation with property owners on nominated roads as part of a property access sub plan within the traffic management plan (refer to section 8.2) Locations of roads where this type of traffic management is proposed includes:

– **Pokolbin Mountains Road** – services rural residential properties and businesses (such as cellar doors or short-term accommodation), most of which are located between the two proposed passing bays (shown in blue line) closest to Oakey Creek Road (see **Figure 5-82**). Close to Oakey Creek Road, Pokolbin Mountains Road is a two-lane road (one lane in each direction) but it becomes narrower with constrained geometry to the west of Oakey Creek Road. Several passing bays are proposed at a range of 2–2.5 km further into the Pokolbin Mountains Road in addition to sections of road widening. Property access management measures will be developed further in consultation with landowners along this road during construction planning.

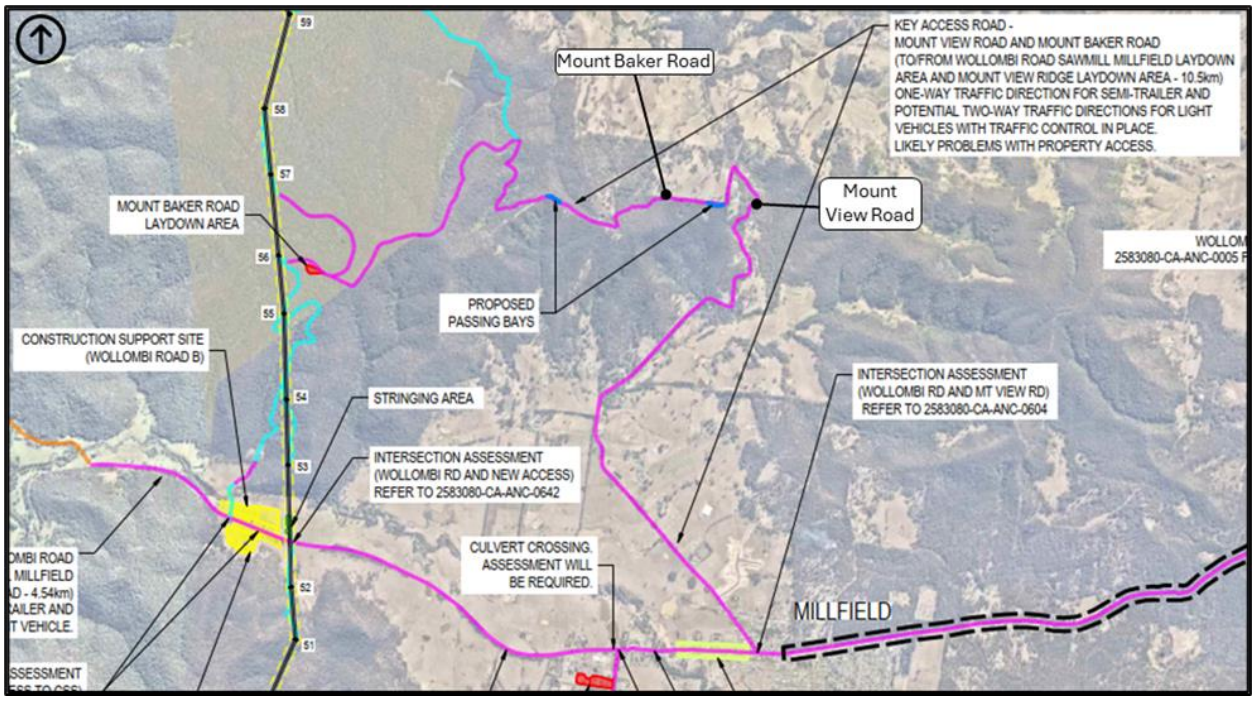
Figure 5-82 Proposed passing bays on Pokolbin Mountains Road



– **Mount View Road and Mount Baker Road** – provide access to rural residential properties and businesses (such as cellar doors or short-term accommodation). Mount View Road is sealed and sufficient for two-way traffic closer to Wollombi Road but becomes narrower and is unsealed with constrained geometry as it approaches Mount Baker Road. The Mount Baker Road / Mount View Road intersection is a sharp turn that further constrains the travel lane and is only able to accommodate one-way traffic, particularly during construction.

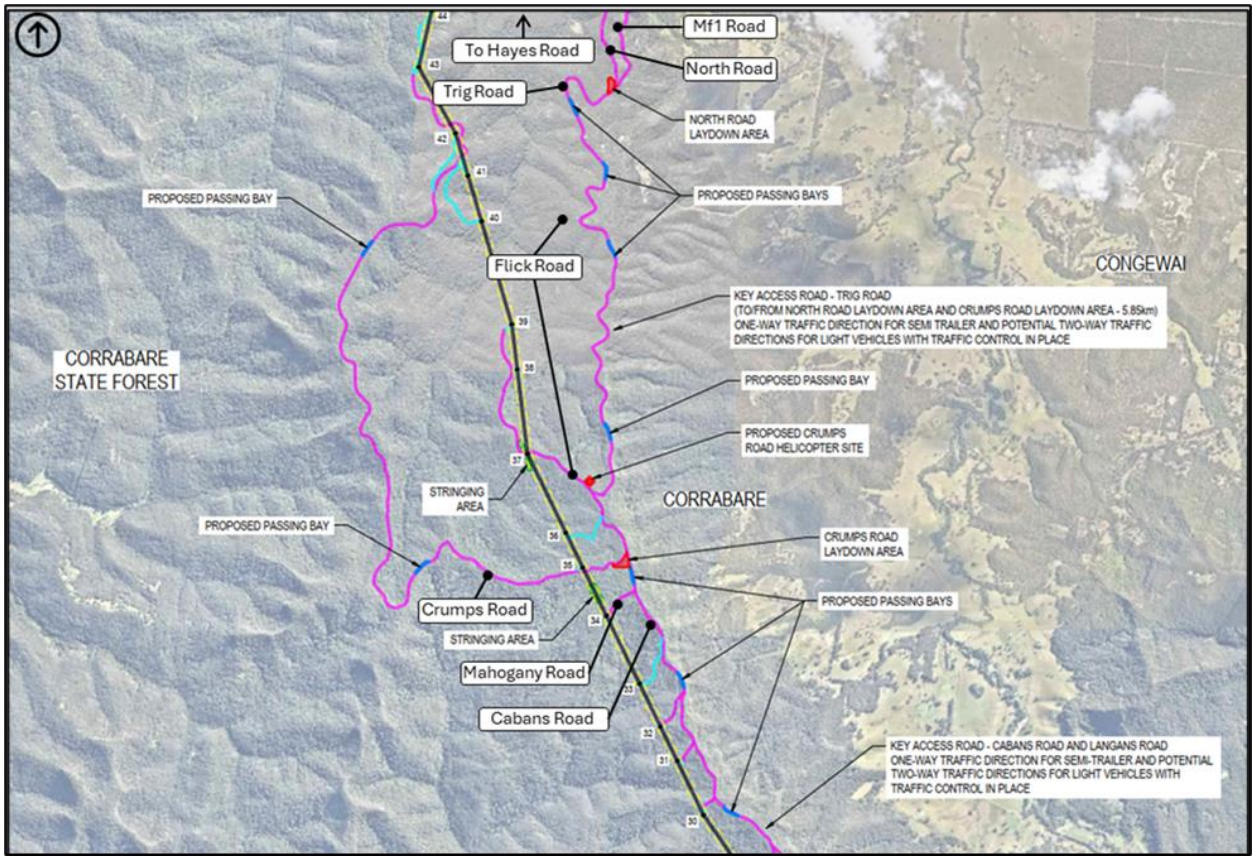
  Passing bays are proposed on Mount Baker Road (see **Figure 5-83**) in addition to sections of road widening. Given limited road width on Mount View Road on the approach and at the intersection with Mount Baker Road, there is likely to be a need for additional traffic control at either end of the intersection. This would allow construction vehicle movements to be safely managed through this section.

Figure 5-83 Proposed passing bays on Mount View Road and Mount Baker Road



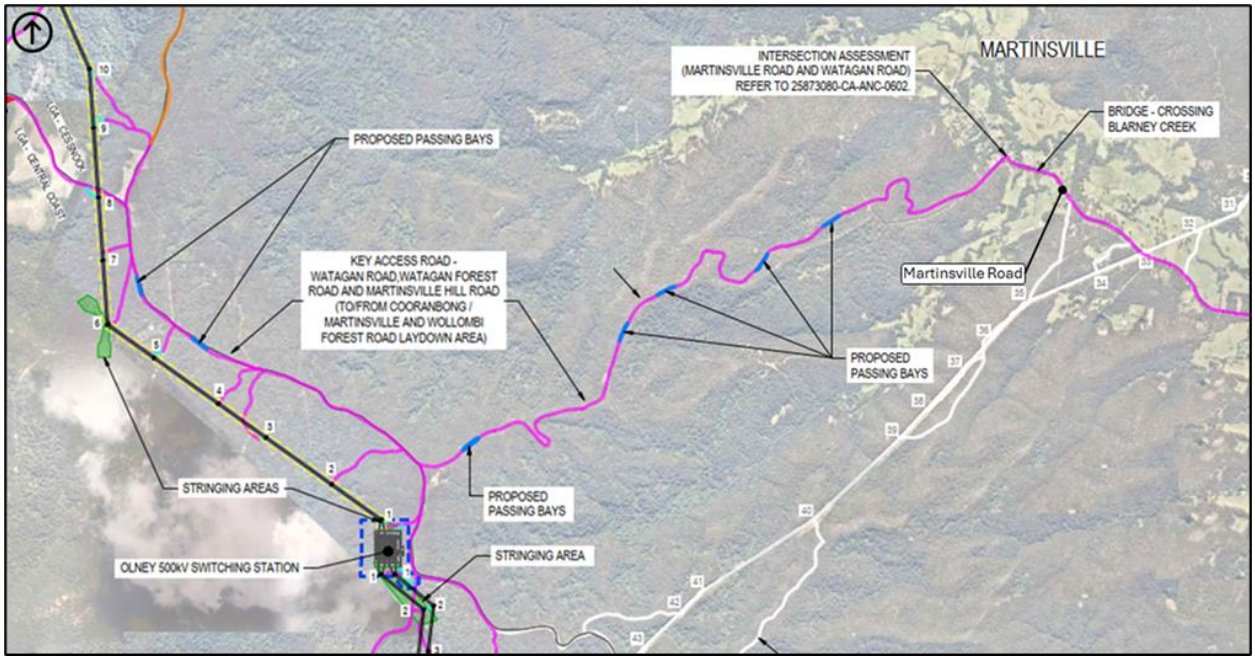
– **Mf1 Road and Trig Road, south of Hayes Road** – service residential properties. Passing bays are proposed intermittently throughout the road (see **Figure 5-84**). The roads within the Corrabare State Forest are narrow and only generally suitable for one way traffic. Though the demand on this road may be low, traffic management would be needed to ensure access for residents and the community, who may wish to access the State forest, is adequately managed.

Figure 5-84 Proposed passing bays in Corrabare



– **Watagan Road, Watagan Forest Road and Martinsville Hill Road** – service the Watagan and Olney State forests, providing access to recreational camping grounds and work areas within the State forest areas. Passing bays are proposed at regular spacing for vehicles entering the State forest from Martinsville Road (see **Figure 5-85**). One-way operation managed by traffic controls would be implemented through the State forest roads for construction vehicles (including proposed OSOM vehicles) to negotiate through the constrained road bends and minimise the likelihood of mid-block passing.

Figure 5-85 Proposed passing bays on Watagan Road, Watagan Forest Road and Martinsville Road



Short-term temporary partial road closures are likely to be needed during the construction period, including for the works on the proposed passing bays. This would entail appropriate and suitable traffic management to be prepared to ensure safety of the public and workers, and where necessary, temporary alternative access to be provided. Notwithstanding, this has the potential to temporarily impact access to some areas of the State forests or cause delays for Forestry Corporation of NSW workers and recreational users of State forests for activities such as camping, mountain biking and bushwalking (see *Technical Report 6 – Social impact assessment*).

The construction contractors would need to continue consultation with the relevant road authority, Forestry Corporation of NSW, affected property owners, and emergency services of any changes to the road network as a result of the proposed construction works (see *Chapter 6 (Engagement)* of the exhibited EIS for a summary of consultation completed prior to exhibition and the Submissions Report for post-exhibition consultation).

5.3.12 Construction-related road and intersection upgrades

5.3.12.1 Construction-related road upgrades

Table 5-62 outlines roads proposed to be upgraded, widened or modified for construction vehicle use and access. Design drawings of the upgrades are included in **Appendix D** and the locations on public roads are shown on **Figure 5-86**.

Table 5-62 Proposed road upgrades

Road	Location	Road owner	Works required
Local roads			
Oakley Lane (ref. R-01 on **Figure 5-86**)	Between Cessnock Road and 60 m south of Cessnock Road, Singleton	Singleton Council	Localised widening for one lane movement for 19m articulated vehicle (AV). Operational traffic control would be required.
Pokolbin Mountains Road (ref. R-02 on **Figure 5-86**)	Various sections between McDonalds Road and Broken Back Road, Pokolbin	Cessnock Council	Localised widening for one lane movement for 19m (AV). Operational traffic control would be required.
Mf1 Road (ref. R-03 on **Figure 5-86**)	Various sections between Trig Road and Hayes Road, Millfield	Cessnock Council	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Mount Baker Road (ref. R-04 on **Figure 5-86**)	Various sections between Mount View Road and Existing Track (Mount View), Millfield	Cessnock Council	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Mount View Road (ref. R-05 on **Figure 5-86**)	Various sections between Mount Baker Road and Wollombi Road in Mount View	Cessnock Council	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Hayes Road (ref. R-03 on **Figure 5- 86**)	Various sections between Wollombi Road and Mf1 Road, Millfield	Cessnock Council	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Watagan Road (ref. R-07 on **Figure 5-86**)	Various sections between Martinsville Road and Martinsville Hill Road, Lake Macquarie	Lake Macquarie Council	Localised widening for one lane movement for OSOM with traffic control. Operational traffic control would be required.
Martinsville Hill Road (ref. R-07/R-08 on **Figure 5-86**)	Various sections between Watagan Road and Watagan Forest Road, Lake Macquarie	Lake Macquarie Council	Localised widening for one lane movement for OSOM with traffic control. Operational traffic control would be required.
Forestry roads			
Trig Road	Various sections between M1 Road and Cabans Road, Corrabare	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Cabans Road	Various sections between Trig Road and Langans Road, Corrabare	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Langans Road	Various sections between Cabans Road and Cedar Brush Walk, Corrabare	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.

Road	Location	Road owner	Works required
North Road	Various sections between Mf1 Road and Wollombi Road, Millfield	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Broken Back Road	Various sections between Pokolbin Mountains Road and Broken Back Trail, Cedar Creek	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Broken Back Trail	Various sections between Broken Back Road and Campbell Springs Trail, Broke	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Campbell Springs Trail	Various sections between Broken Back Trail and approximately 4 km south of Broken Back Trail, Broke	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Watagan Forest Road	Various sections between Martinsville Road and Wollombi Forest Road, Ravensdale	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV and OSOM. Operational traffic control would be required.
Watagan Creek Road	Various sections between Wollombi Forest Road and approximately 2km north of Wollombi Forest Road, Olney	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Wollombi Forest Road	Various sections between Watagan Forest Road and Watagan Creek Road, Ravensdale	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.
Existing Track (adjacent Mount Baker Road in Mount View)	Various sections between Mount Baker Road and Wollombi Road, Mount View	Forestry Corporation of NSW	Localised widening for one lane movement for 19m AV. Operational traffic control would be required.

Figure 5-86 Location of road upgrades

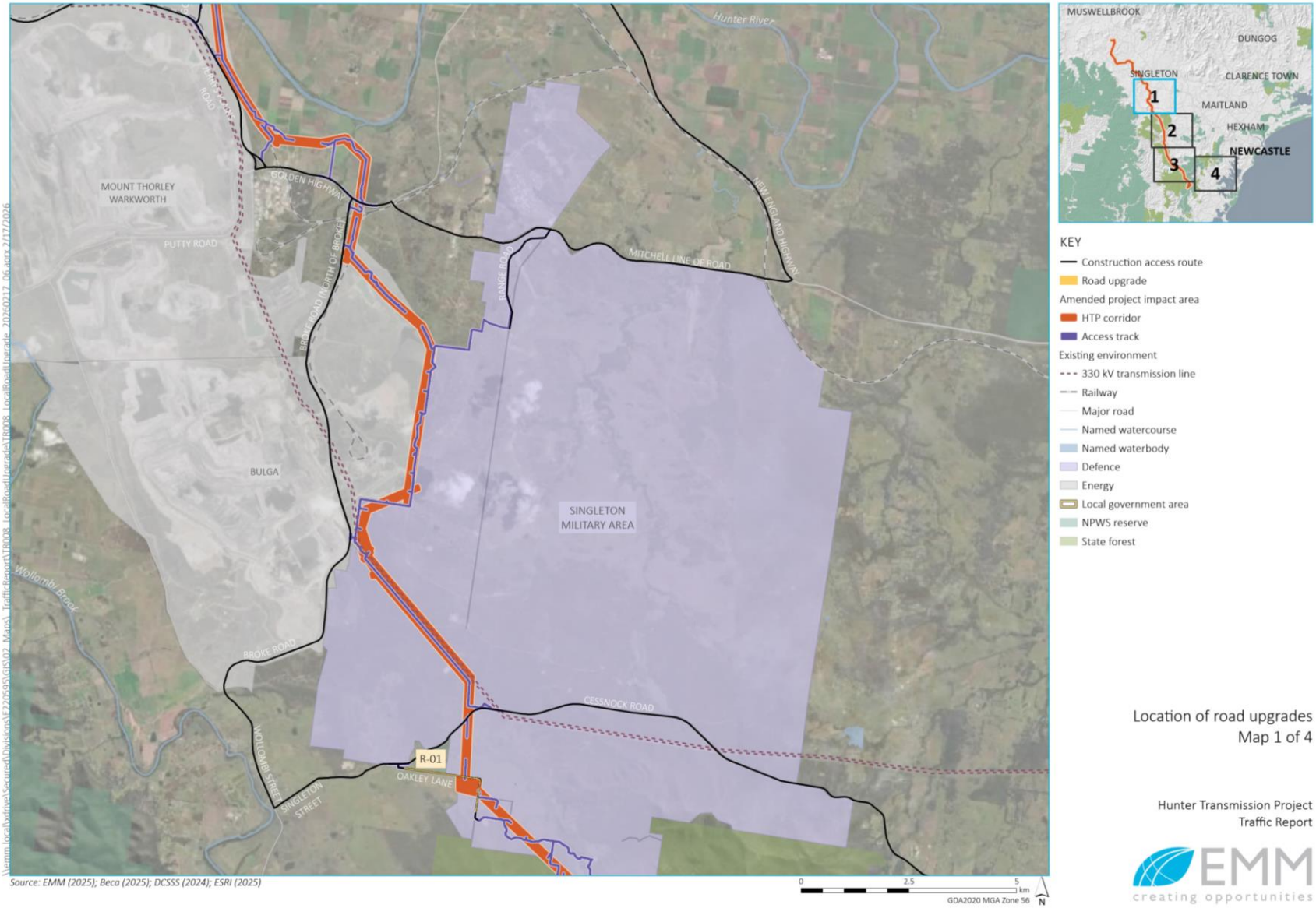


Figure 5-86 Location of road upgrades

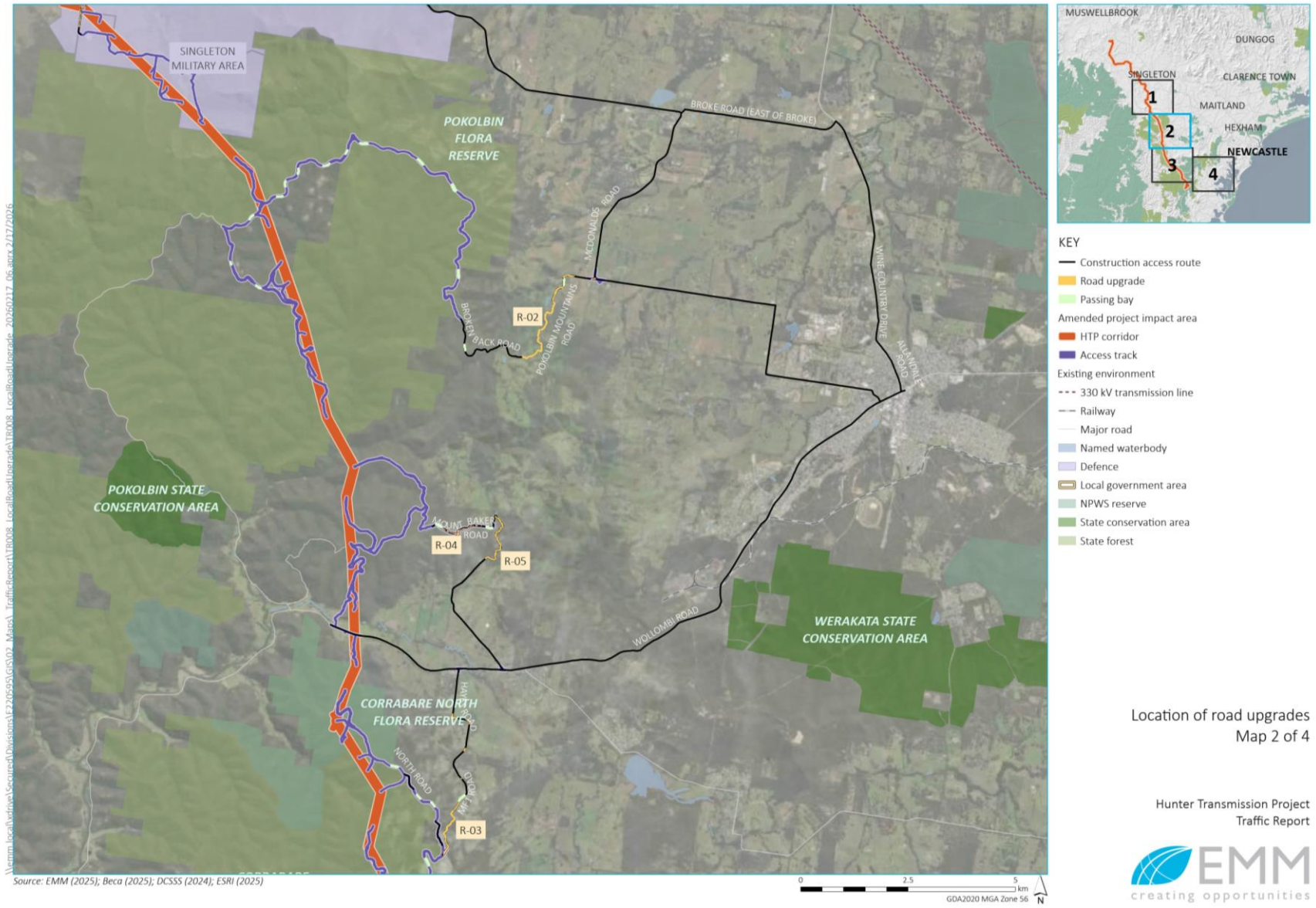
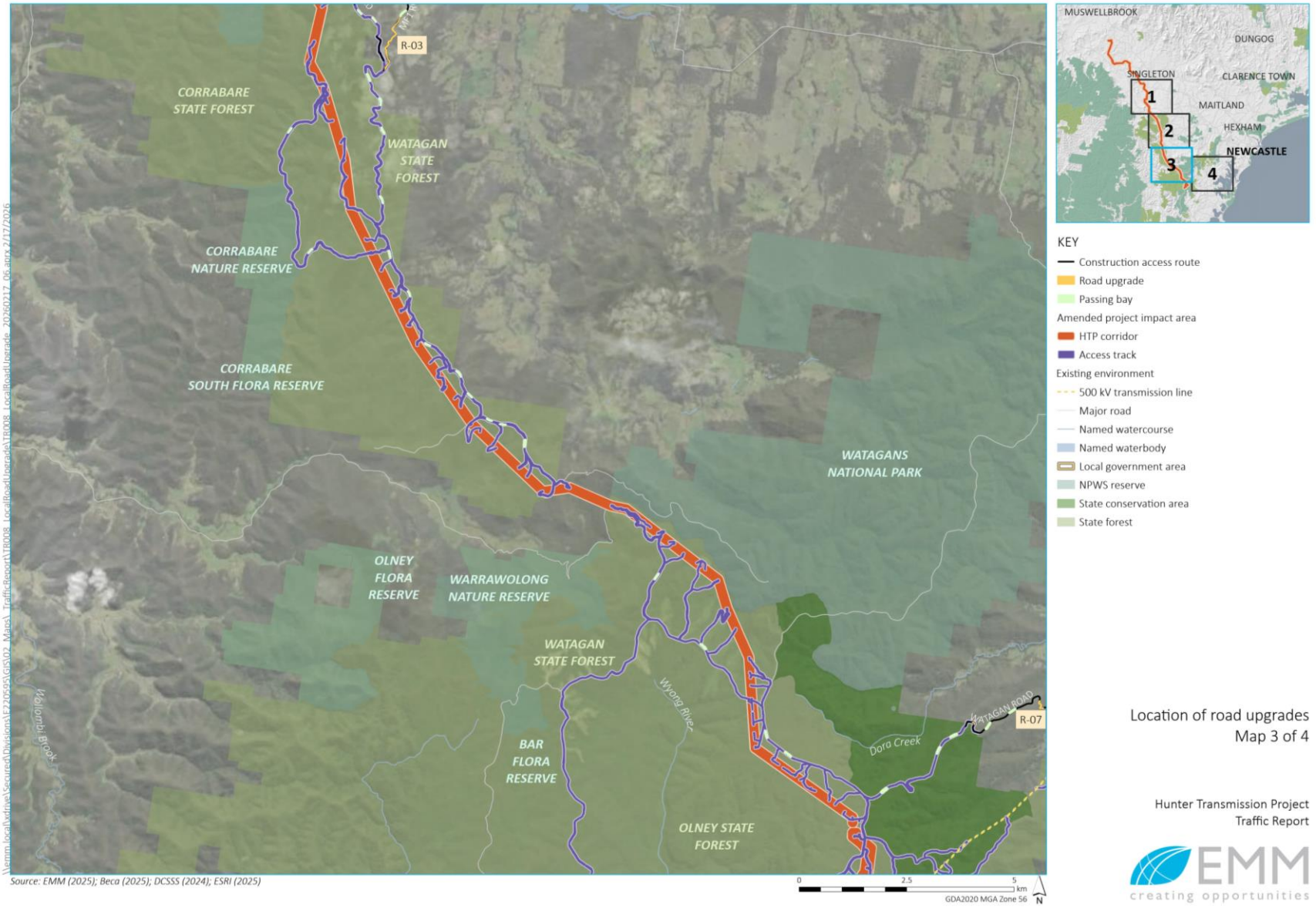


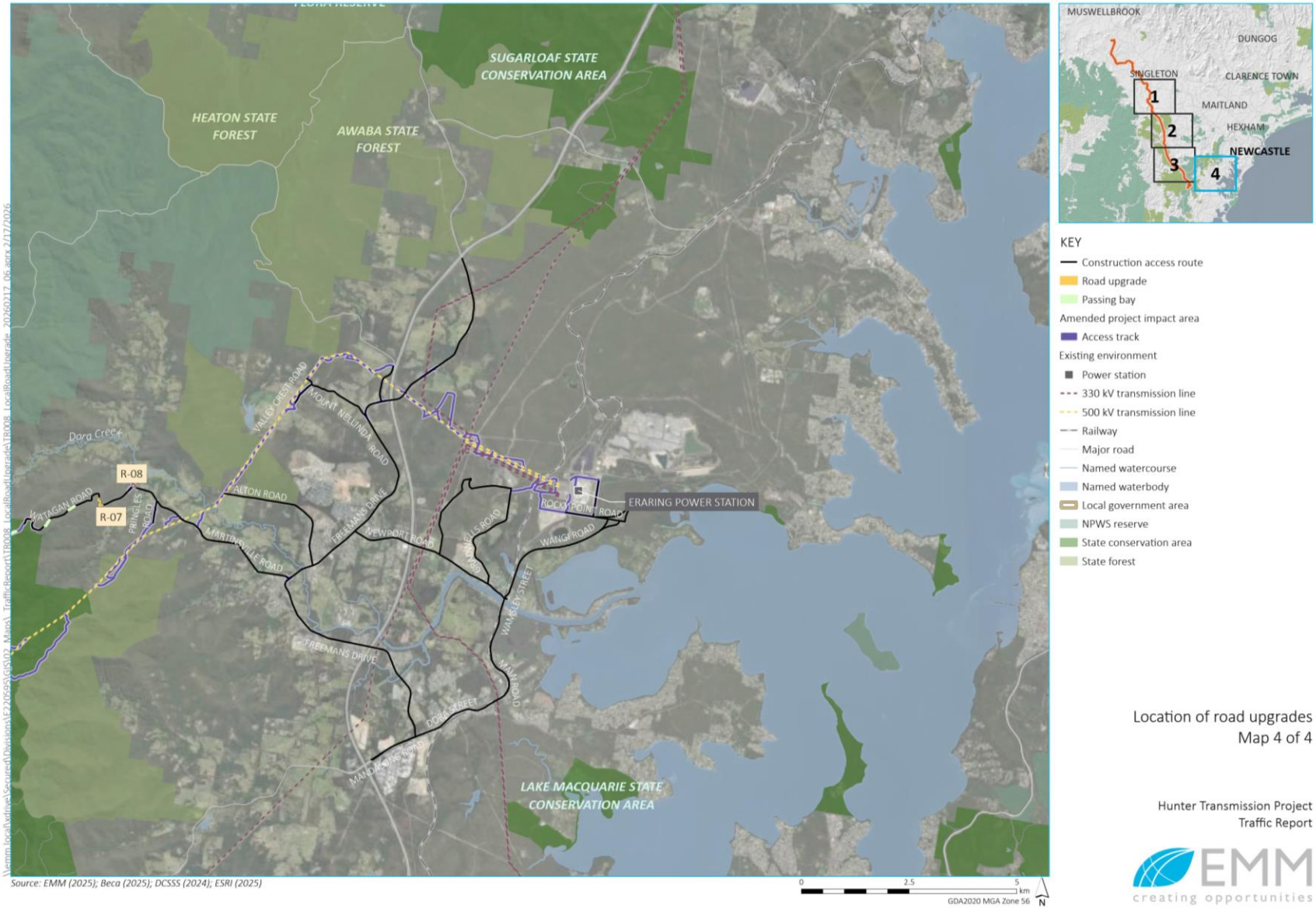
Figure 5-86 Location of road upgrades



Location of road upgrades
Map 3 of 4

Hunter Transmission Project
Traffic Report

Figure 5-86 Location of road upgrades



Location of road upgrades
Map 4 of 4

Hunter Transmission Project
Traffic Report

5.3.12.2 Construction-related intersection upgrades

Table 5-63 outlines intersections proposed to be upgraded, widened or modified for construction vehicle use and access. Upgrades are also proposed based on intersection performance and operation, turning warrants requiring certain interaction layouts and safe intersection sight distance (SISD) assessments. Design drawings of the upgrades are included in **Appendix D** and the locations are shown on **Figure 5-87**.

Table 5-63 Proposed intersection upgrades

ID	Intersection	Location	Works required	Appendix D Drawing ID
Intersections on or with the State road network				
I-03	Golden Highway / Lemington Road	Jerrys Plains	This intersection will require widening on Lemington Road for turning vehicle swept path purposes. This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently a BAL/BAR intersection and will be required to be upgraded to a BAL/CHR intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0617-2/3
I-04	Golden Highway / Comleroi Road	Warkworth	This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently an AUL/AUR intersection and will be required to be upgraded to an AUL/CHR(s) intersection.	2583080-CA-ANC-0622-1/2
I-07	Golden Highway / Gouldsville Road	Gouldsville	This intersection would need to be upgraded to comply with turn treatment warrants during construction. This is currently an AUL(s)/BAR intersection and will be required to be upgraded to an AUL/CHR intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0637-1/2
I-31	Putty Road / Existing Access	Mount Thorley	This intersection will require widening on the Existing Track for turning vehicle swept path purposes. This intersection will also require an upgrade based on turn treatment warrants during construction. The intersection currently includes a BAL left turn treatment and will be required to be upgraded to an AUL.	2583080-CA-ANC-0611-2/3
I-32	Golden Highway/ Existing Access Across Rail Track (Mount Thorley Warkworth)	Mount Thorley	This intersection will require widening on the Existing Access for turning vehicle swept path purposes. The intersection will be required to be upgraded to include an AUL left turn treatment.	2583080-CA-ANC-0612-3/4

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-33	Golden Highway/ Unknown Road (east of Lemington Road)	Warkworth	This intersection will require an upgrade based on turn treatment warrants during construction. The intersection currently includes a BAR right turn treatment and will be required to be upgraded to CHR.	2583080-CA-ANC-0623-3/4
I-69	Jerrys Plains Road (SB Ramp) / New Access track	Mount Thorley	This intersection will require an upgrade based on turn treatment warrants during construction and will be required to be upgraded to an AUL(s). This existing intersection does not comply with SISD requirements due to existing road signage. Signage would need to be relocated.	2583080-CA-ANC-0667-1/2
Intersections on or with the regional and local road network				
I-15	McDonalds Road / Pokolbin Mountains Road	Pokolbin	Intersection requires widening for two-way / two-lane heavy vehicle movements.	2583080-CA-ANC-0606-1
I-17	Wollombi Road / Mount View Road (Eastern intersection – Cessnock)	Cessnock	This intersection would need to be upgraded to comply with turn treatment warrants during construction. Cessnock City Council are upgrading this intersection to include traffic signals as part of the Wollombi Road Stage 2 upgrades.	N/A
I-19	Wollombi Road / Mount View Road (Millfield)	Millfield	This intersection will require widening on Mount View Road in the form of kerb adjustments for turning vehicle swept path purposes.	2583080-CA-ANC-0604
I-20	Wollombi Road / Hayes Road	Millfield	This intersection will require widening, potential land acquisition and culvert extensions on Hayes Road for turning vehicle swept path purposes.	2583080-CA-ANC-0605-1
I-21a	Cessnock Road / Oakley LanI-32e	Broke	This intersection will require widening on Oakley Lane for turning vehicle swept path purposes. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0607-1

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-23	Freemans Drive / Martinsville Road	Cooranbong	This intersection will require widening for turning vehicle swept path purposes. This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently an AUL/AUR intersection and will be required to be upgraded to an AUL(s)/CHR intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by an existing building. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). Post the completion of the main construction works this intersection will be reconfigured to an arrangement that is consistent with planned shared user path facility on Freemans Drive, delivered by Lake Macquarie Council.	2583080-CA-ANC-0601-4 & 5
I-25	Martinsville Road / Watagan Road	Martinsville	This intersection will require widening and potential land acquisition on Watagan Road for turning vehicle swept path purposes. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Martinsville Road.	2583080-CA-ANC-0602
I-26	Watagan Forest Road / Martinsville Hill Road	Martinsville	This intersection does not comply with SISD requirements. A reduced temporary speed limit will be required along Martinsville Hill Road on approach to the Watagan Forest Road intersection.	N/A
I-28	Freemans Drive / Mount Faulk Road	Cooranbong	This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently a BAL/BAR intersection and will be required to be upgraded to a BAL/CHR(s) intersection.	2583080-CA-ANC-0652
I-34	Wollombi Road / New & Existing Access to Construction Support Sites (Wollombi Road A & B)	Millfield	These are new access roads and will require reconfigured lane layouts and intersections on Wollombi Road. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Wollombi Road on approach to the Access Road intersection.	2583080-CA-ANC-0626-1/2

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-35	Broke Road / Existing Access	Mount Thorley	Existing access road. Localised intersection widening required on the Existing Access road. This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently a BAL/BAR intersection and will be required to be upgraded to an AUL(s)/BAR intersection. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Broke Road on approach to the Existing Access Road intersection.	2583080-CA-ANC-0631
I-36	Broke Road / Existing Access	Mount Thorley	Existing access road. Localised intersection widening required on Existing access road. This intersection will also require an upgrade based on turn treatment warrants during construction. This is currently a BAL/BAR intersection and will be required to be upgraded to an AUL(s)/BAR intersection.	2583080-CA-ANC-0632
I-37	Cessnock Road / New Access	Singleton Military Area	This is a new access road. Localised intersection widening required on New access road for turning vehicle swept path purposes.. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Cessnock Road on approach to the new Access Road intersection.	2583080-CA-ANC-0608
I-38	Broke Road / Existing Access	Mount Thorley	Existing access road. Localised intersection and road widening required for turning vehicle swept path purposes. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Broke Road on approach to the Existing Access intersection.	2583080-CA-ANC-0609
I-40	Long Point Road West / Existing Easement 1	Warkworth	Existing access to existing easement. Localised intersection widening on the Existing Easement for turning vehicle swept path purposes. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0613-1

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-41	Long Point Road West / Existing Easement 2	Warkworth	This is a new access road to the existing easement. Localised intersection widening on access road for turning vehicle swept path purposes and will be required to be a BAL/BAR intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0633
I-42	Archerfield Road / Existing Access	Warkworth	Existing access road. Localised intersection widening on Archerfield Road for passing vehicles and on Existing Access road for turning vehicle swept path purposes.	2583080-CA-ANC-0614
I-43	Lemington Road / Existing Access	Ravensworth	Existing access road. Localised intersection widening on Existing Access road for two-way simultaneous vehicle movement.	2583080-CA-ANC-0615
I-44	Bayswater Power Station Access Road / Access Road	Muswellbrook	Private Road. No works required. May require traffic control of vehicle movement.	2583080-CA-ANC-0618
I-45	Freemans Drive / New Access to Construction Support Site (Freemans Drive)	Cooranbong	This is a new access road. Localised intersection widening on access road for turning vehicle swept path purposes. This intersection would need to be upgraded to comply with turn treatment warrants during construction. This will require a BAL/CHR(s) intersection.\ This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Freemans Drive on approach to the New Access Road intersection.	2583080-CA-ANC-0630- 2
I-46	Long Point Road West / Existing Access	Gouldsville	Existing access track. No works required. May require traffic control of vehicle movement. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Long Point Road West on approach to the existing track intersection.	2583080-CA-ANC-0643
I-47	Pikes Gully Road / New Access to Construction Support Site (Pikes Gully Road)	Howick	This is a new access road. Localised intersection widening on access road for turning vehicle swept path purposes and will be required to be a BAL/BAR intersection. Project includes road widening on Pikes Gully Road.	2583080-CA-ANC-0634

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-48	Hebden Road / New Access to Construction Support Site (Hebden Road)	Muswellbrook	This is a new access road. Localised intersection widening on access road for turning vehicle swept path purposes and will be required to be a BAL/BAR intersection.	2583080-CA-ANC-0619
I-49	Lemington Road / New Access	Lemington	This is a new access road on western side of Lemington Road directly opposite Old Lemington Road. Localised intersection widening on access road for turning vehicle swept path purposes.	2583080-CA-ANC-0616-1/2
I-50	Lemington Road / Old Lemington Road	Lemington	This intersection will require widening on Old Lemington Road for turning vehicle swept path purposes.	2583080-CA-ANC-0616-1/2
I-51	Gouldsville Road / New Access to Construction Support Site (Gouldsville Road)	Gouldsville	This is a new access road. This intersection will require widening on the access road for turning vehicle swept path purposes and will be required to be a BAL/BAR intersection. This existing intersection does not comply with SISD requirements. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2). This may include a reduced speed limit along Gouldsville Road on approach to the New Access Road intersection.	2583080-CA-ANC-0627
I-53	Cessnock Road / New Access	Singleton Military Area	This is a new access track. Localised intersection widening on access track for turning vehicle swept path purposes and will be required to be a BAL/BAR intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0640
I-54	Wollombi Road / New Access	Millfield	This is a new access track. Localised intersection widening and culvert extensions on access track for turning vehicle swept path purposes. This intersection will also require an upgrade based on turn treatment warrants during construction. This will be required to be upgraded to a BAL/BAR intersection. This intersection does not comply with SISD requirements. A reduced temporary speed limit will be required along Wollombi Road on approach to the New Access Road intersection.	2583080-CA-ANC-0642

ID	Intersection	Location	Works required	Appendix D Drawing ID
I-58	Freemans Drive / Mount Nellinda Road	Cooranbong	Localised intersection widening on the corner of Mount Nelinda Road and Freemans Drive required for turning vehicle swept path purposes. This intersection would also need to be upgraded to comply with turn treatment warrants during construction. This is currently a BAL/BAR intersection and will be required to be upgraded to a BAL/CHR(s) intersection. This existing intersection does not comply with SISD requirements. Sightlines may be impeded by existing trees. As this SISD assessment is desktop only, the assessment outcome and the required control would be validated during detailed design (refer to mitigation measure TT2).	2583080-CA-ANC-0664

Figure 5-87 Location of intersection upgrades

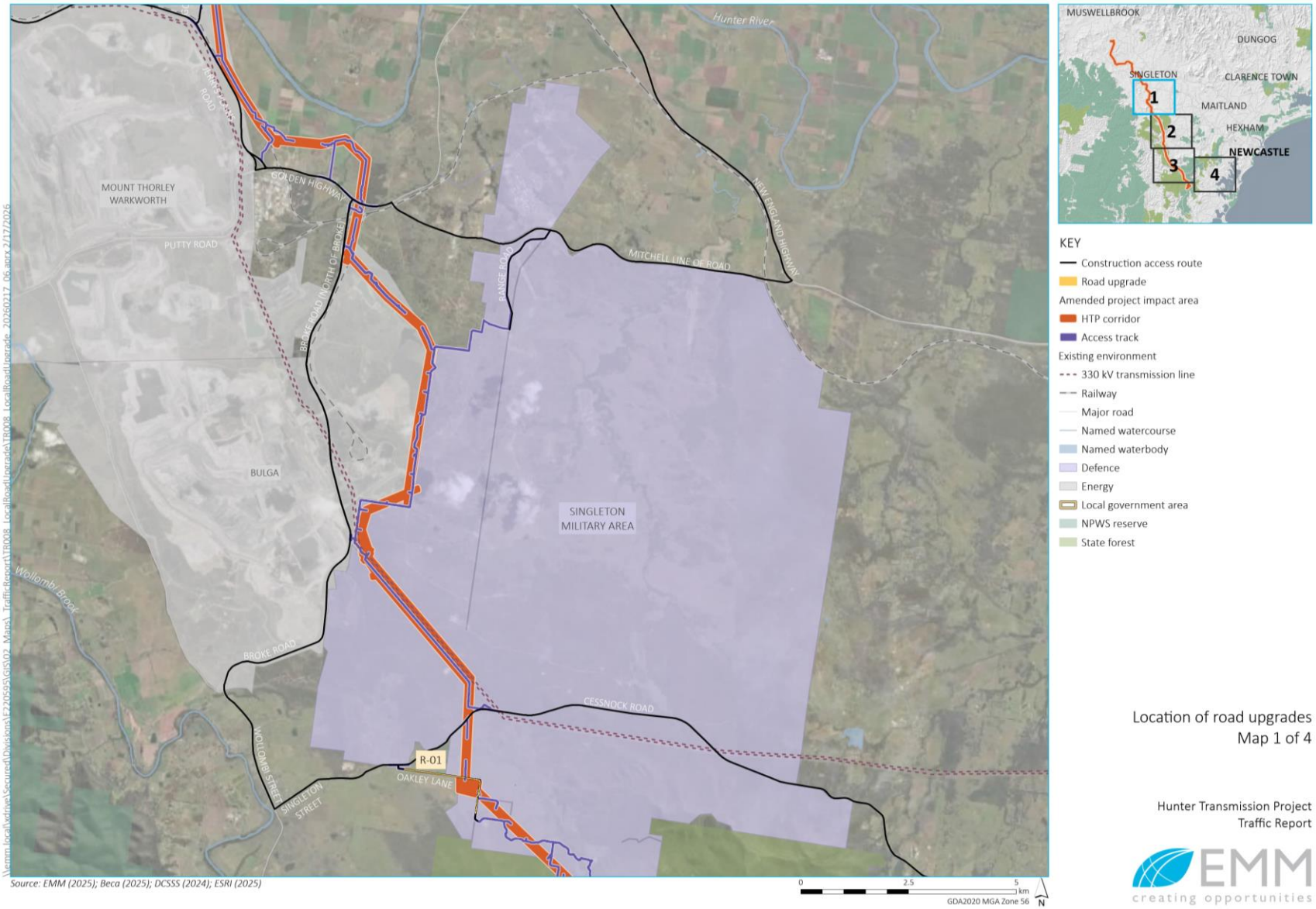


Figure 5-87 Location of intersection upgrades (continued)

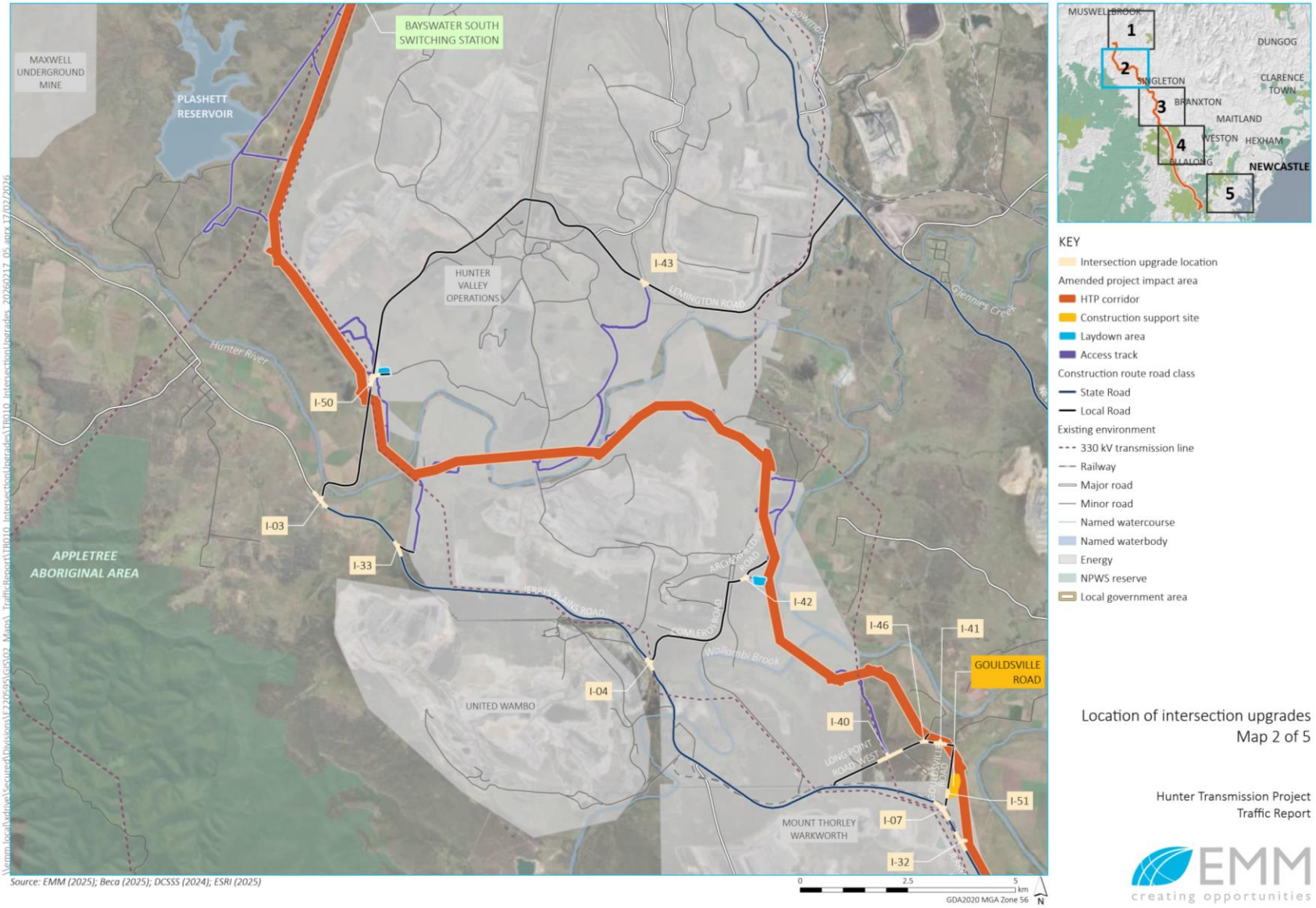


Figure 5-87 Location of intersection upgrades (continued)

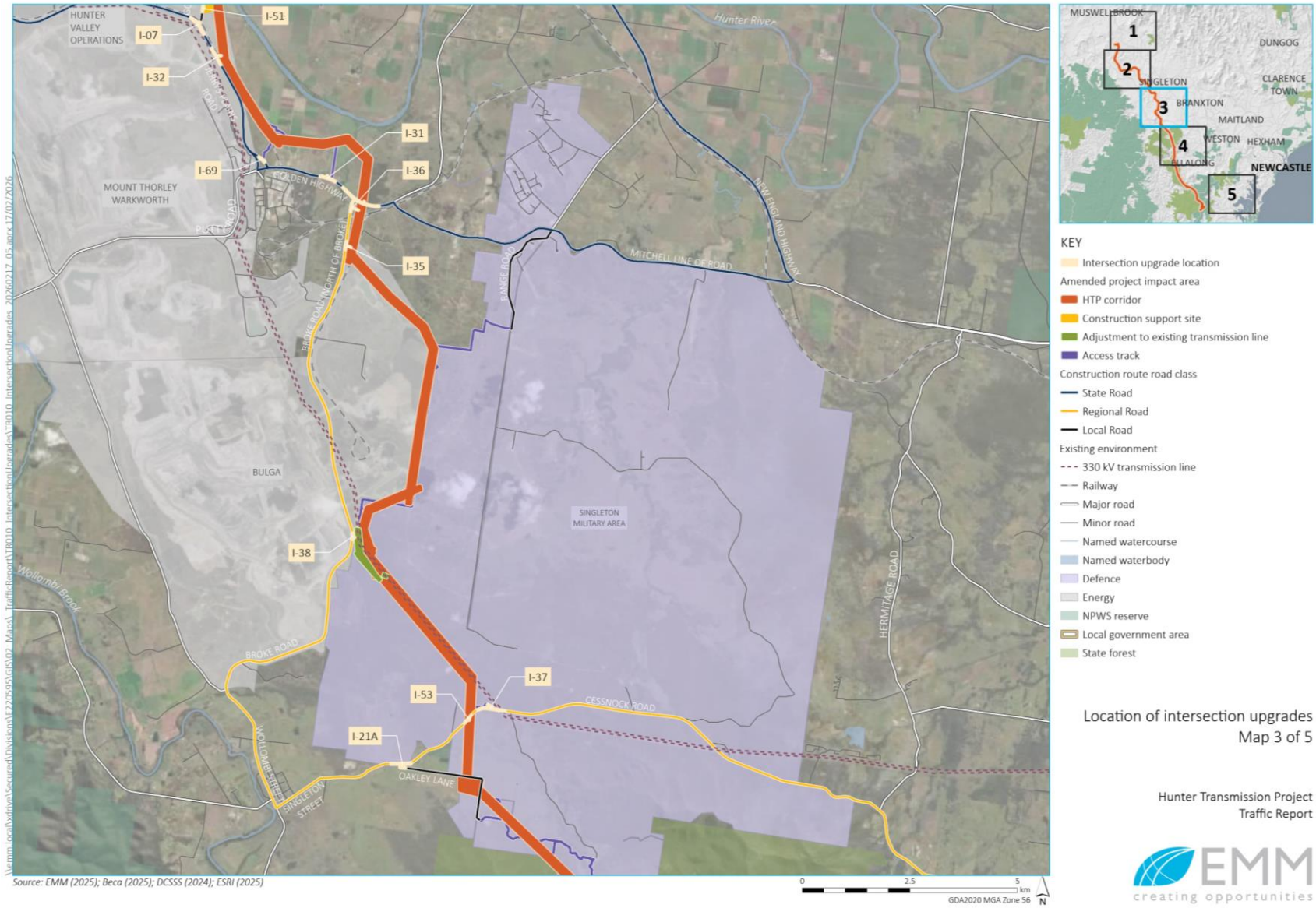


Figure 5-87 Location of intersection upgrades (continued)

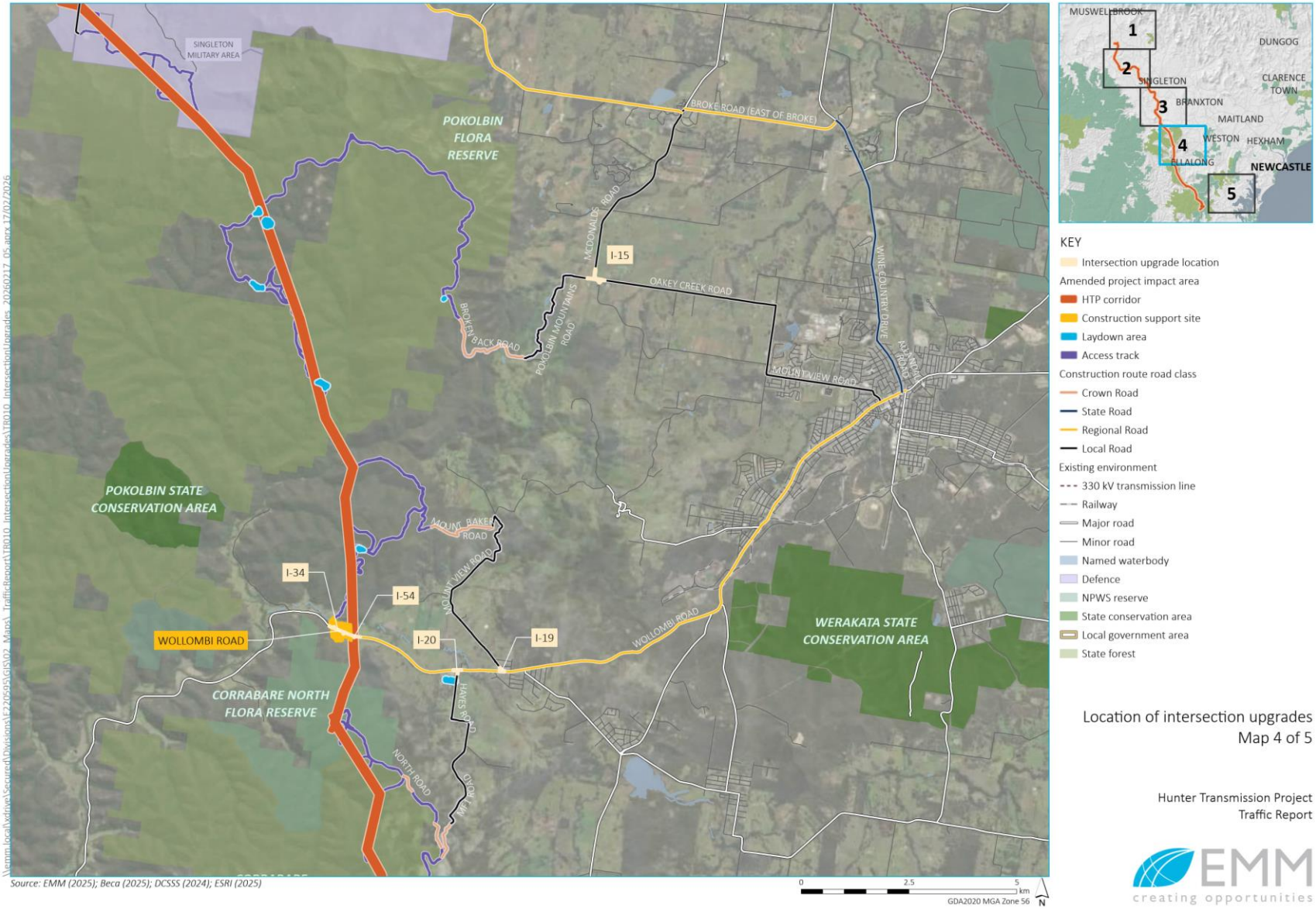
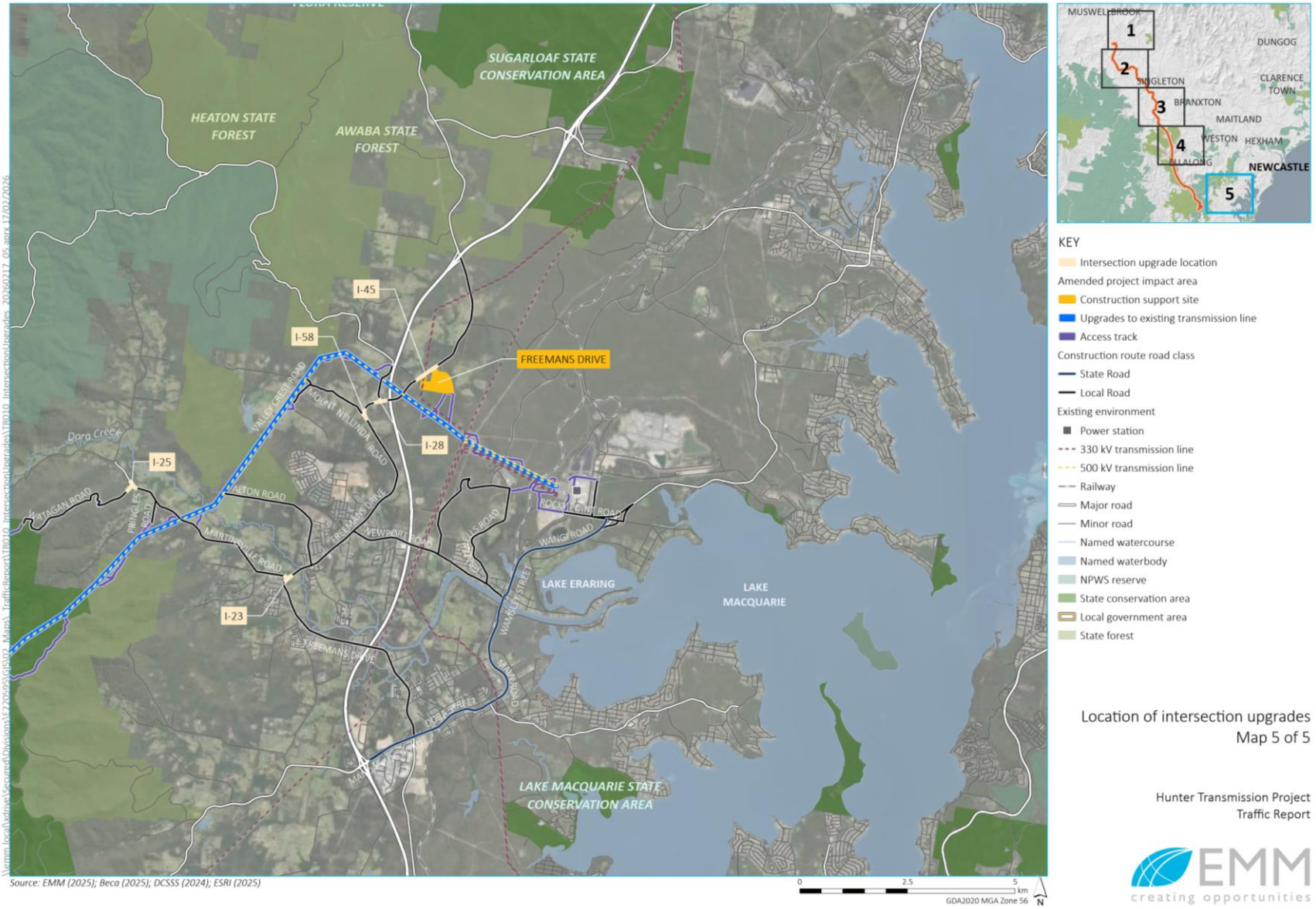


Figure 5-87 Location of intersection upgrades (continued)



Location of intersection upgrades
Map 5 of 5

Hunter Transmission Project
Traffic Report

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6.0 Assessment of operational impacts

This chapter presents an assessment of the potential traffic and transport impacts expected to occur once the project is operational. The operation of transmission lines, switching stations, and substations would require a minimal workforce.

Potential operational traffic and transport impacts include the provision of access for continued maintenance of transmission lines, switching station and substation infrastructure, as well as for vegetation management. These activities would have insignificant traffic generation during the operational and maintenance phase of the project and would have negligible impact on the efficiency of the road network in the traffic and transport study area.

6.1 Ongoing maintenance activities

The transmission line and new switching stations would be inspected by field staff and contractors periodically, with other operational activities occurring in the event of an emergency (as required).

Maintenance activities for the transmission line and new switching stations would likely include:

– Periodic inspections (ground and aerial) and maintenance of transmission assets

– General building, asset protection zone and general landscaping maintenance

– Vegetation management within the easement, including the management of hazard trees

– Fire detection system inspection and maintenance

– Fence repairs

– Stormwater and drainage infrastructure maintenance.

Road upgrade works required as part of the project typically comprise widenings to existing public roads and intersections, where maintenance responsibilities would be handed over to the relevant road authority following the e works. In these instances, like-for-like road maintenance tasks would apply to these widened areas and be carried out by the relevant road authority.

6.1.1 Maintenance works workforce size

The maintenance workforce typically consists of three to five personnel for routine inspections and maintenance on a monthly and yearly frequency depending on maintenance type and requirements. Some less frequent inspections would require up to 10 personnel.

6.1.2 Traffic generation from maintenance works

Routine maintenance activities would typically only require a light vehicle or sometimes a light truck with a small crew and required equipment. Staff are likely to carpool when travelling to the operation impact area. The daily movement number can be as high as 10 vehicle movements. Non-routine maintenance, which may require the transport of oversize and over mass equipment for travel to and from Bayswater, Olney or Eraring, would require an OSOM vehicle.

6.1.3 Site maintenance access and road access

Access to the transmission line easement and switching stations during operation would be via existing public and private roads and access tracks, and new access tracks established as part of the project during construction, as required.

Ongoing use of the upgraded tracks and new tracks during operation would be required for asset maintenance activities. These general asset maintenance activities can predominantly be undertaken with light vehicle access within the easement. Repairs and upgrade works would require access for larger vehicles. The use of formed access tracks may not be required to all transmission towers. Some of the upgraded tracks and new tracks that are not required for operation would be restored with groundcover following construction in consultation with the relevant landowner. The final extent of reinstatement is uncertain given that some landowners may wish to retain access tracks that are not required for asset maintenance.

Routine vegetation maintenance would be required along permanent access tracks during operation. This would involve clearing of vegetation on the track, track sides (for mobile plant and the like), and/or trimming of trees that pose fall-in risk to the access track corridor that would prevent safe vehicle passage.

Access tracks would be left in a suitable condition in consultation with landowners. In some cases, access easements may be required to allow operational access to the transmission line easement from the nearest public road. These access easements would be negotiated with landowners as necessary.

Access track maintenance would be carried out as required during operation and based on ongoing use, track upgrades would be undertaken to allow for operation and maintenance activities within the transmission line easement and at switching stations and substations to be continued.

During operation, the public road network would be used where required for routine maintenance. The switching stations and transmission lines would be inspected by the network operator's operational staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency.

For maintenance access routes that are not part of the approved Restricted Access Vehicle (RAV) and OSOM network, but require such vehicle access, the network operator would be required to apply for a heavy vehicle access permit to be issued by the National Heavy Vehicle Regulator (NHVR).

6.2 Operational impact assessment

6.2.1 Impacts on road capacity and efficiency

The proposed activities required during operation would be carried out at infrequent intervals. The traffic generation during operation would be low and would have a negligible impact on the efficiency of the road network in the traffic and transport study area.

6.2.2 Impacts on intersection operation and safety

The low traffic volume associated with the maintenance activities would not affect the intersection capacities or operations throughout the traffic and transport study area.

6.2.3 Impacts on rail

All maintenance and operational activities would occur outside the existing rail line corridor. As such, there would be no impacts to rail operations during project operation.

6.2.4 Impacts on road condition

The low traffic volume and minimal heavy vehicles involved in the maintenance activities are unlikely to have a noticeable impact on the road pavement condition throughout the traffic and transport study area.

6.2.5 Impacts on road safety

Due to the low volume of vehicle traffic generated during operation, the project is expected to have a negligible impact on road safety in the traffic and transport study area.

6.2.6 Impacts on public transport

Due to the low volume of vehicle traffic generated during operation of the project, impact on the public transport network in the traffic and transport study area is expected to be negligible. In addition, maintenance activities would have limited interactions with the wider road network, which includes the existing public transport services.

6.2.7 Impacts on active transport

Due to the low volume of vehicle traffic generated during operation of the project, impacts on the active transport network in the traffic and transport study area are expected to be negligible. In addition, maintenance activities would have limited interactions with the wider road network, which includes the existing active transport network.

6.2.8 Impacts on property access

Access to properties for residents (including emergency vehicle access and egress) would be maintained throughout operation. Should there be a requirement for a short-term restriction for a particular property, prior consultation with the affected party would be undertaken.

7.0 Assessment of cumulative impacts

Cumulative impact assessment involves the consideration of other nearby major projects along with the project. Major projects with the potential for cumulative traffic and transport impacts alongside the project were identified through a review of publicly available information and environmental impact assessments from the following databases:

– NSW Major Projects website (NSW Government, searched June 2025)

– Muswellbrook Shire Council, Singleton Council, Cessnock City Council, Central Coast City Council, and Lake Macquarie City Council websites.

7.1 Nearby major projects

Figure 7-1 and **Table 7-1** provides a summary of nearby major projects that are anticipated to overlap during the construction phase and are close to the amended project impact area. Each of the projects tabled document construction traffic demands and the roads to be used. These have been sourced from their relevant traffic impact assessments for likely construction traffic from Q1 2027 to Q4 2029, noting that the peak of construction for HTP would likely occur in the year 2028.

Discussions held with TfNSW since the exhibition of the EIS has also resulted in the inclusion of additional renewable energy projects beyond those identified in **Figure 7-1** and **Table 7-2** within the quantitative cumulative traffic impact assessment (for example, projects within the Central West Orana and New England Renewable Energy Zones).

This was requested by TfNSW to determine if additional intersection treatments or other HTP-specific mitigation is required where there is the potential for cumulative impacts to arise on common State roads. The included projects and the assumptions applied have been agreed with TfNSW, and capture those that are at:

– An EIS exhibition stage or later in the NSW planning process, and

– Have the potential to use the Port of Newcastle and common State road networks with HTP (for example, the Golden Highway).

The assumptions represent a worst-case scenario as it assumes an overlap of all identified projects with HTP in 2028 and is inclusive of renewable energy projects that have not yet been granted access rights.

Figure 7-1 Anticipated scheduled construction traffic overlap with other future projects during construction (2027 to 2029)

Project	Approx. distance from HTP	2027				2028				2029			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
HTP	N/A												
Liddell Future Land Use and Enabling Works	1 km												
HVO Continuation Project North	0 km												
HVO Continuation Project South	0 km												
Maison Dieu Solar Farm	1 km												
Hunter-Central Coast REZ Transmission Project	0 km												
Muswellbrook Solar Farm	14 km												
Bowmans Creek Wind Farm	9 km												
Central West Orana REZ Transmission Project	80 km												
Mandalong Road Upgrade	6 km												

Table 7-1 Cumulative project peak hour construction traffic generation and corresponding construction routes

Relevant future project	Proponent	Scope	Location	Weekday peak hour traffic generation (veh/hr)		Key roads used for construction routes	Common impacted intersections
				AM peak	PM peak		
Liddell Future Land Use and Enabling Works	AGL	To support the proposed closure strategy of Liddell Power Station, the proponent is seeking to undertake works for the demolition of the Liddell Power Station and associated infrastructure and preparation of the site for ongoing industrial land use.	Liddell Future Land Use and Enabling Works is located around 1 km north of the amended project impact area near Lake Liddell in Muswellbrook.	60LV, 4HV	60LV, 4HV	New England Highway, Liddell and Bayswater Access Road	The project is assumed to access the following intersections during the peak hours - New England Highway / Hebden Road (I-01a) - New England Highway / Pikes Gully Road (I-02a)
Hunter Valley Operations (HVO) continuation projects (HVO North Open Cut Coal Continuation Project and HVO South Open Cut Coal Continuation Project)	Hunter Valley Operations	The HVO continuation projects involve continuation of mining at the HVO North open cut coal mining complex until 2050, including extension of approved mining areas, mining of deeper coal seams and realignment of Lemington Road, and continuation of mining at the HVO South open cut mining complex until 2045, including a reduction in maximum extraction rate.	The HVO continuation projects would intersect the amended project impact area at the existing HVO operations.	18LV, 3HV	18LV, 3HV	New England Highway, Golden Highway, Lemington Road. Comleroi Road. Pikes Gully Road	The project is assumed to access the following intersections during the peak hours - New England Highway / Lemington Road (I-02) - New England Highway / Pikes Gully Road (I-02a) - Golden Highway / Lemington Road (I-03) - Golden Highway / Comerloi Road (I-04)
Maison Dieu Solar Farm	Terrain Solar	The construction, operation and decommissioning of a large-scale solar photovoltaic generation facility, including an integrated battery energy storage system, a high-voltage electricity substation, connection to the national electricity grid through the existing Ausgrid substation, and associated infrastructure. This project would generate and	Maison Dieu Solar Farm is located around 1 kilometre east of the amended project impact area in Maison Dieu.	76LV, 4HV	76LV, 4HV	New England Highway (outside of the HTP construction routes)	There will be negligible cumulative traffic impacts between Maison Dieu Solar Farm and the project as there are no common transport routes.

Relevant future project	Proponent	Scope	Location	Weekday peak hour traffic generation (veh/hr)		Key roads used for construction routes	Common impacted intersections
				AM peak	PM peak		
		supply 60 megawatts of clean, renewable electricity to the grid with a storage capacity of 40 megawatts/80 MWh.					
Mandalong Road upgrades	Transport for NSW	The projects involve the replacement of roundabouts with new traffic lights and other road and pedestrian safety improvements at two intersections in Mandalong Road, Morrisett in the Lake Macquarie LGA.	The Mandalong Road upgrades are located around 8 km from the amended project impact area.	Up to 10 LV and 20 HV spread across the proposed area	Up to 10 LV and 20 HV spread across the proposed area	M1 Pacific Motorway, Mandalong Road, Freemans Drive, Wyee Road	It is anticipated that there may be potential minor traffic impacts due to common travel along Mandalong Road, Freemans Drive and Wyee Road. However, given the relatively low volume of traffic spread across the region, traffic impacts are considered negligible and manageable
Hunter-Central Coast REZ transmission project	EnergyCo / Ausgrid	Provision of 2 new 132 kV substations as well as upgrades to existing 132 kV transmission lines between Muswellbrook and Kurri Kurri.	This project would be located within existing Ausgrid easements between Muswellbrook and Kurri Kurri and would cross the HTP corridor in 3 locations.	45LV, 5HV	45LV, 5HV	New England Highway, Hebden Road	The project is assumed to access the following intersections during the peak hours - New England Highway / Hebden Road (I-01a) - New England Highway / Pikes Gully Road (I-02a).
Muswellbrook Solar Farm	OX2	A large-scale solar photovoltaic generation facility and associated infrastructure. The proposed solar farm would have generation capacity of approximately 135 megawatts and would produce around 347 gigawatt hours of energy annually, which is enough to power approximately 79,000 homes.	Muswellbrook Solar Farm would be located around 14 km north of the amended project impact area on the eastern side of Muswellbrook.	Solar Farm 167LV, 13HV BESS 67LV, 3HV	Solar Farm 167LV, 13HV BESS 67LV, 3HV	New England Highway	The project is assumed to access the following intersections during the peak hours - New England Highway / Hebden Road (I-01a) - New England Highway / Pikes Gully Road (I-02a).

Relevant future project	Proponent	Scope	Location	Weekday peak hour traffic generation (veh/hr)		Key roads used for construction routes	Common impacted intersections
				AM peak	PM peak		
Bowmans Creek Wind Farm	Ark Energy	Stage 1 of the Bowmans Creek Wind Farm would involve 54 wind turbines. Stage 2 would involve a further 21 wind turbines.	Bowmans Creek Wind Farm would be located around 9 km north of the amended project impact area on the eastern side of Muswellbrook.	75LV, 11HV	75LV, 11HV	New England Highway, Hebden Road (north), Hebden Road (south)	The project is assumed to access the following intersections during the peak hours - New England Highway / Hebden Road (I-01a) - New England Highway / Pikes Gully Road (I-02a).
Central West Orana REZ Transmission Project	EnergyCo	This project would involve new transmission network infrastructure, including transmission lines and energy hubs, which would transfer power generated by solar and wind farms in the Central West-Orana REZ to electricity consumers.	The Central West Orana REZ Transmission Project would be located between the proposed substations at Merotherie and Elong Elong and the Wollar Substation, around 80 kilometres from the amended project impact area.	104 LV, 115 HV	104 LV, 115 HV	Golden Highway (Dunedoo area only), Castlereagh Highway, Ulan Road, Cope Road, Wollar Road	The project is assumed to access the following intersections during the peak hours - Golden Highway / Lemington Road (I-03) - Golden Highway / Comleroi Road (I-04) - Golden Highway / Gouldsville Road (I-07) - Putty Road / Broke Road (I-09) - Putty Road / Mitchell Line of Road (I-10) - Range Road / Golden Highway (Mitchell Line of Road) (I-10b) - Putty Road / Existing Track (I-31) - Golden Highway / Existing Access Across Rail Track (I-32) - Golden Highway / Unknown Road (I-33)

7.1.1 Mandalong Road upgrade

Mandalong Road provides a critical link from the M1 Pacific Motorway to Morisset and the southern part of the Lake Macquarie local government area. During peak periods, motorists experience congestion and slow travel times on Mandalong Road. Significant retail, industrial and commercial growth is planned for Morisset, which would put further pressure on the road network.

TfNSW has investigated upgrade options along Mandalong Road between the M1 Pacific Motorway and Ourimbah Street to improve traffic flow and safety for all users while helping meet the future needs of an increased population and employment in the Morisset area. A preferred design has been developed for the proposed upgrade which includes:

– Replacing the existing roundabout at Wyee Road/Freemans Drive intersection with new traffic lights

– Upgrading the existing roundabout at Gimberts Road/Gateway Boulevard intersection

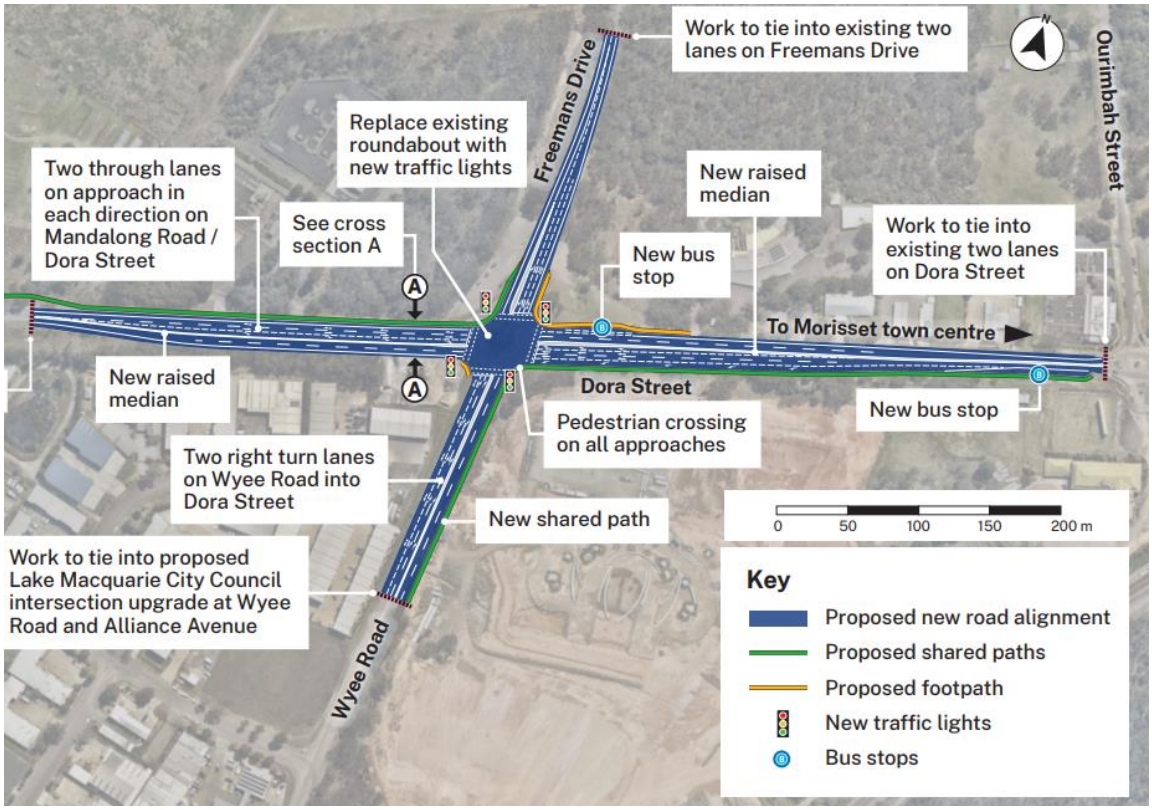
– Providing a shared path along Mandalong Road/Dora Street for pedestrians and cyclists

– Providing two new bus stops on Dora Street.

The design at the Mandalong Road / Freemans Drive / Wyee Road intersection is depicted in **Figure 7-2**. Construction is anticipated to start in late 2026 for approximately two years. Construction-related traffic and construction related to the actual intersection will impact proposed HTP construction traffic that uses Mandalong Road and Freemans Drive. Construction traffic will either be delayed by traffic impacts due to construction or utilise nearby detour routes including the M1 Pacific Motorway and Freemans Drive interchange to the north (of the M1 Pacific Motorway and Mandalong Road interchange).

The operation of the proposed signalised intersection layout has been tested, and the analyses indicate that the upgraded signalised intersection layout would operate at good levels of service with the addition of HTP construction traffic. Coordination between EnergyCo and TfNSW to manage any overlapping construction or transporting activities within the study area is to be established, should both projects be under construction at the same time.

Figure 7-2 Preferred design at Mandalong Road / Freemans Drive / Wyee Road



7.1.2 HVO Continuation Project

As part of the Hunter Valley Operations (HVO) proposal for continued operations, the alignment of Lemington Road is proposed to be altered. The realignment is required to enable the progression of mining as part of the HVO North continuation project. The current alignment consists of a low-level bridge (Mosses Crossing) that crosses the Hunter River. The bridge is subject to closure during heavy rainfall events that lead to increased water levels in the Hunter River. **Figure 7-3** shows the current and proposed new alignment of Lemington Road, which would be located further east of its current alignment, connecting Archerfield Road and Comleroi Road (in the south) to the northern part of Lemington Road. The realignment would consist of the construction of a new bridge across the Hunter River to replace Mosses Crossing to provide improved access reliability.

The construction associated with the HVO continuation project was forecasted to require up to 525 workers and 1,072 truck movements in the peak month. While these works are spread across the HVO sites, accessible via Lemington Road, Comleroi Road, Liddell Station Road, and Old New England Highway, there would be a large concentration of trips required for the construction of the Lemington Road realignment, primarily accessed via the following intersections:

– New England Highway / Lemington Road (I-02)
– New England Highway / Pikes Gully Road (I-02a)
– Golden Highway / Lemington Road (I-03)
– Golden Highway / Comleroi Road (I-04).

Figure 7-3 Lemington Road appropriate new alignment

As the project is scheduled to commence in 2027, it is recommended for EnergyCo to coordinate with HVO of the undertaking of works and associated staging/timing to minimise adverse performance and road safety impact on the road network along the New England Highway and Golden Highway.

7.1.3 Newcastle Logistics Precinct - Intertrade Project

The Newcastle Logistics Precinct - Intertrade Project is an industrial park proposed adjacent to the Port of Newcastle to support the supply chain for critical transmission, generation and storage projects under the NSW Electricity Infrastructure Roadmap. The commencement of construction works for this project is not known at the time of writing this report. As such, the cumulative impacts are not readily quantifiable. Construction may indirectly impact HTP traffic, especially for material deliveries generated from the Port of Newcastle. However, direct interference with HTP construction vehicles, adjacent to the HTP worksites, are unlikely given the distance between the two projects. OSOM movements from the Intertrade site may overlap with the HTP OSOM movements from the Port of Newcastle, but these would be coordinated and, as HTP has a low volume of OSOM movements, the cumulative impact will be small.

7.1.4 Muswellbrook Bypass

The Muswellbrook Bypass is planned to provide a 9.1 km bypass northeast of Muswellbrook for the New England Highway, with construction commencement expected to start in December 2027. At its peak, daily vehicle movements of approximately 200 light and 300 heavy vehicles are forecast for the project.

At the writing of this report, the routing of construction-related vehicles is yet to be determined. As such, the cumulative impacts of the project are not readily quantifiable.

7.1.5 New England REZ Transmission project

This project is at EIS preparation stage and information on construction vehicles, construction routes and construction program is not available to enable further assessment. Both projects involve work at the Bayswater substation within the Muswellbrook LGA. In the event that construction work is concurrent or consecutive, traffic impacts may occur in the Muswellbrook LGA and/or along major transport routes where traffic routes are common. These impacts would be dependent on the stage of construction for each project and the construction traffic volumes. The potential for cumulative impacts arising from HTP and the New England REZ Transmission project would be considered further in the future New England REZ Transmission project EIS.

7.1.6 Hunter-Central Coast REZ transmission project

The cumulative impact of stringing activities for the Hunter-Central Coast (HCC) REZ transmission project and HTP was reviewed. The Golden Highway is the only common State road crossed by both projects. The HTP corridor crosses the Golden Highway (Putty Road) once to the east of Broke Road near Mount Thorley, while the HCC REZ has multiple crossings of the Golden Highway (Mitchell Line Road (three crossings), Putty Road (one crossing) and Jerry Plains Slip Road (one crossing)).

The approximate distance of the closest crossing points to the HTP crossing is about 3 km to the west (Mitchell Line Road) and about 2.3 km to the east (Putty Road). Access track connections for HTP and HCC REZ are located on the Jerry Plains Slip Road and Broke Road.

The HCC REZ transmission project REF and Submissions Report does not provide detail concerning the timing for stringing or general works within the road reserve, and the impact of this activity on the road network (noting infrastructure for the HCC REZ is within the road corridor). The HCC REZ transmission project Submissions Report states that the detail concerning the program and methodology for crossings (including the nature, number and duration of intermittent closures, implication (i.e. queue lengths) and management requirements) would be submitted with the required approvals under the Roads Act (section 138 and ROL applications).

The potential for cumulative impacts arising from HTP and HCC REZ will be subject to the final construction schedules and methodologies for both projects. Given the status of information available on the stringing method and program for HCC REZ and planning stage for HTP, any potential cumulative impacts cannot be quantified at this stage. It is acknowledged that there will be the need to coordinate and manage stringing activities along the Golden Highway to minimise disruption to other road users. Consultation will occur with TfNSW and Ausgrid once the detailed schedule and methodology for the stringing activities are known. This would consider other TfNSW activities occurring along the Golden Highway.

7.2 Cumulative impacts on intersections

The cumulative impact of adjacent major projects was assessed for the following State road intersections:

- I-01a New England Highway / Hebden Road
- I-02 New England Highway / Lemington Road
- I-03 Golden Highway / Lemington Road
- I-04 Golden Highway / Comleroi Road
- I-06 Golden Highway / Long Point Road
- I-07 Golden Highway / Gouldsville Road
- I-09 Golden Highway (Putty Road) / Broke Road
- I-10 Putty Road / Mitchell Line of Road
- I-10b Golden Highway / Range Road

– I-31 Putty Road / Existing Track
– I-32 Golden Highway / Existing Access across rail track
– I-33 Golden Highway / Unknown Road (east of Lemington Road).

7.2.1 Cumulative traffic intersection layout and turn warrant impact assessment

The resultant intersection turn warrants of the cumulative traffic in the network peak hours are summarised in **Table 7-2**. As the summary shows, the intersection turn warrants identified with the cumulative traffic volumes are the same as for the HTP project.

Table 7-2 Summary of existing intersection layouts, turn warrant requirements with project, and in the cumulative scenario

ID	Intersection name	Existing layout	HTP layout required	Cumulative layout required
I-01a	New England Highway / Hebden Road	CHR / AUL	CHR / AUL	CHR / AUL
I-02	New England Highway / Lemington Road	CHR / AUL	CHR / AUL	CHR / AUL
I-02a	New England Highway / Pikes Gully Road	CHR / AUL	CHR / AUL	CHR / AUL
I-03	Golden Highway / Lemington Road	BAR / BAL	CHR / BAL	CHR / BAL
I-04	Golden Highway / Comleroi Road	AUR / AUL	CHR / AUL	CHR / AUL
I-06	Golden Highway / Long Point Road	CHR (s) / BAL	CHR (s) / BAL	CHR (s) / BAL
I-07	Golden Highway / Gouldsville Road	BAR / AUL (s)	CHR / AUL	CHR / AUL
I-09	Golden Highway (Putty Road) / Broke Road	CHR / CHL	CHR / CHL	CHR / CHL
I-10	Putty Road / Mitchell Line of Road	CHR / AUL	CHR / AUL	CHR / AUL
I-10b	Golden Highway / Range Road	CHR / AUL	CHR / AUL	CHR / AUL
I-31	Putty Road / Existing Track	AUR / BAL	AUR / AUL	AUR / AUL
I-32	Golden Highway / Existing Access across rail track	BAR / BAL	BAR / AUL	BAR / AUL
I-33	Golden Highway / Unknown Road (east of Lemington Road)	BAR / BAL	CHR / BAL	CHR / BAL

7.2.2 Cumulative intersection performance assessment

Table 7-3 provides a comparison of the intersection performances with HTP construction traffic and with cumulative traffic for the 2028 weekday AM and PM peak hours. The results demonstrate that the majority of intersections would continue to perform at a similar level of service. The nominal volume movements at the England Highway / Hebden Road (I-01a) and New England Highway / Pikes Gully Road (I-02a) intersections continue to operate at LoS E/F while all remaining intersection movements operate with minimal delays.

Where intersections are forecast to deteriorate in the cumulative scenario, the adjacent shoulder peak hours were assessed to identify potential to shift peak construction vehicle movements outside the network peak hour as follows:

– New England Highway / Lemington Road (I-02): No construction traffic before 7am and after 5pm
– Golden Highway (Putty Road) / Broke Road (I-09): No construction traffic before 7am
– Putty Road / Mitchell Line of Road (I-10): No construction traffic after 4pm
– Golden Highway / Range Road (I-10b): Under the cumulative conditions, the intersection is forecast to operate at capacity even during the shoulder peak periods. Discussions held with TfNSW determined that physical road upgrades would not be required given the restrictions at the intersection and that advanced VMS warning signs should be installed warning of construction vehicle activity. Under this scenario, peak construction vehicle generation would still need to avoid the network peak hours, i.e. no construction traffic before 7am and between 4pm and 5pm.

Table 7-3 Summary of cumulative intersection performance comparison

ID	Intersection name	Hours assessed	2028 LoS HTP	2028 LoS Cumulative
I-01a	New England Highway / Hebden Road	06.00-07.00am	F	F
		16.45-17.45pm	F	F
I-02	New England Highway / Lemington Road	06.00-07.00am	C	F
		07.00-08.00am	-	*D*
		16.45-17.45pm	E	F
		16.00.17.00pm	-	*C*
I-02a	New England Highway / Pikes Gully Road	06.00-07.00am	E	F
		16.45-17.45pm	D	F
I-03	Golden Highway / Lemington Road	10.45-11.45am	A	A
		16.00-17.00pm	A	A
I-04	Golden Highway / Comleroi Road	06.00-07.00am	A	A
		16.00-17.00pm	A	A
I-06	Golden Highway / Long Point Road	06.00-07.00am	B	B
		16.00-17.00pm	B	B
I-07	Golden Highway / Gouldsville Road	06.00-07.00am	A	A
		16.00-17.00pm	A	A
I-09	Golden Highway (Putty Road) / Broke Road	06.00-07.00am	D	F
		07.00-08.00am	-	*B*
		16.00-17.00pm	A	A
I-10	Putty Road / Mitchell Line of Road	06.00-07.00am	B	C
		16.00-17.00pm	D	E
		15.00-16.00pm	-	*D*
I-10b	Golden Highway / Range Road	06.00-07.00am	F	F
		07.00-08.00am	B	B
		16.00-17.00pm	F	F
		15.00-16.00pm	E	F
I-31	Putty Road / Existing Track	06.00-07.00am	A	A
		16.00-17.00pm	B	C
I-32	Golden Highway / Existing Access across rail track	06.00-07.00am	A	A
		16.15-17.15pm	A	B
I-33	Golden Highway / Unknown Road (east of Lemington Road)	10.45-11.45am	A	A
		15.45-16.45pm	A	A

8.0 Mitigation and management

8.1 Environmental management

The approach to environmental management (the use of mitigation measures and traffic management plans) is still applicable under the amended project compared to the exhibited project. Some changes are required, and these are presented in **Section 8.2**.

8.2 Mitigation and management measures

Table 8-1 provides a summary of the mitigation measures for the potential traffic and transport impacts for the amended project. Amendments to the mitigation measures have been identified in response to the amendments to the project, additional assessments completed since the exhibition of the EIS and/or in response to submissions (including the community). Additions to the measures are bolded, while deletions are struck through.

These amended mitigation measures form the finalised mitigation measures to inform the approval of the project and management of impacts through the construction and operation of the project, should it be approved.

Table 8-1 Summary of traffic and transport mitigation measures

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT1	Construction traffic impacts	A traffic management plan (TMP) will be prepared as part of the project environmental management strategy. The TMP will be developed in consultation with the relevant road/rail authorities and will include as a minimum: – Confirmation of construction routes – Measures to maintain access to local roads and properties – Driver safety measures, including a driver code of conduct, requirements for in-vehicle monitoring systems, a driver fatigue management plan and the locations of rest areas along construction routes – Site specific traffic control measures (including signage) to manage and regulate traffic movement prepared in consultation with the relevant road authorities and implemented by licenced traffic management contractors – Measures to maintain pedestrian and cyclist access – Requirements and methods to consult and inform the local community of impacts on the local road network – Coordination with TfNSW and councils for road and intersection works and road crossings – Coordination with ARTC for rail line crossings – Requirements to obtain relevant approvals, including road occupancy licence(s), for any potential works in the road corridor and access by restricted access vehicles or OSOM vehicles required for the project. Where feasible, temporary road closures will be planned to	Detailed design Construction	Construction routes, access tracks, construction support sites and temporary worker accommodation accesses

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
		occur outside of the traffic peak periods to minimise impacts to the road network – Access to construction sites including entry and exit locations and measures to prevent construction vehicles queueing on public roads – Maintenance and safety measures required along access tracks and at access points to construction support sites, including appropriate line marking and signage and wheel cleaning facilities as required – **Monitoring systems and auditing processes for the implementation of traffic management controls, and mechanisms to review the effectiveness of monitoring systems, and the frequency of monitoring or auditing requirements** – A response plan for any construction traffic incident, or complaints management process – Requirements for routine inspections of construction routes – Consideration of other developments that may be under construction to minimise cumulative impacts.		
TT2	Road and intersection upgrades	Upgrades will be carried out for **roads and** intersections ~~where turn warrant assessments have determined that works are required for construction vehicles to carry out safe turning movements. Intersections will be upgraded~~ in line with the required works outlined in ~~*Chapter 4 (Project description)*~~ ***Appendix A (Updated project description)*** **of the Amendment Report.** In addition, safety measures will be implemented as required at intersections assessed as being non-compliant with safe intersection sight distance criteria, including the provision of additional advance warning signs, temporary reductions in speed limits or clearing of vegetation in consultation with the relevant road authority. Safety measures will be implemented in line with the required works outlined in ~~*Chapter 4 (Project description)*~~ ***Appendix A (Updated project description)*** **of the Amendment Report**.	Construction	Intersections identified in ***Appendix A (Updated project description)*** ~~*Chapter 4 (Project description)*~~ as requiring upgrades for turn warrant treatment or safe intersection sight distance **Roads identified in *Appendix A (Updated project description)***
TT3	Intersection performance impacts	~~Ongoing investigation will be carried out to determine appropriate measures at the New England Highway/Hebden Road intersection to minimise impacts of right turning construction traffic from Hebden Road onto the New England Highway in the AM and PM peaks. Measures to minimise intersection performance impacts as a result of construction traffic will be investigated in consultation with relevant stakeholders.~~ **To minimise intersection performance impacts as a result of construction traffic,**	Detailed design Construction	~~New England Highway/Hebden Road intersection~~ **Identified intersections**

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
		the following restrictions will be imposed on construction vehicles during the specified times: – **New England Highway / Hebden Road intersection (I-01a): No construction traffic during the HTP AM peak hour (6-7am) except for left out from Hebden Road and no construction traffic during the PM network peak (4.45-5.45pm) except for right into Hebden Road)** – **New England Highway / Lemington Road intersection (I-02): No construction traffic before 7am and no construction traffic during the PM network peak (4.45 and 5.45pm)** – **New England Highway / Pikes Gully Road (I-02a): No construction traffic during the HTP AM Peak hour (6–7 am) except for left out from Pikes Gully Road** – **Golden Highway (Putty Road) / Broke Road intersection (I-09): No construction traffic before 7am** – **Putty Road / Mitchell Line of Road intersection (I-10): No construction traffic during the PM network peak (between 4-5pm)** – **Golden Highway / Range Road intersection (I-10b): No construction traffic before 7am and during the PM network peak (4-5pm).** – **Wine Country Drive / Broke Road intersection (I-14): Minimise heavy vehicle movements during the PM network peak (3.15-4.15pm). Light vehicles directed to use alternative route (Mount View Road, Oakey Creek Road, McDonalds Road).** – **Freemans Drive / Martinsville Road intersection (I-23): Minimise construction traffic in the AM network peak (8.15-9.15am).** **Compliance with the above restrictions will be monitored and audited in accordance with the TMP.** **In addition to these restrictions, variable message signs to communicate possible delays will be installed at the Golden Highway / Range Road intersection (I-10b), Wine Country Drive / Broke Road intersection (I-14), and at any other location agreed with Transport for NSW.** **Putty Road / New site access (I-52) will not proceed.**		

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
~~TT4~~	~~Intersection performance impacts~~	~~Ongoing investigation will be carried out to determine appropriate measures at the Golden Highway/Range Road intersection to minimise the impacts of through and right turning movements in the AM peak. Measures to minimise intersection performance impacts as a result of construction traffic will be investigated in consultation with relevant stakeholders.~~	~~Detailed design~~ ~~Construction~~	~~Golden Highway/Range Road intersection~~
TT4	**Construction traffic impacts**	**Where practicable to do so, shuttle buses will be used to transport construction workers to and from work sites and temporary worker accommodation facilities.**	**Detailed design**	**Temporary worker accommodation at Hebden Road, Freemans Drive and Wollombi Road construction support sites**
TT5	Road safety – design related	All accesses will be designed to accommodate the required construction vehicle(s) in line with the TTIA and in accordance with relevant Austroads guidelines (where applicable).	Detailed design	Construction routes, access tracks, construction support sites and temporary worker accommodation accesses
TT6	Road condition	Pre-construction road dilapidation surveys and routine inspections will be completed along all nominated construction routes on local roads. Where rectification works are required due to project impacts, consultation with the appropriate road authority will be undertaken to confirm the scope of the work required.	Detailed design Construction	Local roads
TT7	Access to properties	Access to properties will be maintained throughout construction where feasible. Where that is not feasible, temporary alternative access arrangements will be provided following consultation with affected landowners and in accordance with the requirements of the construction communication and engagement plan**, or in accordance with the property access sub plan to the TMP as provided in mitigation measure TT14.** **Except as provided in mitigation measure TT14,** disruptions to property access and traffic will be notified to landowners at least 5 business days prior and in accordance with the relevant community consultation processes outlined in the environmental management system (EMS).	Construction	Construction impact area

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT8	Pedestrian and cyclist access	Ongoing consultation will be carried out with local bicycle groups where available and with Forestry Corporation NSW for walking and biking trails in State forests. Safe pedestrian and cyclist access will be maintained where the project interacts with existing pedestrian or bicycle facilities on public roads. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected stakeholders and the relevant roads authority.	Construction	Construction impact area
TT9	OSOM vehicle access	Ongoing consultation will be undertaken with Transport for NSW regarding the use of State roads for OSOM vehicle routes and appropriate permits will be obtained from the National Heavy Vehicle Regulator for OSOM movements.	Detailed design Construction	OSOM routes
TT10	Cumulative impact with Hunter Valley Operations (HVO) Continuation Projects	~~Further analysis and c~~**C**oordination with HVO will be undertaken during detailed design and construction planning regarding works required ~~in the vicinity of Lemington Road~~ and any associated staging/timing to minimise adverse performance and road safety impact **on the road network along** ~~on Lemington Road and at its intersections with~~ the New England Highway and Golden Highway.	Detailed design Construction	~~Lemington Road and~~ **The** surrounding roads near HVO in the northern section of the **amended** project impact area
TT11	**Access interfaces with operations at HVO and Bulga mining complex**	**A project co-ordination group will be established with Glencore, EnergyCo, the network operator and the design and construct contractors to manage critical interfaces between construction and mine operations, such as construction access and shared use of haulage roads.**	**Detailed design**	**HVO and Bulga mining complex**
TT12 ~~**TT11**~~	Cumulative impact of the Mandalong Road upgrade works by Transport for NSW	~~Further analysis and~~ Coordination with Transport for NSW will be undertaken during detailed design and construction planning on the proposed construction activities requiring access on Mandalong Road and associated staging/timing to minimise adverse performance and road safety impacts at the Mandalong Road/Freemans Drive/Wyee Road intersection. ~~Alternative routes will be used should use of this intersection not be possible.~~	Detailed design Construction	Mandalong Road and surrounding areas in the southern portion of the project impact area
TT13	**Interface with Lake Macquarie City Council's upgrade of the Martinsville Road / Freemans Drive intersection**	**The HTP intersection upgrade to Martinsville Road / Freemans Drive intersection will be delivered in coordination with Lake Macquarie City Council to ensure HTP intersection upgrade works do not preclude the ultimate delivery of Lake Macquarie City Council's planned safety improvements at this intersection.**	**Detailed design** **Construction**	**Martinsville Road / Freemans Drive intersection**

Ref	Impact	Mitigation measure	Timing	Relevant location(s)
TT14	**Property access impacts**	**A property access sub plan to the TMP will be prepared for Pokolbin Mountains Road, parts of Mount View Road and Mount Baker Road, to manage property access impacts during construction. This sub plan will outline measures to maintain property access (unless otherwise agreed with property owner(s)) and road user safety along these roads during road upgrade works (where identified) and general use by construction vehicles. The sub plan will include but not be limited to, unless otherwise agreed with property owners:** – **A temporary reduction in the posted speed limit and installation of additional signage as needed** – **Details on how access to properties is maintained during construction, including a maximum wait time under temporary traffic arrangements as per Transport for NSW 'Traffic control at work sites Technical Manual' (the maximum wait time will be 10-15 minutes)** – **Minimum notification periods for any road works or disruptions, and a direct communication system (SMS/email) for registered residents and businesses** – **Provision of a 24/7 contact number for access issues and emergencies** – **Restriction of construction traffic movements to weekdays and standard working hours, except in consultation with property owners to accommodate construction vehicle movements outside standard working hours** – **Commitment to avoid morning and/or afternoon peak periods in consultation with property owners (e.g. school peak times of 8:30-9:30am and 2:30-3:30pm)** – **Locations for passing bays and temporary traffic management** – **Details of any ongoing works required to maintain a suitable level of usability of the road during construction (e.g. drainage at upgrade locations and clearing any impediments to road drainage along Pokolbin Mountains Road, where practicable).** **Compliance with the implemented traffic management controls will be monitored and audited in accordance with the TMP.**	**Detailed design** **Construction**	**Properties located along Pokolbin Mountains Road, parts of Mount View Road and Mount Baker Road**
TT15	**Coordination of stringing activities over the Golden Highway**	**The methodology and program of stringing activities over the Golden Highway for HTP will be coordinated with TfNSW and Ausgrid with consideration of the Hunter-Central Coast REZ transmission project works, scheduled OSOM movements that pass this location and other scheduled road works along the Golden Highway.**	**Detailed design** **Construction**	**Golden Highway (Putty Road)**

9.0 References

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- Transport for NSW, 2022, Design of Roads and Streets Movement and Place Guideline.
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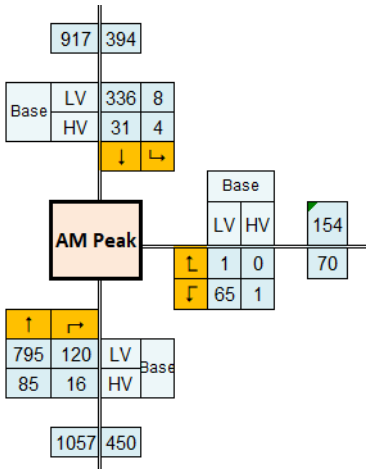
- Transport for NSW, 2022, NSW Schedule of Classified Roads and Unclassified Regional Roads.
- Transport for NSW, 2022, Public Level Crossing Finder.
- Transport for NSW, 2022, Regional Train and Coaches Network.
- Transport for NSW, 2022, Restricted Access Vehicle (RAV) maps and lists.
- Transport for NSW, 2022, Traffic Control at Work Sites – Technical Manual.

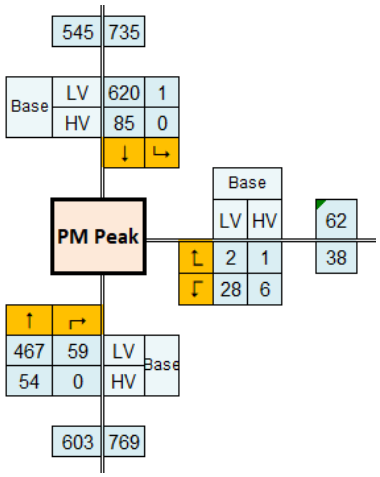
APPENDIX A

EXISTING ACCESS INTERSECTIONS

I-01a: New England Highway/Hebden Road (north) – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:45am – 6:45am

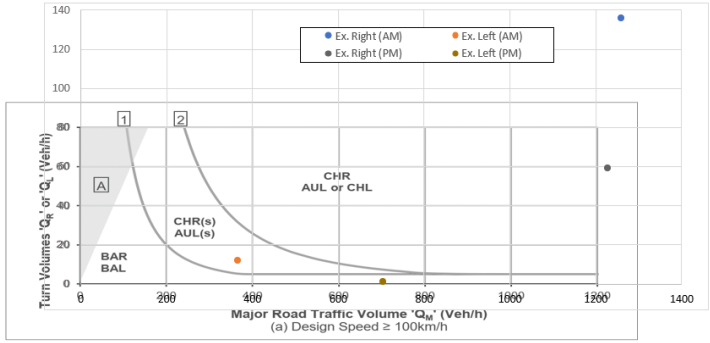


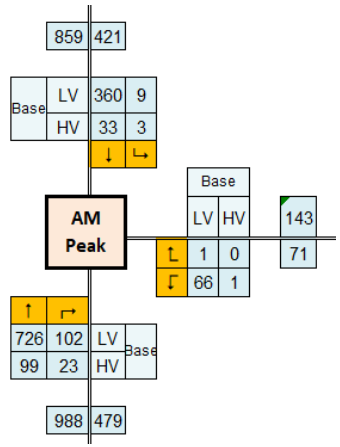
PM Peak: 4:45pm – 5:45pm

Existing intersection control and turn types	T-Intersection Give-Way Channelised Right (CHR); Auxiliary Left (AUL)

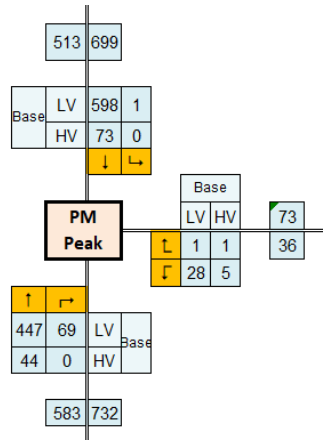
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





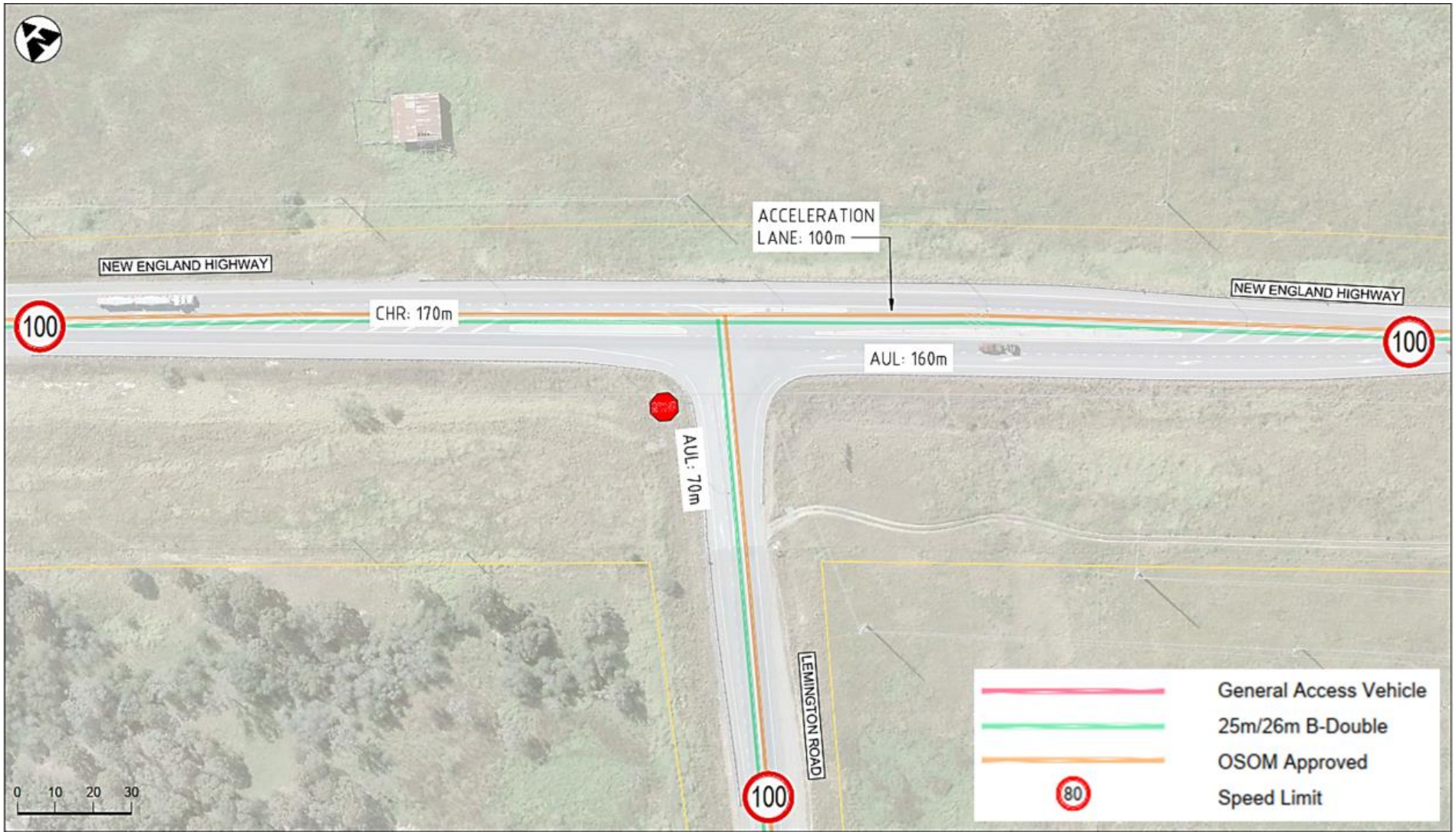
6:00am – 7:00am volumes (HTP construction peak)



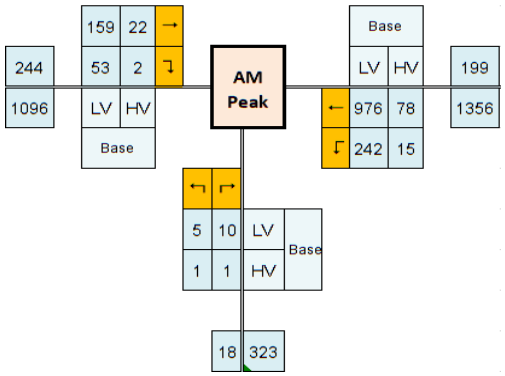
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle. 25m / 26m B-Double and OSOM for New England Highway. General Access Vehicle for Hebden Road (north)
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

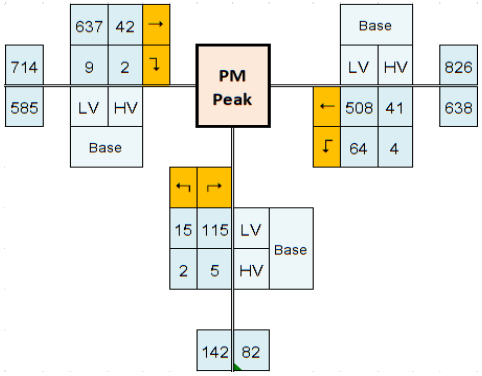
I-02: New England Highway/Lemington Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-02: New England Highway/Lemington Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

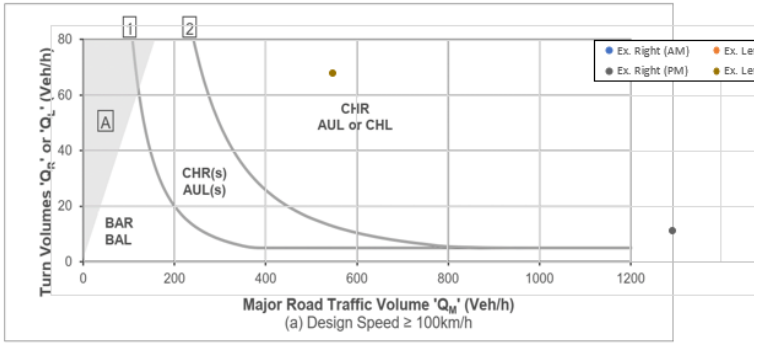


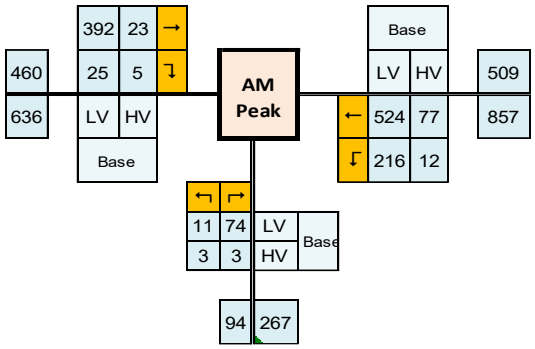
PM Peak: 4:45pm – 5:45pm

Existing intersection control and turn types	Stop controlled T-intersection Channelised Right (CHR); Auxiliary Left (AUL)

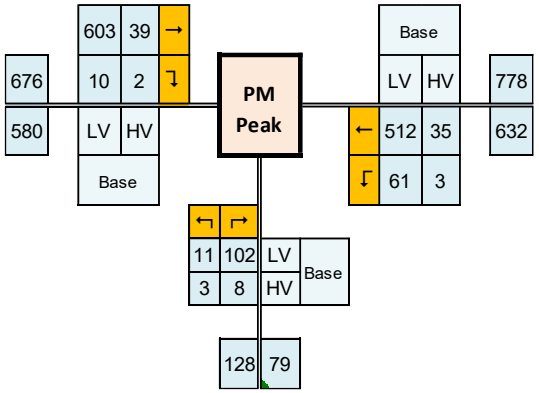
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





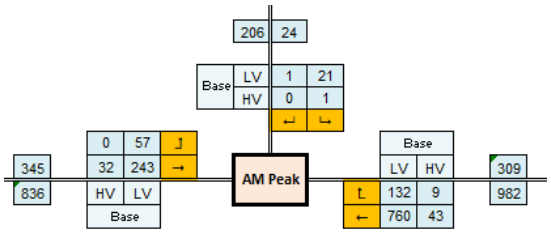
6:00am – 7:00am volumes (HTP construction peak)



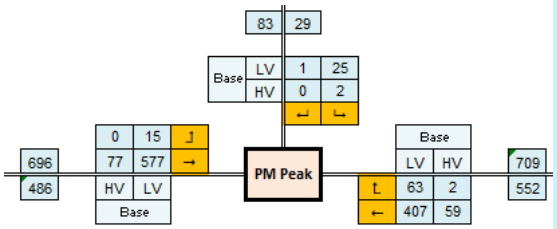
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle. 25m / 26m B-Double and OSOM for all approaches
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

I-02a: New England Highway/Pikes Gully Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

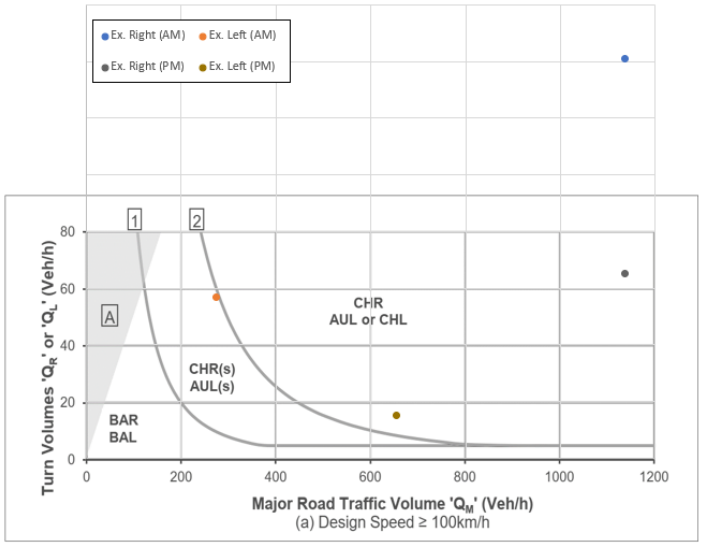


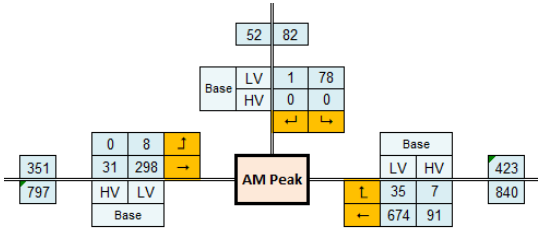
PM Peak: 4:45pm – 5:45pm

Existing intersection control and turn types	T-Intersection Give-Way Channelised Right (CHR); Auxiliary Left (AUL)

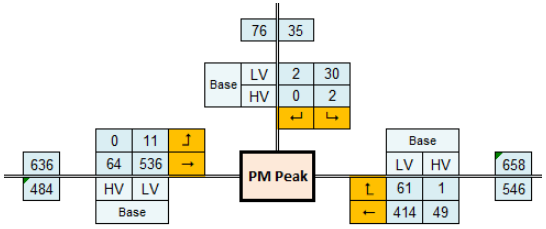
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





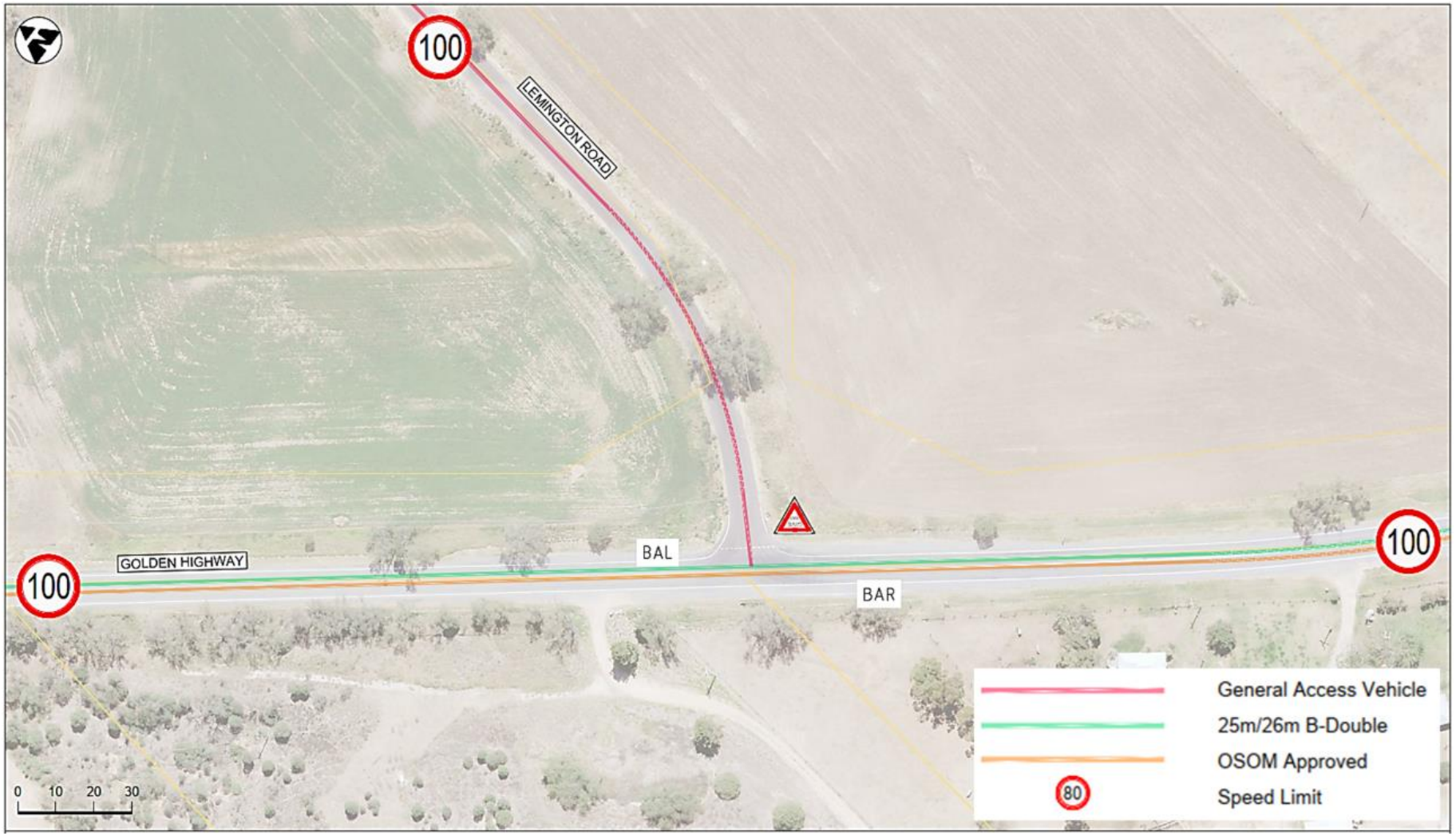
6:00am – 7:00am volumes (HTP construction peak)



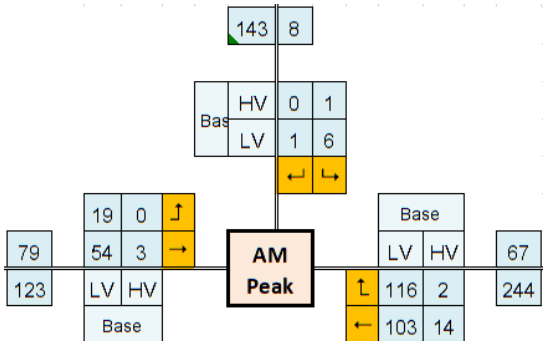
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle. 25m / 26m B-Double and OSOM for all approaches
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

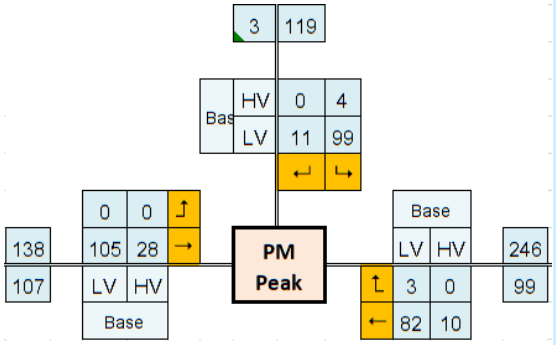
I-03: Golden Highway/Lemington Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-03: Golden Highway/Pikes Gully Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 10:45am – 11:45am

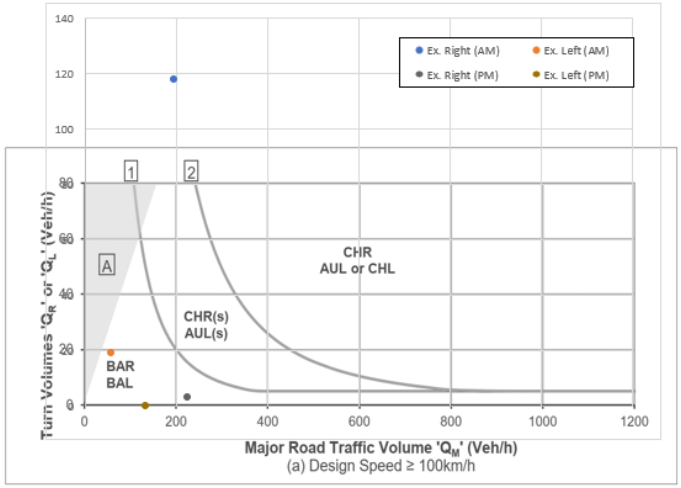


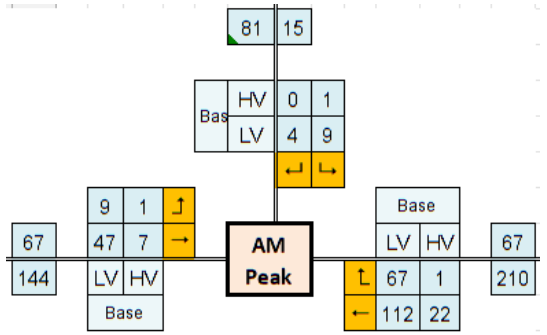
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL

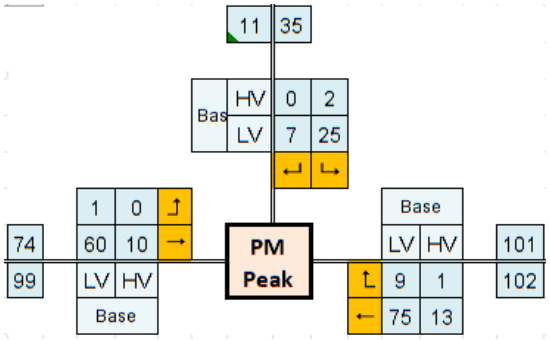
Compliance to intersection turn warrant for existing peak hour demand:

No, a channelised right is required based on existing demand





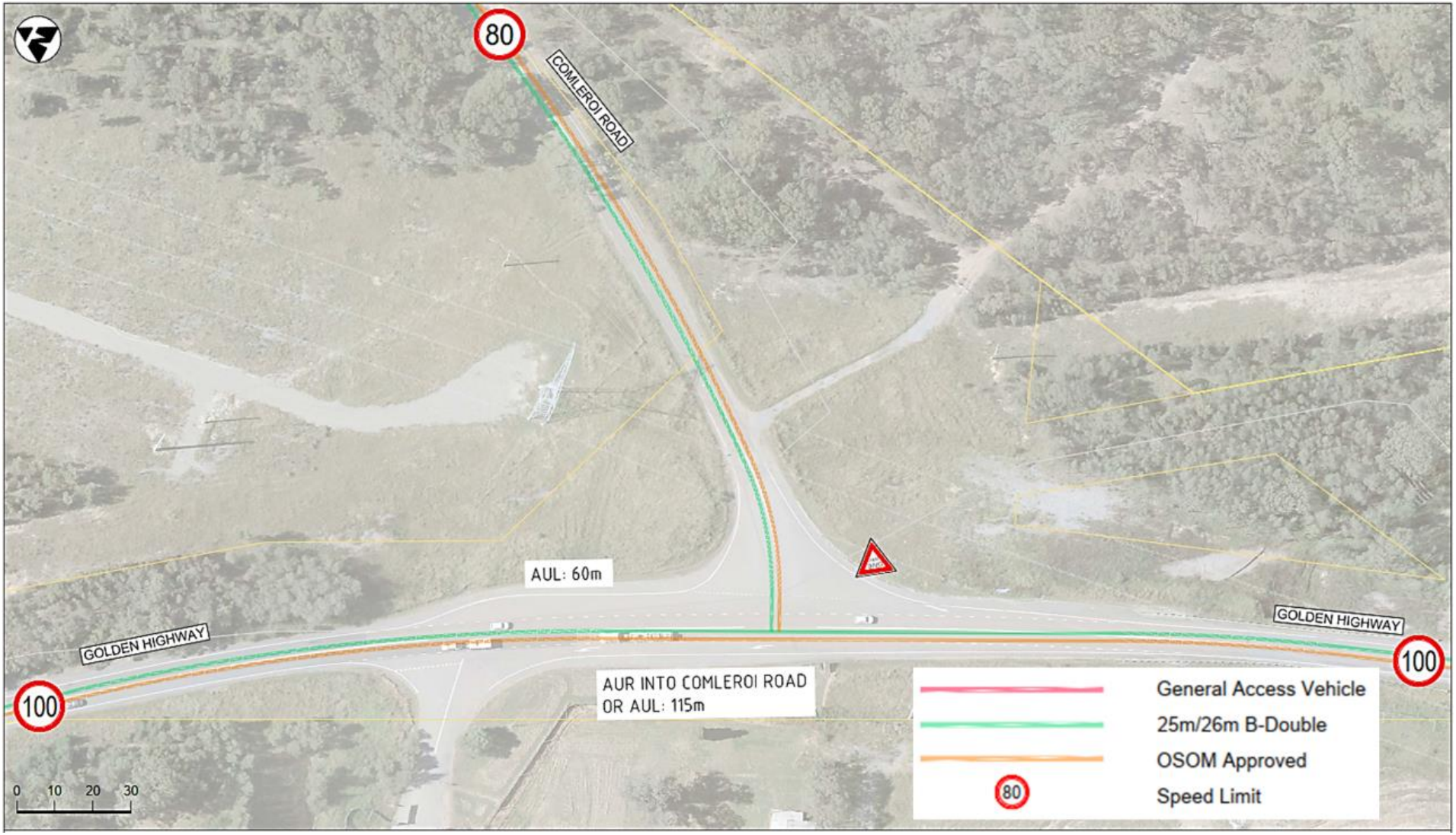
6:00am – 7:00am volumes (HTP construction peak)



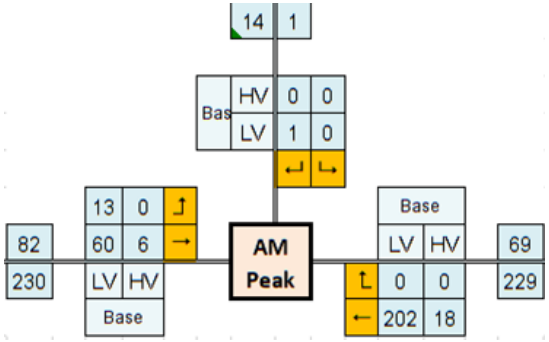
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double (Golden Hwy only) OSOM (Golden Hwy only)
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

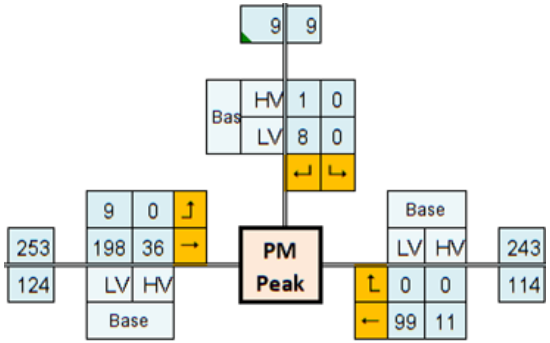
I-04: Golden Highway/Comleroi Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-04: Golden Highway/Comleroi Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

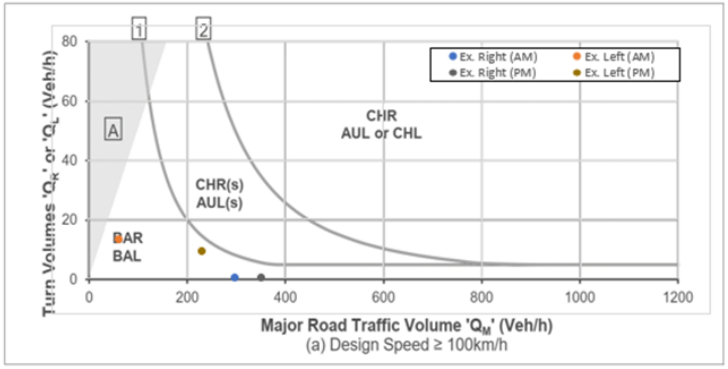


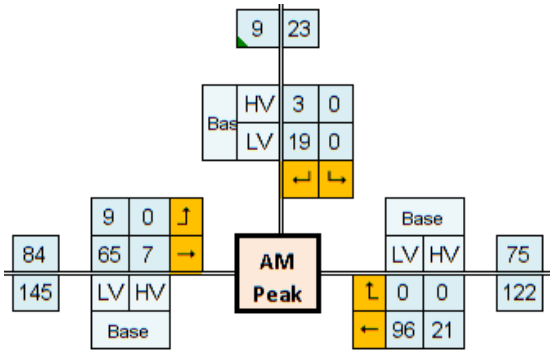
PM Peak: 2:30pm – 3:30pm

Existing intersection control and turn types	T-Intersection Give-Way AUR; AUL

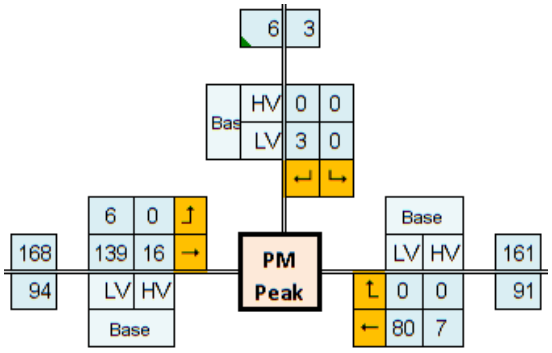
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





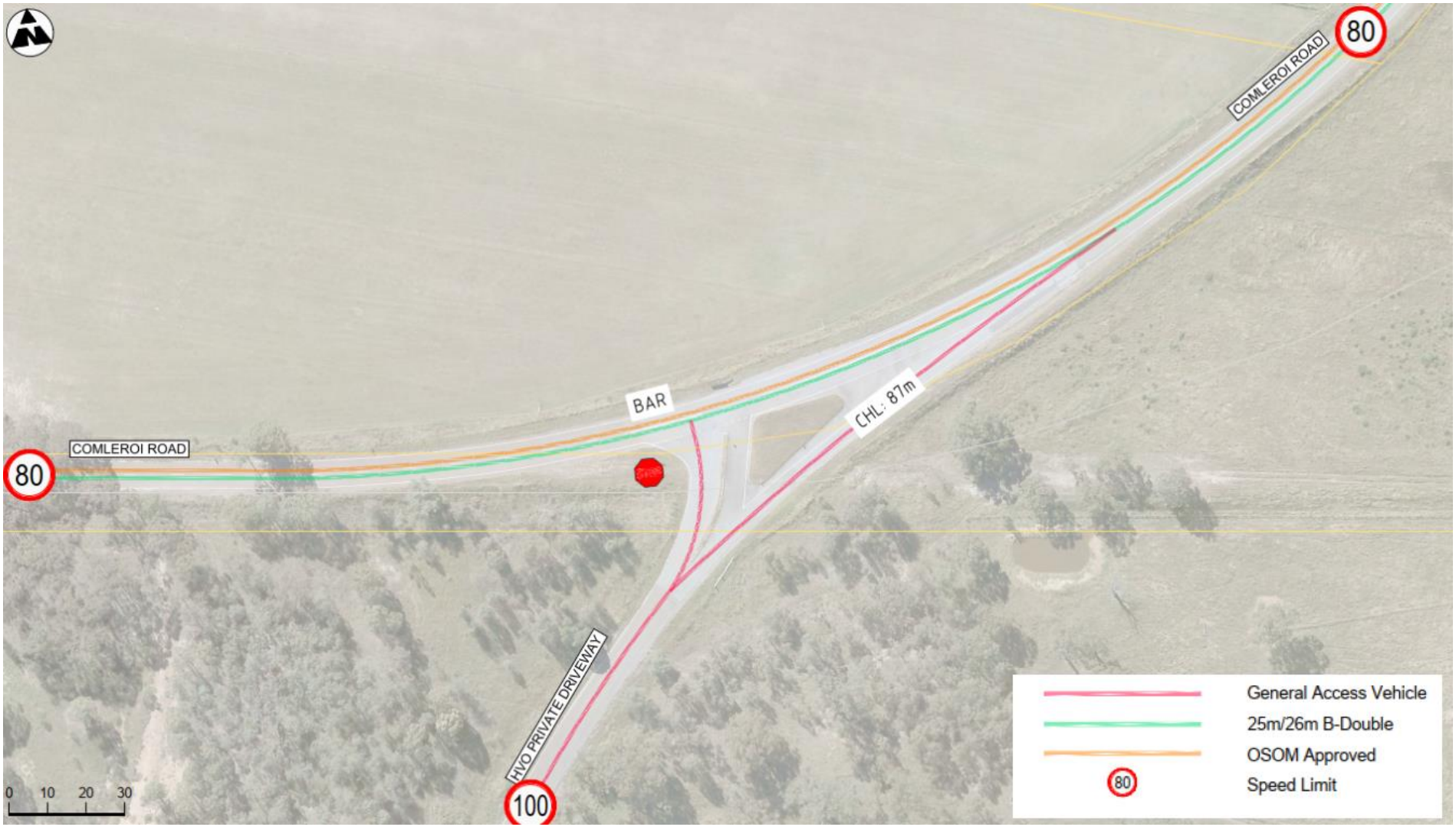
6:00am – 7:00am volumes (HTP construction peak)



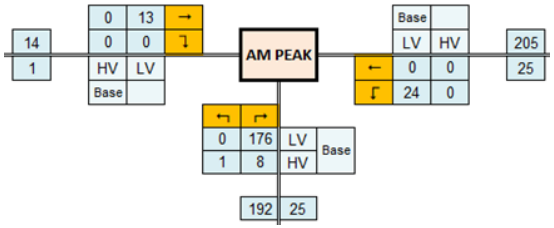
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	Golden Highway: 100km/h Comleroi Road: 80km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double and OSOM for all approaches
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

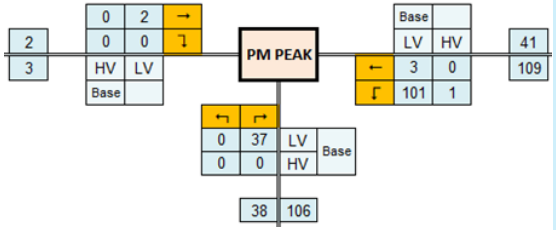
I-05: Comleroi Road/HVO private driveway – existing intersection layout, speed limit, and vehicle approved for road travel



I-05: Comleroi Road/HVO private driveway – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

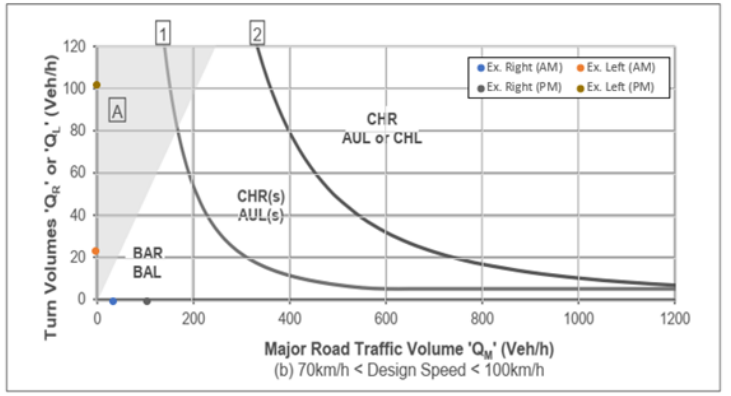


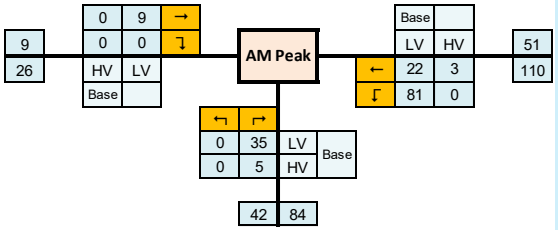
PM Peak: 5:30pm – 6:30pm

Existing intersection control and turn types	T-Intersection Stop BAR; CHL

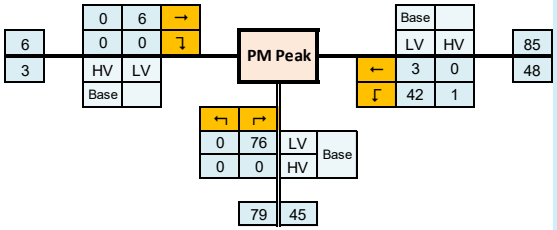
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





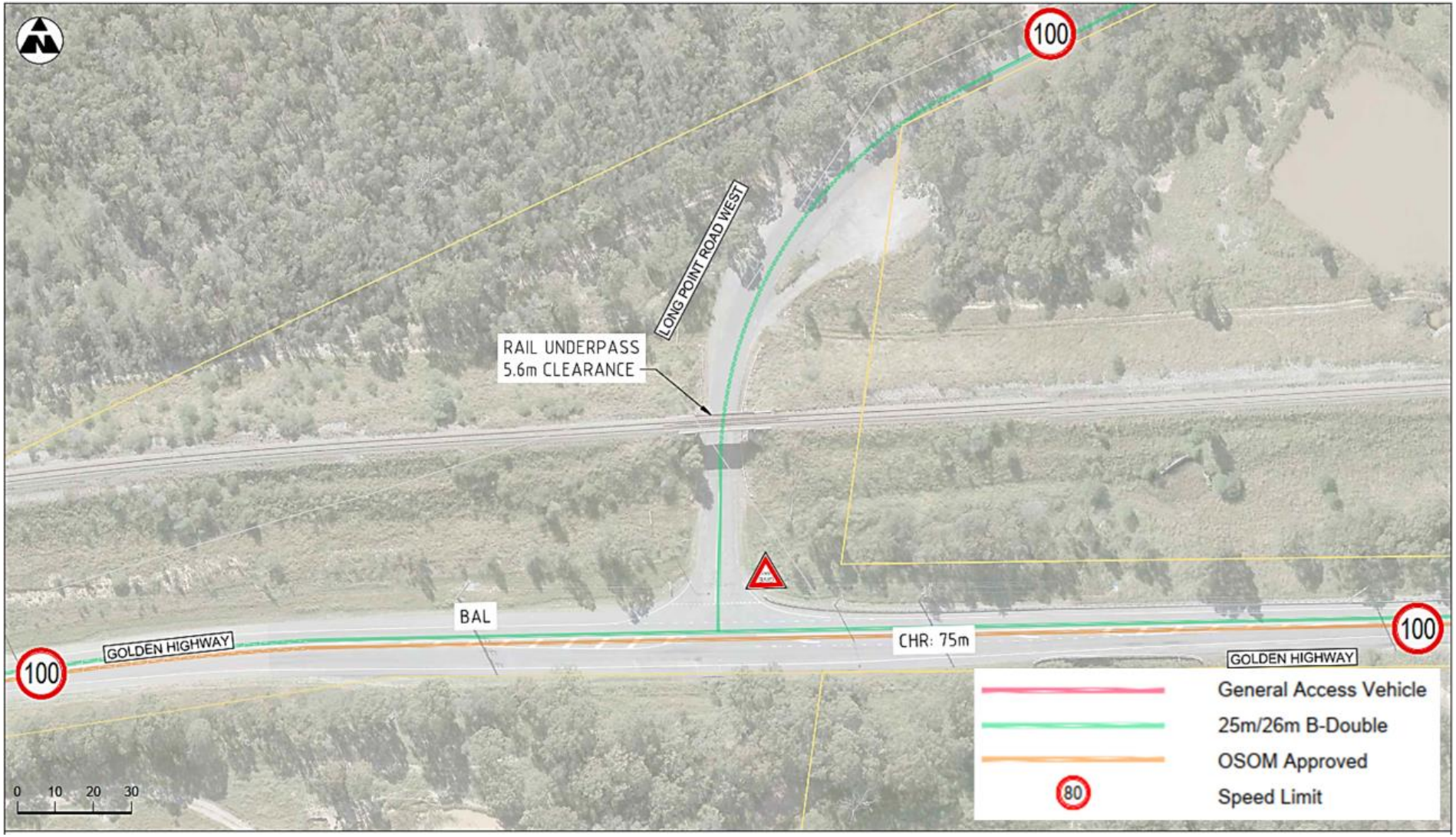
6:00am – 7:00am volumes (HTP construction peak)



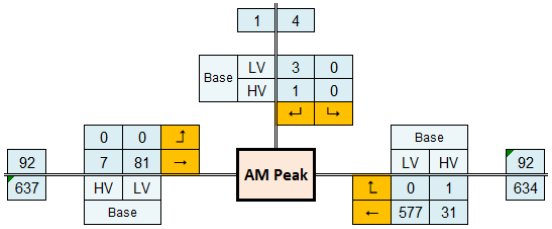
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	Comleroi Road: 80km/h Private Driveway: 100km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double (Comleroi Rd only) OSOM (Comleroi Rd only)
SISD requirements	214m (90km/h design speed with no grade correction) Compliance: Y

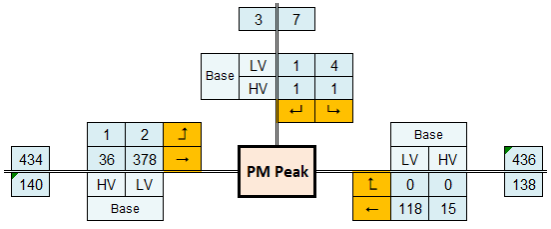
I-06: Golden Highway/Long Point Road (west) – existing intersection layout, speed limit, and vehicle approved for road travel



I-06: Golden Highway/Long Point Road (west) – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

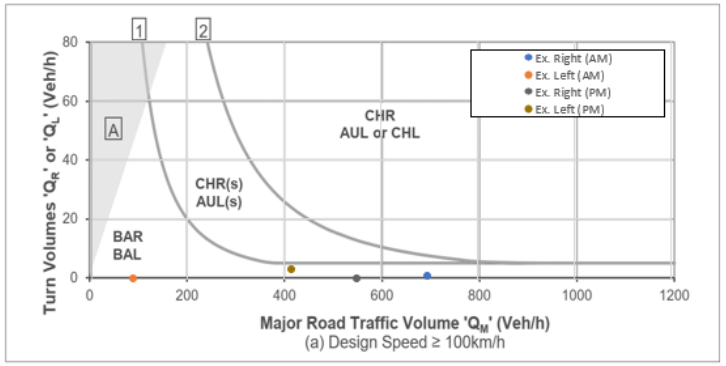


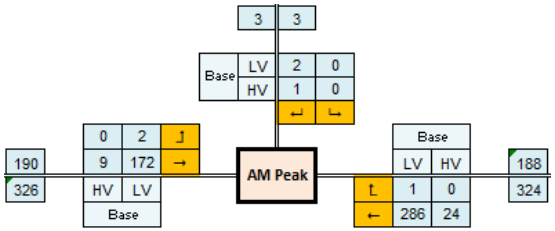
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way CHR(s); BAL

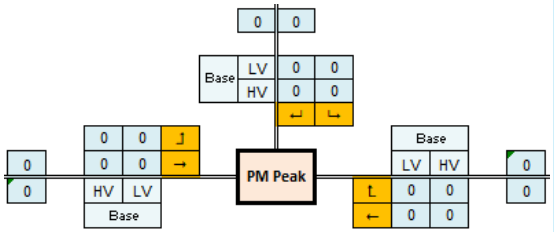
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





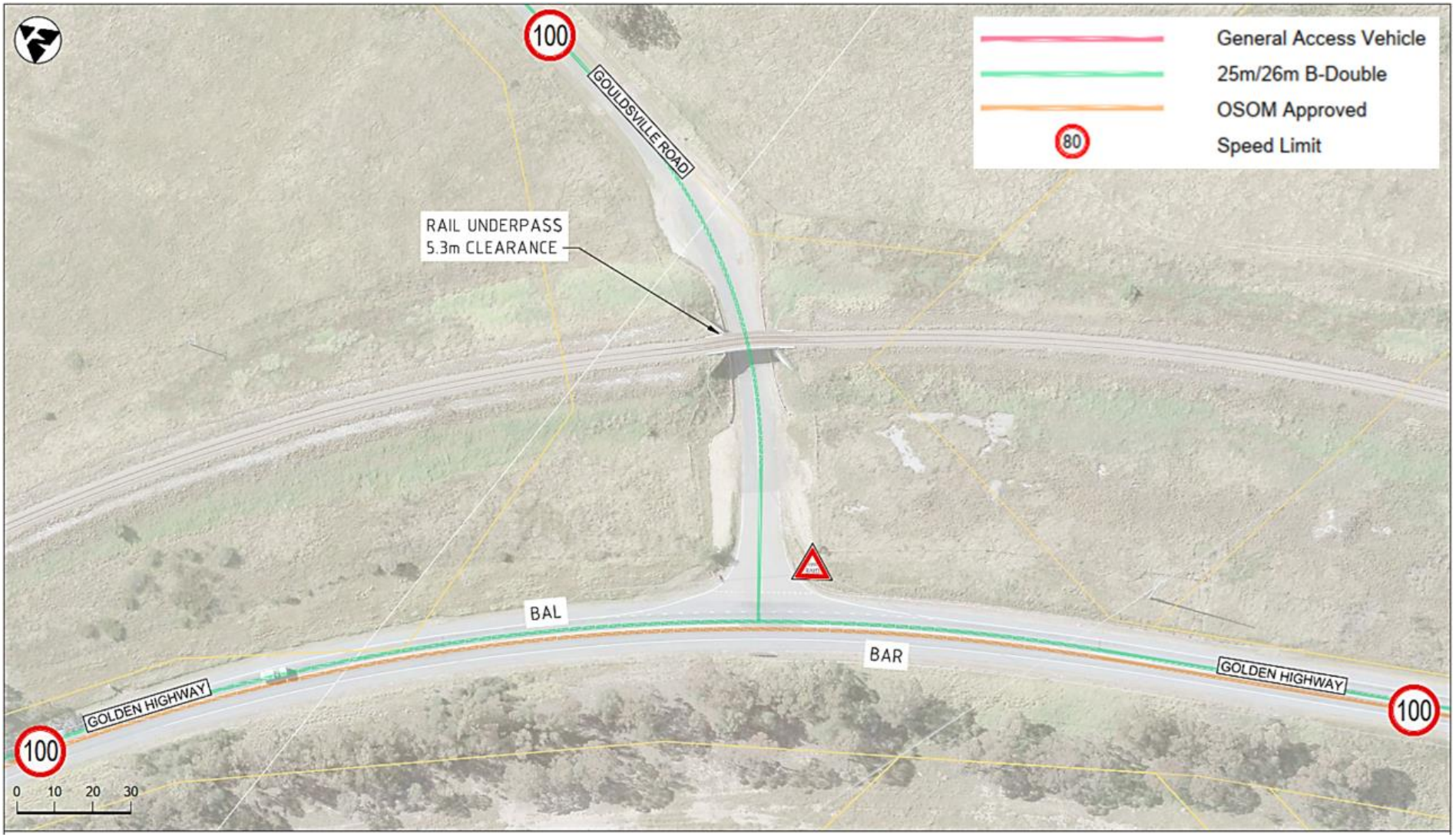
6:00am – 7:00am volumes (HTP construction peak)



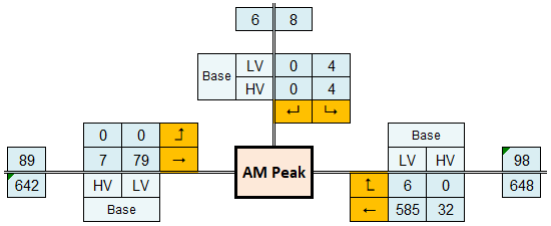
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double for all approaches, and OSOM (Golden Hwy only)
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

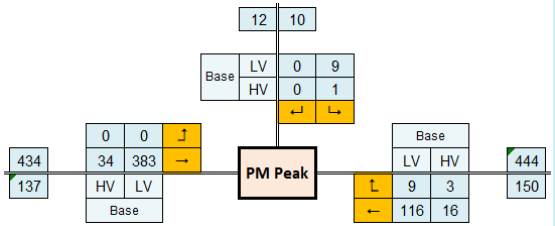
I-07: Golden Highway/Gouldsville Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-07: Golden Highway/Gouldsville Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

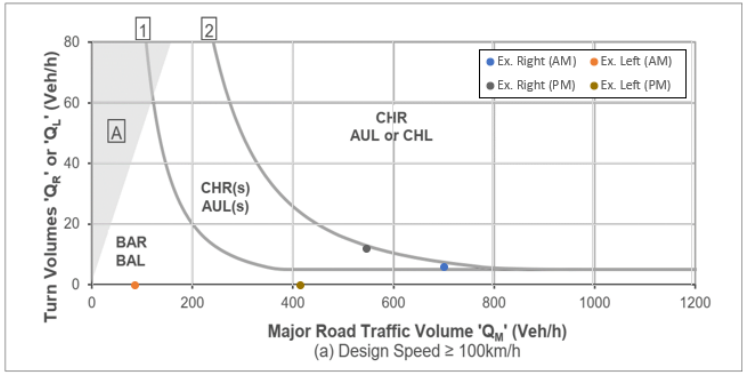


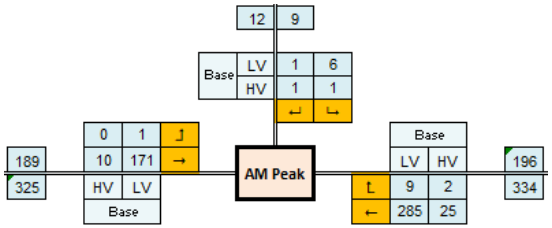
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; AUL(s)

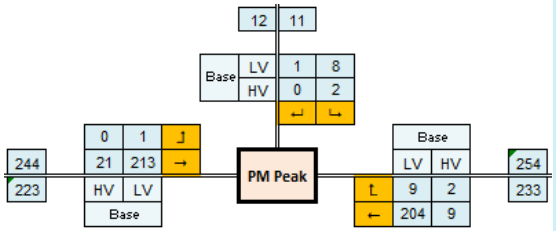
Compliance to intersection turn warrant for existing peak hour demand:

No, channelised right turn is required based on the current peak hour demand





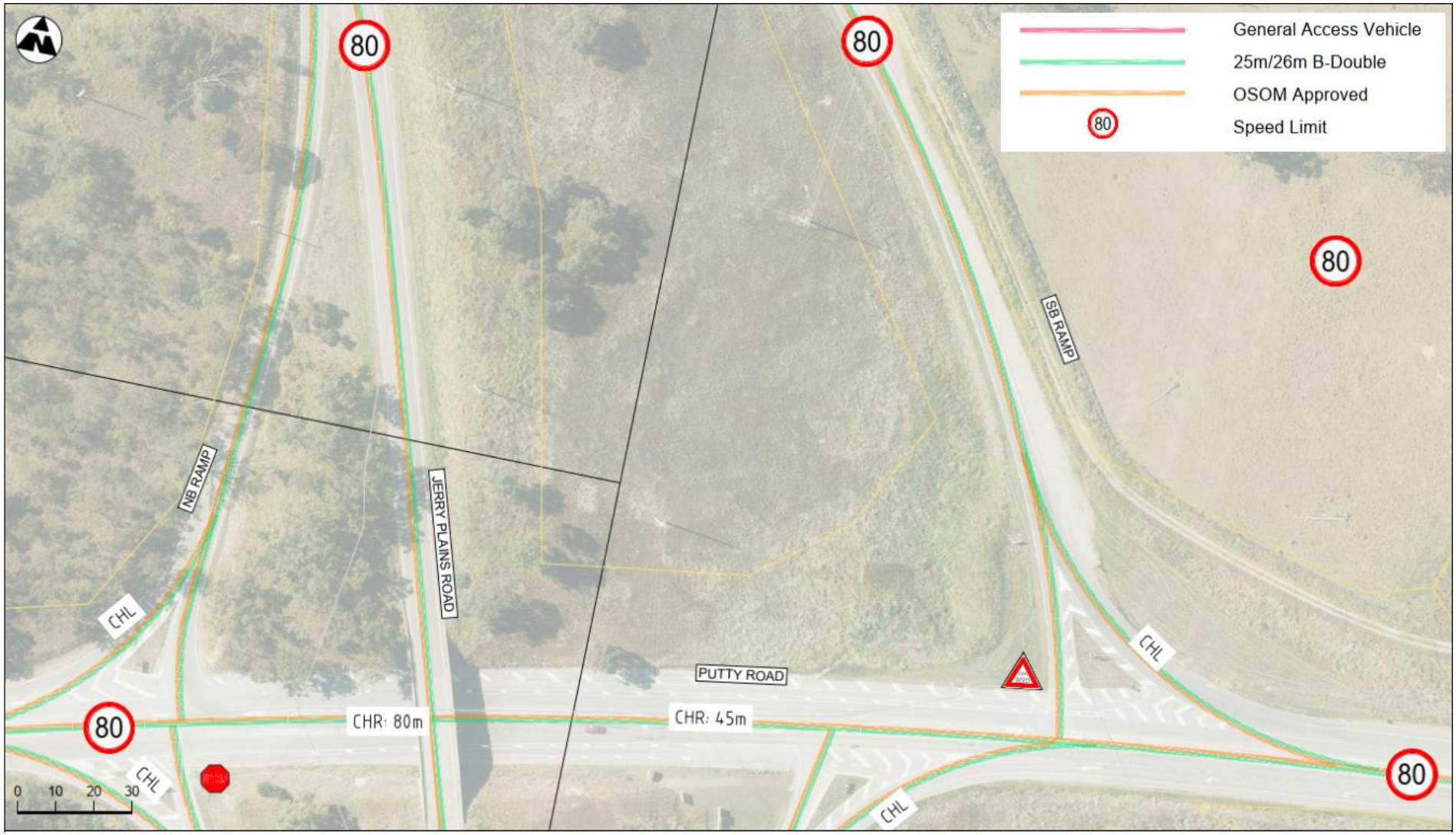
6:00am – 7:00am volumes (HTP construction peak)



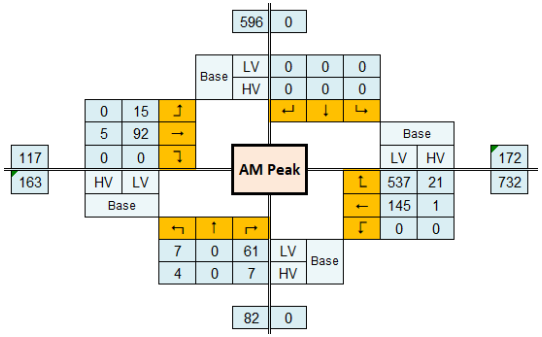
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double for all approaches, and OSOM (Golden Hwy only)
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

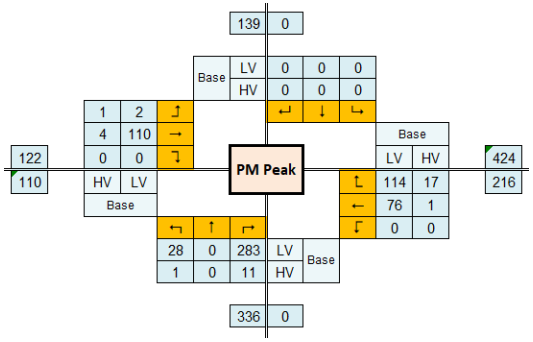
I-08a: Jerrys Plains Road (NB Ramp)/Putty Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-08a: Jerrys Plains Road (NB Ramp)/Putty Road – existing intersection counts, turn warrant, and SISD assessment

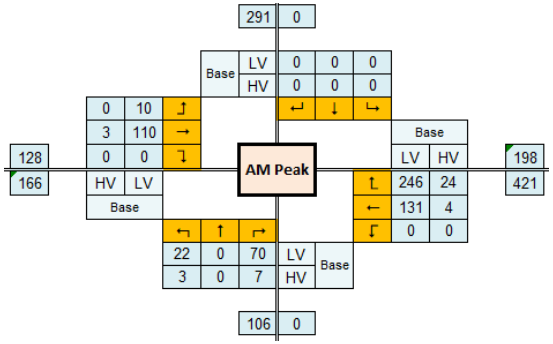


AM Peak: 5:15am – 6:15am

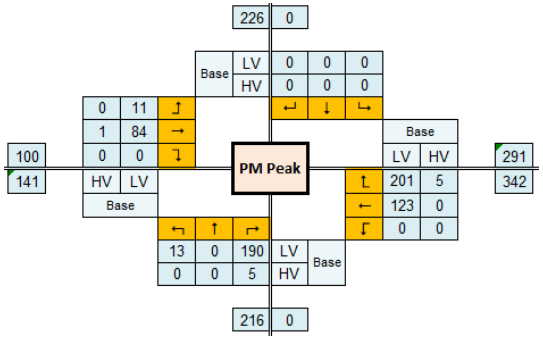


PM Peak: 3:30pm – 4:30pm

Existing intersection control and turn types	T-Intersection Give-Way CHR; CHL
Compliance to intersection turn warrant for existing peak hour demand: Yes, channelised left and right turns are provided at the intersection which accommodates the highest degree of turning facility	



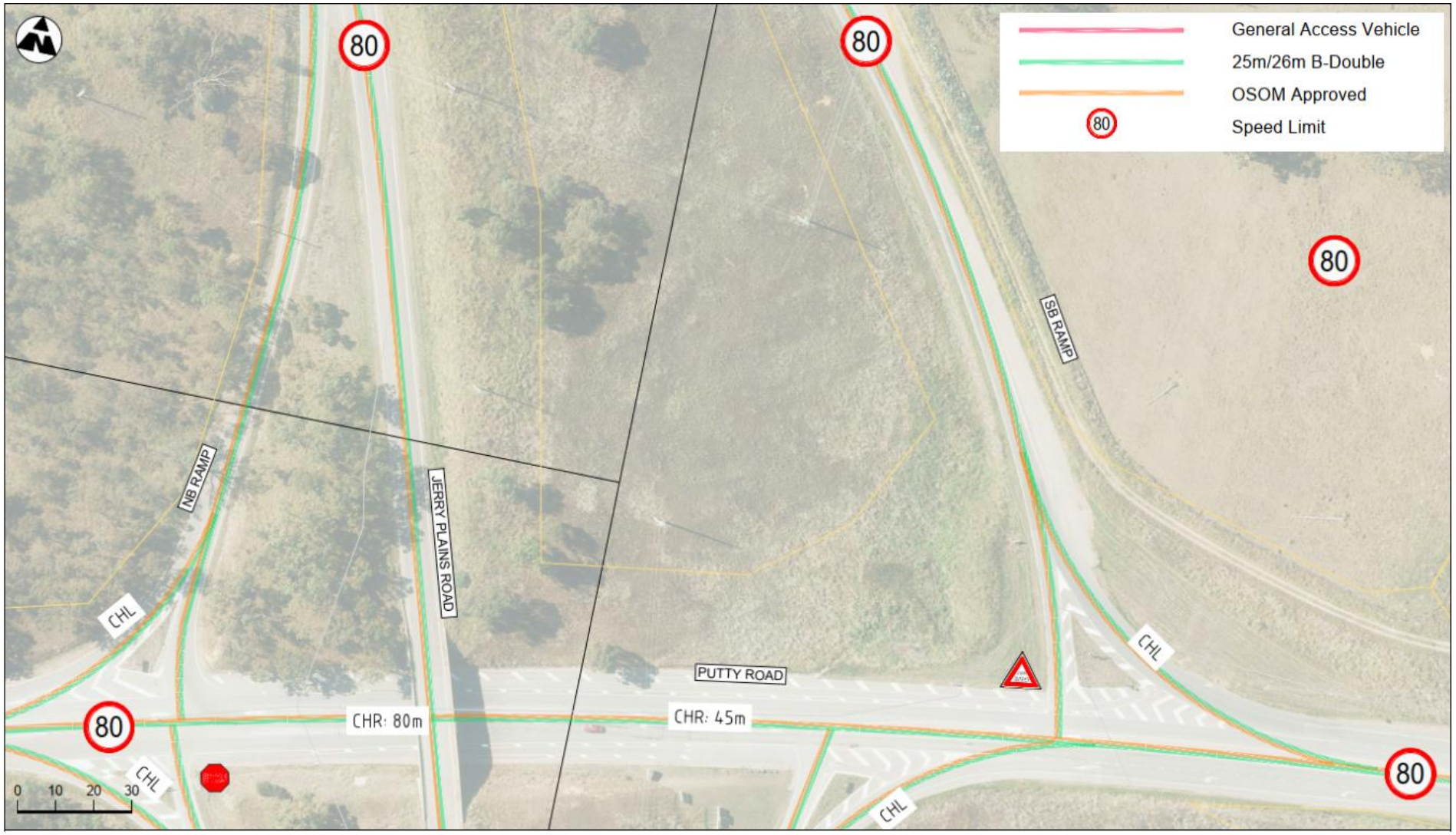
6:00am – 7:00am volumes (HTP construction peak)



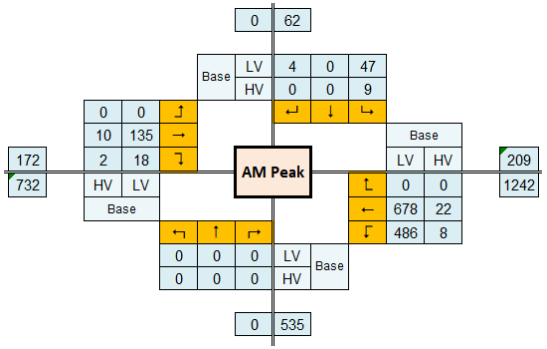
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double, and OSOM for all approaches
SISD requirements	214m (90km/h design speed with no grade correction) Compliance: Y

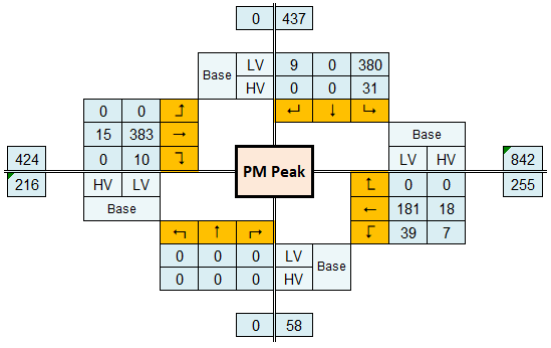
I-08b: Jerrys Plains Road (SB Ramp)/Putty Road – existing intersection layout, speed limit, and vehicle approved for road travel



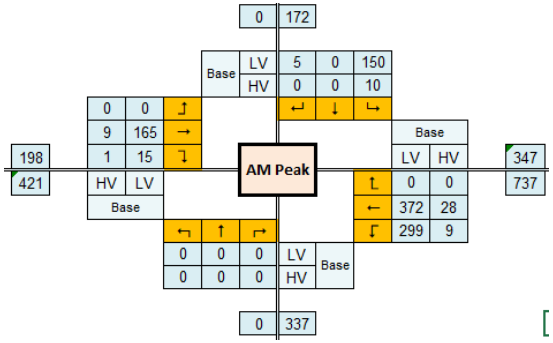
I-08b: Jerrys Plains Road (SB Ramp)/Putty Road – existing intersection counts, turn warrant, and SISD assessment



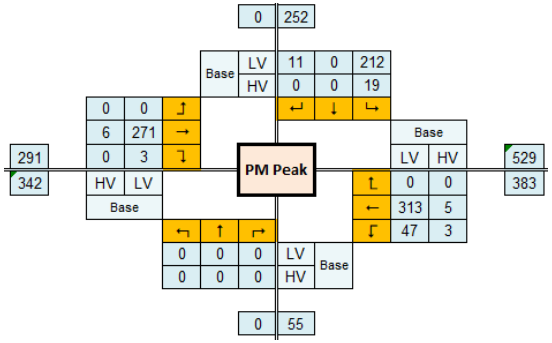
AM Peak: 5:15am – 6:15am



PM Peak: 4:00pm – 5:00pm



6:00am – 7:00am volumes (HTP construction peak)

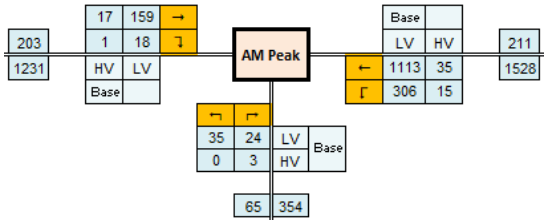


5:00pm – 6:00pm volumes (HTP construction peak)

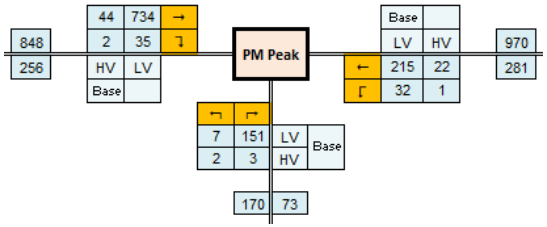
Existing intersection control and turn types	T-Intersection Give-Way CHR; CHL
Compliance to intersection turn warrant for existing peak hour demand: Yes, channelised left and right turns are provided at the intersection which accommodates the highest degree of turning facility	
Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double, and OSOM for all approaches
SISD requirements	214m (90km/h design speed with no grade correction) Compliance: Y

I-09: Putty Road/Broke Road – existing intersection layout, speed limit, and vehicle approved for road travel

I-09: Putty Road/Broke Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

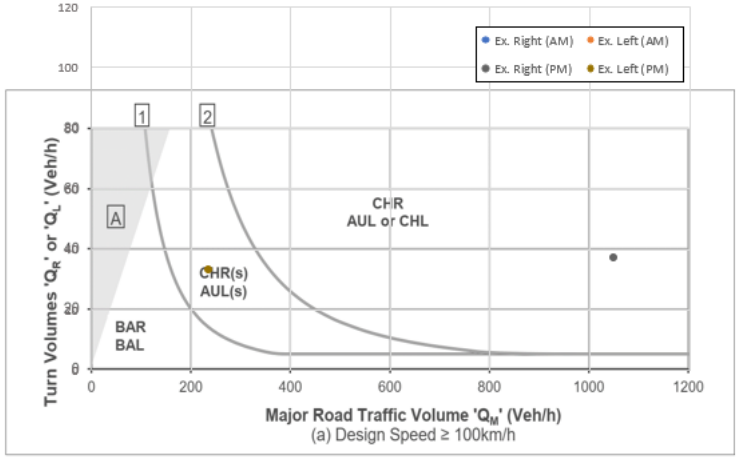


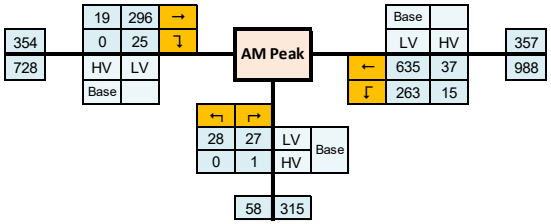
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way CHR; CHL

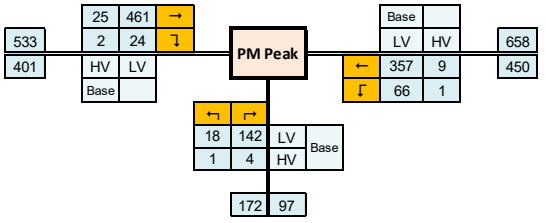
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





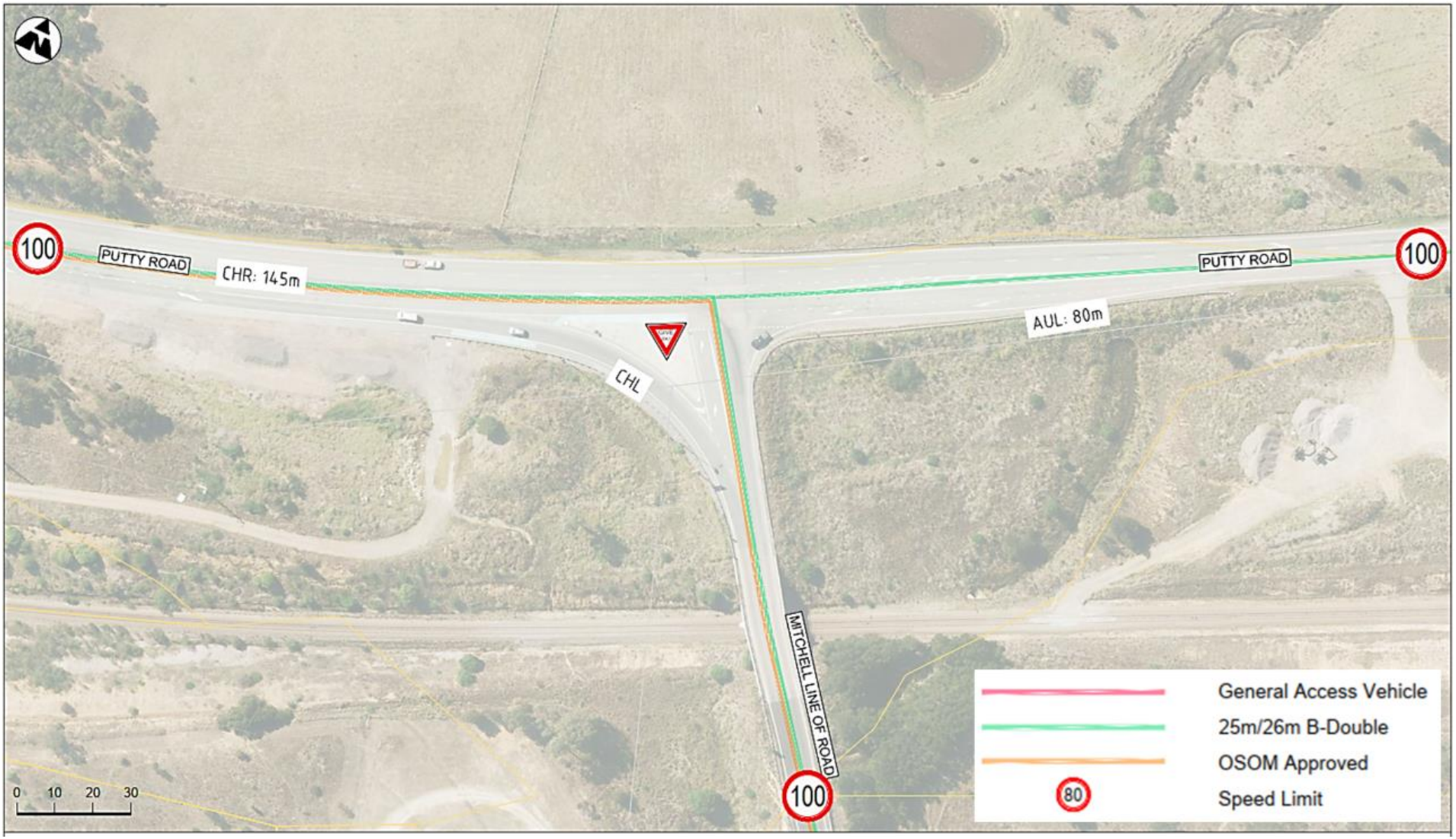
6:00am – 7:00am volumes (HTP construction peak)



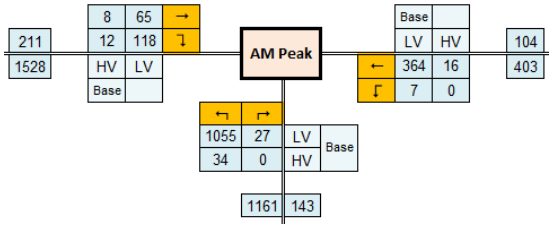
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double, and OSOM for all approaches
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

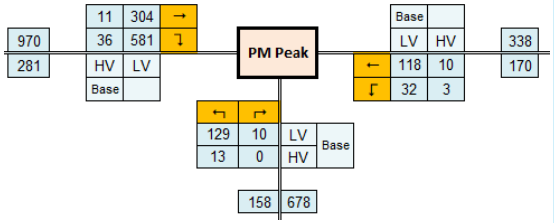
I-10: Putty Road/Mitchell Line of Road– existing intersection layout, speed limit, and vehicle approved for road travel



I-10: Putty Road/Mitchell Line of Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

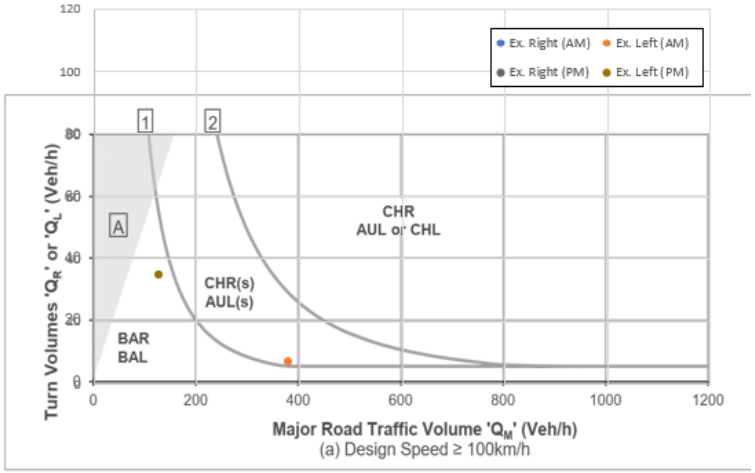


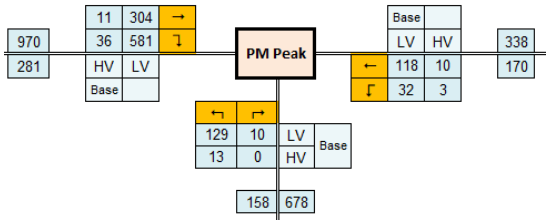
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way CHR; AUL

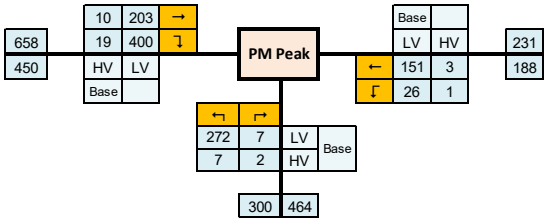
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





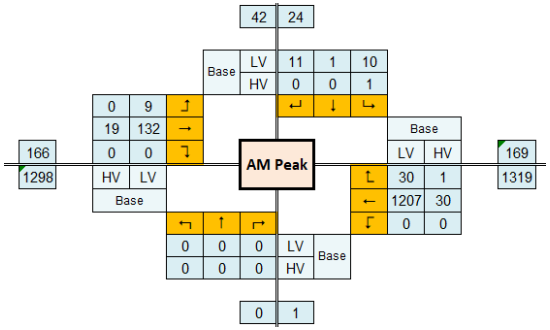
6:00am – 7:00am volumes (HTP construction peak)



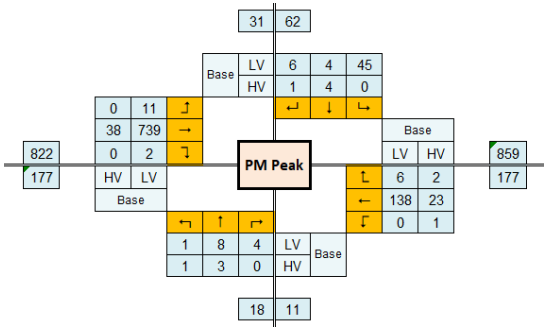
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle, 25m / 26m B-Double, and OSOM for all approaches
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

I-10b: Range Road/Golden Highway (Mitchell Line of Road) – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 5:15am – 6:15am

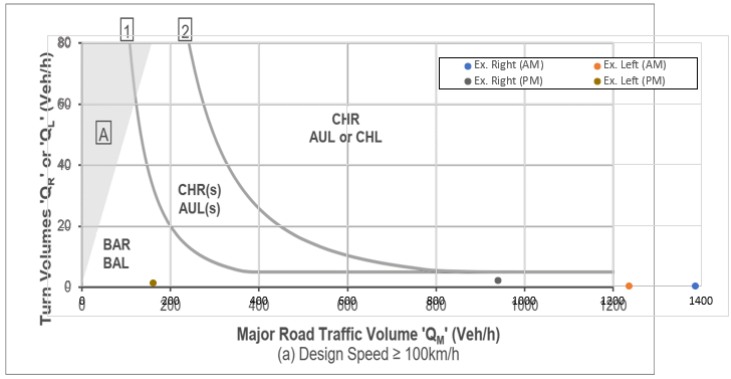


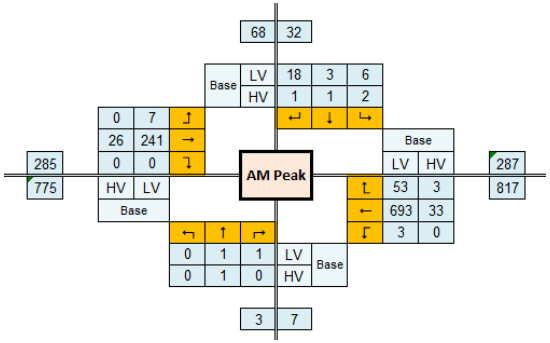
PM Peak: 4:00pm – 5:00pm

Existing intersection control and turn types	T-Intersection Give-Way Channelised Right (CHR); Auxiliary Left (AUL)

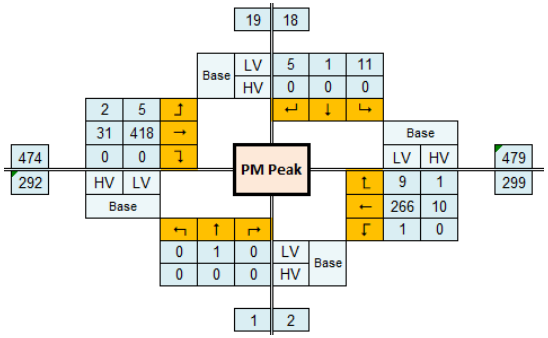
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





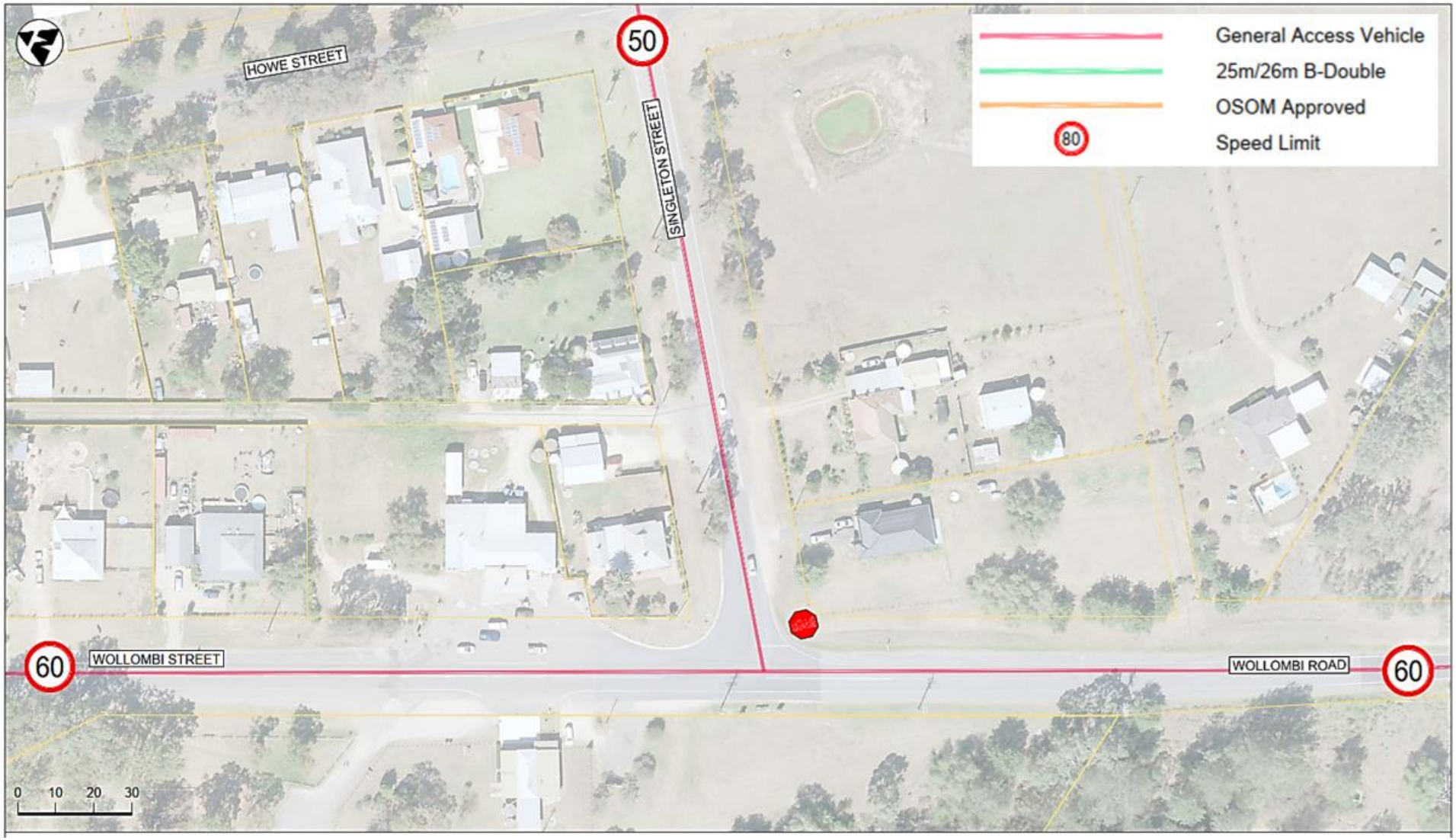
6:00am – 7:00am volumes (HTP construction peak)



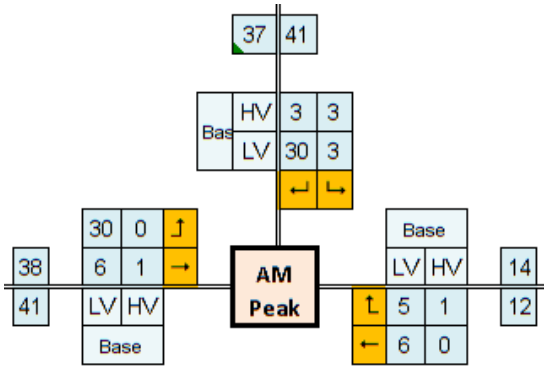
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double and OSOM for Golden Highway only
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

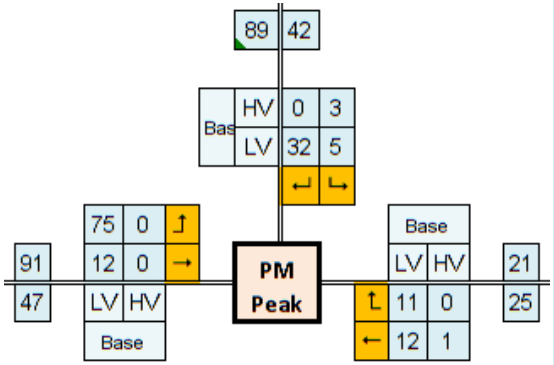
I-11: Wollombi Street/Singleton Street – existing intersection layout, speed limit, and vehicle approved for road travel



I-11: Wollombi Street/Singleton Street – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 6:30am – 7:30am

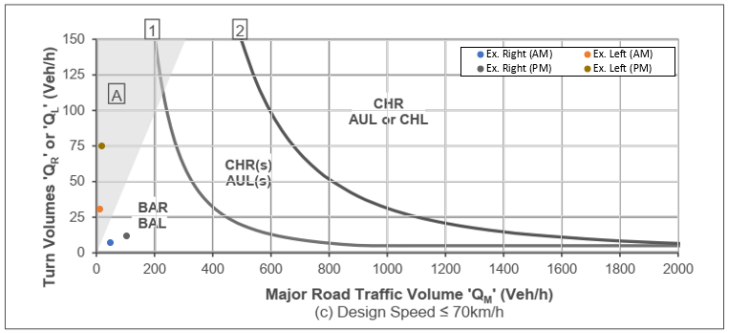


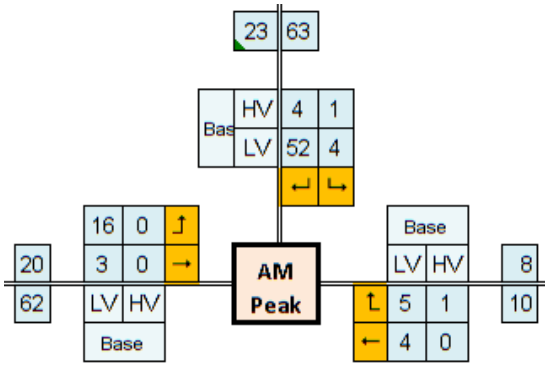
PM Peak: 3:15pm – 4:15pm

Existing intersection control and turn types	T-Intersection Stop BAR; BAL

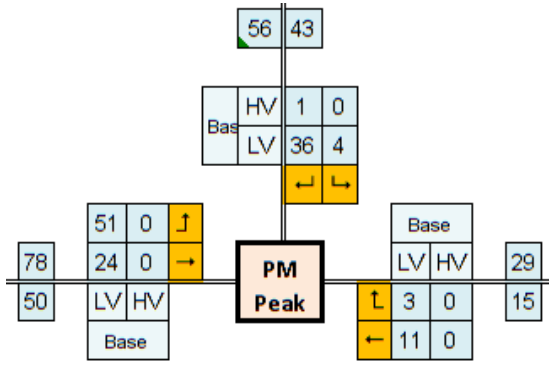
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





6:00am – 7:00am volumes (HTP construction peak)

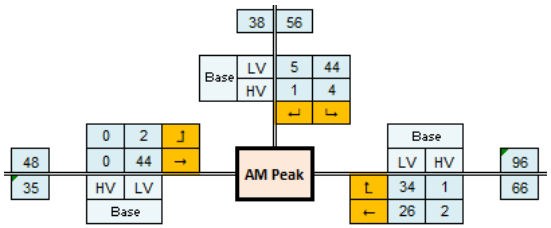


5:00pm – 6:00pm volumes (HTP construction peak)

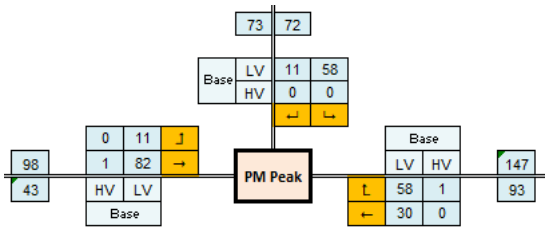
Pavement	Sealed. Line marking: Y
Posted speed limit	Wollombi Street: 60km/h Singleton Street: 50km/h
Existing access permit	General Access Vehicle
SISD requirements	151m (70km/h design speed with no grade correction) Compliance: Y

I-12: Broke Road/Hermitage Road – existing intersection layout, speed limit, and vehicle approved for road travel

I-12: Broke Road/Hermitage Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 7:30am – 8:30am

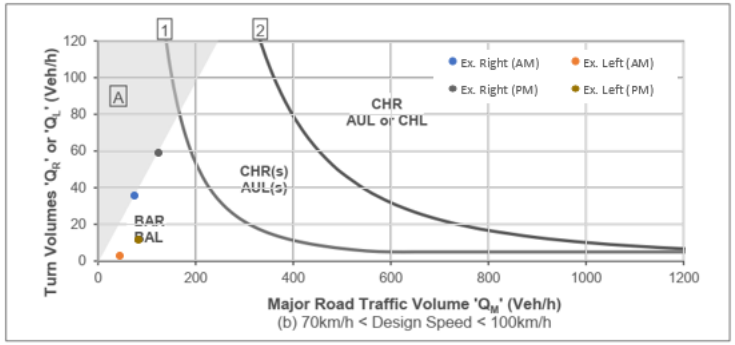


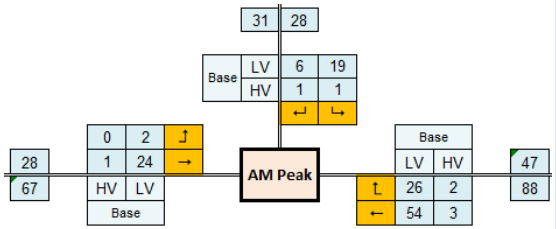
PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	T-Intersection Stop CHR; BAL

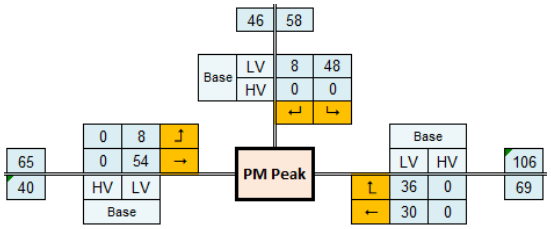
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





6:00am – 7:00am volumes (HTP construction peak)

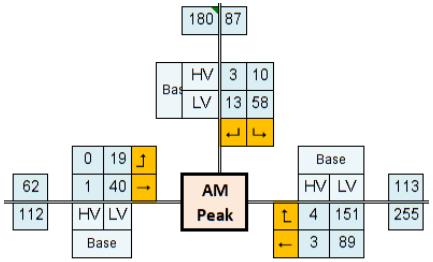


5:00pm – 6:00pm volumes (HTP construction peak)

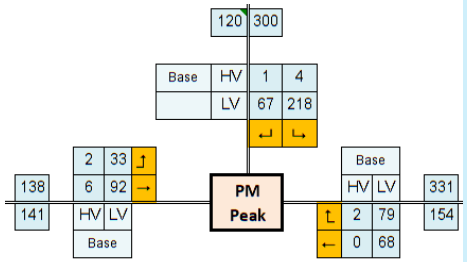
Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h Broke Road partial: 100km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double
SISD requirements	285m (110km/h design speed with no grade correction). Compliance: Yes 214m (90km/h design speed with no grade correction). Compliance: No

I-13a and I-13b: Broke Road/McDonalds Road – existing intersection layout, speed limit, and vehicle approved for road travel

I-13a and I-13b: Broke Road/McDonalds Road – existing intersection counts, turn warrant, and SISD assessment

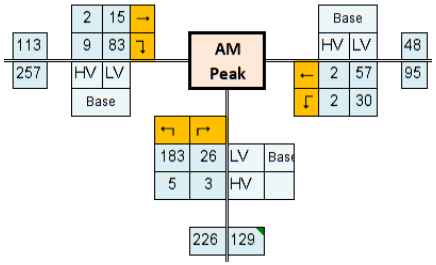


South roundabout AM Peak: 8:15am – 9:15am

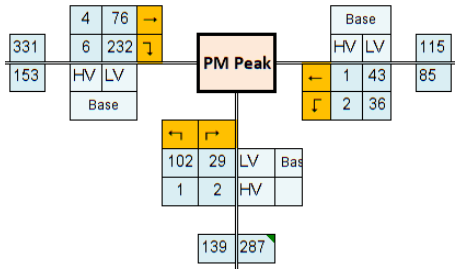


South roundabout PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	Roundabout (warrant assessment not required)
Compliance to intersection turn warrant for existing peak hour demand	Warrant assessment not required
Pavement	Sealed. Line marking: Y
Posted speed limit	60km/h

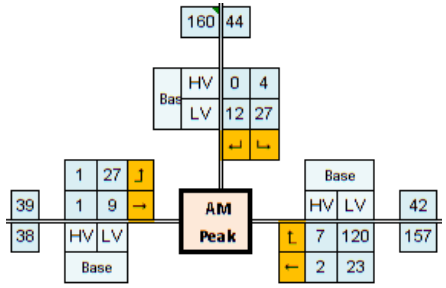


North roundabout AM Peak: 8:15am – 9:15am

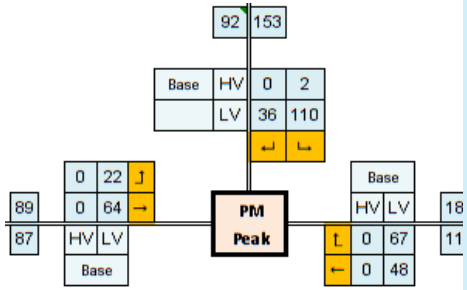


North roundabout PM Peak: 3:00pm – 4:00pm

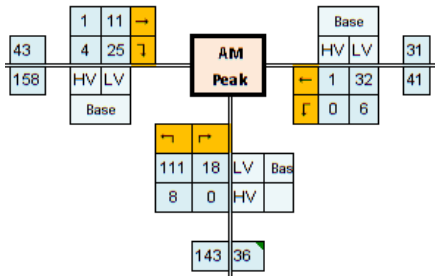
Existing access permit	General Access Vehicle and 25m / 26m B-Double for all approaches
SISD requirements	123m (with no grade correction) Compliance: Y



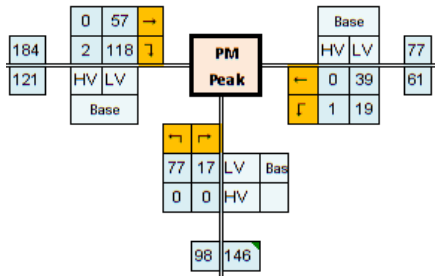
Southern roundabout 6:00am – 7:00am volumes (HTP construction peak)



Southern roundabout 5:00pm – 6:00pm volumes (HTP construction peak)

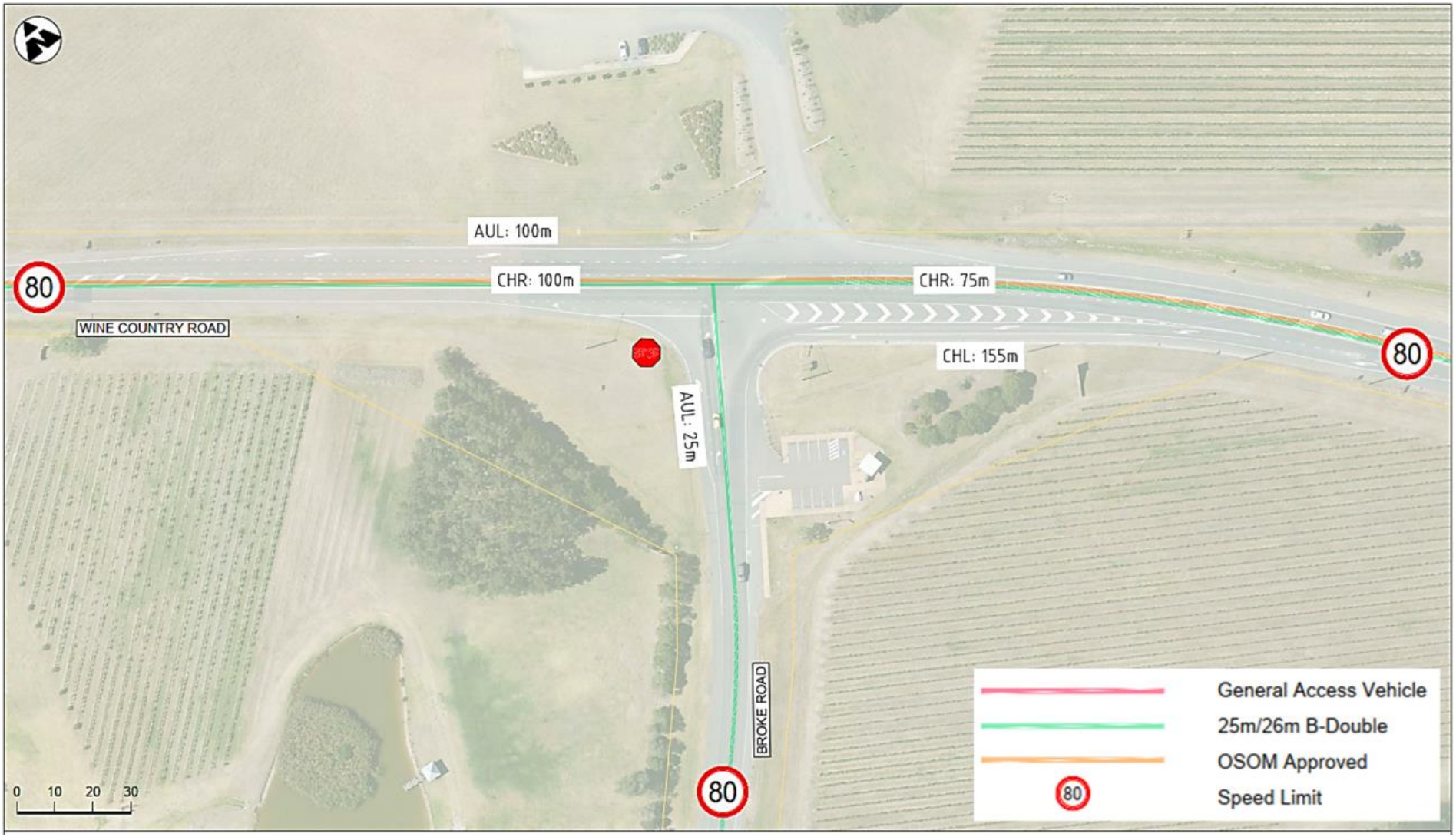


Northern roundabout 6:00am – 7:00am volumes (HTP construction peak)

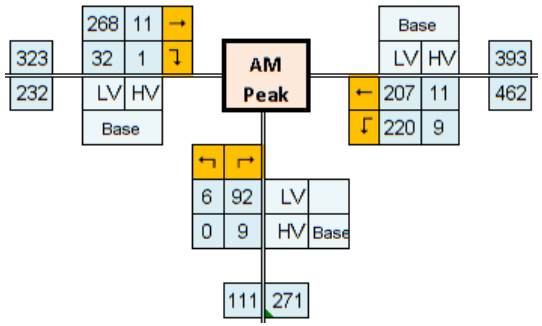


Northern roundabout 5:00pm – 6:00pm volumes (HTP construction peak)

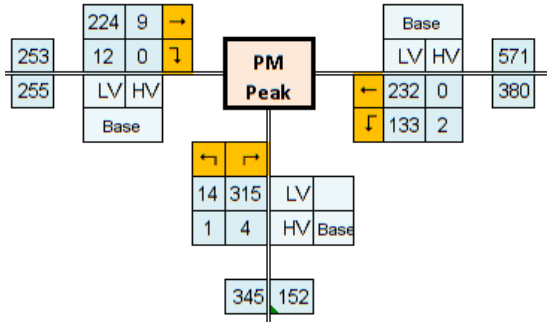
I-14: Broke Road/Wine Country Drive – existing intersection layout, speed limit, and vehicle approved for road travel



I-14: Broke Road/Wine Country Drive – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 7:45am – 8:45am

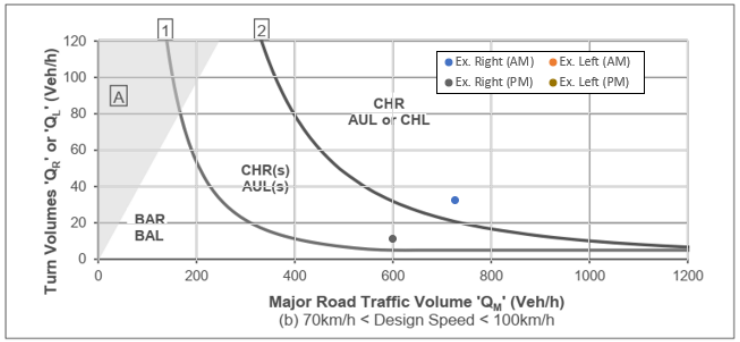


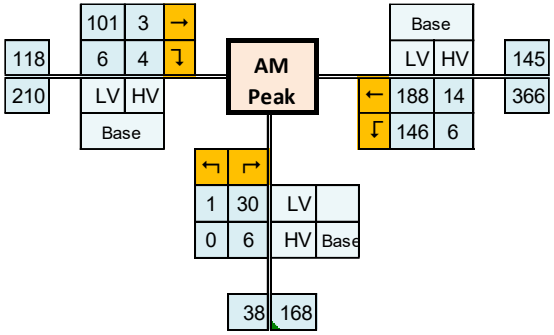
PM Peak: 3:15pm – 4:15pm

Existing intersection control and turn types	T-Intersection Stop CHR; CHL

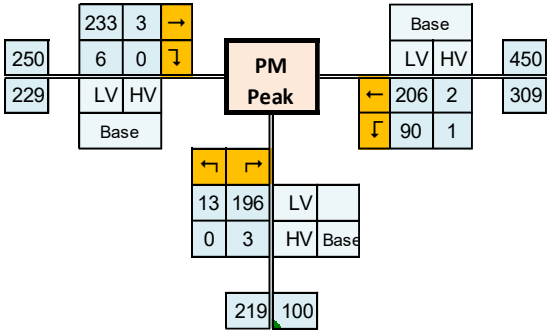
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





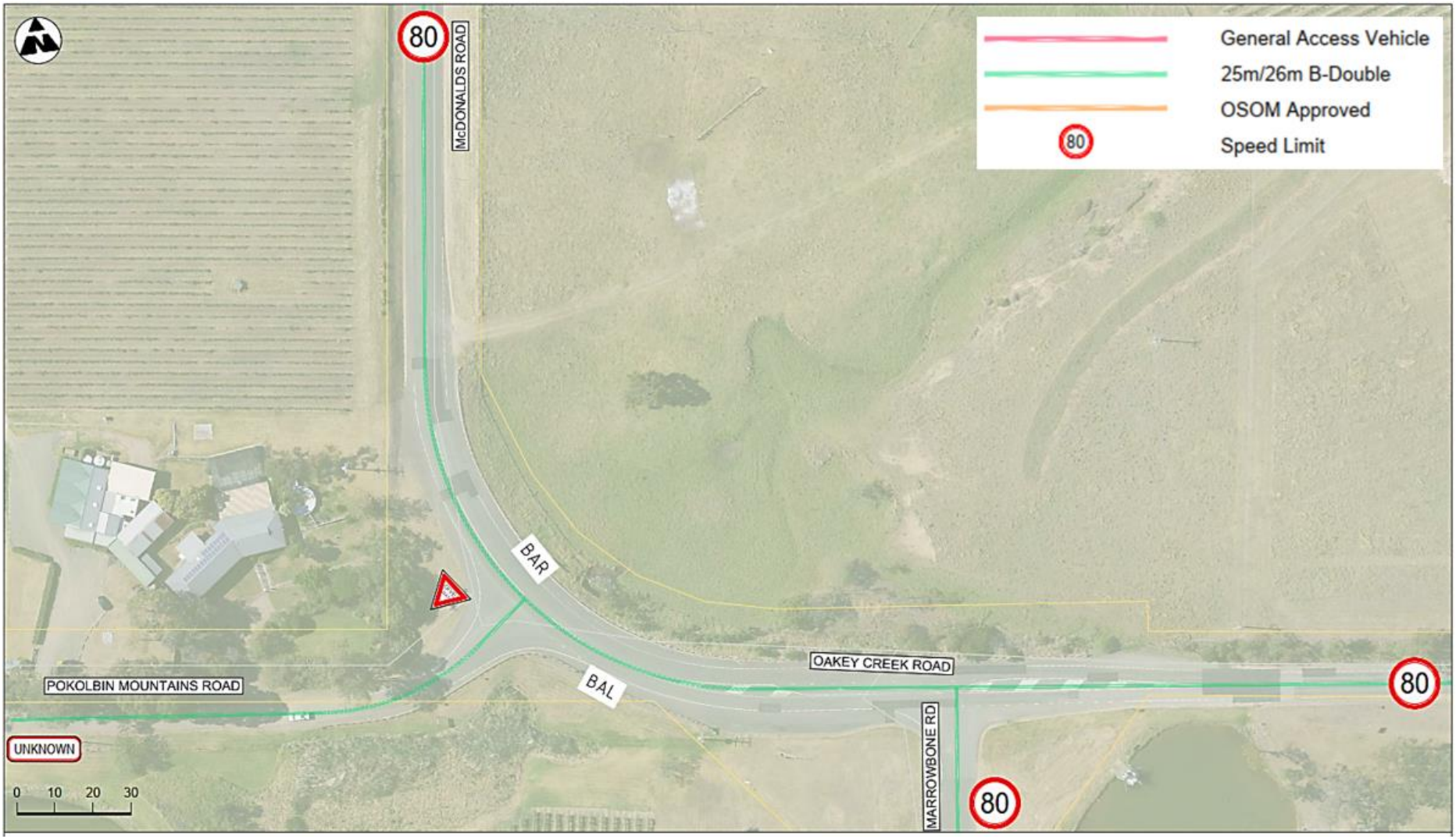
6:00am – 7:00am volumes (HTP construction peak)



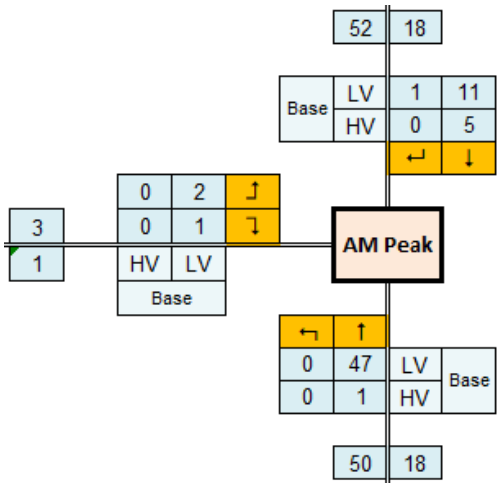
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double OSOM (Wine Country Drive only)
SISD requirements	214m (90km/h design speed with no grade correction) Compliance: Y

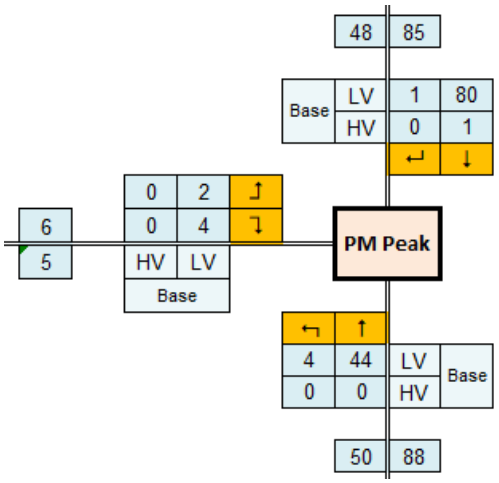
I-15: McDonalds Road/Oakey Creek Road/Pokolbin Mountains Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-15: McDonalds Road/Oakey Creek Road/Pokolbin Mountains Road – existing intersection counts, turn warrant, and SISD assessment

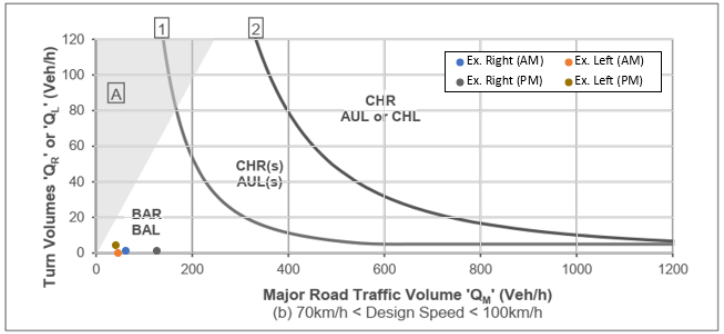


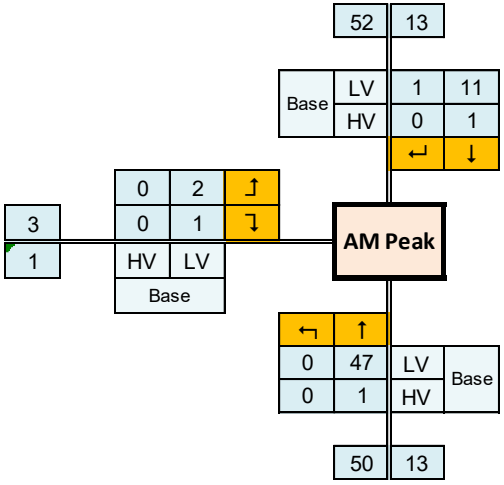
AM Peak: 8:00am – 9:00am



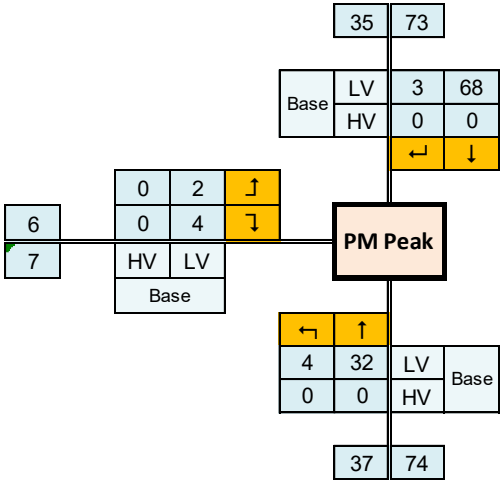
PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL
Compliance to intersection turn warrant for existing peak hour demand:	Yes, refer to graph





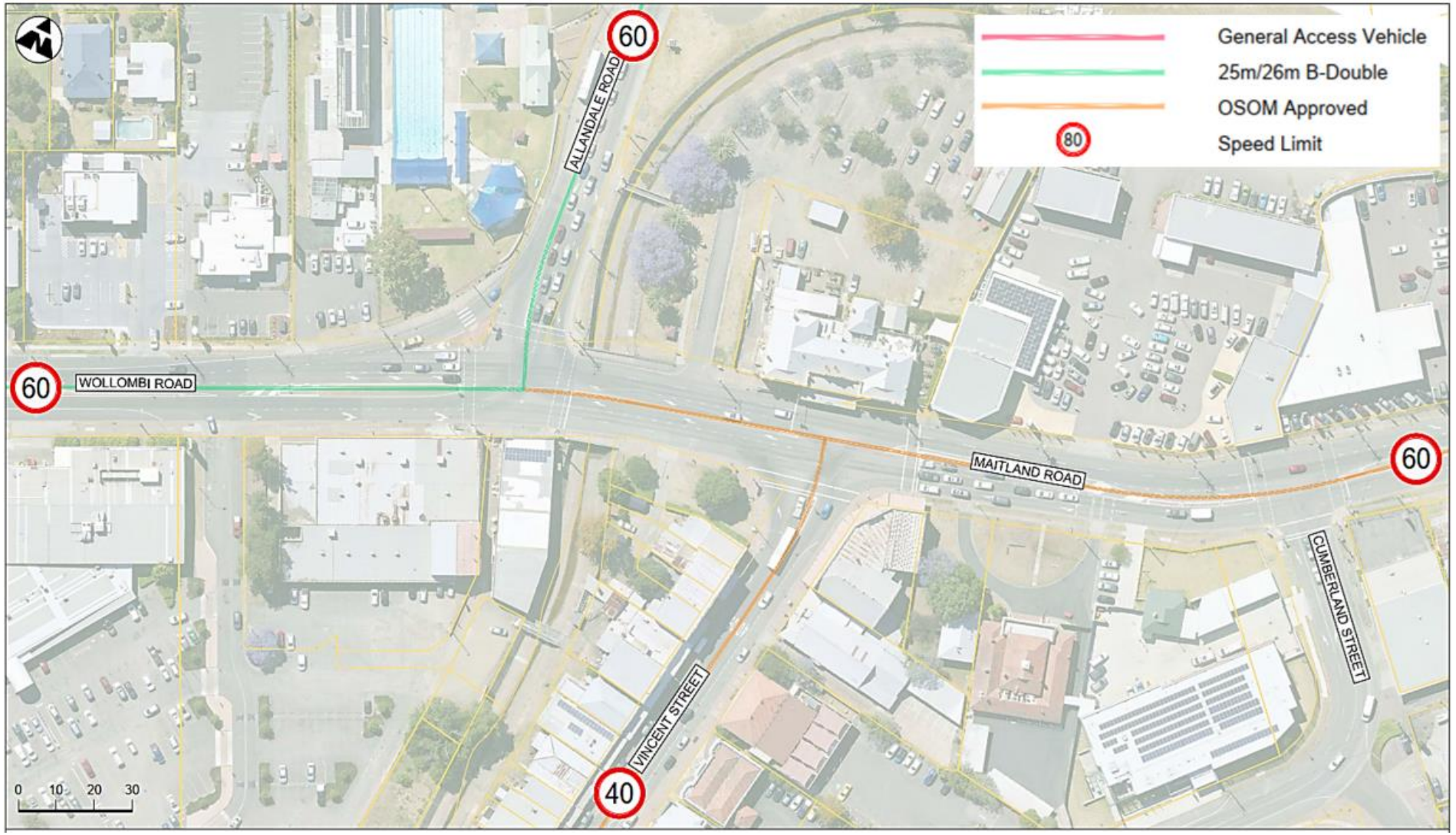
6:00am – 7:00am volumes (HTP construction peak)



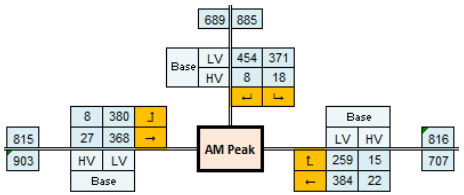
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double
SISD requirements	214m (90km/h design speed with no grade correction) Compliance: Y

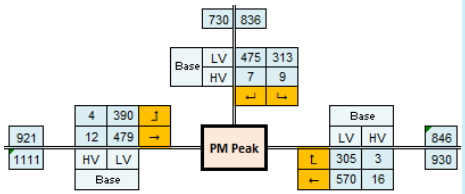
I-16a and I-16b: Allandale Road/Wollombi Road/Vincent Street – existing intersection layout, speed limit, and vehicle approved for road travel



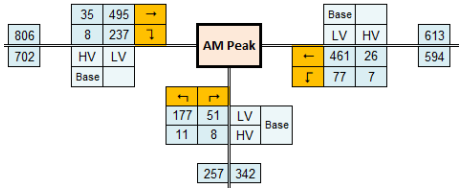
I-16a and I-16b: Allandale Road/Wollombi Road/Vincent Street – existing intersection counts, turn warrant, and SISD assessment



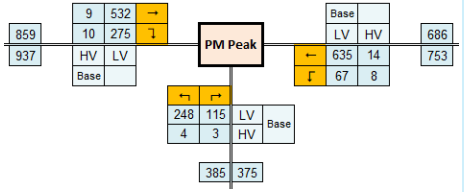
Allandale Road intersection AM Peak: 8:15 am – 9:15 am



Allandale Road intersection PM Peak: 4:00 pm – 5:00 pm

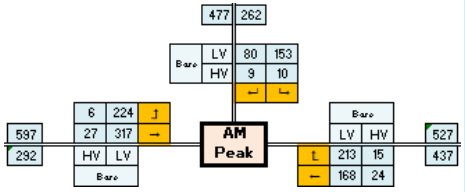


Vincent Street intersection AM Peak: 9:00 am – 10:00am

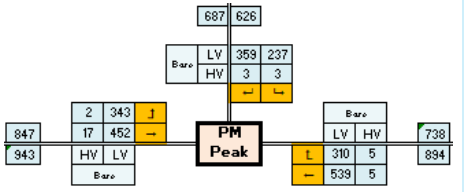


Vincent Street intersection PM Peak: 4:00 pm – 5:00 pm

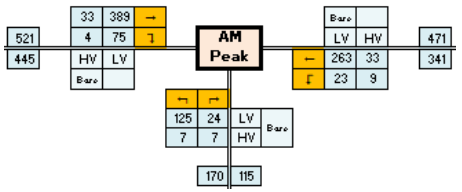
Existing intersection control and turn types	Signals (warrant assessment not required)
Compliance to intersection turn warrant for existing peak hour demand:	Warrant assessment not required
Pavement	Sealed. Line marking: Y
Posted speed limit	60 km/h Vincent Street: 40 km/h
Existing access permit	General Access Vehicle 25 m/26 m B-Double OSOM (Wollombi Rd & Vincent St) (none required for HTP for this intersection)
SISD requirements	123 m (with no grade correction) Compliance: Y



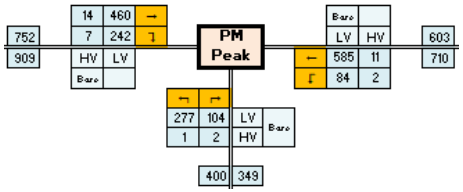
Allandale Road intersection 6:00 am – 7:00 am volumes (HTP construction peak)



Allandale Road intersection 5:00 pm – 6:00 pm volumes (HTP construction peak)

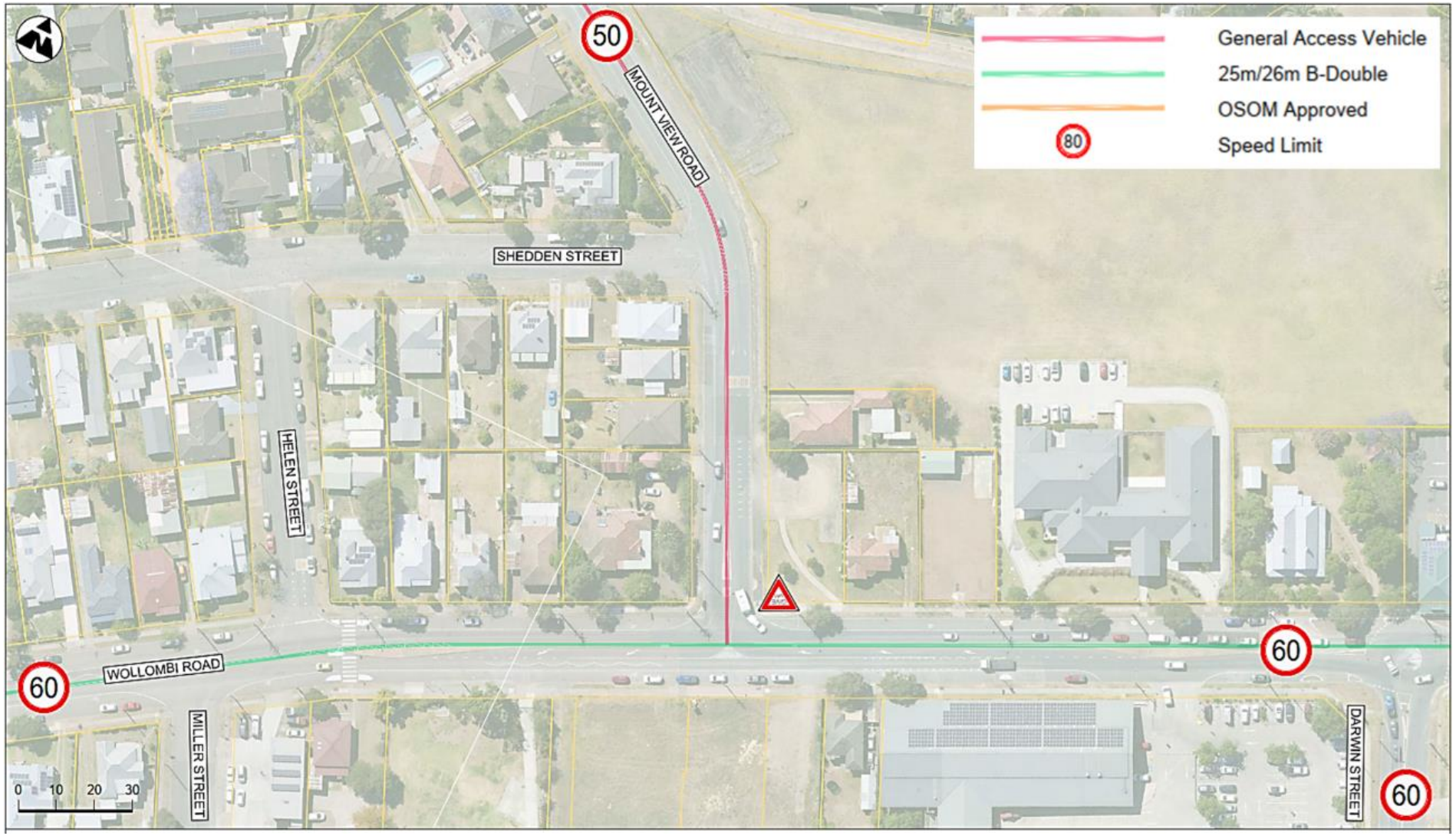


Vincent Street intersection 6:00 am – 7:00 am volumes (HTP construction peak)

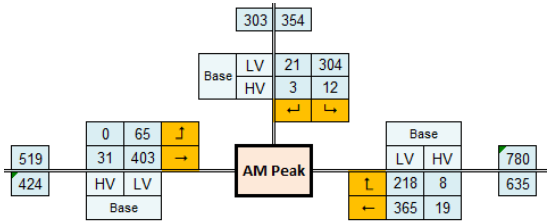


Vincent Street intersection 5:00 pm – 6:00 pm volumes (HTP construction peak)

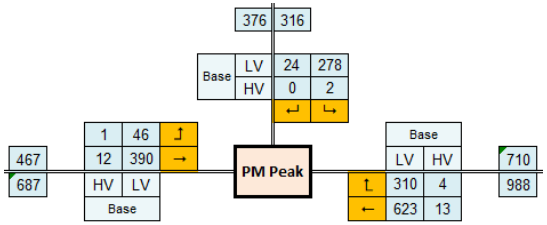
I-17: Wollombi Road/Mountain View Road (Cessnock) – existing intersection layout, speed limit, and vehicle approved for road travel



I-17: Wollombi Road/Mount View Road (Cessnock) – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 8:15am – 9:15am

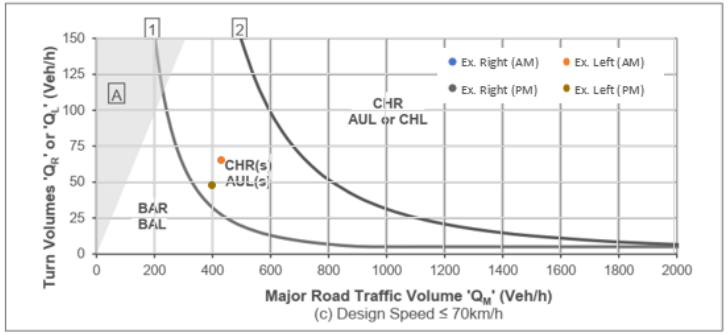


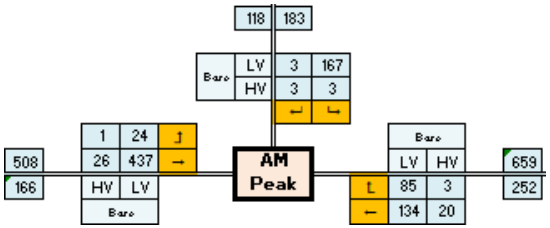
PM Peak: 4:45pm – 5:45pm

Existing intersection control and turn types	T-Intersection Give-Way CHR; BAL

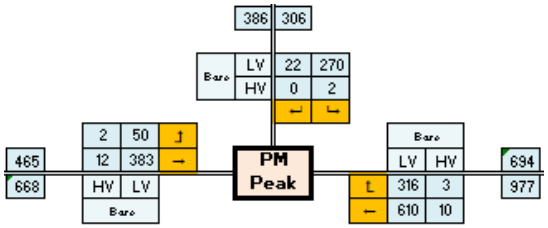
Compliance to intersection turn warrant for existing peak hour demand:

No, auxiliary left turn lane is required based on the existing peak period demand





6:00am – 7:00am volumes (HTP construction peak)

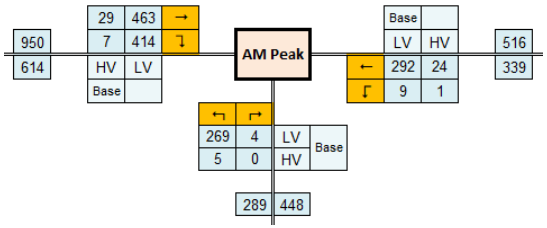


5:00pm – 6:00pm volumes (HTP construction peak)

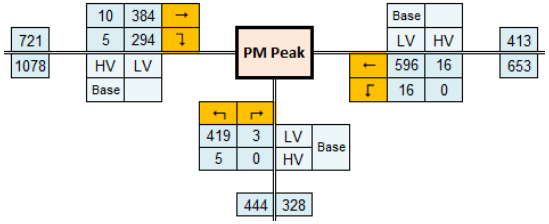
Pavement	Sealed. Line marking: Y
Posted speed limit	Wollombi Road: 60km/h Mount View Road: 50km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double (Wollombi Road only)
SISD requirements	123m (with no grade correction) Compliance: Y

I-18: Wollombi Road/West Avenue – existing intersection layout, speed limit, and vehicle approved for road travel

I-18: Wollombi Road/West Avenue – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 8:30am – 9:30am

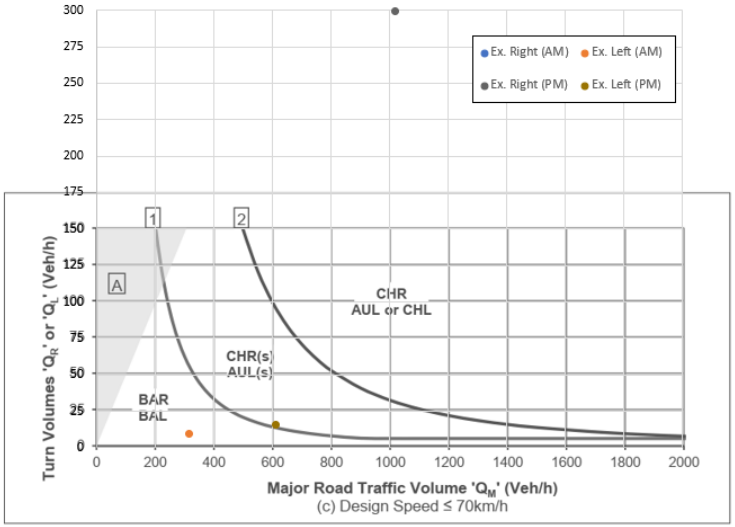


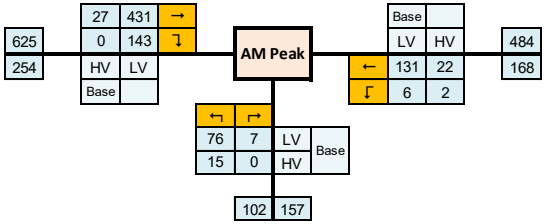
PM Peak: 4:15pm – 5:15pm

Existing intersection control and turn types	T-Intersection Stop BAR; BAL

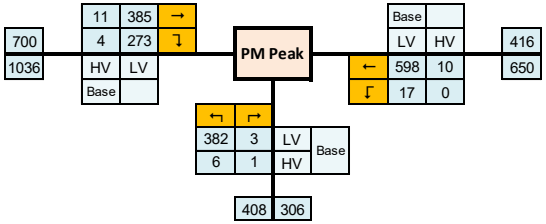
Compliance to intersection turn warrant for existing peak hour demand:

No, auxiliary left and channelised right turn treatments are needed based on existing period demand





6:00am – 7:00am volumes (HTP construction peak)

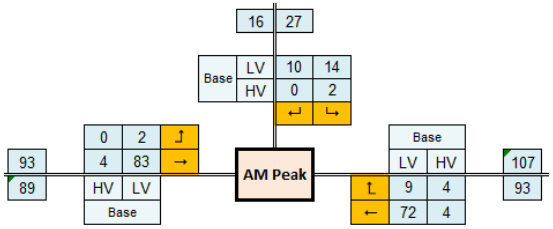


5:00pm – 6:00pm volumes (HTP construction peak)

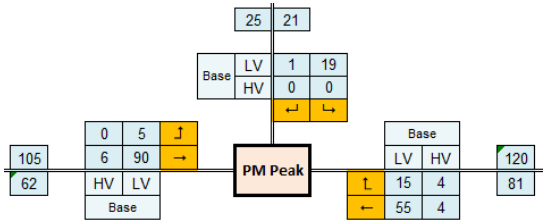
Pavement	Sealed. Line marking: Y
Posted speed limit	Wollombi Road: 60km/h West Avenue: 50km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double (Wollombi Rd only)
SISD requirements	123m (with no grade correction) Compliance: Y

I-19: Wollombi Road/Mount View Road (Millfield) – existing intersection layout, speed limit, and vehicle approved for road travel

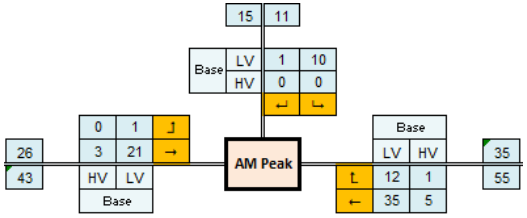
I-19: Wollombi Road/Mount View Road (Millfield) – existing intersection counts, turn warrant, and SISD assessment



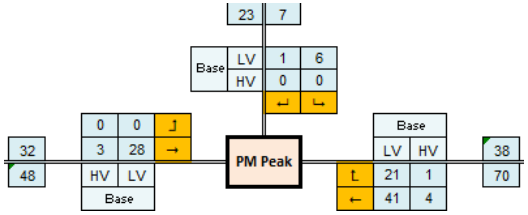
AM Peak: 8:00am – 9:00am



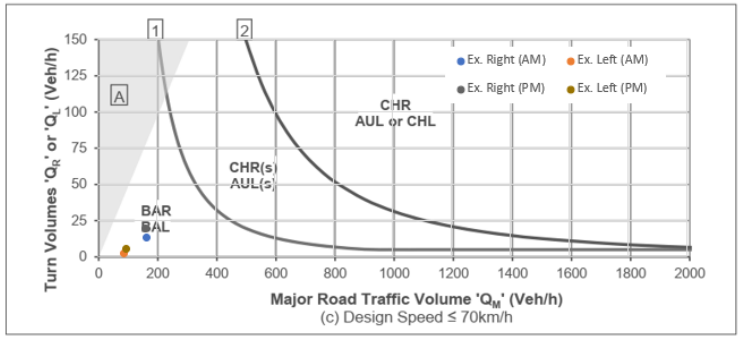
PM Peak: 3:00pm – 4:00pm



6:00am – 7:00am volumes (HTP construction peak)

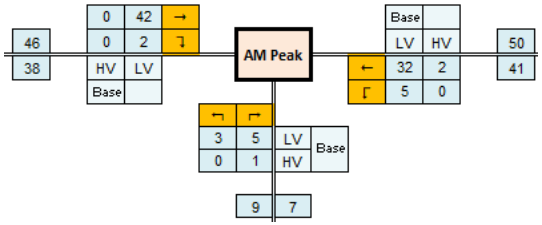


5:00pm – 6:00pm volumes (HTP construction peak)

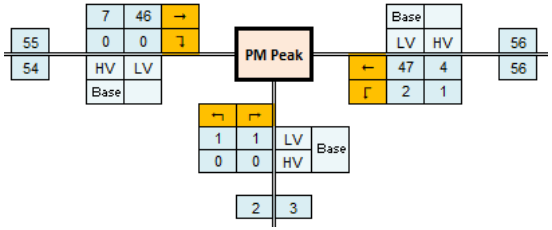
Existing intersection control and turn types	T-Intersection Stop BAR; BAL
Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph	
Pavement	Sealed. Line marking: Y
Posted speed limit	Wollombi Road: 60km/h Mount View Road: 50km/h
Existing access permit	General Access Vehicle
SISD requirements	151m (70km/h design speed with no grade correction) Compliance: Y

I-20: Wollombi Road/Hayes Road – existing intersection layout, speed limit, and vehicle approved for road travel

I-20: Wollombi Road/Hayes Road – existing intersection counts, turn warrant, and SISD assessment

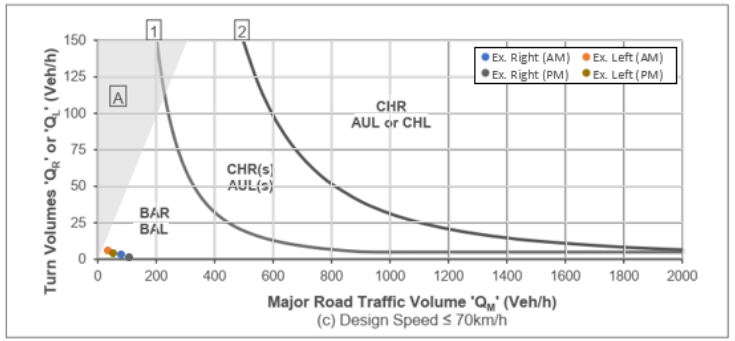


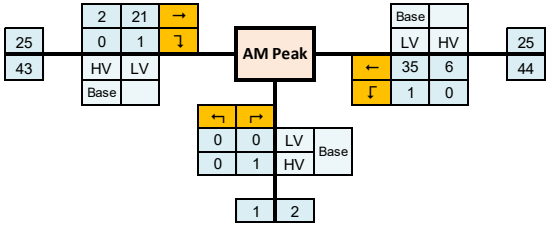
AM Peak: 8:45am – 9:45am



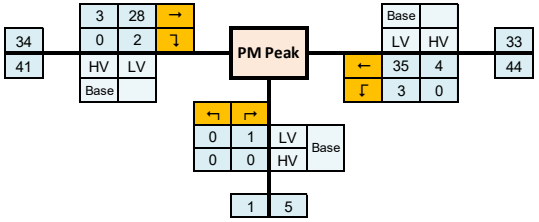
PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL
Compliance to intersection turn warrant for existing peak hour demand:	Yes, refer to graph





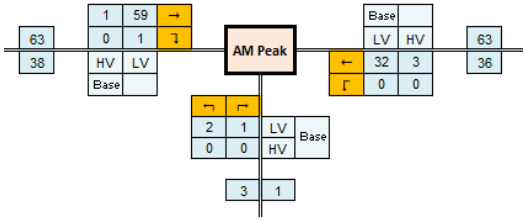
6:00am – 7:00am volumes (HTP construction peak)



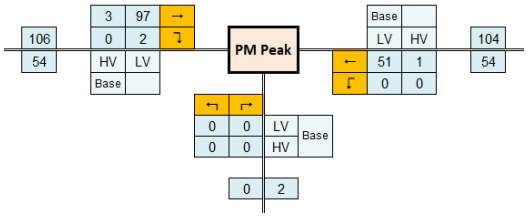
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	60km/h
Existing access permit	General Access Vehicle. B-Double permits on Wollombi Road ends at Boundary Street
SISD requirements	151m (70km/h design speed with no grade correction) Compliance: Y

I-21a: Cessnock Road/Oakey Lane – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 7:00am – 8:00am

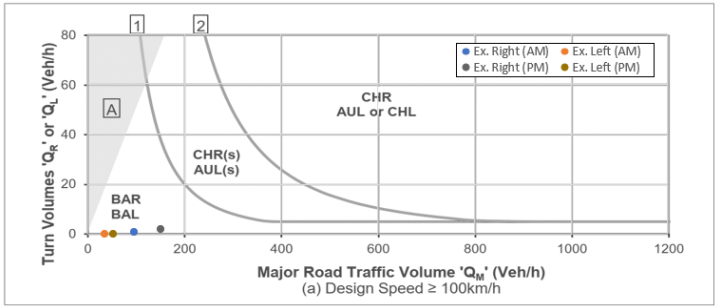


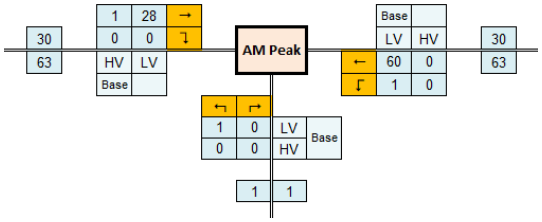
PM Peak: 4:15pm – 5:15pm

Existing intersection control and turn types	T-Intersection Give-Way Auxiliary Right (AUR); Auxiliary Left (AUL)

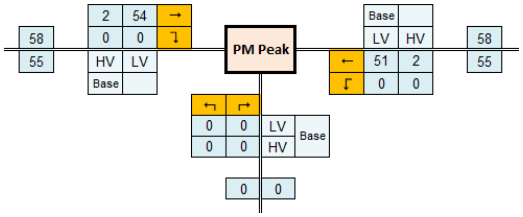
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





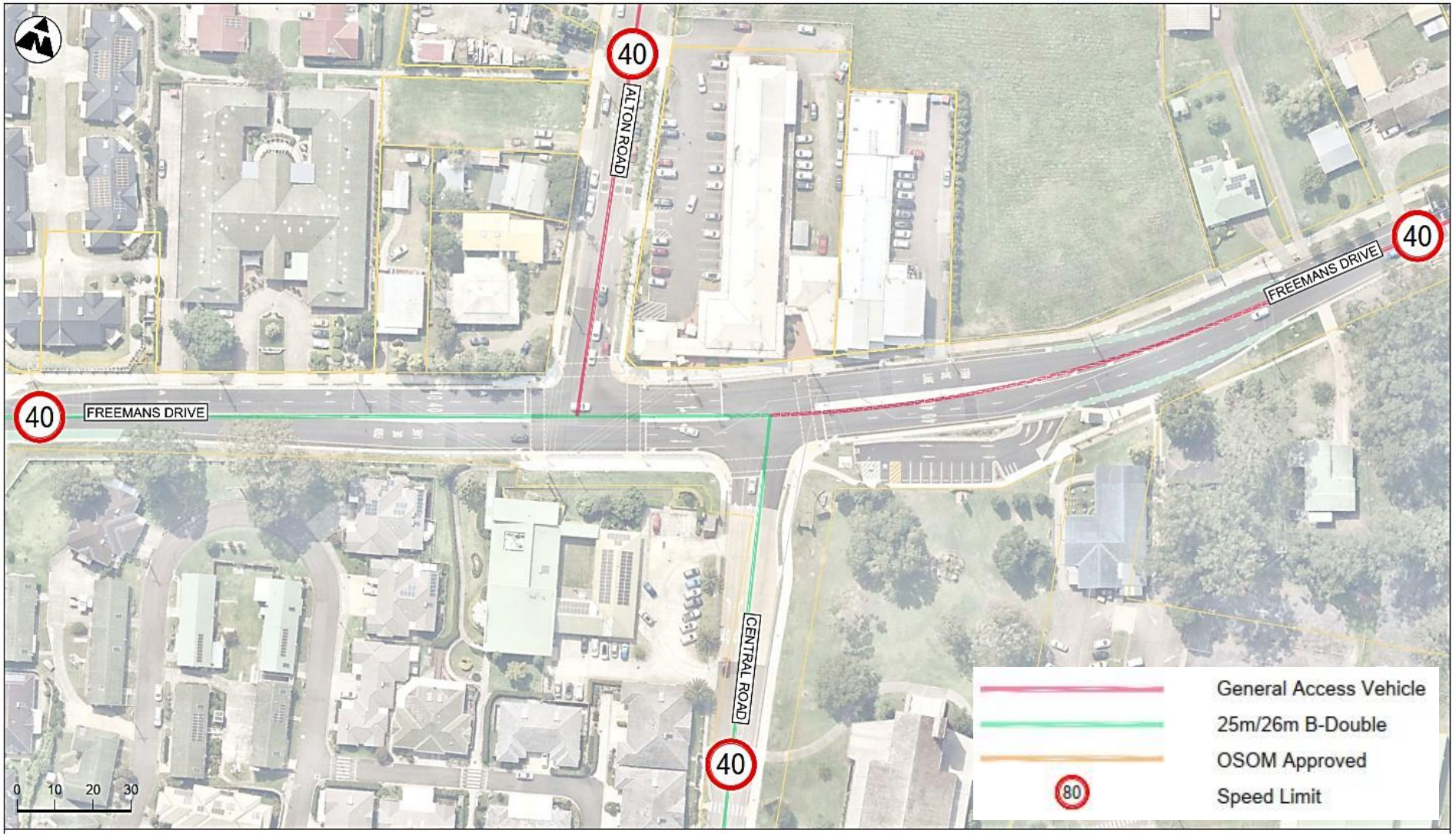
6:00am – 7:00am volumes (HTP construction peak)



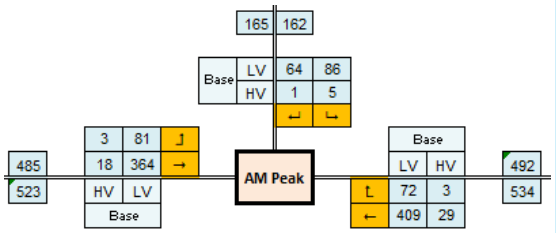
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	100km/h
Existing access permit	General Access Vehicle, 25m / 26m
SISD requirements	285m (110km/h design speed with no grade correction) Compliance: Y

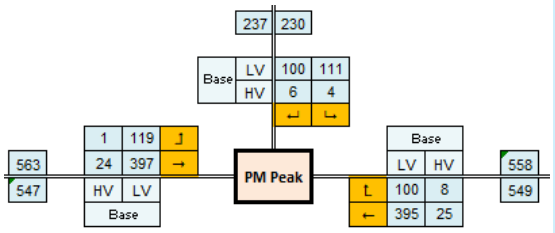
I-22a: Alton Road/Freemans Drive – existing intersection layout, speed limit, and vehicle approved for road travel



I-22a: Alton Road/Freemans Drive – existing intersection counts, turn warrant, and SISD assessment

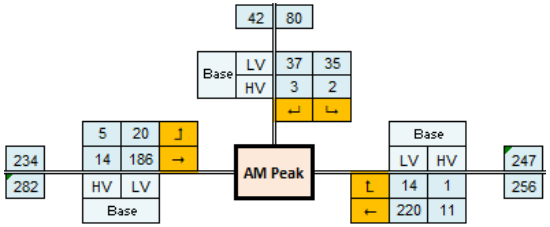


AM Peak: 8:15am – 9:15am

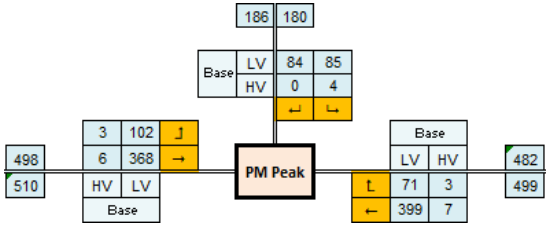


PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	Signals
Compliance to intersection turn warrant for existing peak hour demand: Controlled by traffic signals. Intersection turn warrant assessment is not required	



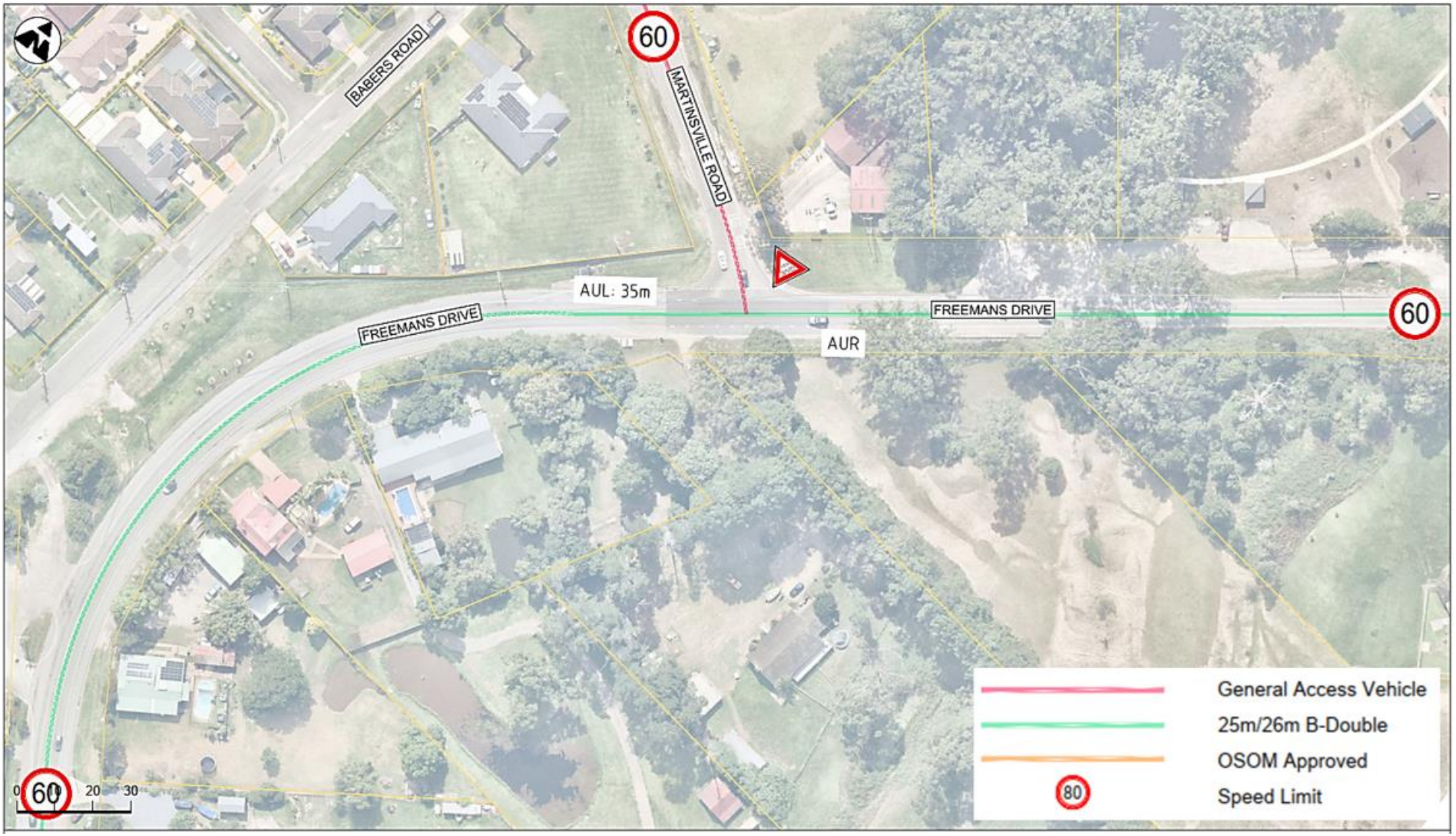
6:00am – 7:00am volumes (HTP construction peak)



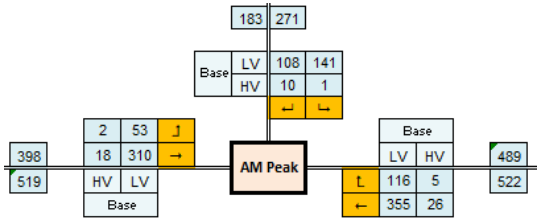
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	40km/h
Existing access permit	General Access Vehicle 25m / 26m B-Double (partial Freemans Dr only stopping at M1 Pacific Motorway Interchange)
SISD requirements	73m (with no grade correction) Compliance: Y

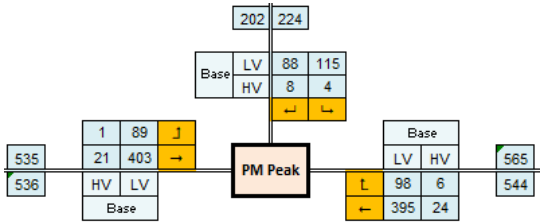
I-23: Martinsville Road/Freemans Drive – existing intersection layout, speed limit, and vehicle approved for road travel



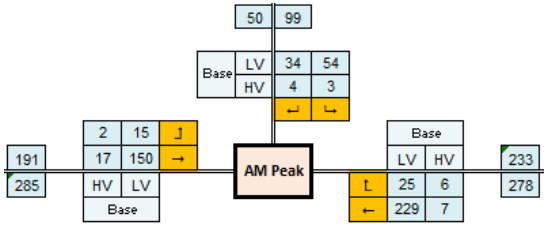
I-23: Martinsville Road/Freemans Drive – existing intersection counts, turn warrant, and SISD assessment



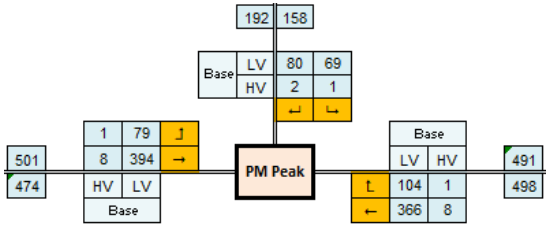
AM Peak: 8:15am – 9:15am



PM Peak: 3:00pm – 4:00pm

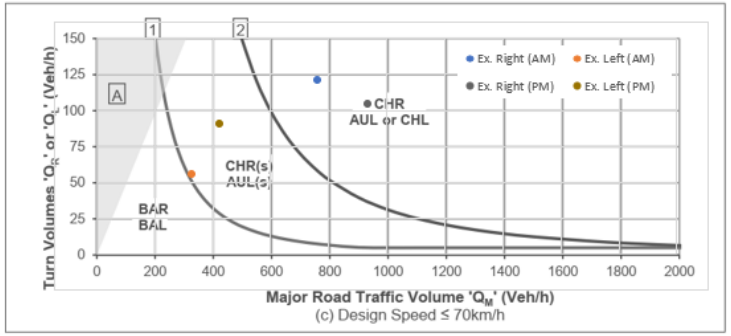


6:00am – 7:00am volumes (HTP construction peak)

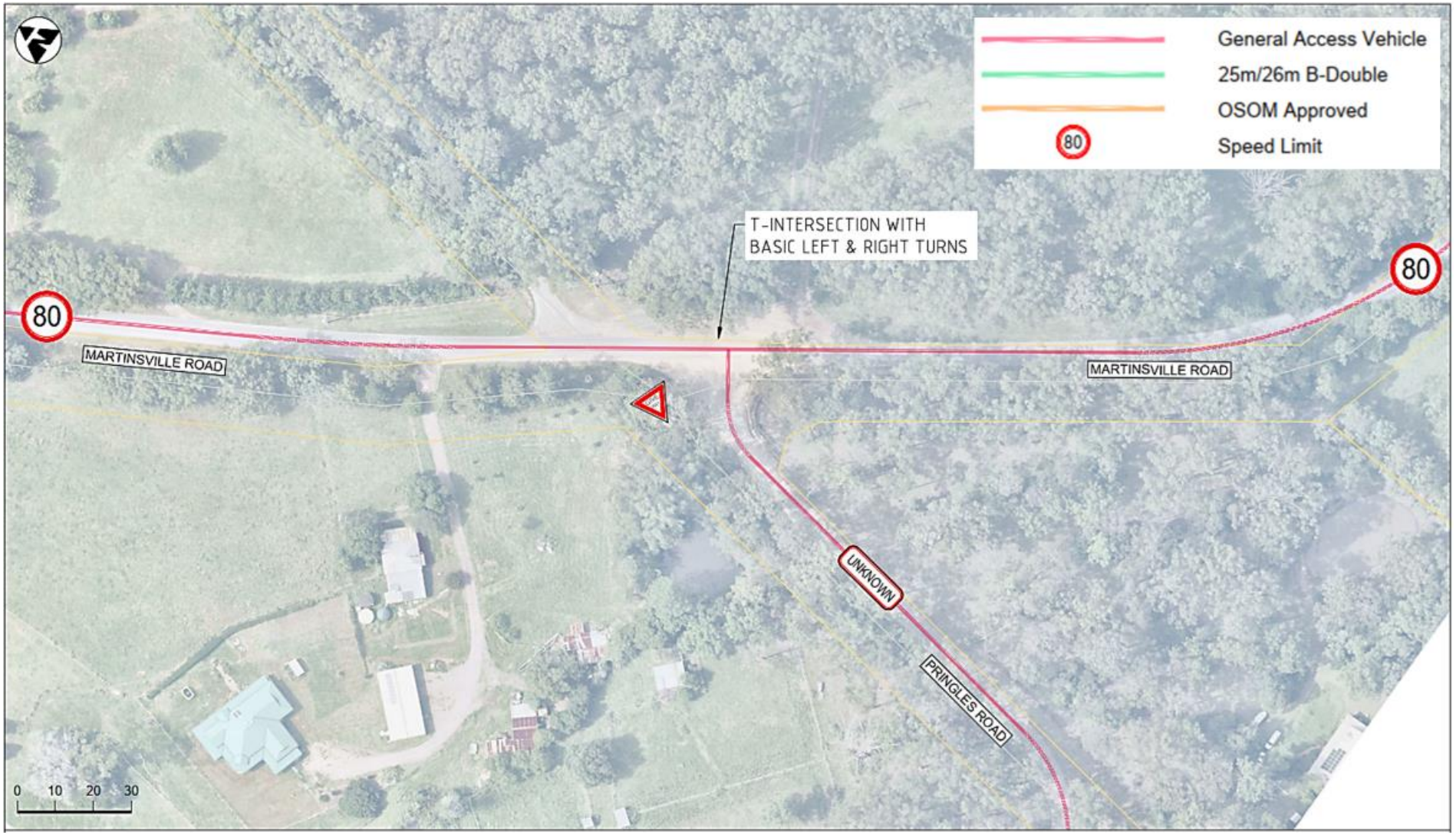


5:00pm – 6:00pm volumes (HTP construction peak)

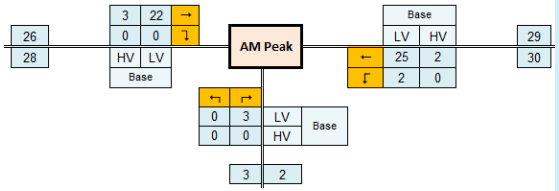
Existing intersection control and turn types	T-Intersection Give-Way AUR; AUL
Compliance to intersection turn warrant for existing peak hour demand:	No, channelised right turn is needed based on existing right turn demand during peak periods
Pavement	Sealed. Line marking: Y
Posted speed limit	60km/h
Existing access permit	General Access Vehicle 25n / 26m B-Double (Freemans Dr only)
SISD requirements	151m (70km/h design speed with no grade correction) Compliance: Y



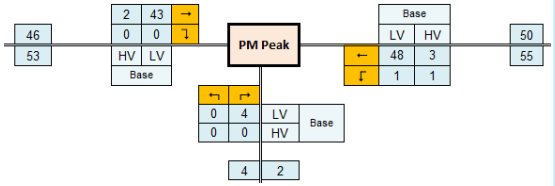
I-24: Martinsville Road/Pringles Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-24: Martinsville Road/Pringles Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 8:15am – 9:15am

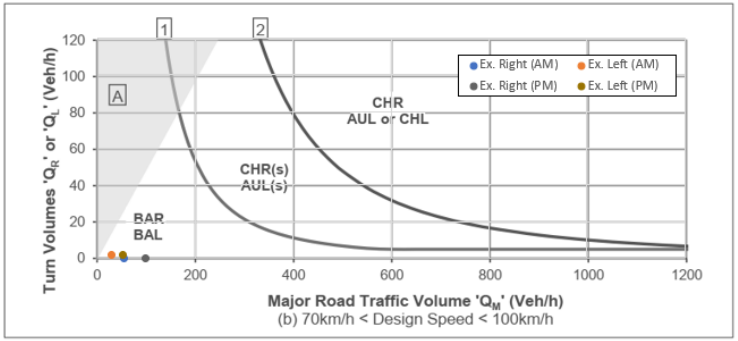


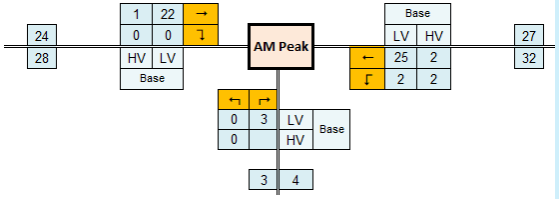
PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL

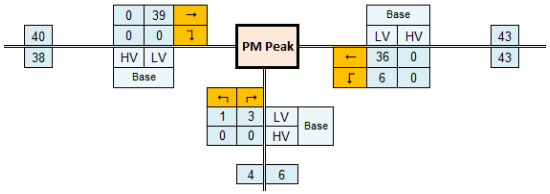
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





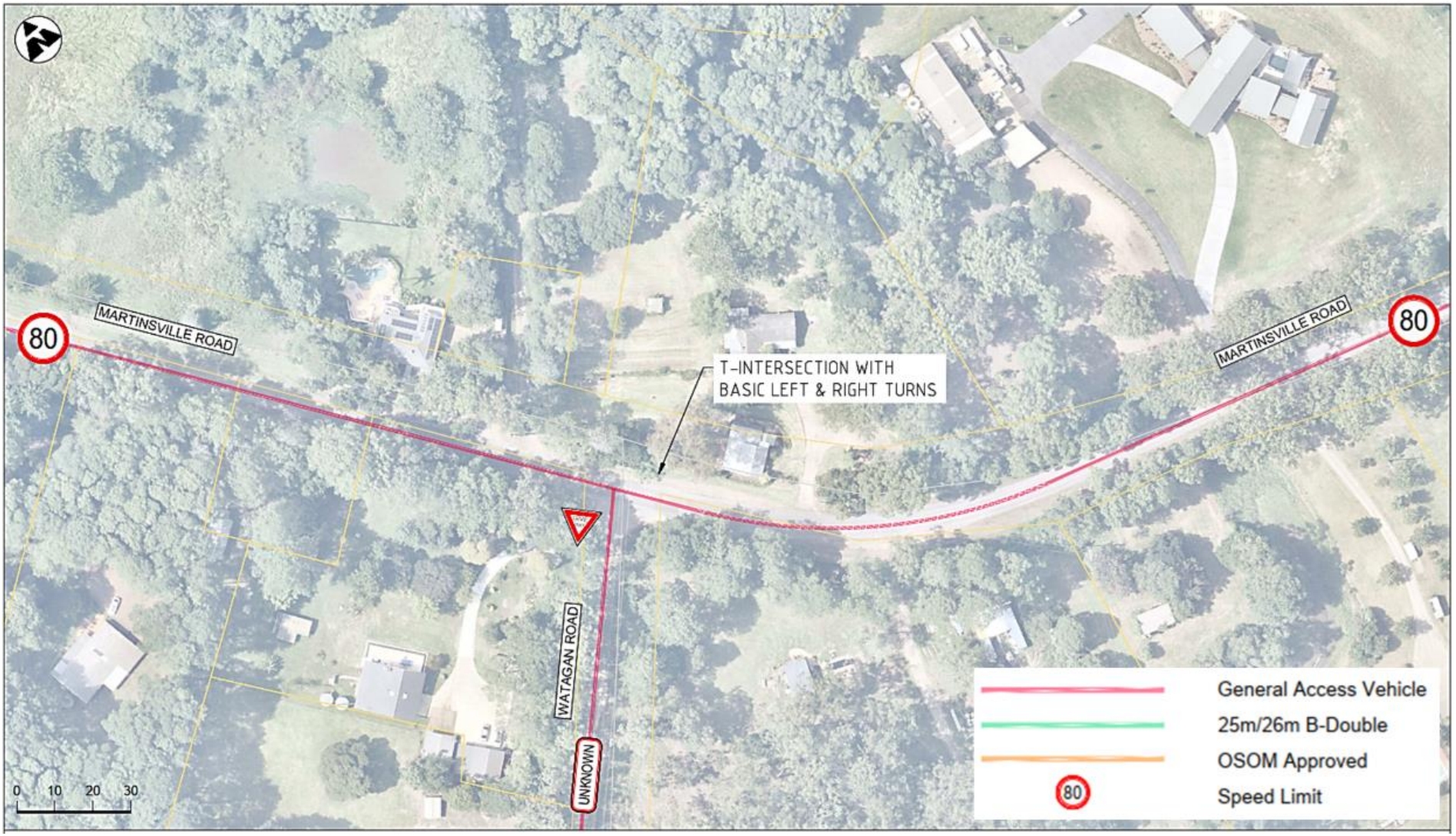
6:00am – 7:00am volumes (HTP construction peak)



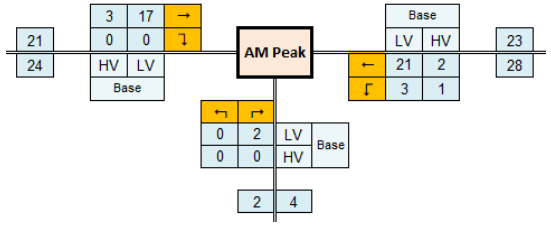
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle
SISD requirements	181m (with no grade correction) Compliance: Y

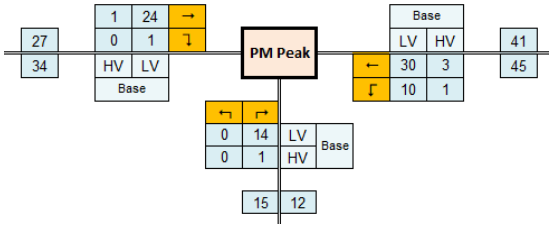
I-25: Martinsville Road/Watagan Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-25: Martinsville Road/Watagan Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 8:15am – 9:15am

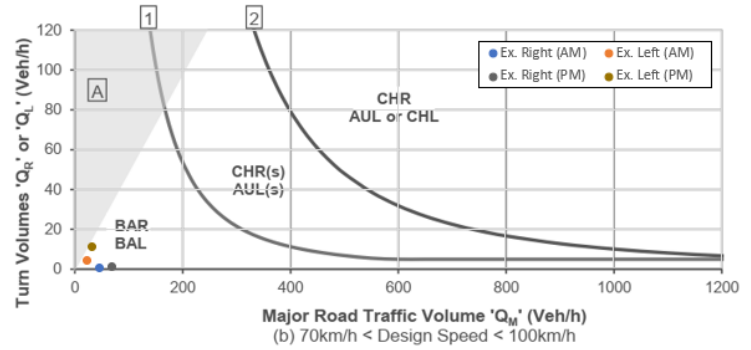


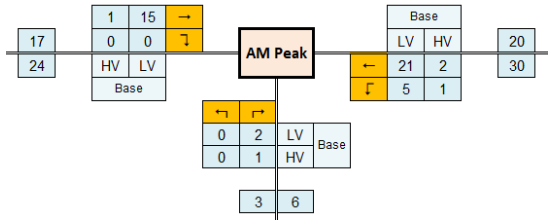
PM Peak: 3:00pm – 4:00pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL

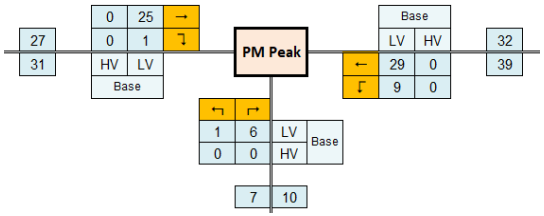
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





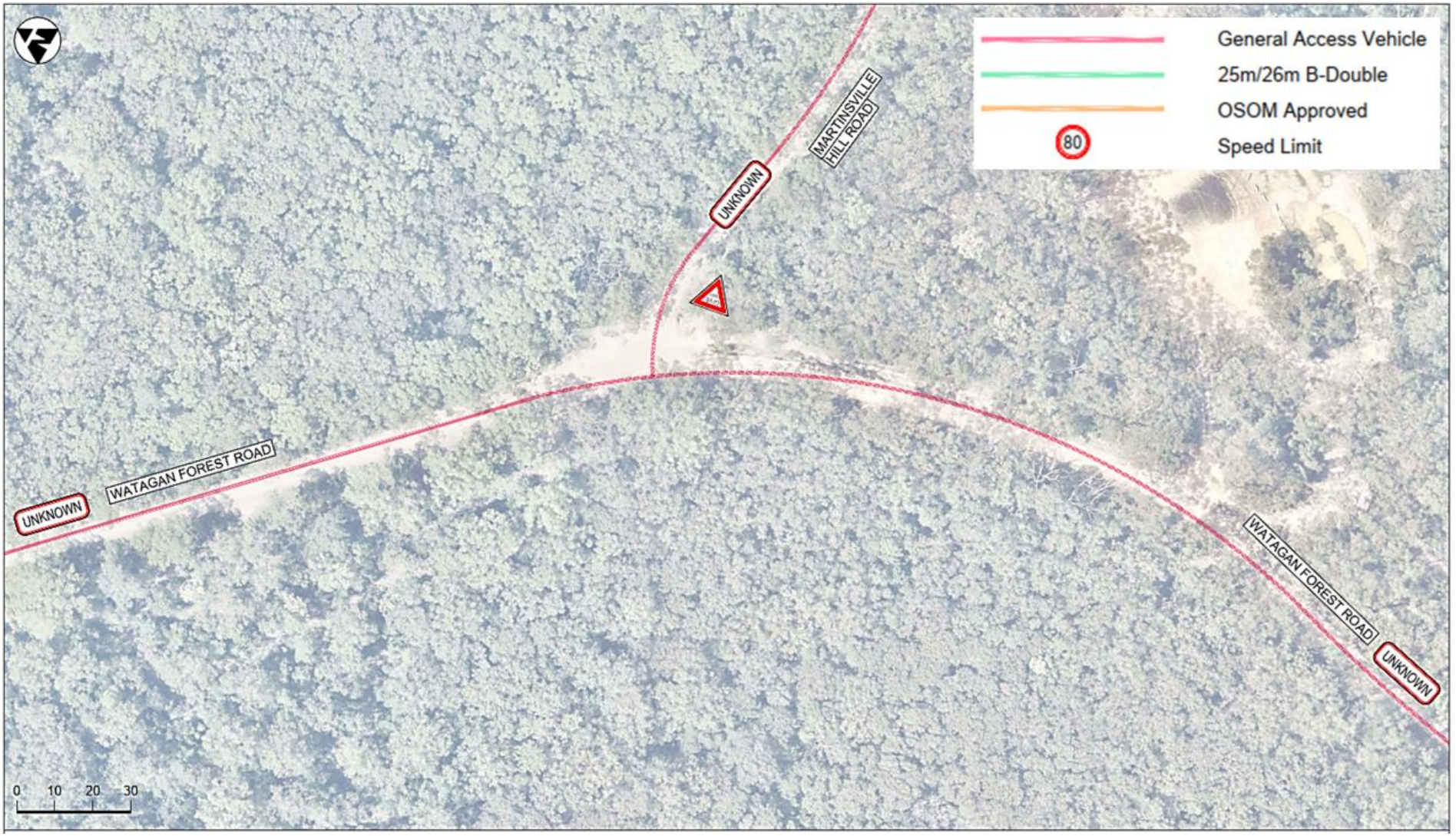
6:00am – 7:00am volumes (HTP construction peak)



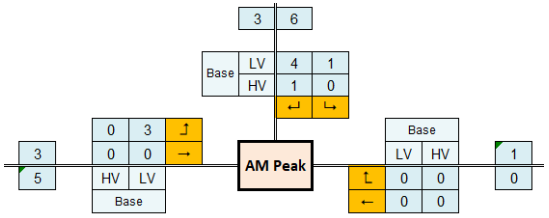
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	80km/h
Existing access permit	General Access Vehicle
SISD requirements	181m (with no grade correction) Compliance: N

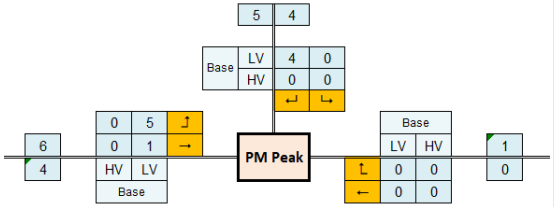
I-26: Watagan Forest Road/Martinsville Hill Road – existing intersection layout, speed limit, and vehicle approved for road travel



I-26: Watagan Forest Road/Martinsville Hill Road – existing intersection counts, turn warrant, and SISD assessment



AM Peak: 9:45am – 10:45am

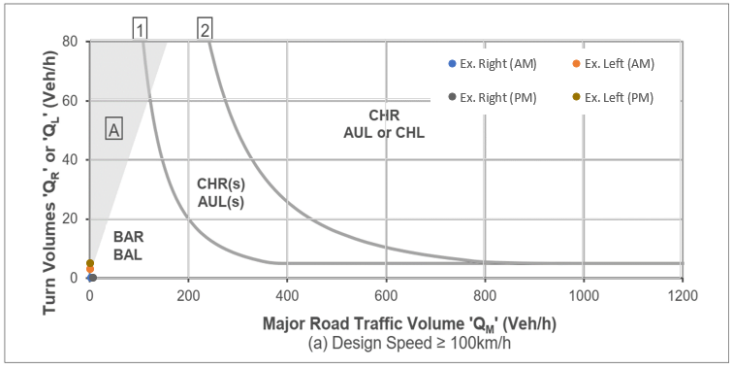


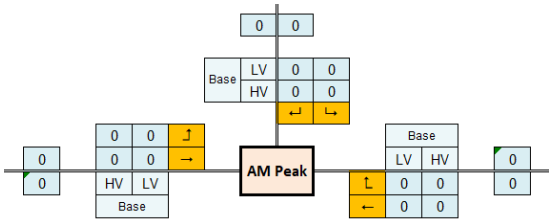
PM Peak: 12:15pm – 1:15pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL

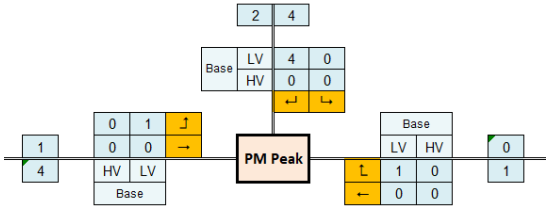
Compliance to intersection turn warrant for existing peak hour demand:

Yes, refer to graph





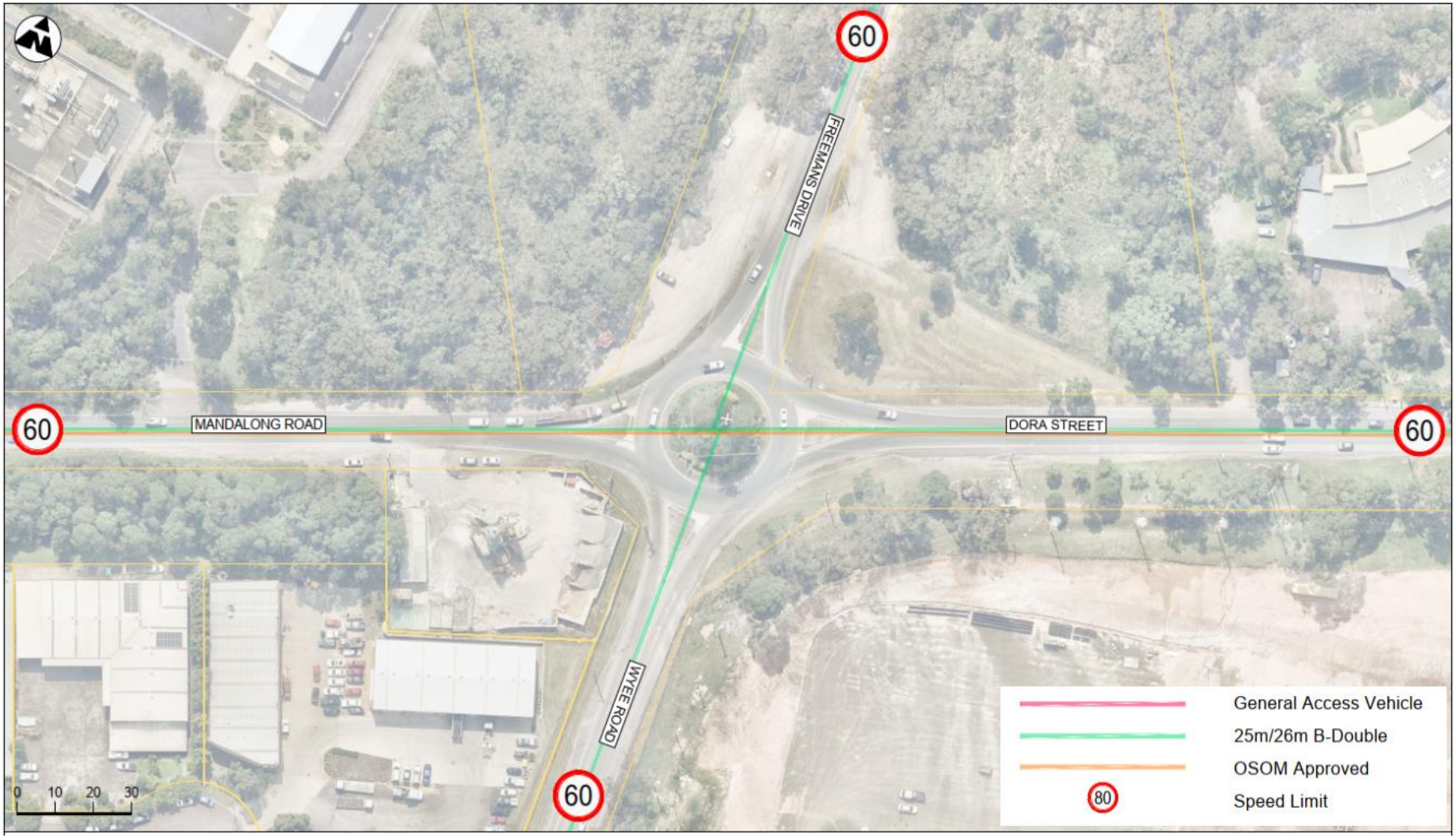
6:00am – 7:00am volumes (HTP construction peak)



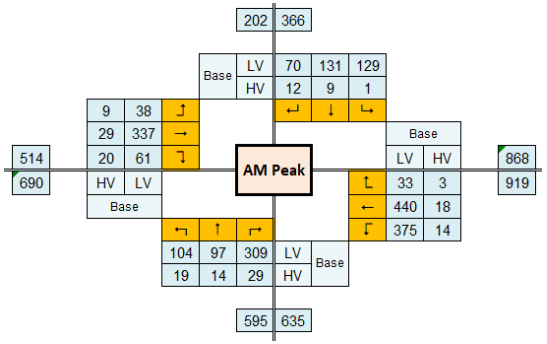
5:00pm – 6:00pm volumes (HTP construction peak)

Pavement	Unsealed. Line marking: N
Posted speed limit	60km/h (rural speed limit)
Existing access permit	General Access Vehicle
SISD requirements	151 (with no grade correction) Compliance: N

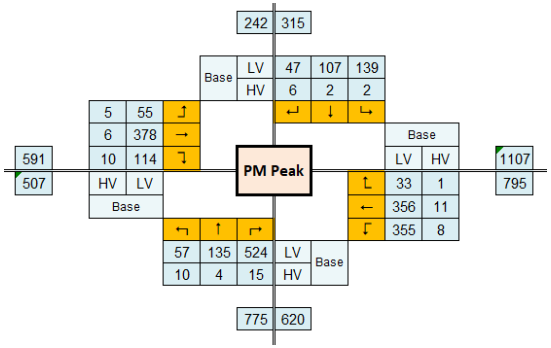
I-27: Mandalong Road/Freemans Drive/Wyee Road– existing intersection layout, speed limit, and vehicle approved for road travel



I-27: Mandalong Road/Freemans Drive/Wyee Road – existing intersection counts, turn warrant, and SISD assessment

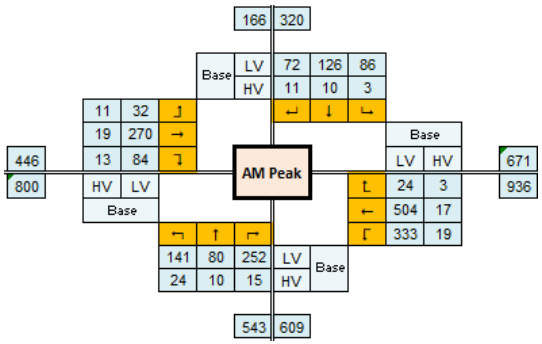


AM Peak: 6:45 am – 7:45 am

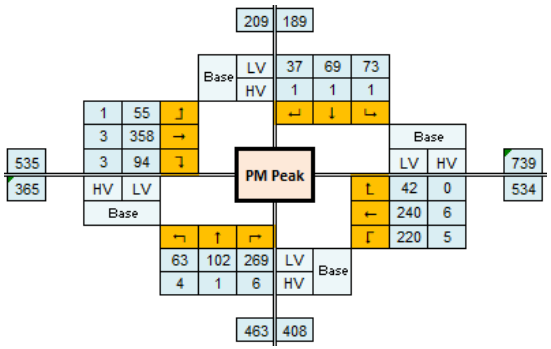


PM Peak: 3:30 pm – 4:30 pm

Existing intersection control and turn types	Roundabout
Compliance to intersection turn warrant for existing peak hour demand: Roundabout controlled intersection. Intersection turn warrant assessment is not required.	



6:00 am – 7:00 am volumes (HTP construction peak)

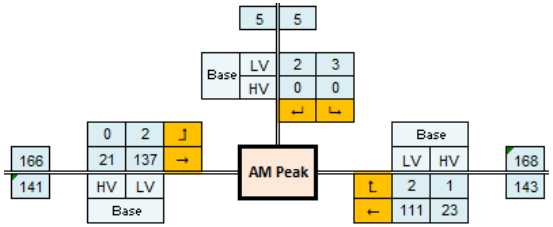


5:00 pm – 6:00 pm volumes (HTP construction peak)

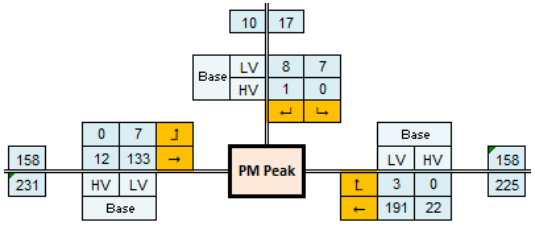
Pavement	Sealed. Line marking: Y
Posted speed limit	60 km/h
Existing access permit	General Access Vehicle 25 m/26 m B-Double OSOM (Mandalong Rd only)
SISD requirements	123 m (with no grade correction) Compliance: Y

I-28: Freemans Drive/Mount Faulk Road – existing intersection layout, speed limit, and vehicle approved for road travel

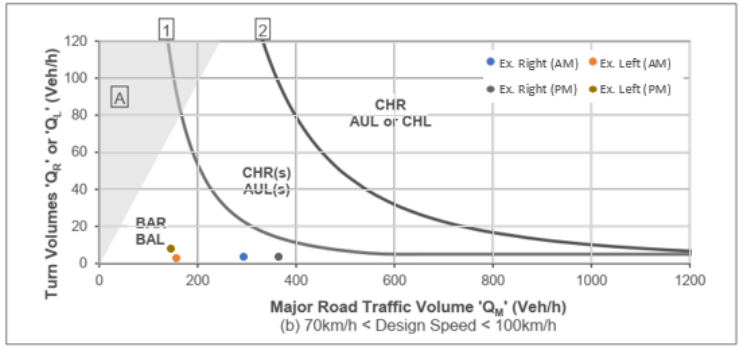
I-28: Freemans Drive/Mount Faulk Road – existing intersection counts, turn warrant, and SISD assessment

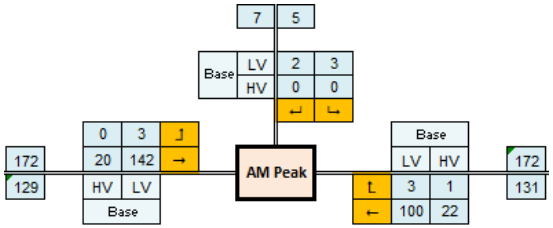


AM Peak: 6:15 am – 7:15 am

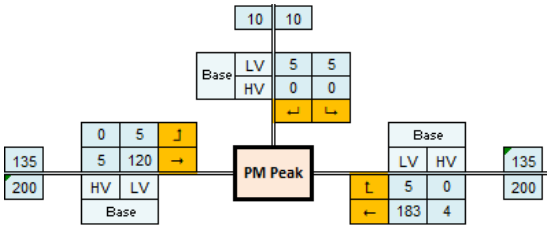


PM Peak: 3:15 pm – 4:15 pm

Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL
Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph	



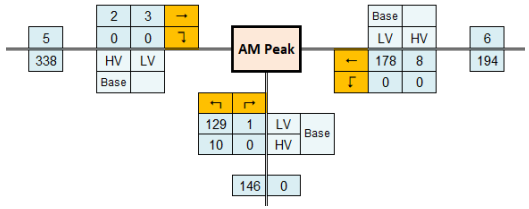
6:00 am – 7:00 am volumes (HTP construction peak)



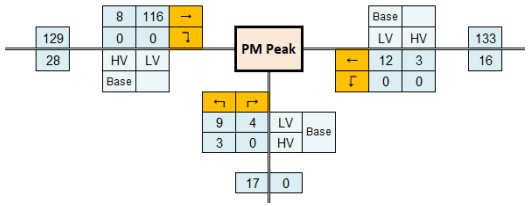
5:00 pm – 6:00 pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	90 km/h
Existing access permit	General Access Vehicle 25 m/26 m B-Double
SISD requirements	214 m (with no grade correction) Compliance: Y

I-29a: Wangi Road/Rocky Point Road (west) – existing intersection counts, turn warrant, and SISD assessment



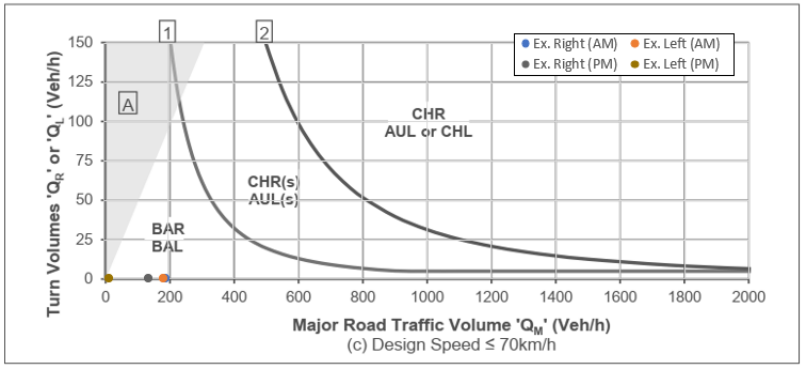
AM Peak: 6:00 am – 7:00 am

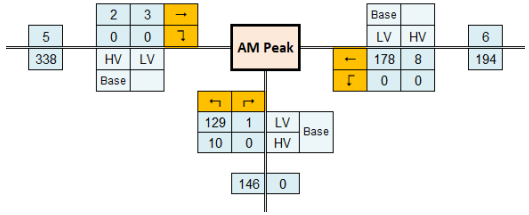


PM Peak: 2:45 pm – 3:45 pm

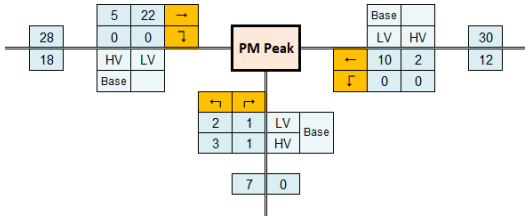
Existing intersection control and turn types	T-Intersection Give-Way

Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph





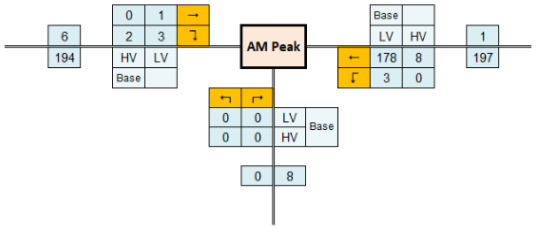
6:00 am – 7:00 am volumes (HTP construction peak)



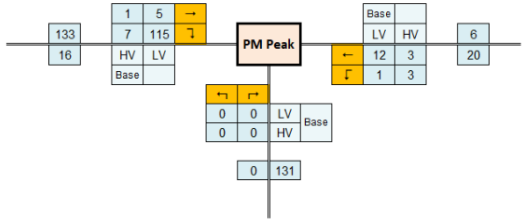
5:00 pm – 6:00 pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	60 km/h
Existing access permit	General Access Vehicle, 25 m/26 m B-Double
SISD requirements	151 m (70 km/h design speed with no grade correction) Compliance: Y

I-29b: Wangi Road/Rocky Point Road (east) – existing intersection counts, turn warrant, and SISD assessment



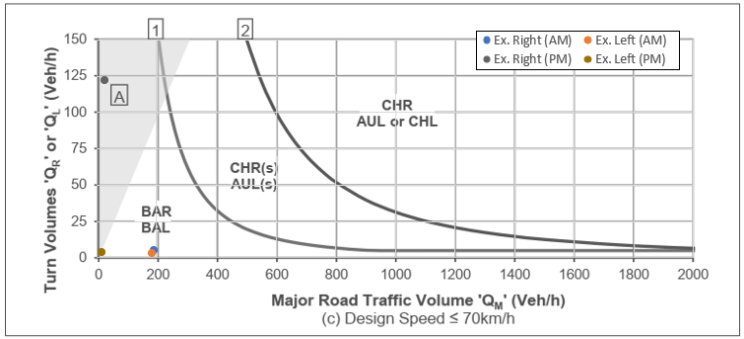
AM Peak: 6:00 am – 7:00 am

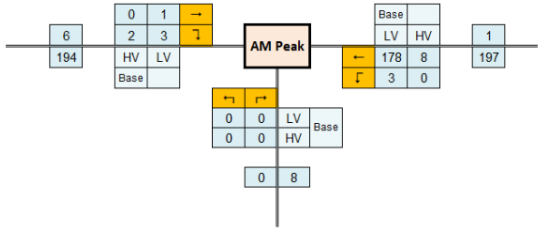


PM Peak: 2:45 pm – 3:45 pm

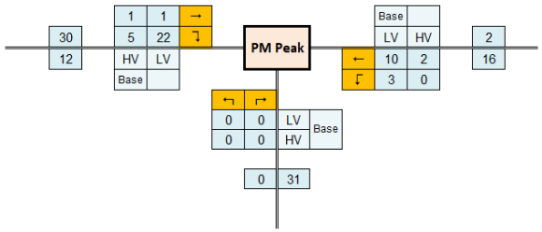
Existing intersection control and turn types	T-Intersection Give-Way BAL/BAR

Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph





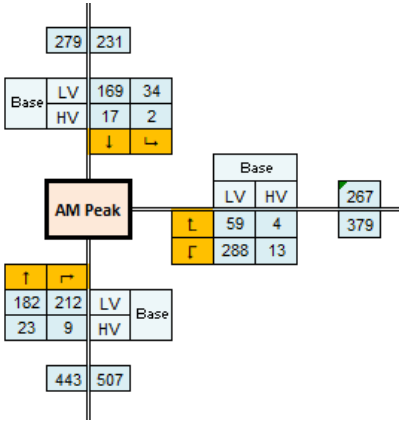
6:00 am – 7:00 am volumes (HTP construction peak)



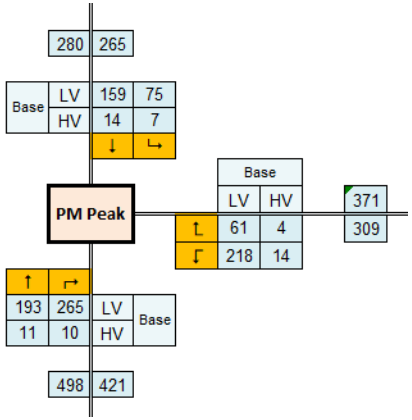
5:00 pm – 6:00 pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	60 km/h
Existing access permit	General Access Vehicle, 25 m/26 m B-Double
SISD requirements	151 m (70 km/h design speed with no grade correction) Compliance: Y

I-57: Freemans Drive/Newport Road – existing intersection counts, turn warrant, and SISD assessment



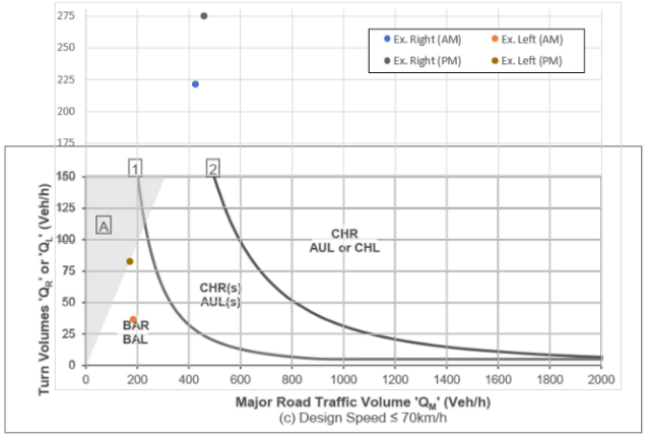
AM Peak: 7:45am – 8:45am

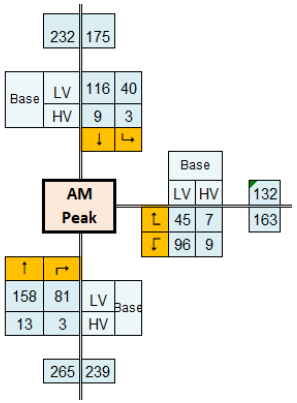


PM Peak: 3:15pm – 4:15pm

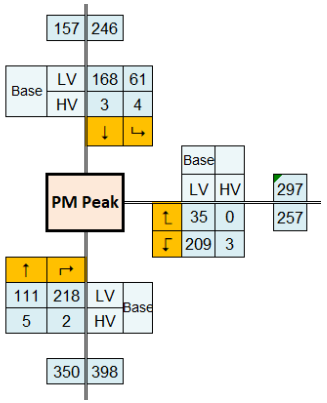
Existing intersection control and turn types	T-Intersection Give-Way Channelised Right (CHR); Auxiliary Left (AULs)

Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph





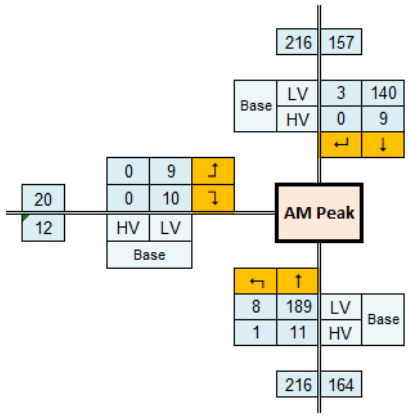
6:00 am – 7:00 am volumes (HTP construction peak)



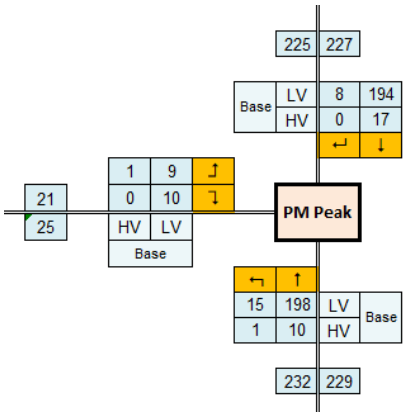
5:00 pm – 6:00 pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	60 km/h
Existing access permit	General Access Vehicle 25 m/26 m B-Double
SISD requirements	151 m (70 km/h design speed with no grade correction) Compliance: Y

I-58: Freemans Drive/Mount Nellinda Road – existing intersection counts, turn warrant, and SISD assessment



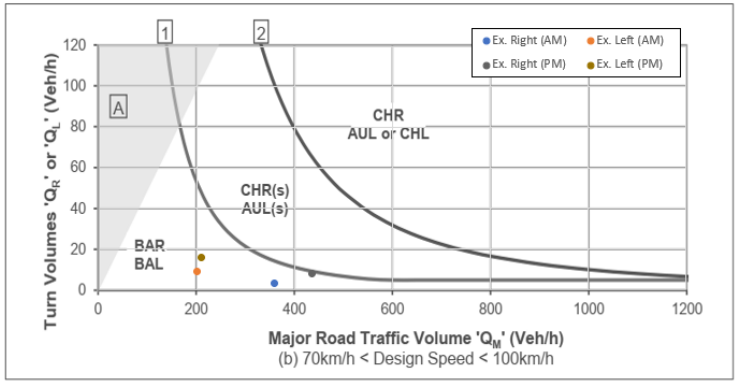
AM Peak: 7:30pm – 8:30pm

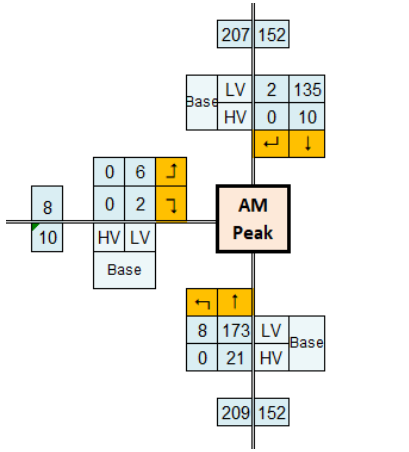


PM Peak: 3:15pm – 4:15pm

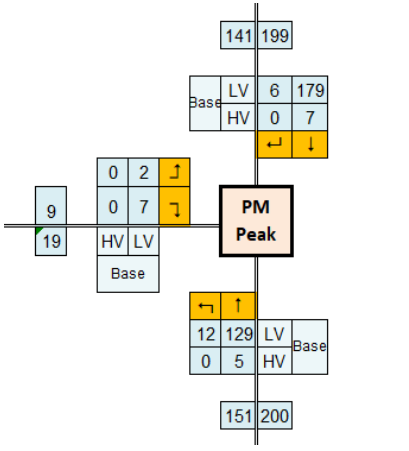
Existing intersection control and turn types	T-Intersection Give-Way BAR; BAL

Compliance to intersection turn warrant for existing peak hour demand: Yes, refer to graph





6:00 am – 7:00 am volumes (HTP construction peak)



5:00 pm – 6:00 pm volumes (HTP construction peak)

Pavement	Sealed. Line marking: Y
Posted speed limit	90km/h
Existing access permit	General Access Vehicle, 25 m/26 m B-Double
SISD requirements	248m (100km/h design speed with no grade correction) Compliance: N

APPENDIX B

EXISTING AND PROPOSED ACCESS INTERSECTIONS – SISD PLANS

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-01a
NEW ENGLAND HWY AND HEBDEN RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1325

Rev.: 0

Document No.: 2583080-CA-ANC-1325.DWG

0 10 20 40 60
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SCALE (m)

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-02
NEW ENGLAND HWY AND LEMINGTON RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1328 Rev.: 0

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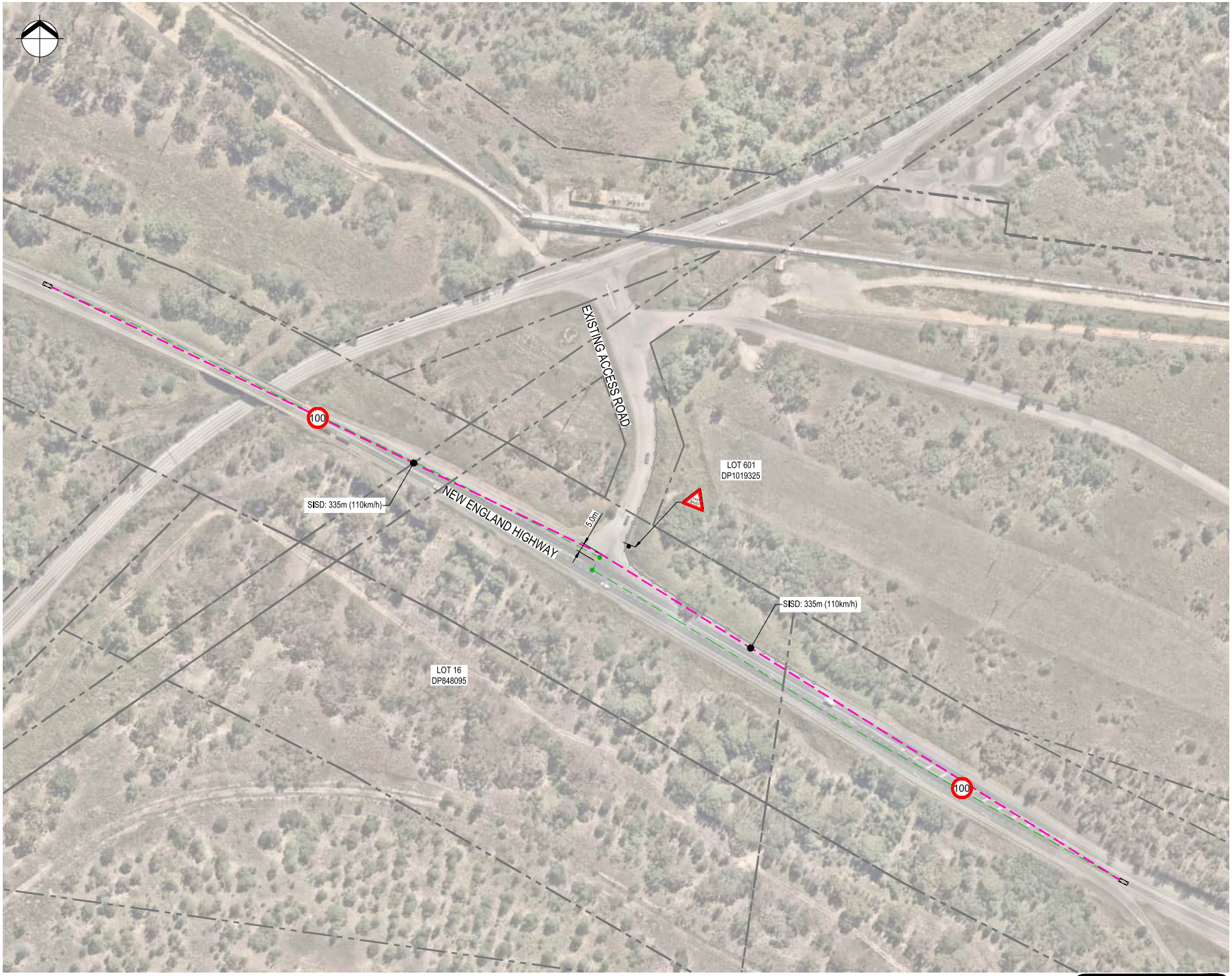

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-02b
NEW ENGLAND HWY AND PIKES GULLY ROAD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1324 Rev.: 0

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Full Size A1 1:1000 : Half Reduction A3 1:2000
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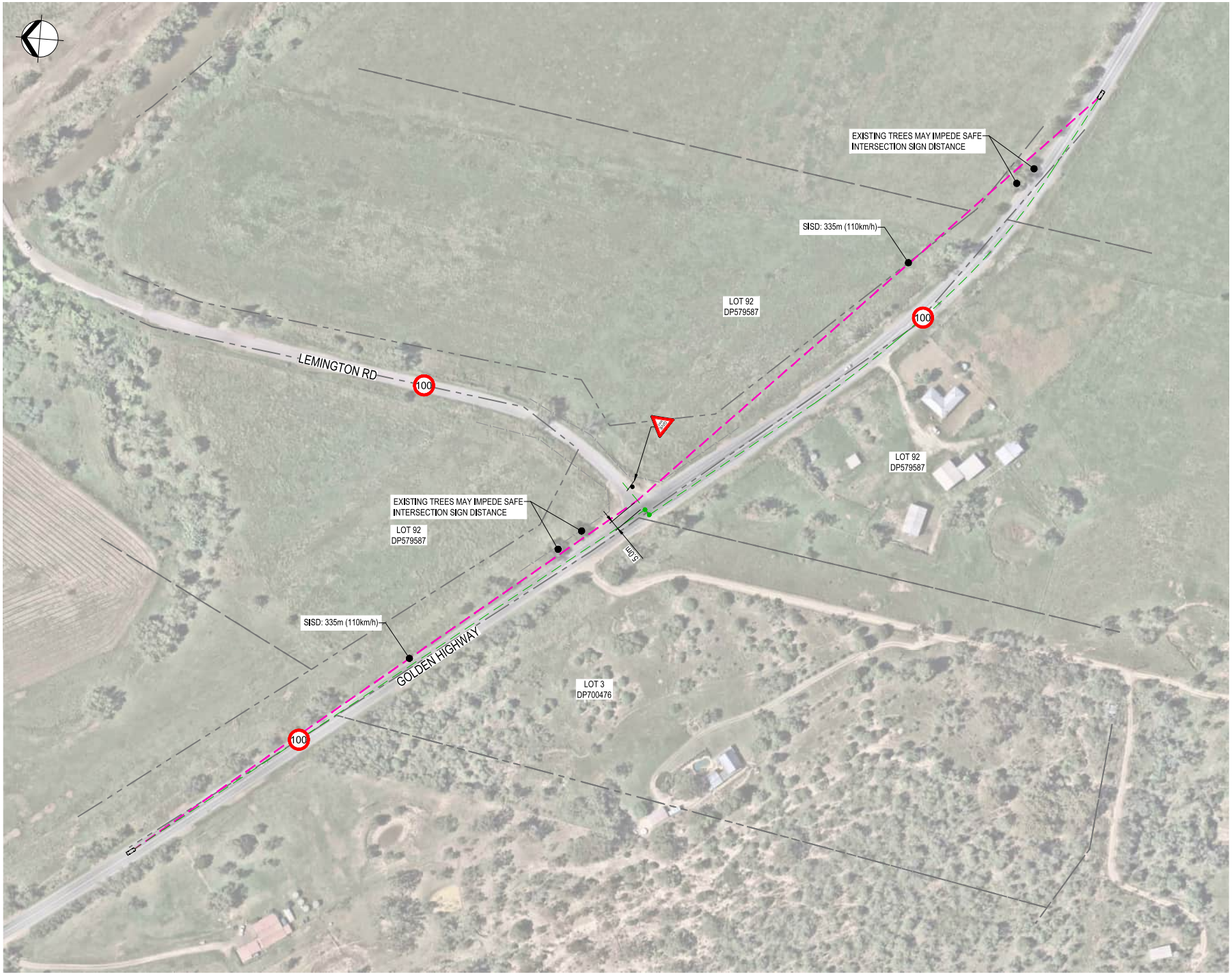

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING FENCE
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

SPEED LIMIT

OPTION B
FULL INTERSECTION UPGRADE

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-03 LEMINGTON RD & GOLDEN HWY OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1317 Rev.: 0

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SCALE (m)

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-04 GOLDEN HWY AND COMLEROI RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1322 Rev.: 0

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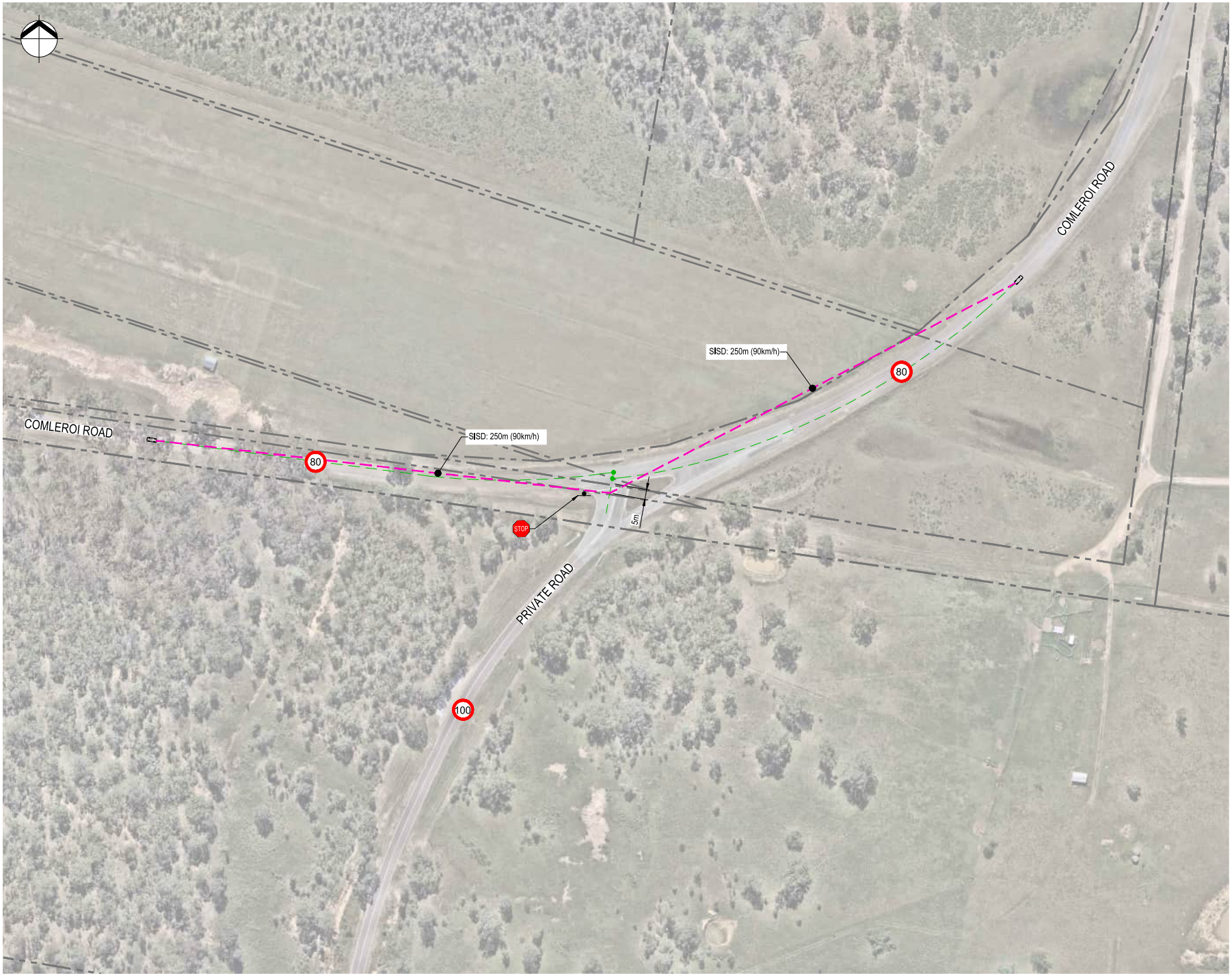

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
Reduced Scale (A3) 1:2000m	Dsg Verifier	C.OAKES	20.11.25
	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-05 COMLEROI RD AND HVO PRIVATE DRIVEWAY OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1346 Rev.: 0

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Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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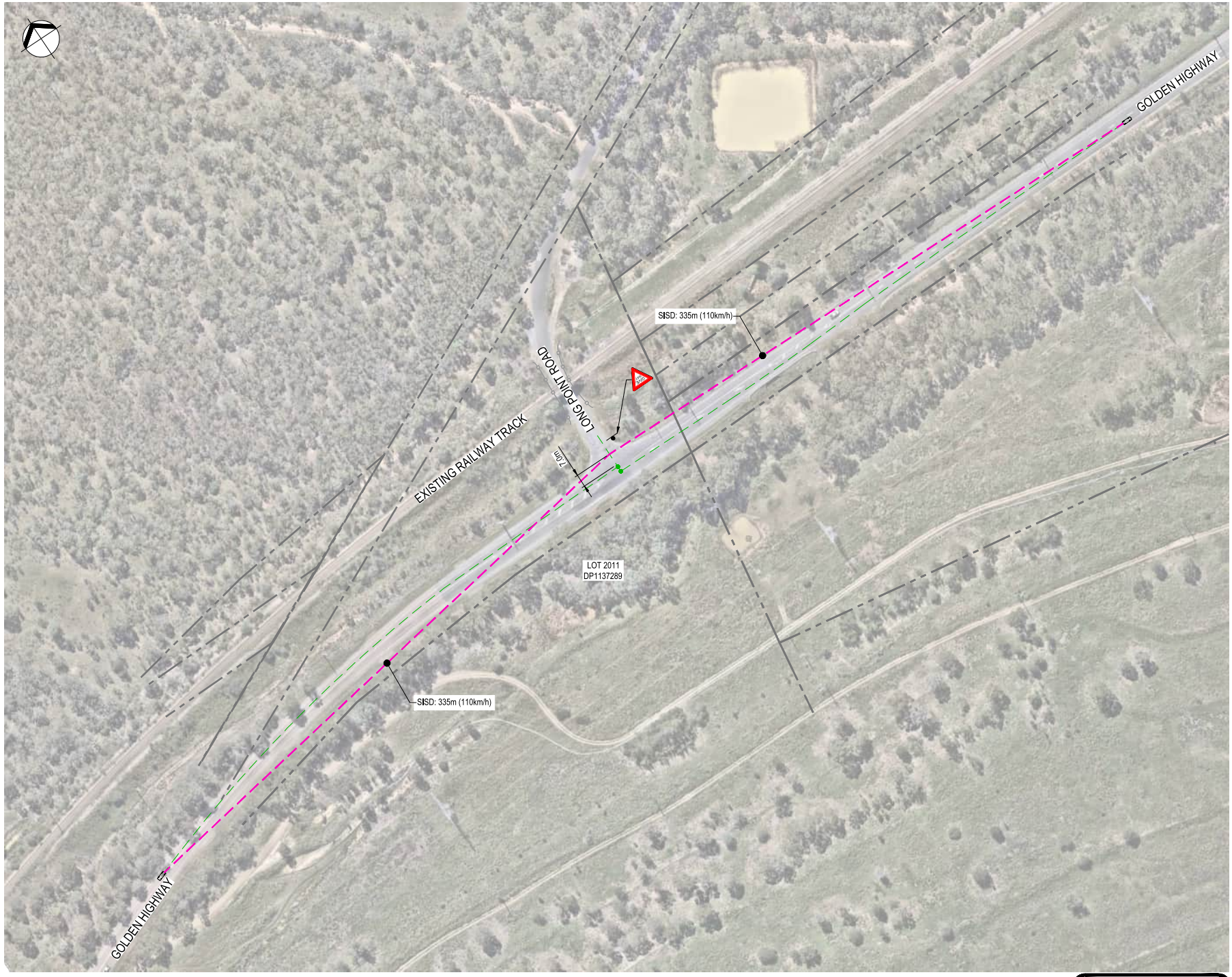

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-06 GOLDEN HWY AND LONG POINT RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1338

Rev.: 0

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Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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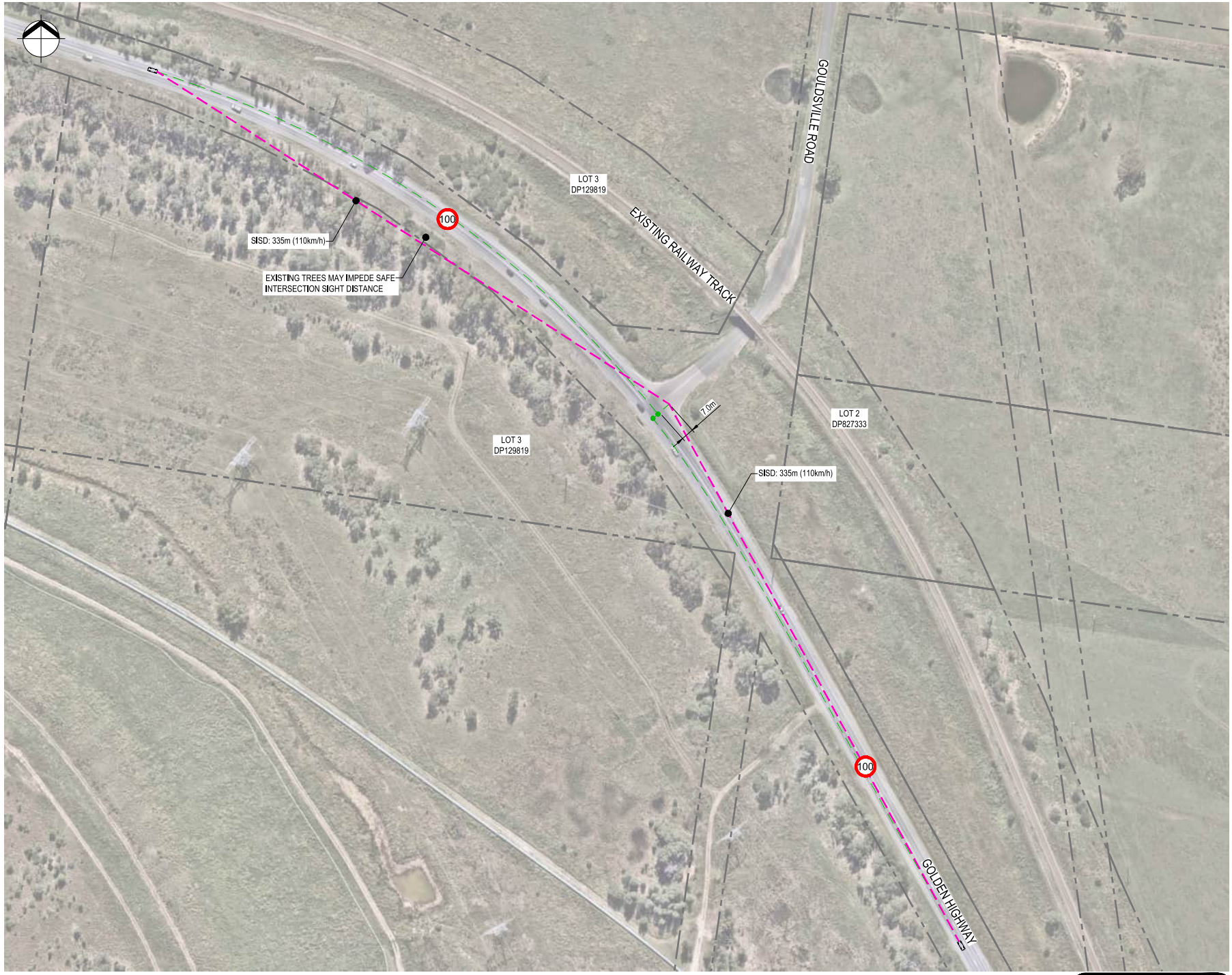

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-07
GOLDEN HWY AND GOULDSVILLE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1337

Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-08a
JERRY PLAINS RD AND PUTTY RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1347 Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
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LEGEND

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- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-08b
JERRY PLAINS RD AND PUTTY RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1348 Rev.: 0

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Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-09
PUTTY RD AND BROKE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1321

Rev.: 0

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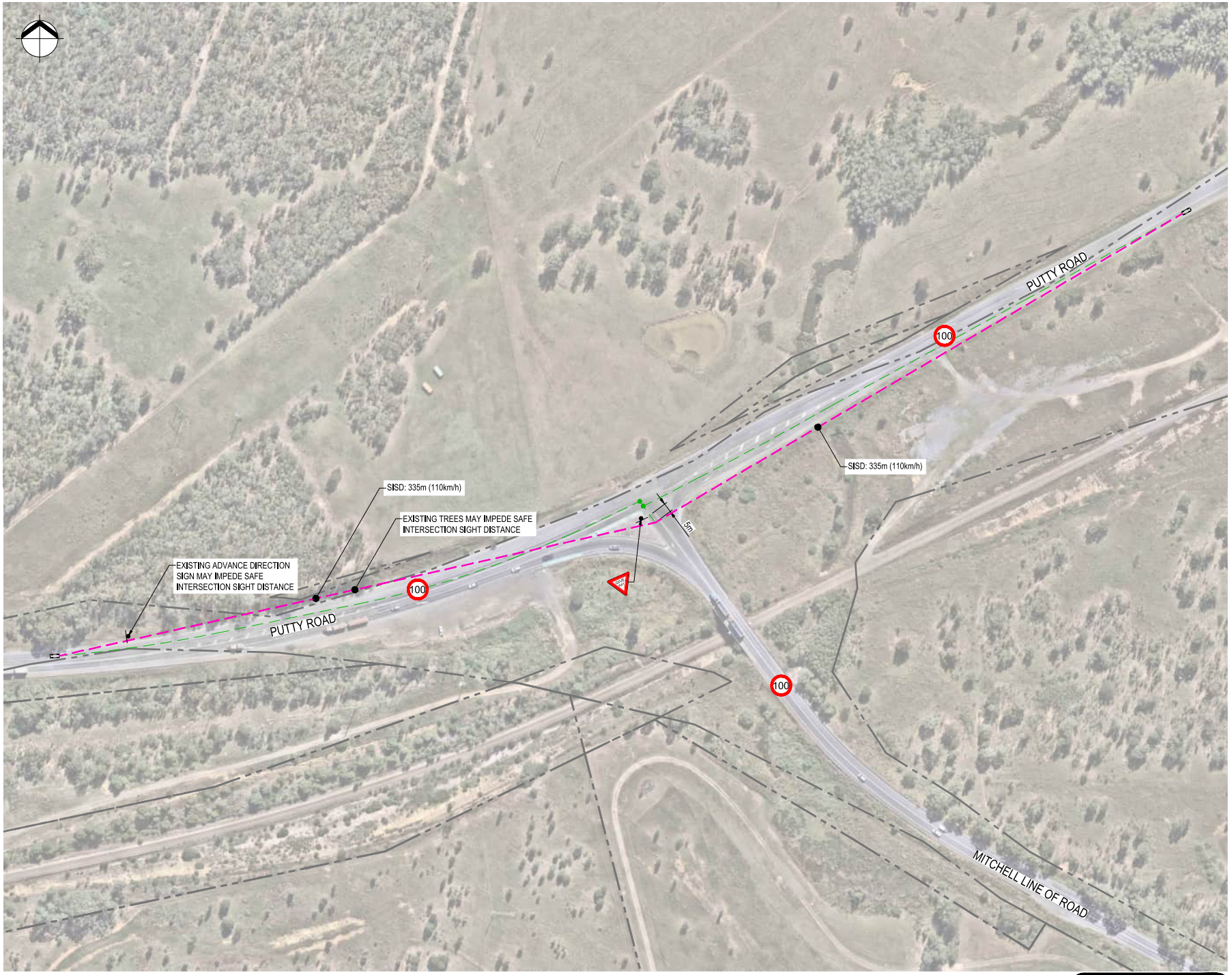

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- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-10 PUTTY RD AND MITCHELL LINE OF RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1349

Rev.: 0

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-10b GOLDEN HWY AND RANGE RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1341

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No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
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	Dsg Verifier	C.OAKES	20.11.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-11 WOLLOMBI RD AND SINGLETON ST OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1339

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	Dsg Verifier	C.OAKES	20.11.25	
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25	Date
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-12
BROKE RD AND HERMITAGE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1350 Rev.: 0

Document No.: 2583080-CA-ANC-1350.DWG

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- 80 SPEED LIMIT

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	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-14
WINE COUNTRY DR AND BROKE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1336

Rev.: 0

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0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-15 MCDONALDS RD AND POKOLBIN MOUNTAINS RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1306

Rev.: 0

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No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.P.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
	Drawn	C.P.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-17 WOLLOMBI RD AND MOUNT VIEW RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1345 Rev. 0

Document No.: 2583080-CA-ANC-1345.DWG

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- CONFLICT POINT
- 80 SPEED LIMIT

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0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
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	Dsg Verifier	C.OAKES	20.11.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-19 WOLLOMBI RD AND MT VIEW RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1304 Rev.: 0

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- 80 SPEED LIMIT

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No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-20 WOLLOMBI RD AND HAYES RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1305

Rev.: 0

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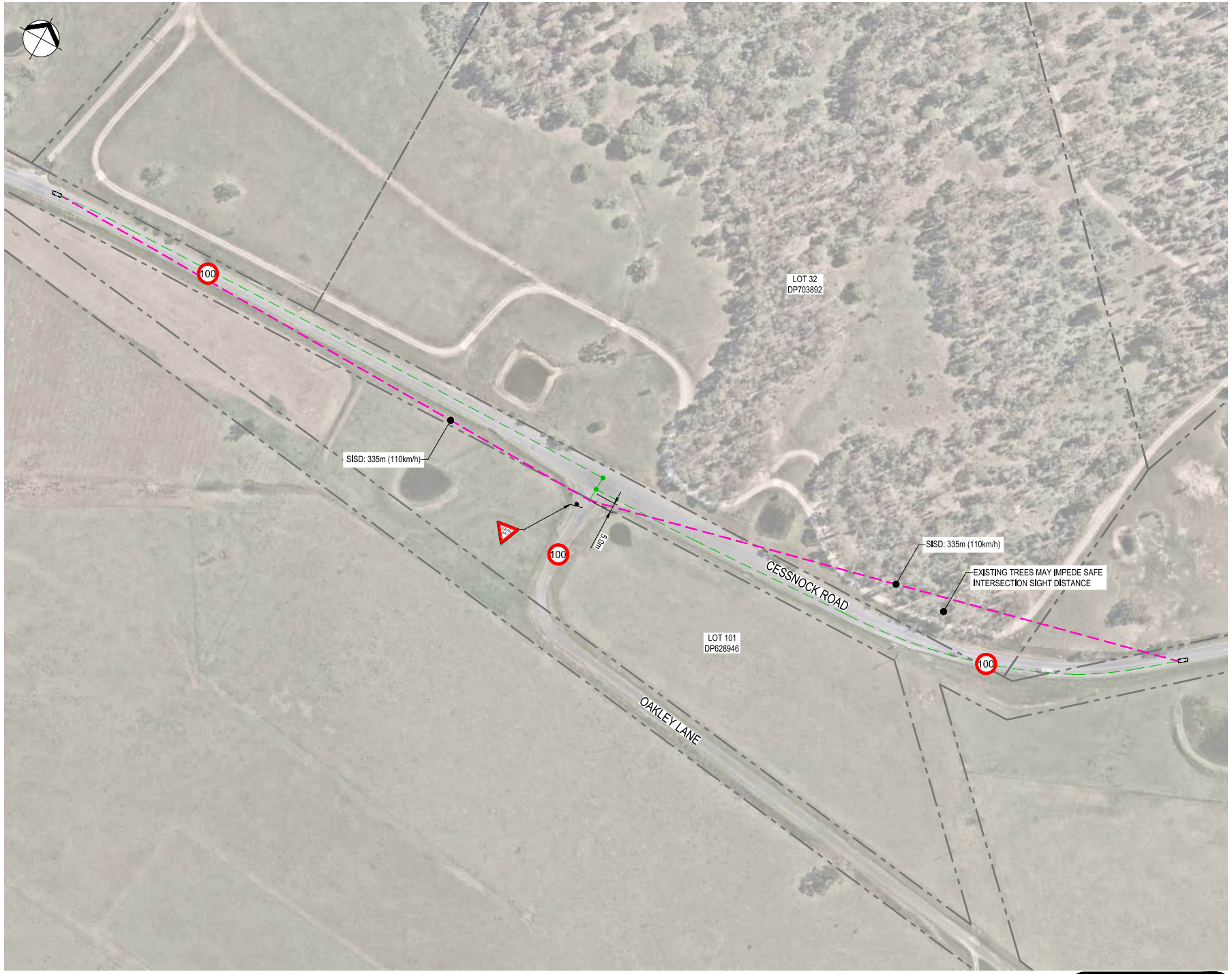

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-21a
CESSNOCK RD AND OAKLEY LN
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1307

Rev.: 0

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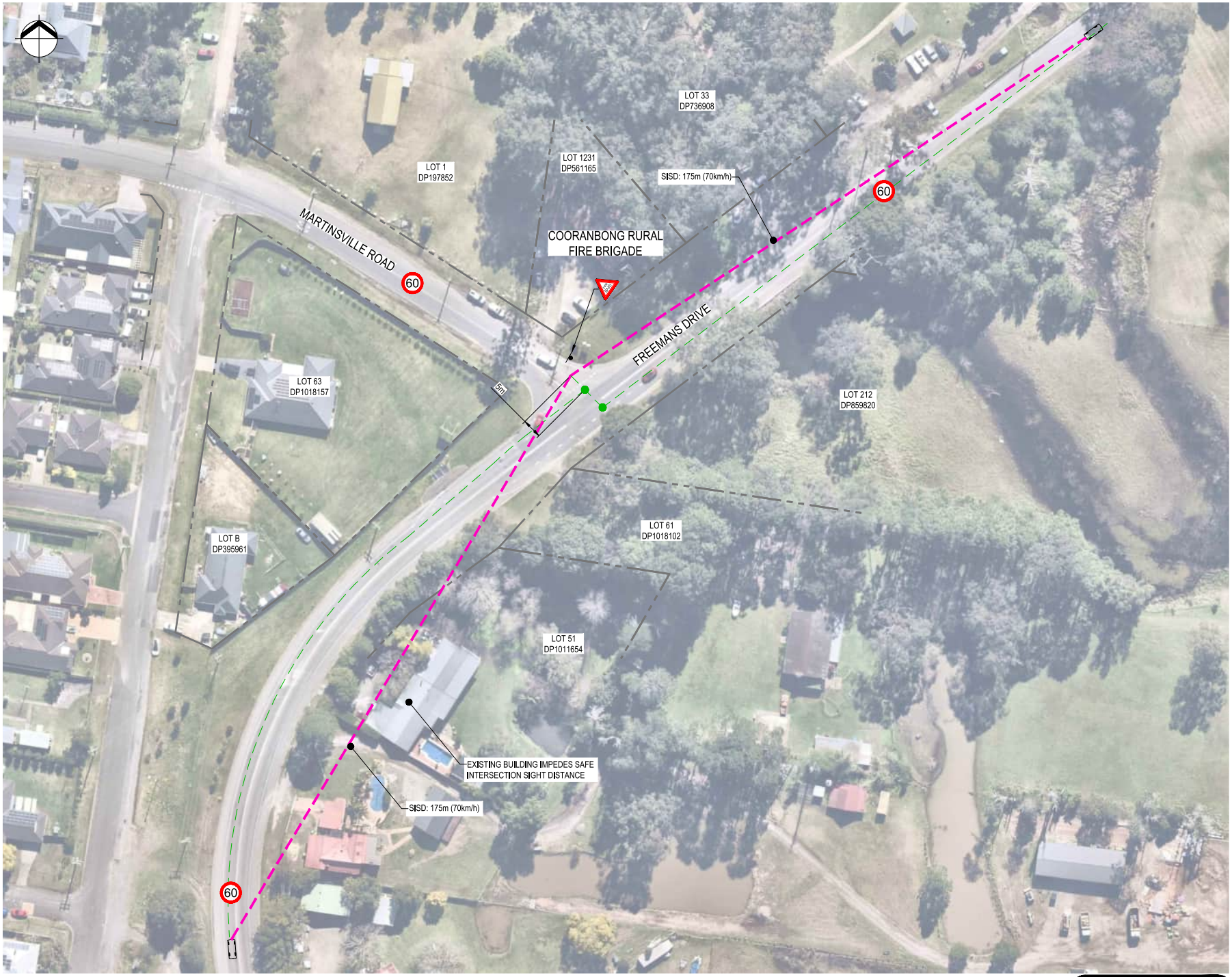

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-23
FREEMANS DR AND MARTINSVILLE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1301

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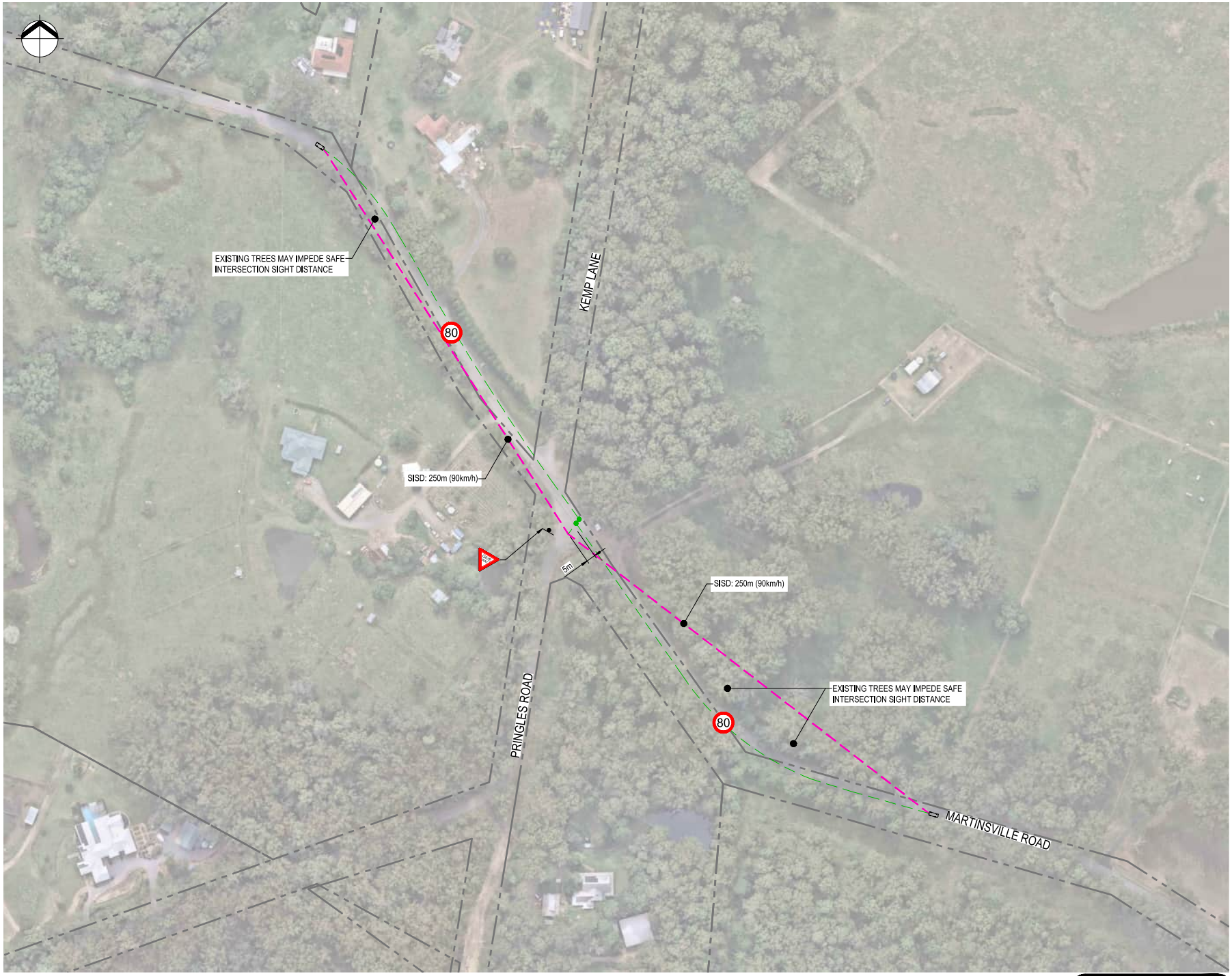

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-24 MARTINSVILLE RD AND PRINGLES RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1366 Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-25 MARTINSVILLE RD AND WATAGAN RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1302 | Beca Project Number: | Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-28 FREEMAN'S DR AND MOUNT FAULK RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1352

Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

CONCEPT DESIGN
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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	20.11.25	
	Dsg Verifier	C.OAKES	20.11.25	
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25	Date
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-29a
WANGI RD AND ROCKY POINT RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1320 | Rev.: 0

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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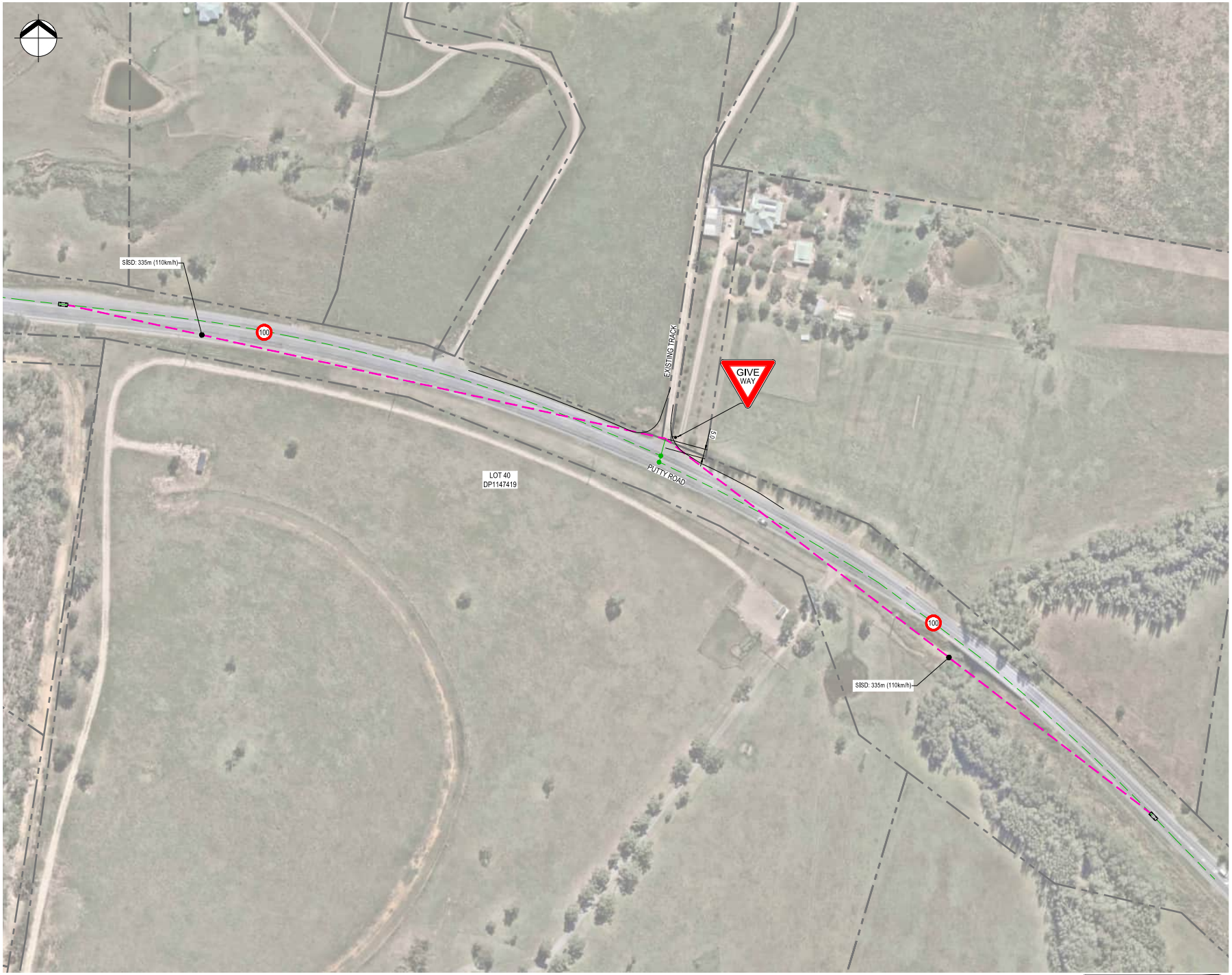

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-31 PUTTY RD AND EX TRACK OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1311

Rev.: 0

Document No.: 2583080-CA-ANC-1311.DWG

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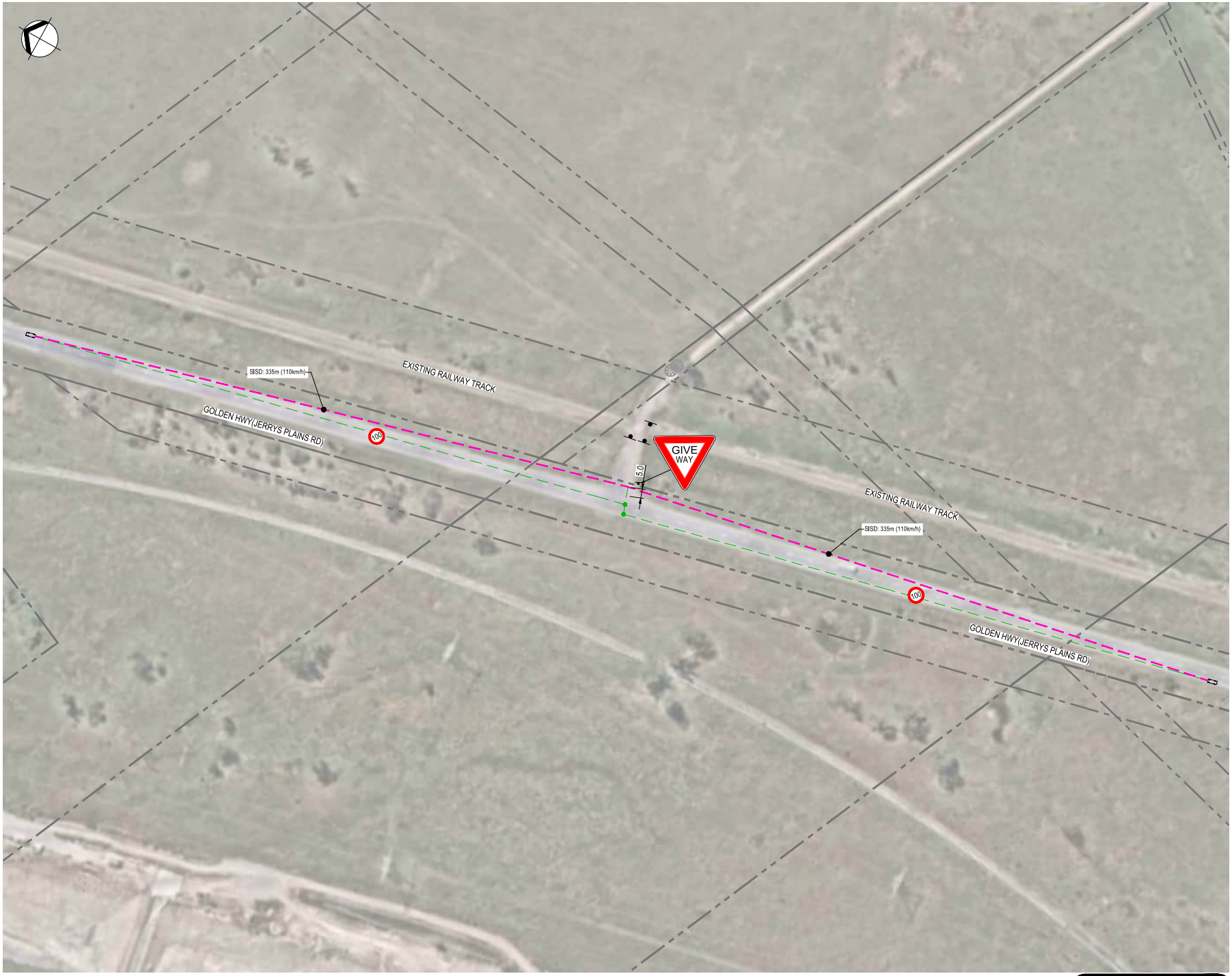

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	05.12.25
	Drawn	C.R.LAWRENCE	05.12.25
	Dsg Verifier	C.OAKES	05.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-32 GOLDEN HWY AND EX ACCESS (MTW) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1312

Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
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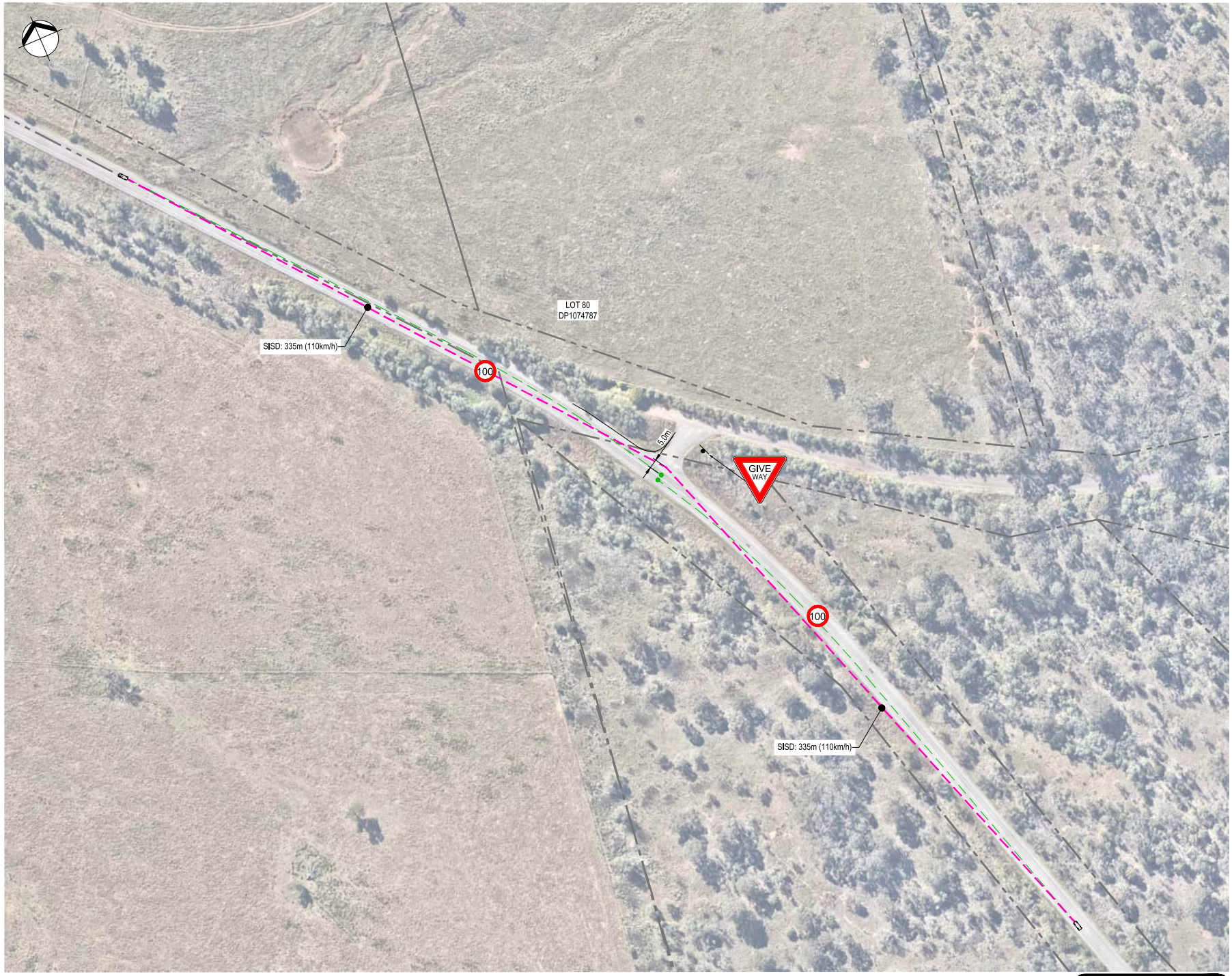

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.P.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.P.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-33 GOLDEN HWY AND UNKNOWN RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1323 Rev.: 0

Document No.: 2583080-CA-ANC-1323.DWG

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L	05.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	05.12.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	05.12.25	
	Dsg Verifier	C.OAKES	05.12.25	
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	05.12.25	Date
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-34 WOLLOMBI RD ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1326-1 | Rev.: 0

Document No.: 2583080-CA-ANC-1326-1.DWG

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:100m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:200m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-34 WOLLOMBI RD ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1326-2 Rev.: 0

Document No.: 2583080-CA-ANC-1326-2.DWG

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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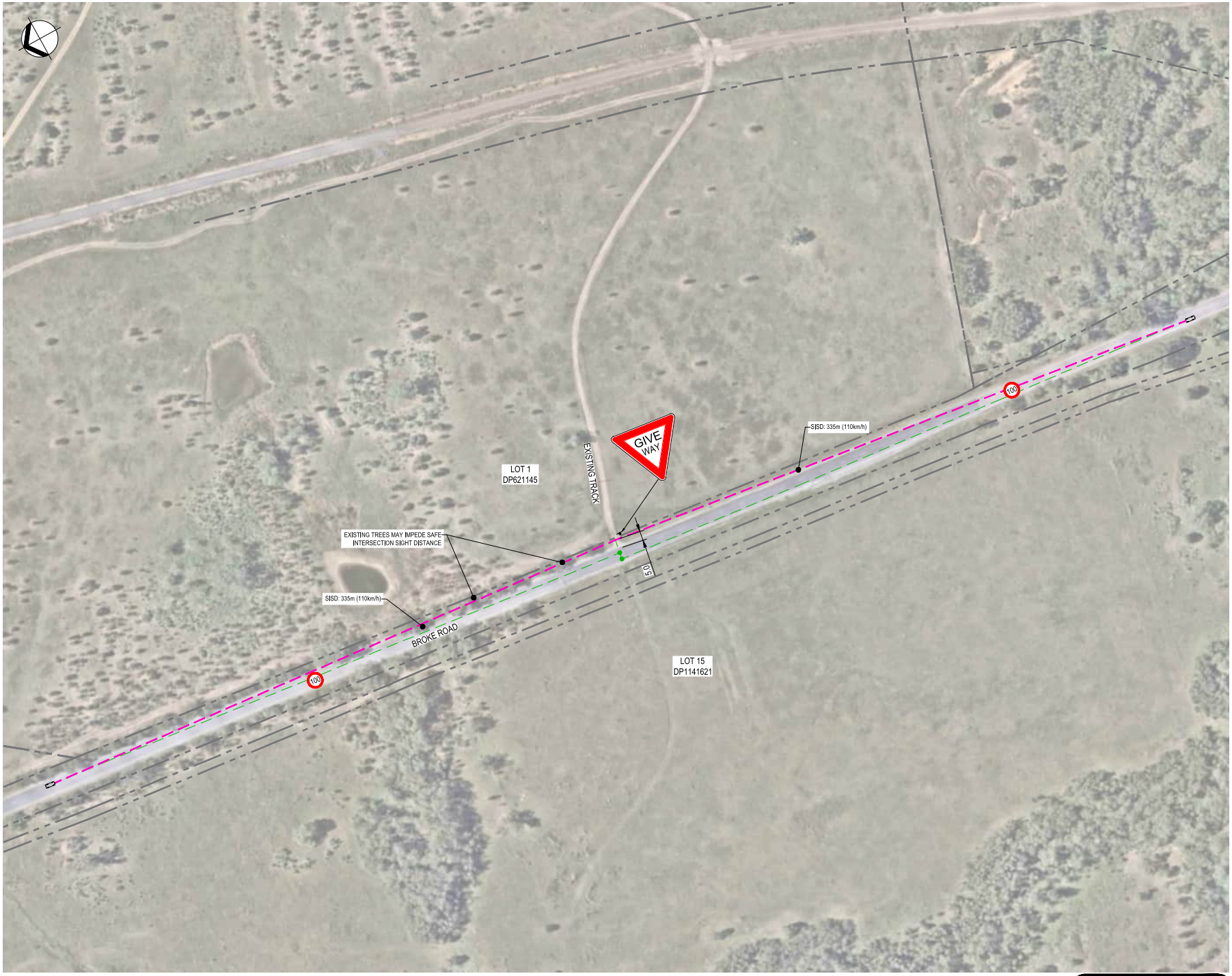

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-35
BROKE RD AND EX ACCESS (NEAR TOWER 111)
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1331 Rev.: 0

Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m) 0 10 20 40 60

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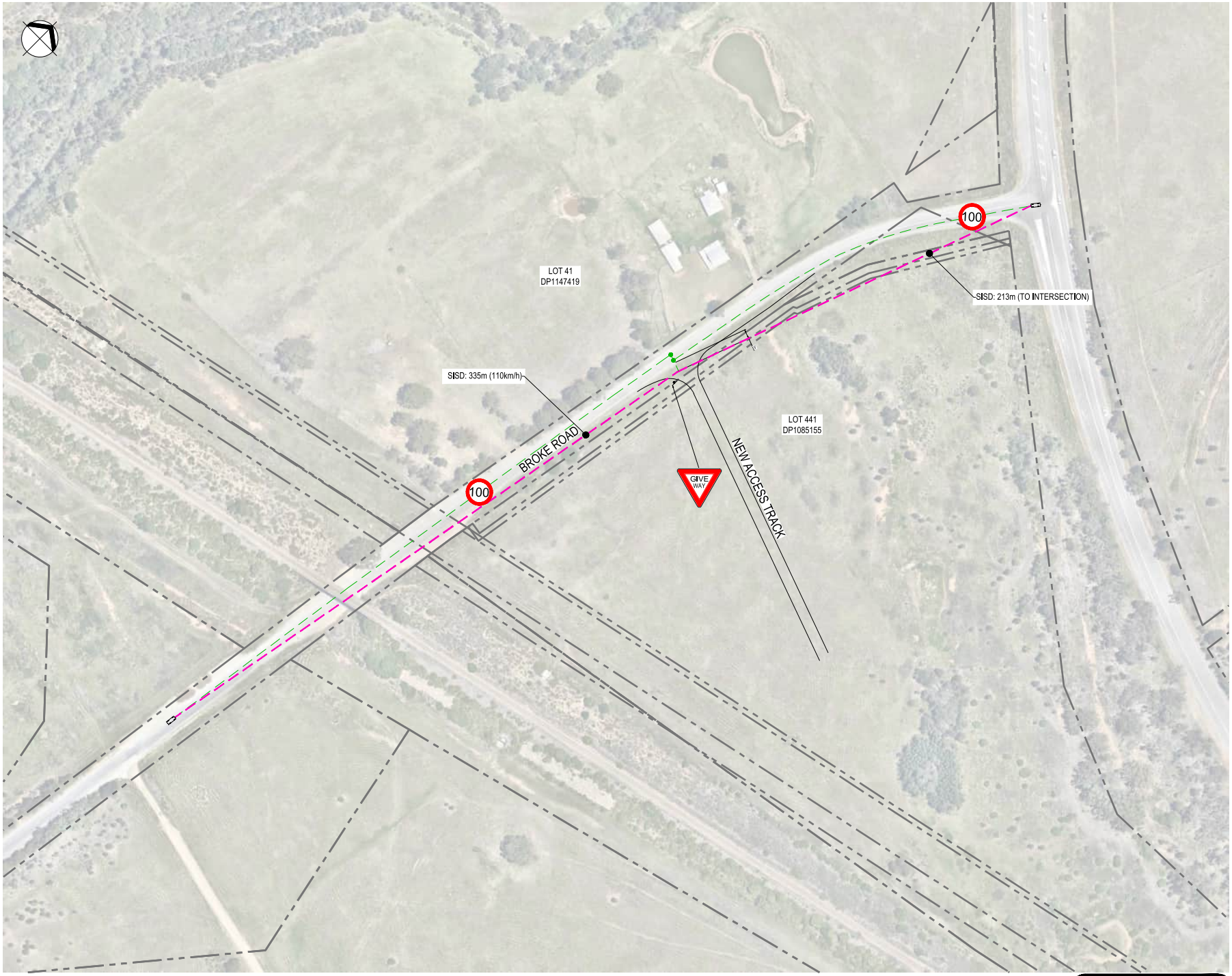

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LEGEND

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- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-36
BROKE RD AND EX ACCESS (NEAR TOWER 114)
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1332 Rev.: 0

Document No.: 2583080-CA-ANC-1332.DWG

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25
	Drawn	C.R.LAWRENCE	05.12.25
	Dsg Verifier	C.OAKES	05.12.25
Reduced Scale (A3)	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-37
CESSNOCK RD AND NEW ACCESS (TOWER 85)
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1308 Rev.: 0

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Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

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LEGEND

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- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-38
BROKE RD AND EX ACCESS (NEAR TOWER 95)
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1309

Rev.: 0

Document No.: 2583080-CA-ANC-1309.DWG

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Full Size A1 1:1000 : Half Reduction A3 1:2000
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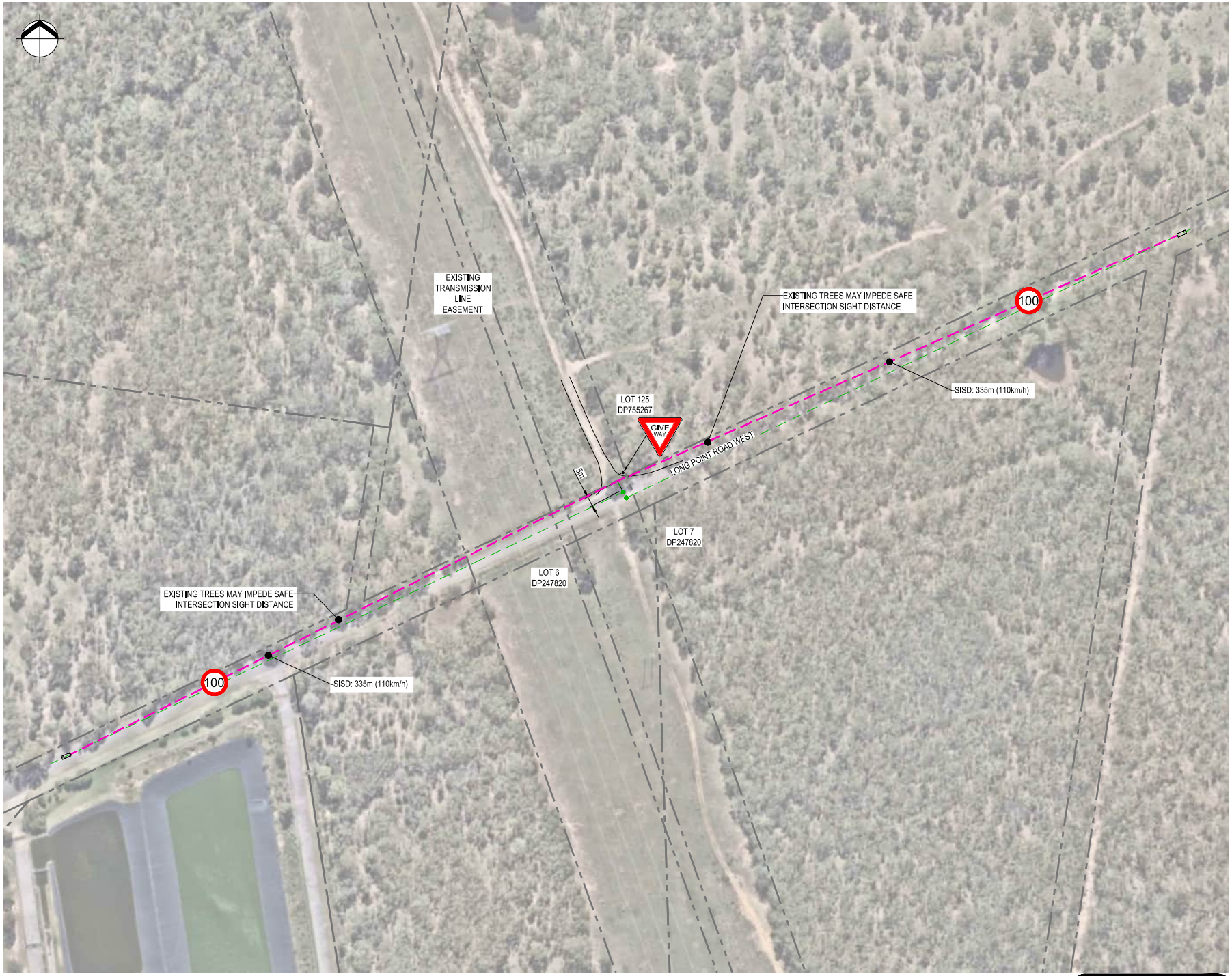

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	05.12.25
	Drawn	C.R.LAWRENCE	05.12.25
	Dsg Verifier	C.OAKES	05.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-40 LONG POINT RD W AND EX EASEMENT OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1313 Rev.: 0

Document No.: 2583080-CA-ANC-1313.DWG

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-41
LONG POINT RD W AND NEW ACCESS
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1333 Rev.: 0

Document No.: 2583080-CA-ANC-1333.DWG

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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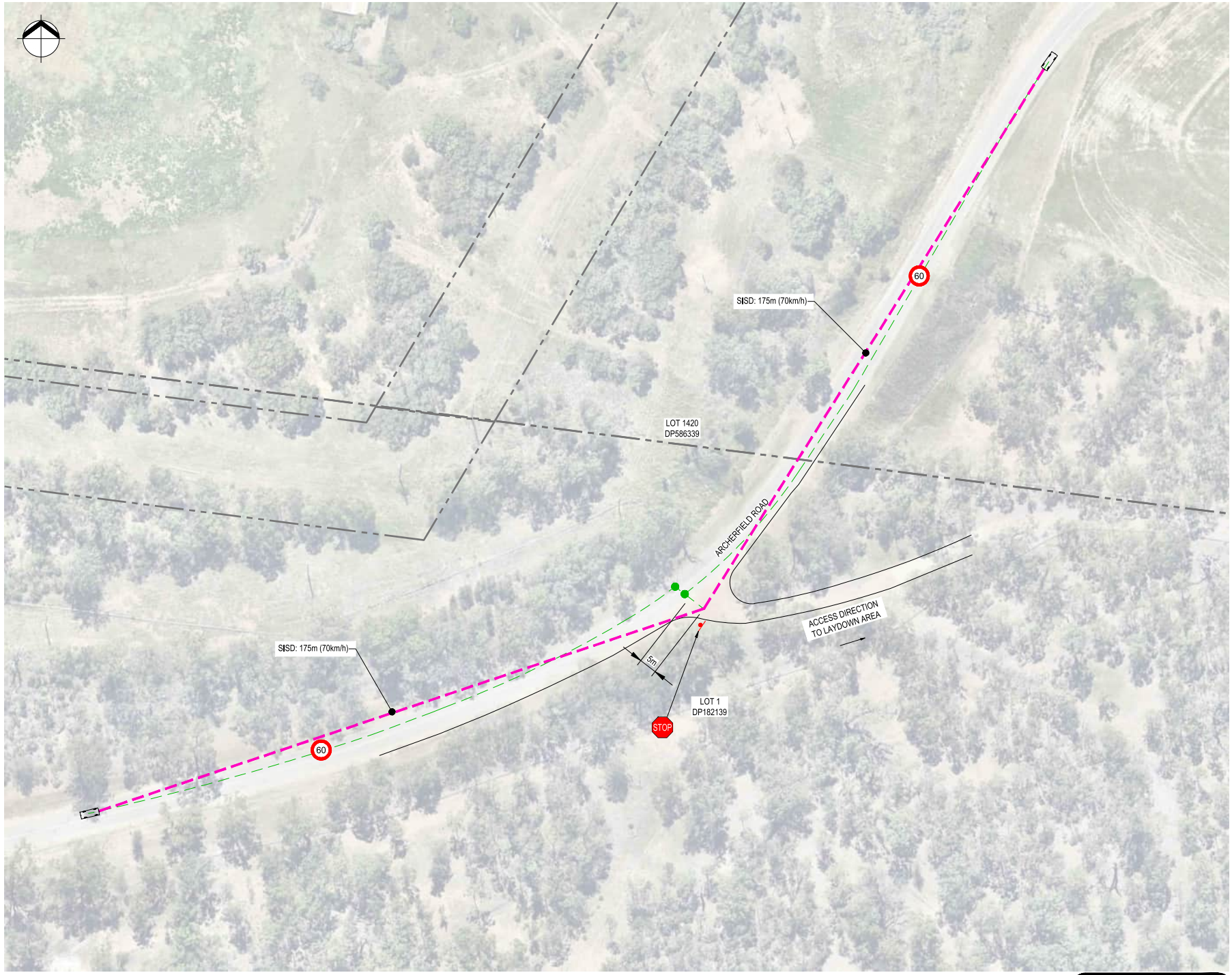

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	05.12.25	
	Dsg Verifier	C.OAKES	05.12.25	
Reduced Scale (A3)	Drg Check	B.STRANG	05.12.25	Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-42 ARCHERFIELD RD AND EX ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1314 Rev.: 0

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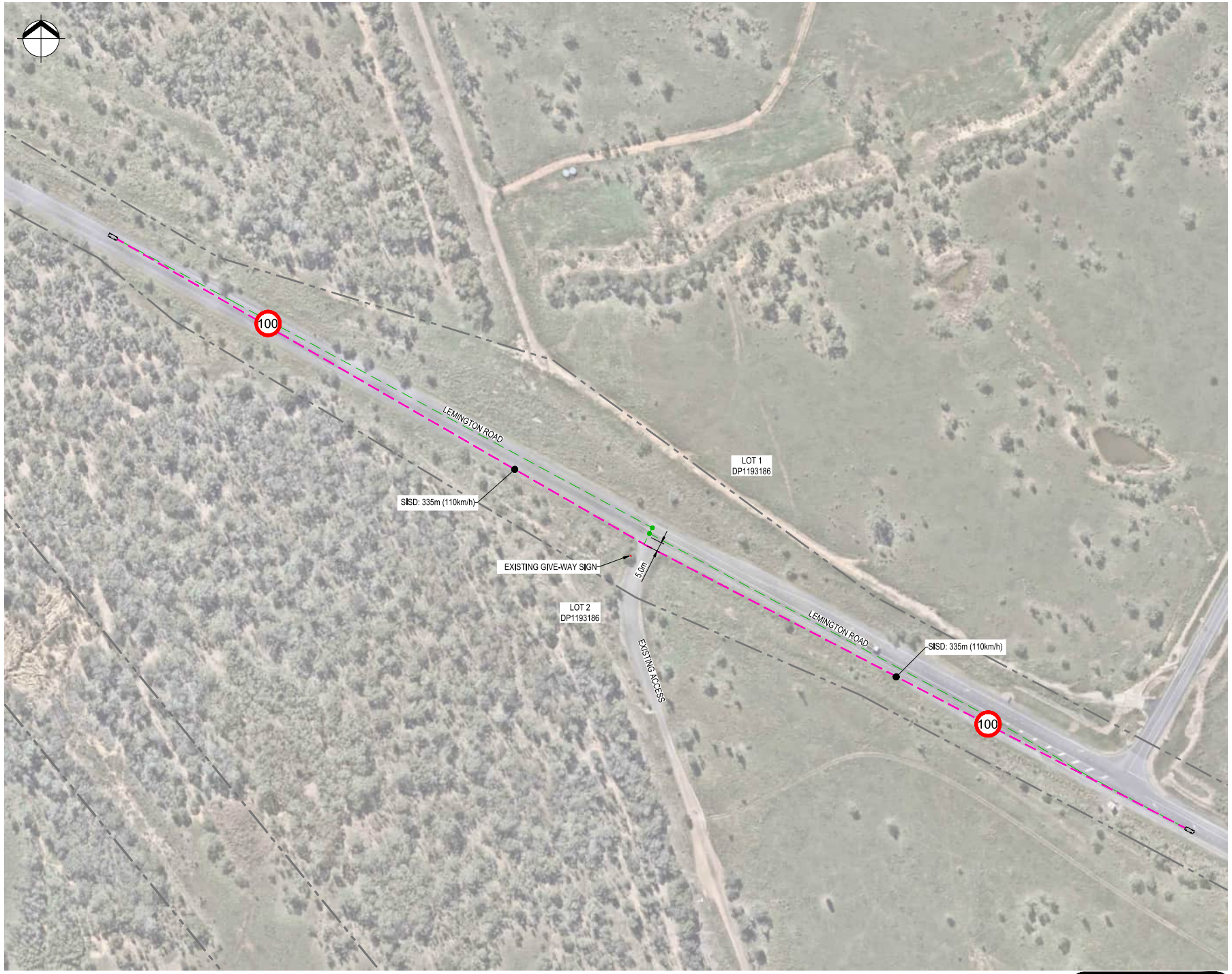

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	05.12.25	
	Dsg Verifier	C.OAKES	05.12.25	
Reduced Scale (A3)	Drg Check	B.STRANG	05.12.25	Date
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-43 LEMINGTON RD AND EX ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1315 Rev.: 0

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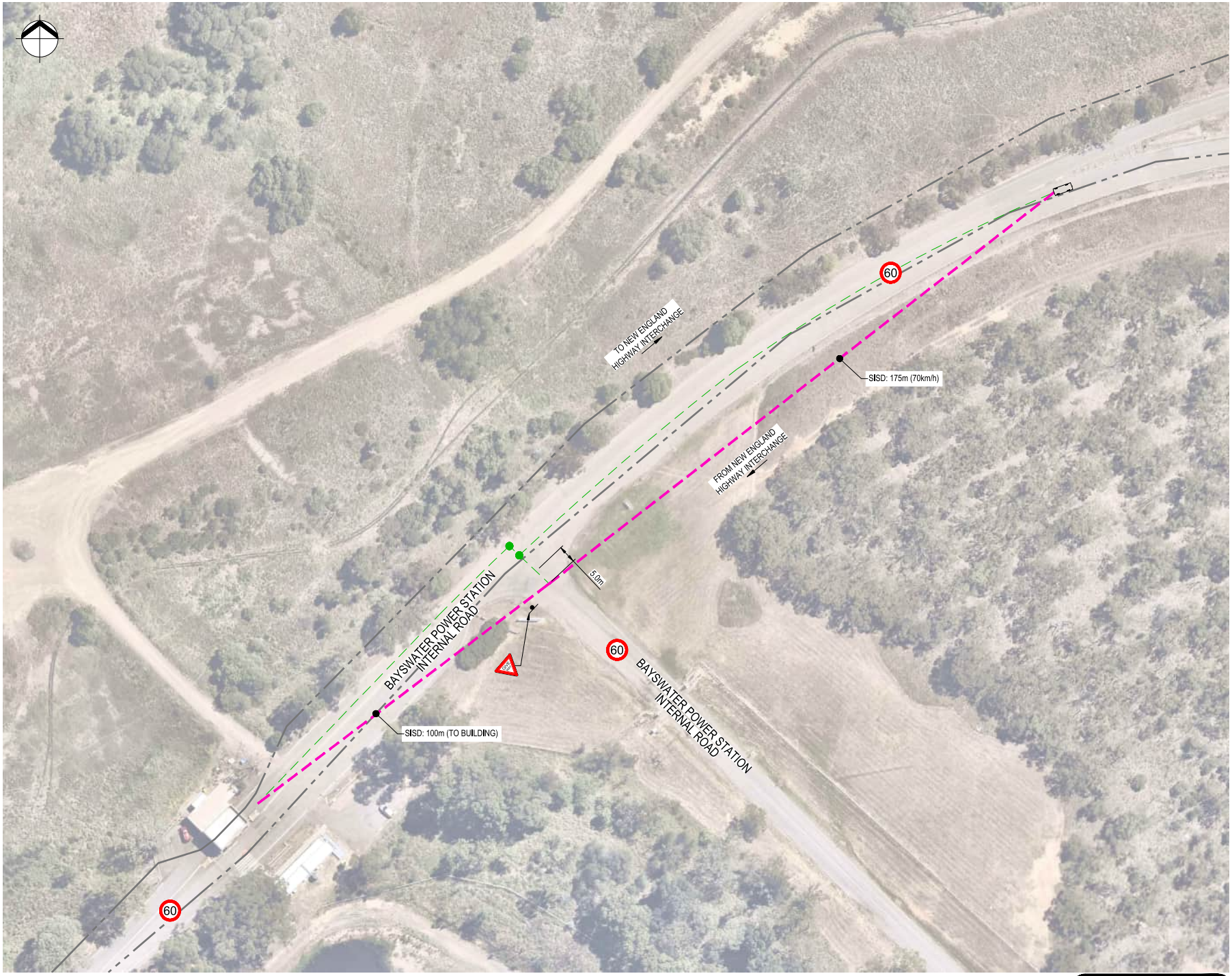

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-44
MAIN ACCESS TO BAYSWATER SITE
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1318 Rev.: 0

Document No.: 2583080-CA-ANC-1318.DWG

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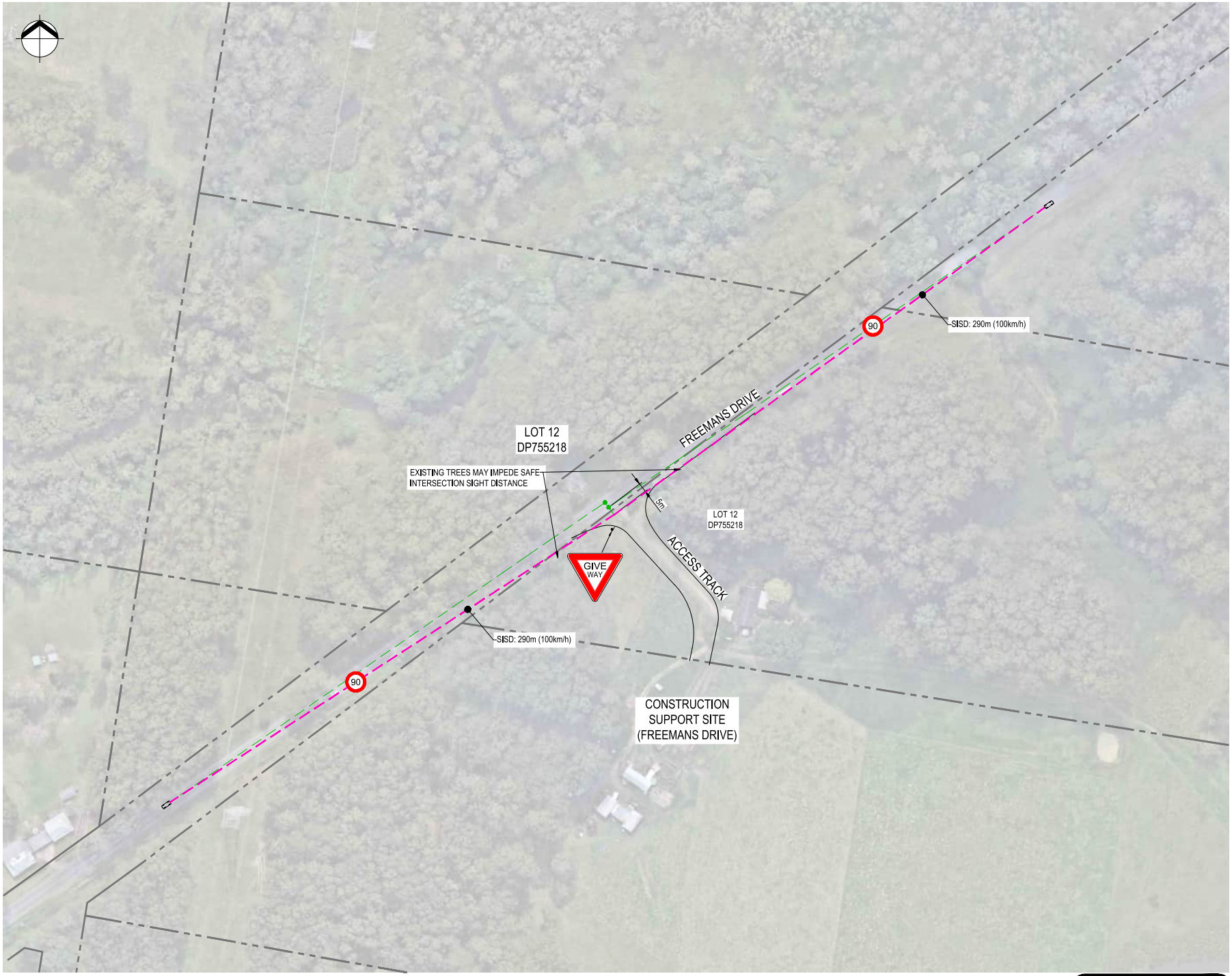

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-45 FREEMANS DR AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1330-1

Rev.: 0

Full Size A1 1:1000 : Half Reduction A3 1:2000 SCALE (m)

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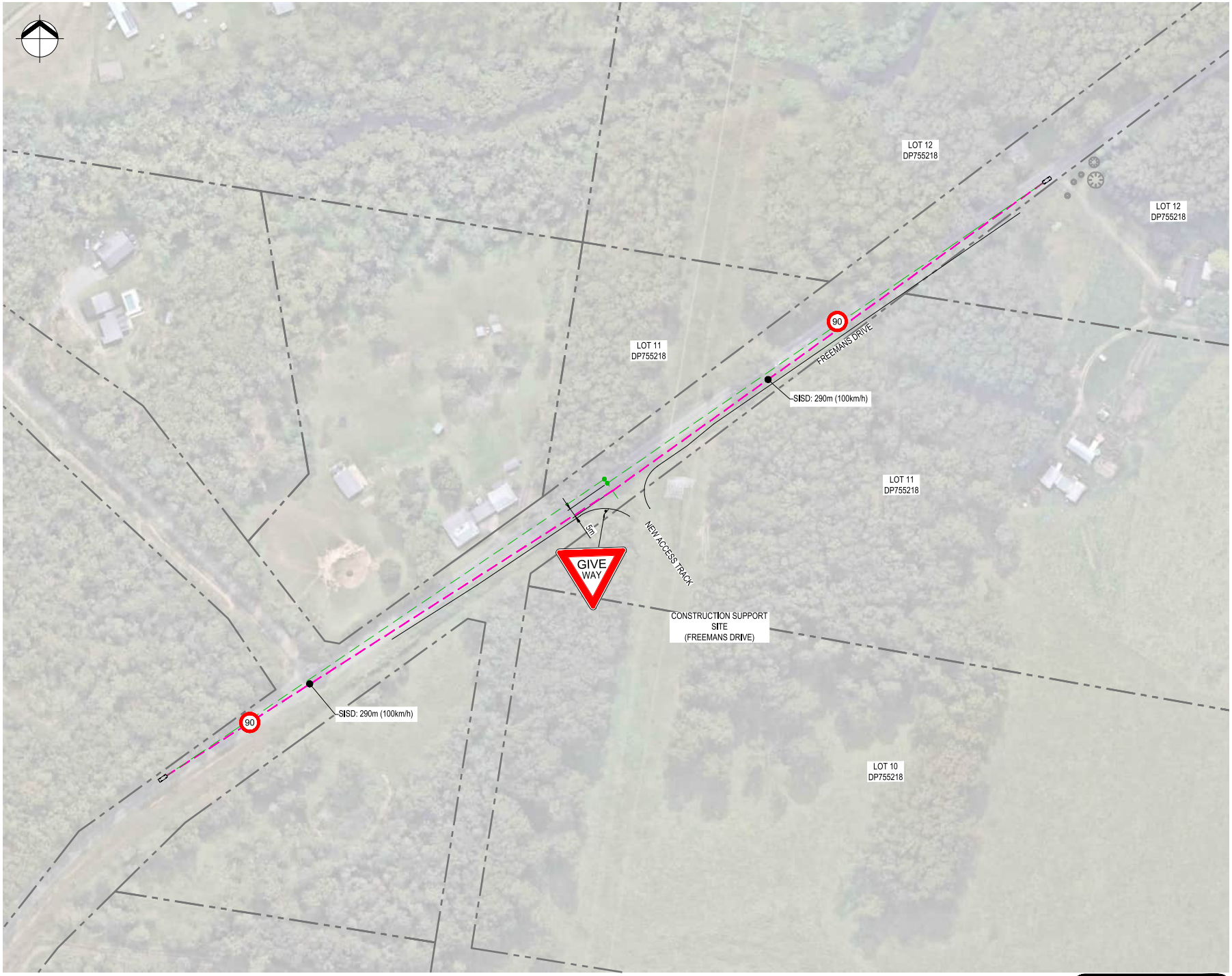

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-45 FREEMANS DR AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1330-2

Rev.: 0

Document No.: 2583080-CA-ANC-1330-2.DWG

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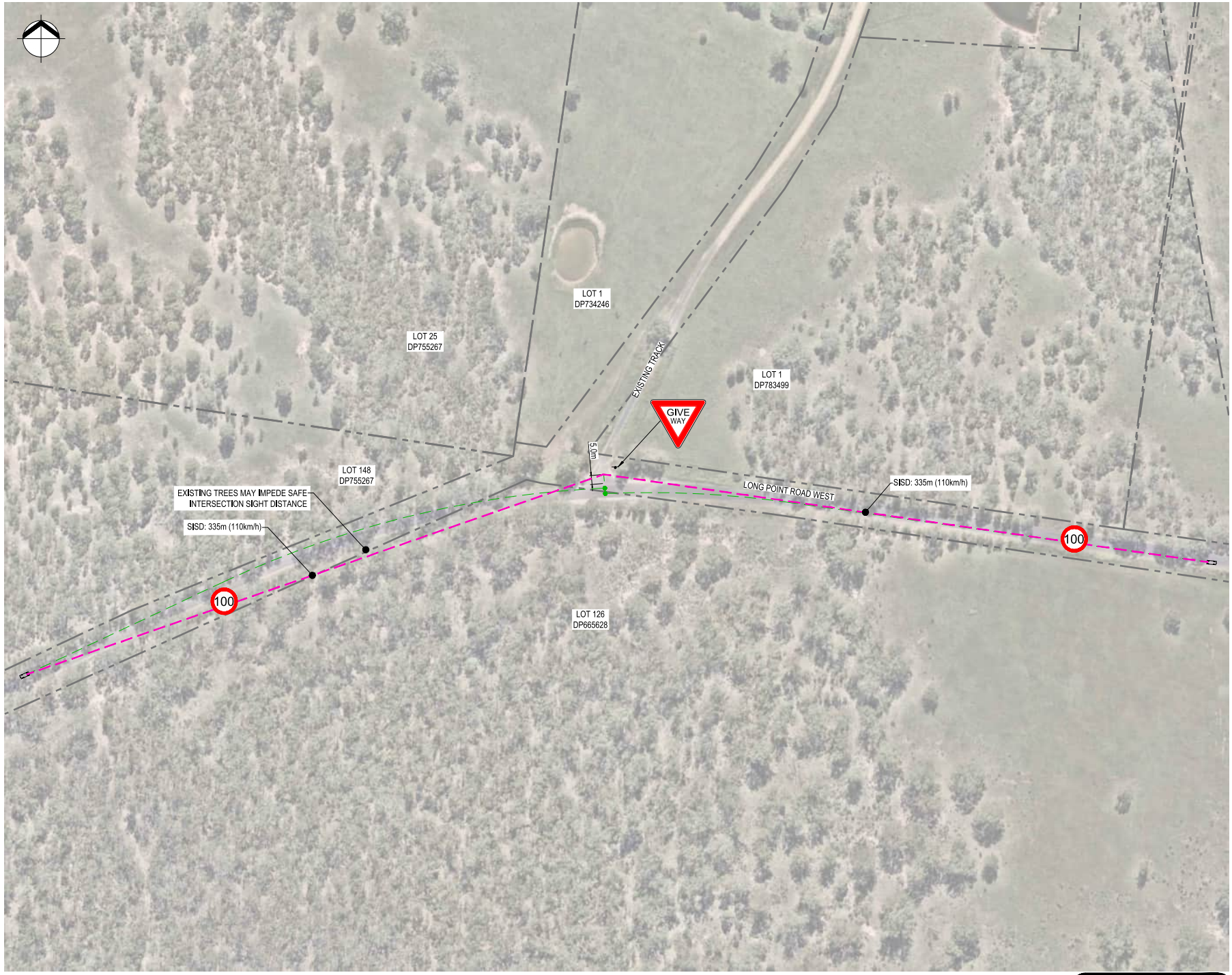

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-46
LONG POINT RD W AND EX TRACK
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1343

Rev.: 0

Document No.: 2583080-CA-ANC-1343.DWG

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Full Size A1 1:1000 : Half Reduction A3 1:2000
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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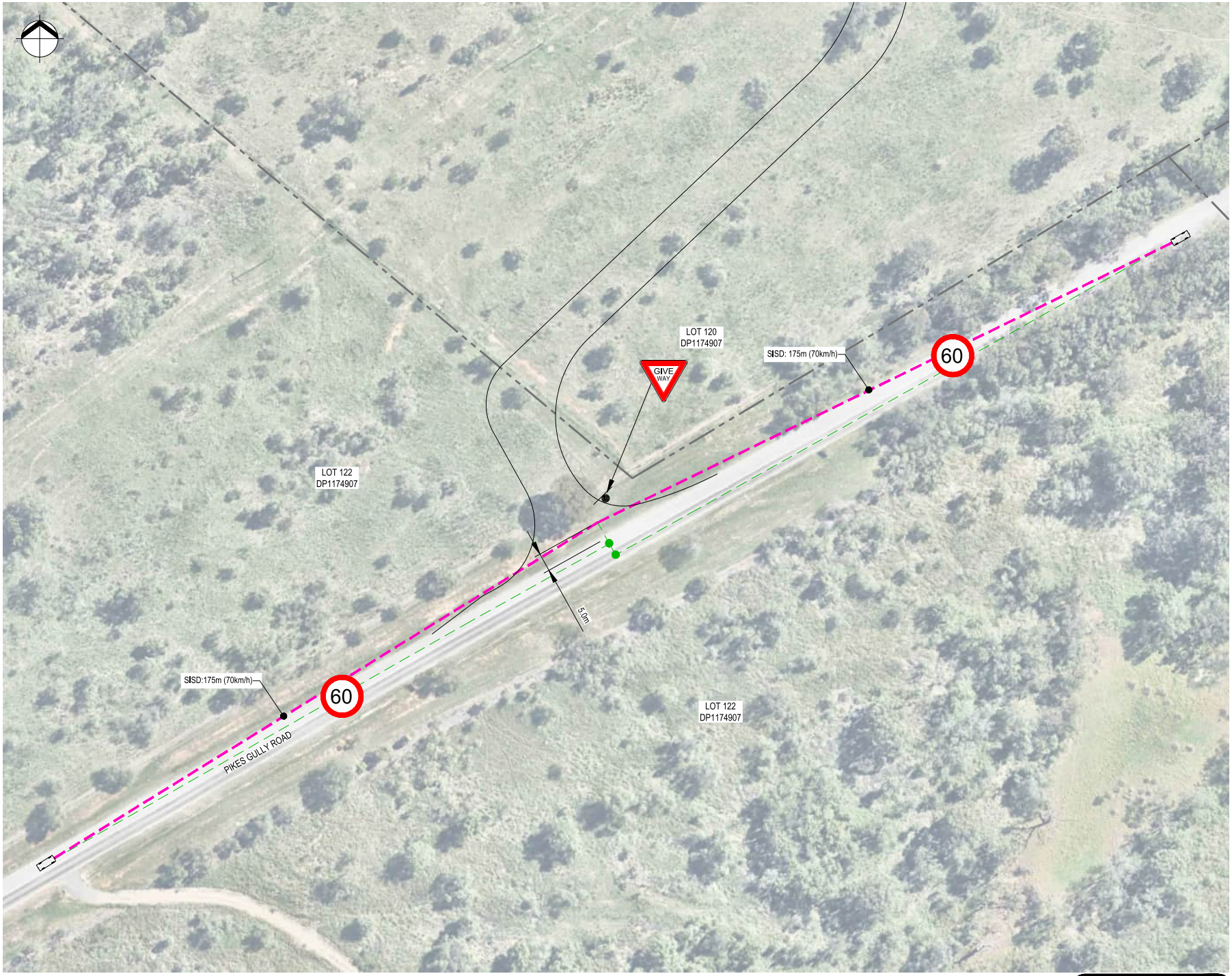

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	05.12.25	
	Dsg Verifier	C.OAKES	05.12.25	
Reduced Scale (A3)	Drg Check	B.STRANG	05.12.25	Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-47
PIKES GULLY RD AND ACCESS TO CSS
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1334 Rev.: 0

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Full Size A1 1:500 ; Half Reduction A3 1:1000
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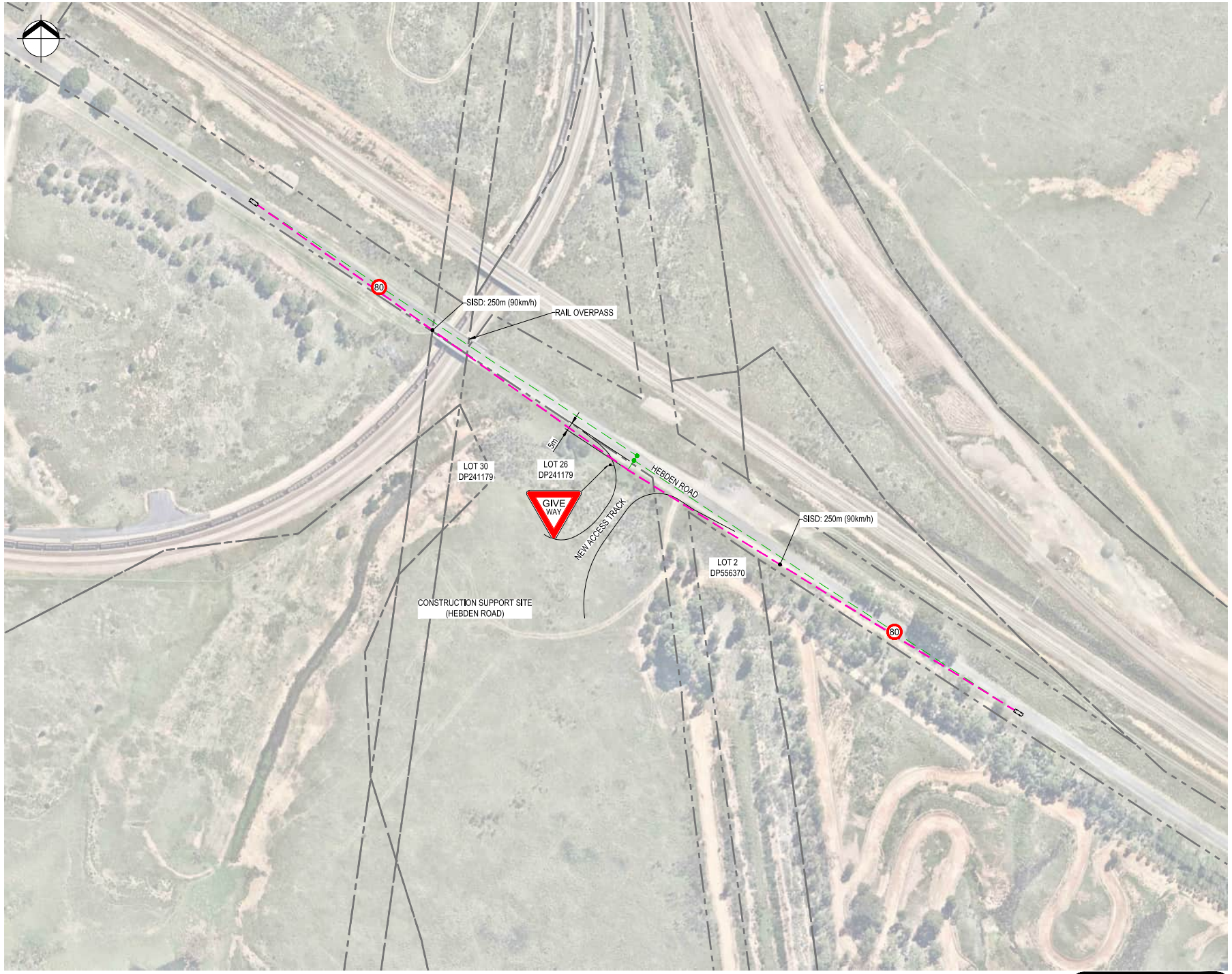

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

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No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-48 HEBDEN RD AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1319 Rev.: 0

Document No.: 2583080-CA-ANC-1319.DWG

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.P.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.P.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-49 LEMINGTON RD AND OLD LEMINGTON RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1316-1

Rev.: 0

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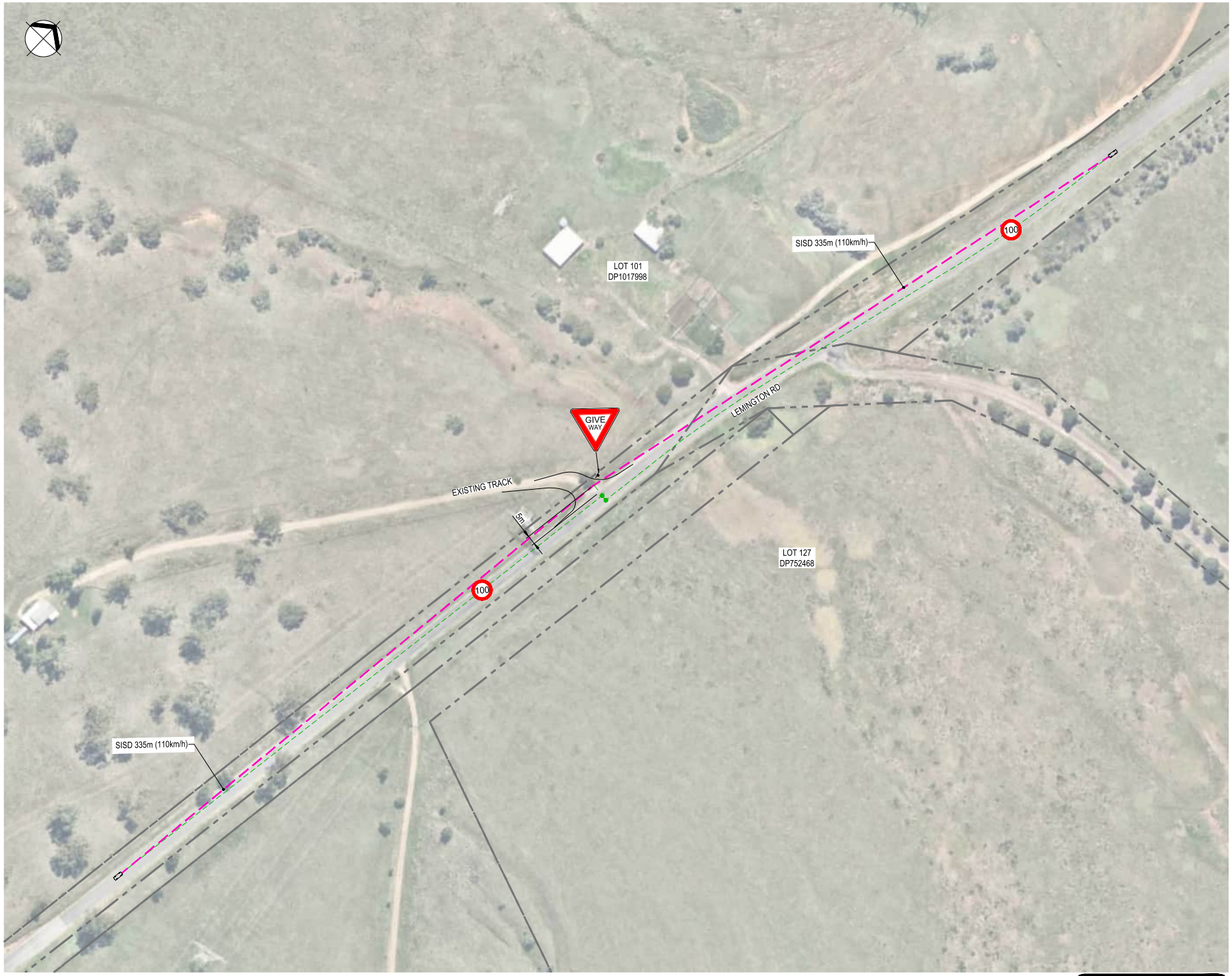

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LEGEND

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- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
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	Drawn	C.P.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-50 LEMINGTON RD AND PROPOSED ACCESS RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1316-2 Rev.: 0

Document No.: 2583080-CA-ANC-1316-2.DWG

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SCALE (m)

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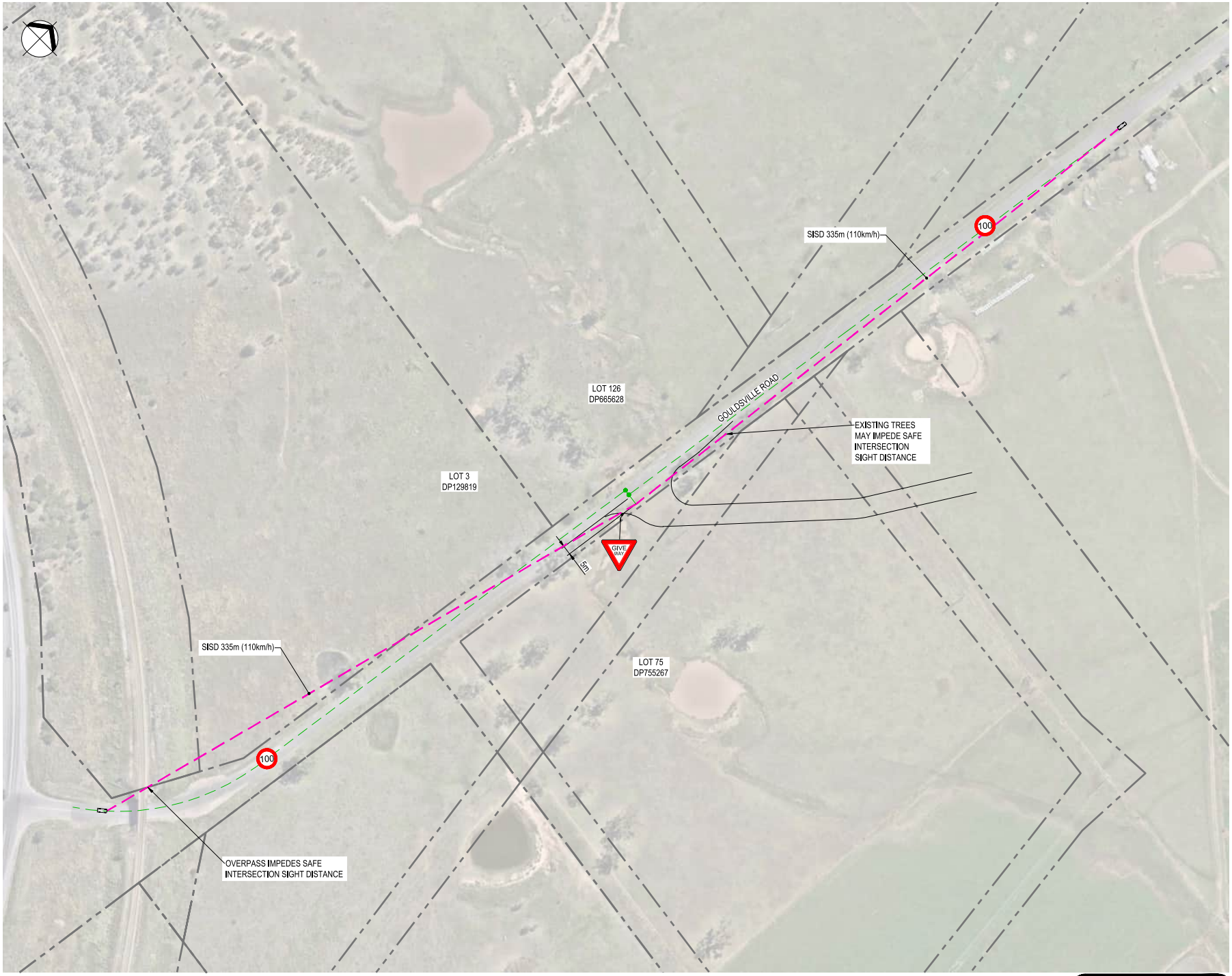

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25
	Drawn	C.R.LAWRENCE	05.12.25
Reduced Scale (A3)	Dsg Verifier	C.OAKES	05.12.25
	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-51 GOULDSVILLE RD AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1327 Rev.: 0

Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m) 0 10 20 40 60

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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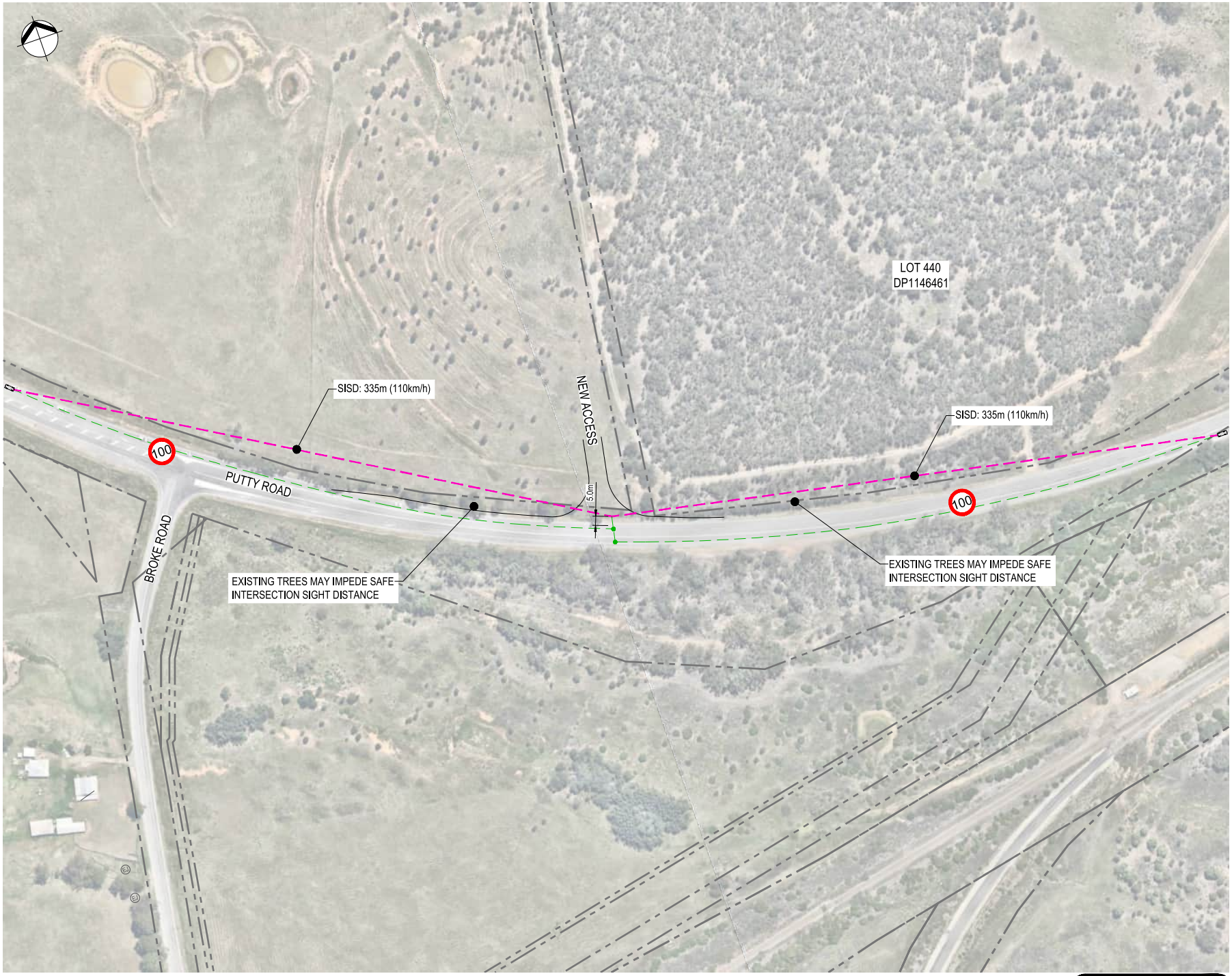
Document No.: 2583080-CA-ANC-1327.DWG



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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L	20.11.25

Original Scale (A1) 1:1250m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2500m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-52
PUTTY ROAD AND NEW ACCESS
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1329

Rev.: 0

Full Size A1 1:1250 ; Half Reduction A3 1:2500
SCALE (m)
0 12.5 25 50 75

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-53
CESSNOCK RD AND NEW ACCESS (TOWER 84)
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1340 | Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	05.12.25

Original Scale (A1)	Design	R.ANDERSON	05.12.25
	Drawn	C.R.LAWRENCE	05.12.25
	Dsg Verifier	C.OAKES	05.12.25
Reduced Scale (A3)	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-54 WOLLOMBI RD AND NEW ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1342

Rev.: 0

Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m) 0 10 20 40 60

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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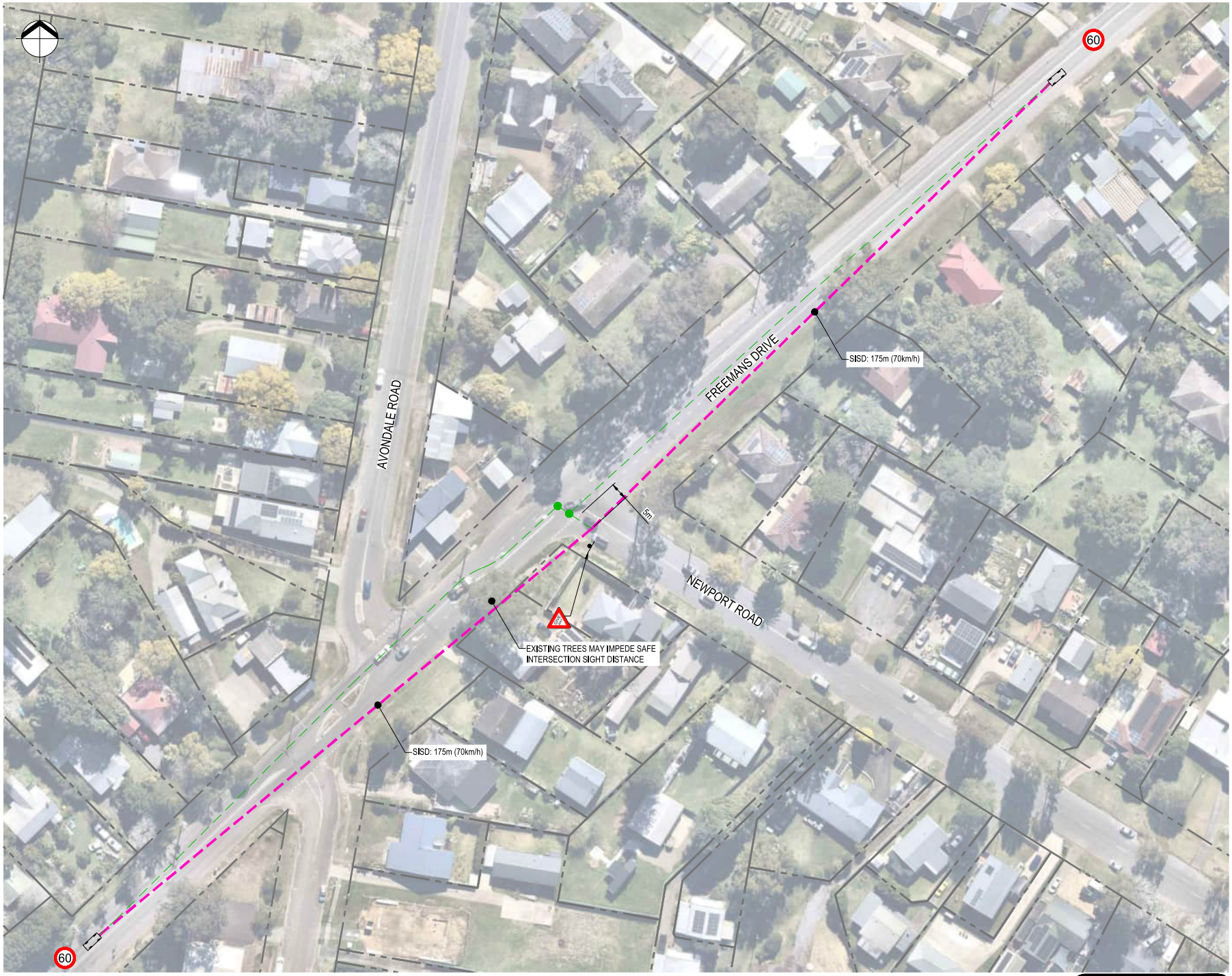

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-57 FREEMANS DR AND NEWPORT RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1363

Rev.: 0

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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LEGEND

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- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-58 FREEMAN'S DR AND MOUNT NELINDA RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1364 Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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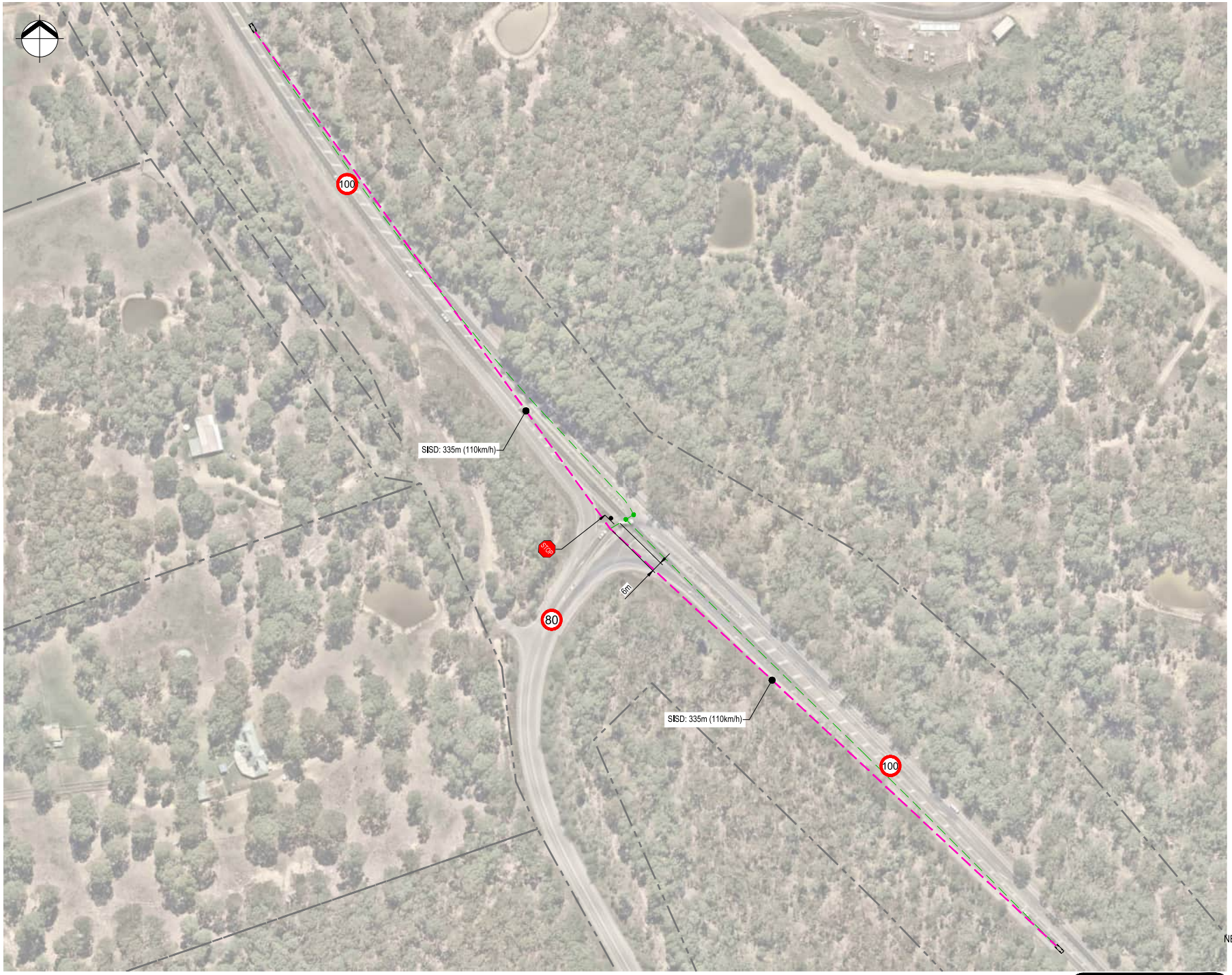

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-59 NEW ENGLAND HWY AND THOMAS MITCHELL DR OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1353 | Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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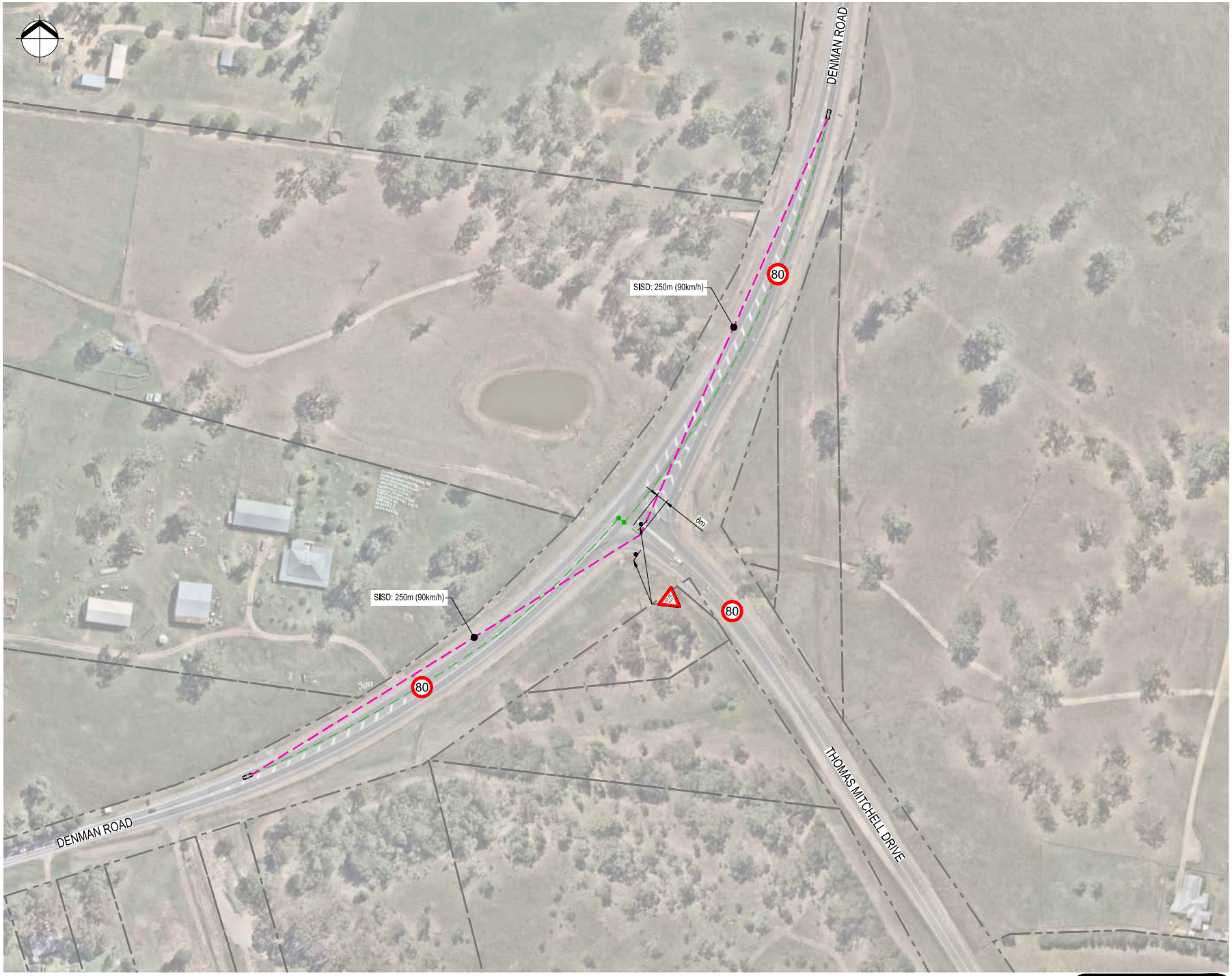

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-60
DENMAN RD AND THOMAS MITCHELL DR
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1354 Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-61 DENMAN RD AND EDDERTON RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1355

Rev.: 0

Document No.: 2583080-CA-ANC-1355.DWG

0 10 20 40 60
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SCALE (m)

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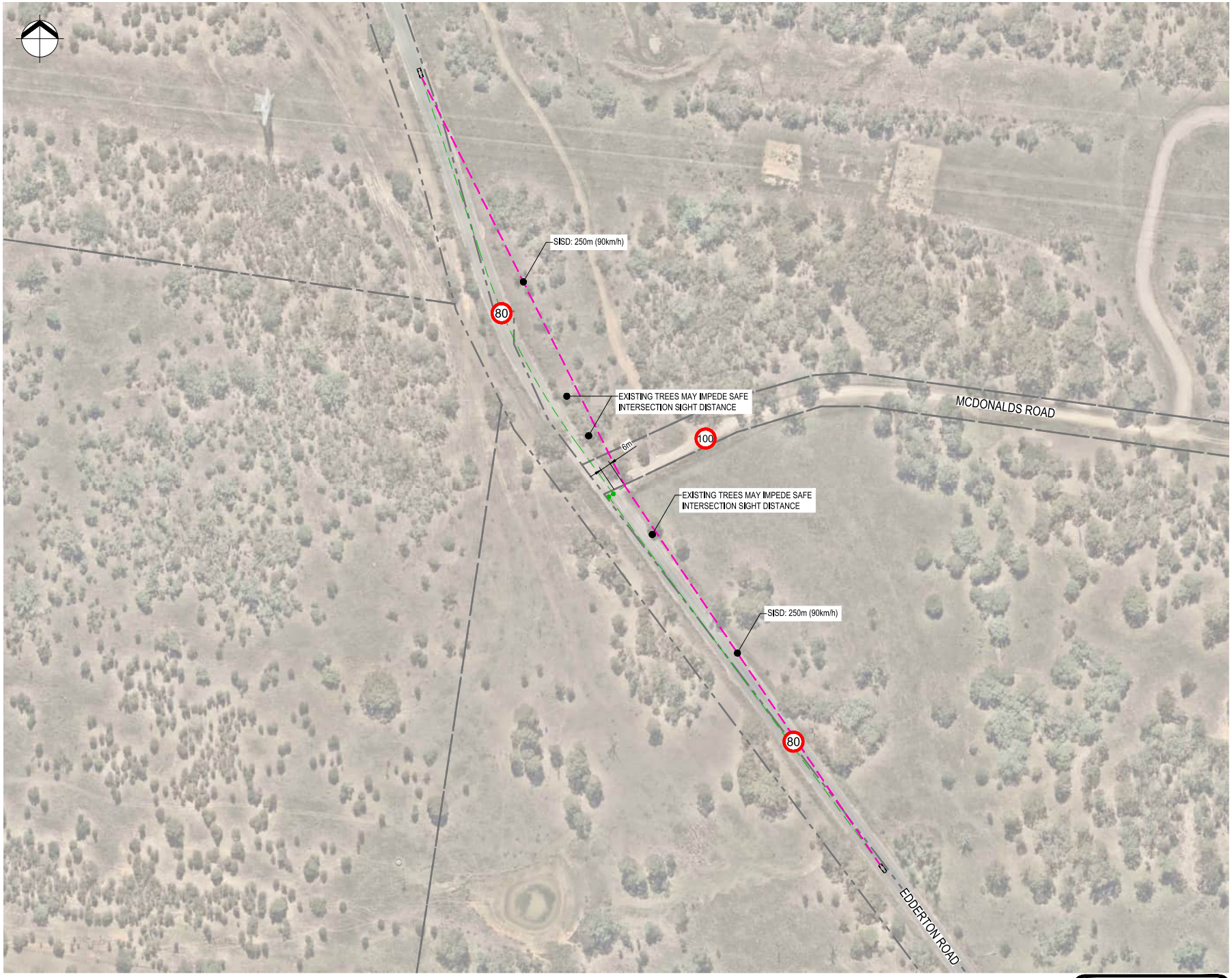

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	20.11.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-62 EDDERTON RD AND MCDONALD RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1356

Rev.: 0

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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LEGEND

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-67 NEWPORT RD AND GRADWELLS RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1361

Rev.: 0

Document No.: 2583080-CA-ANC-1361.DWG

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- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	20.11.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	C.OAKES	20.11.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-68 GRADWELLS RD AND HAWKE MOUNT ROAD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1362

Rev.: 0

0 5 10 20 30
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SCALE (m)

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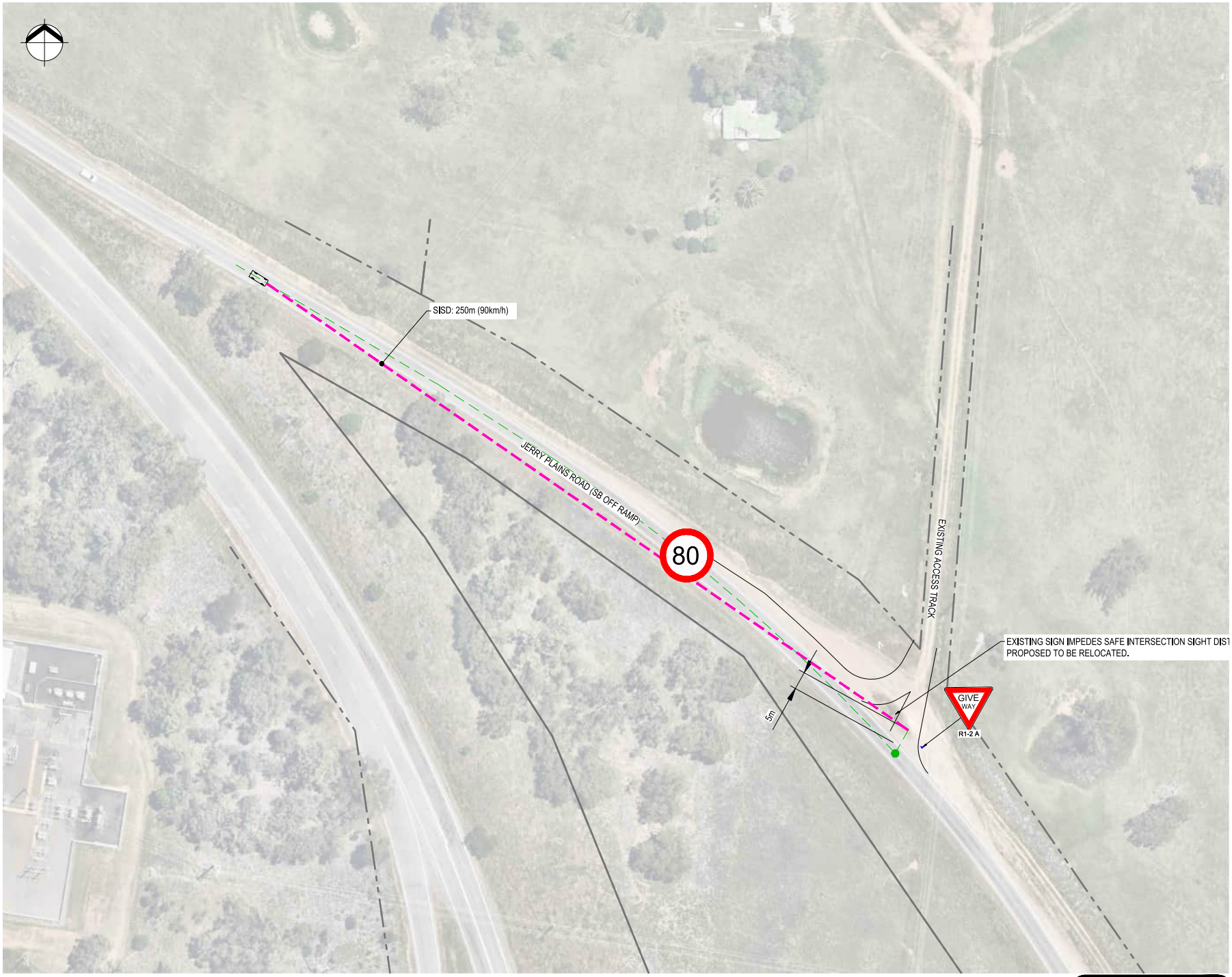

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1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- CADASTRE (INDICATIVE ONLY)
- SAFE INTERSECTION SIGHT DISTANCE
- VEHICLE TRAVEL PATH
- CONFLICT POINT
- 80 SPEED LIMIT

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	C.R.L	B.S.	A.L.	12.12.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	12.12.25
	Drawn	C.R.LAWRENCE	12.12.25
	Dsg Verifier	C.OAKES	12.12.25
Reduced Scale (A3) 1:2000m	Drg Check	B.STRANG	12.12.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: SISD ASSESSMENT - I-69 JERRY PLAINS RD (SB RAMP) AND EX TRACK OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1367 Rev.: 0

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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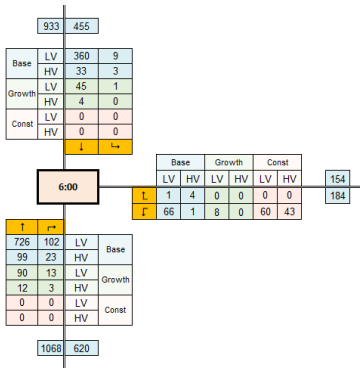
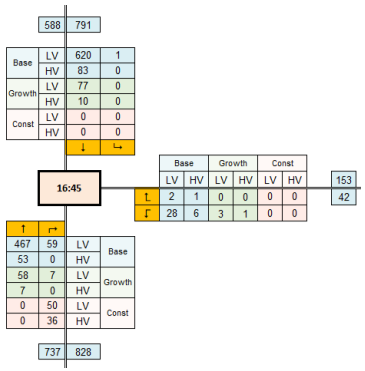
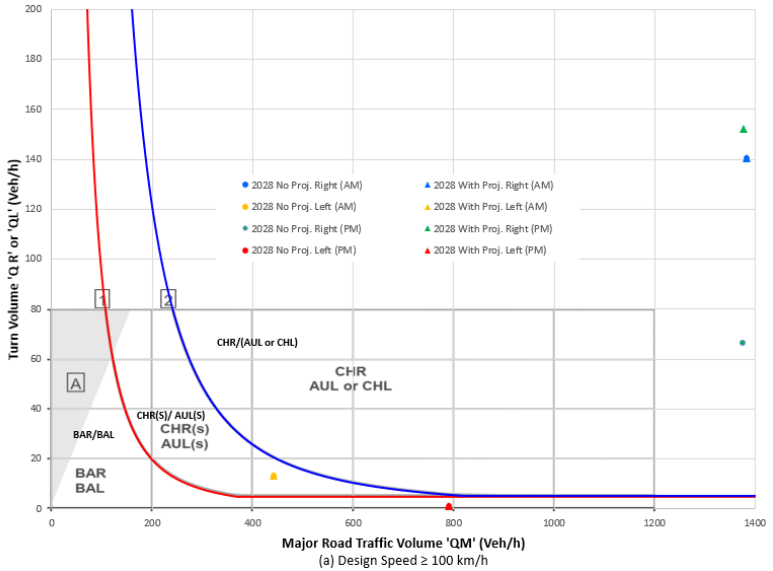
Document No.: 2583080-CA-ANC-1367.DWG

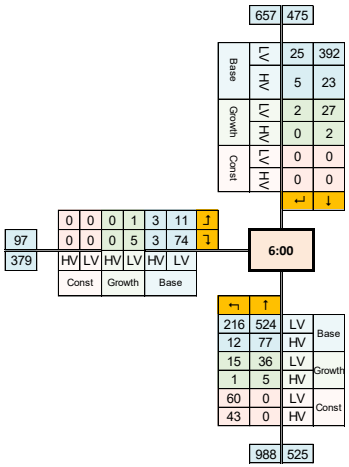
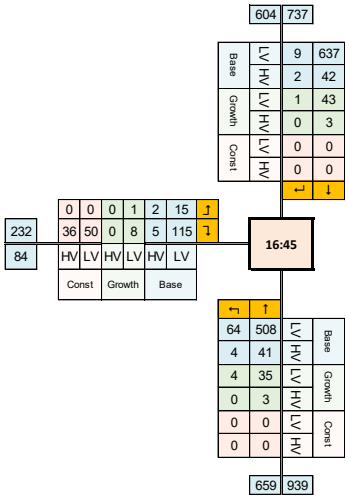
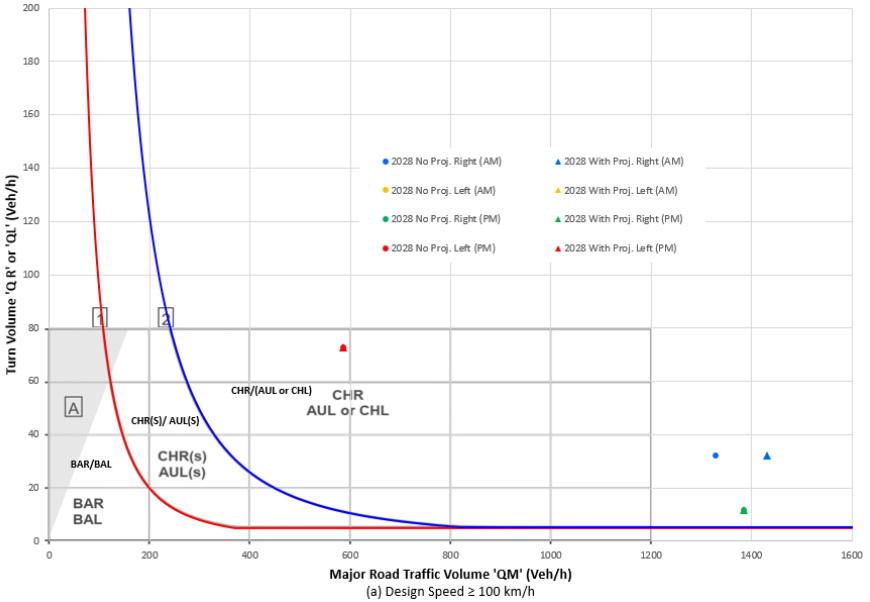
APPENDIX C

PROPOSED ACCESS INTERECTIONS – TURN WARRANTS

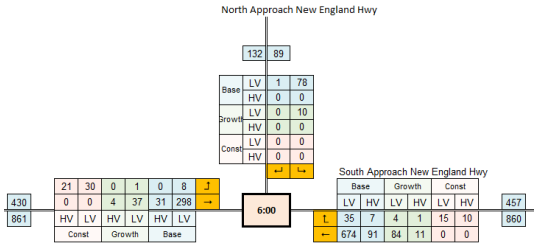
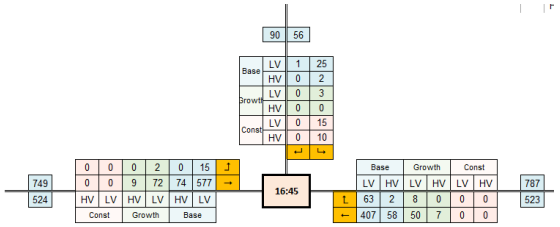
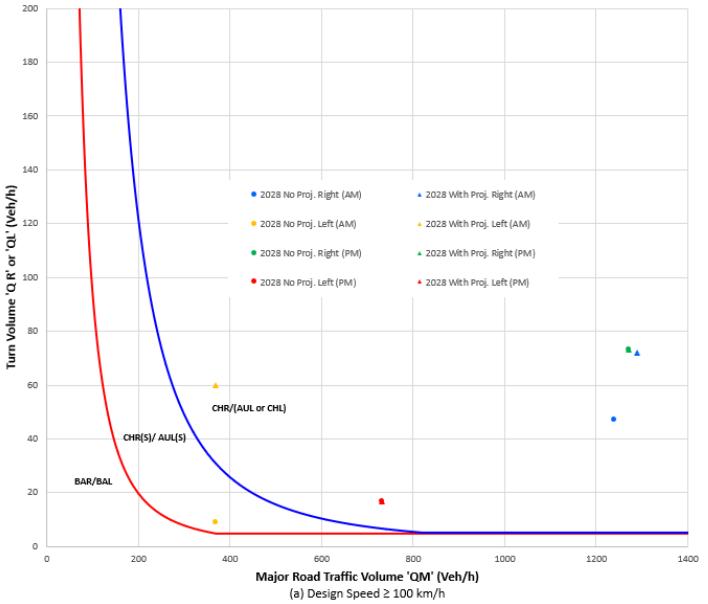
I-01a: New England Highway/Hebden Road (north) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-01a	New England Highway and Hebden Road	Give way	AM Peak  PM Peak  	 	Currently, CHR and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

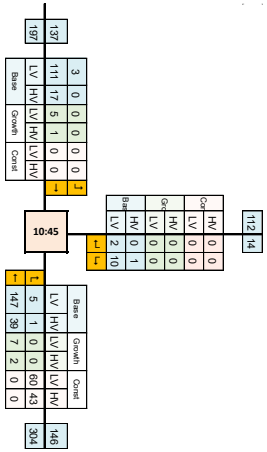
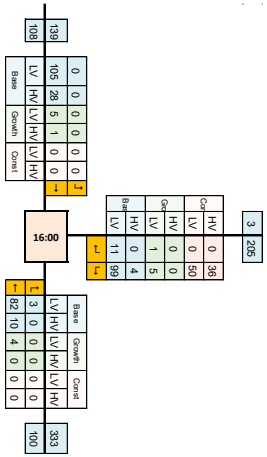
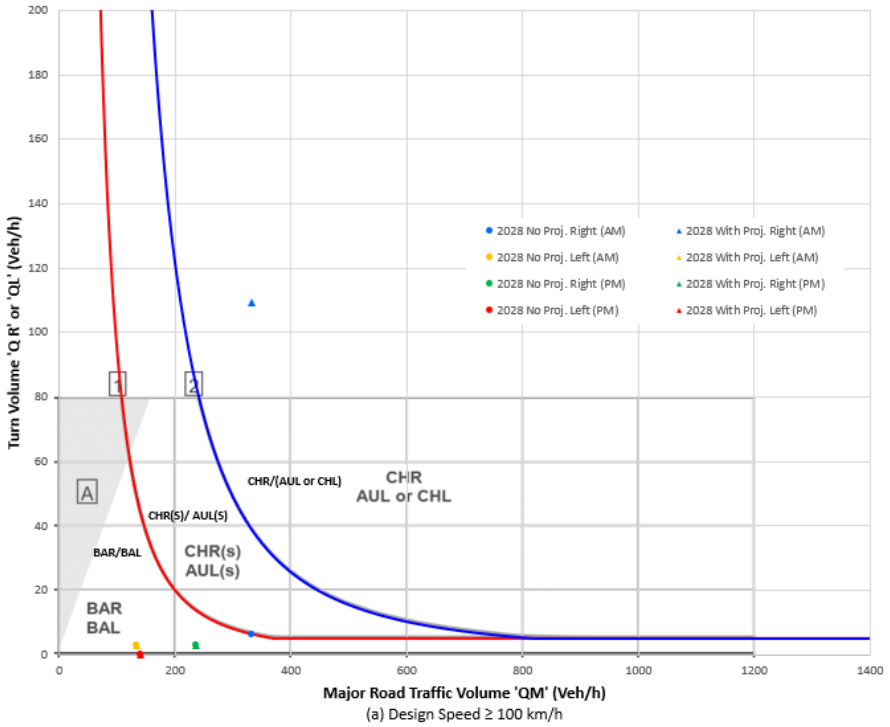
I-02: New England Highway/Lemington Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-02	New England Highway and Lemington Road	Stop	AM Peak  PM Peak  	 	Currently, CHR and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

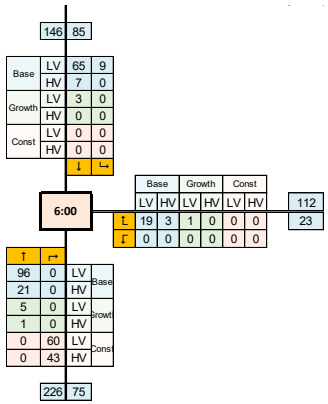
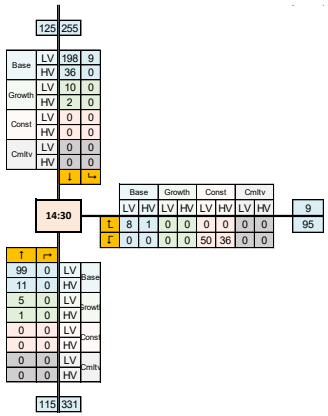
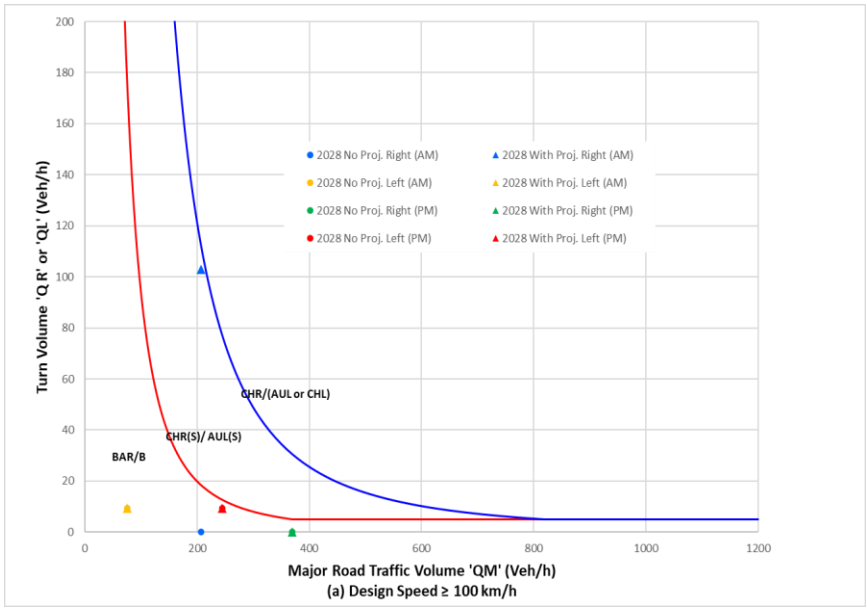
I-02a: New England Highway/Pike Gully Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-02a	New England Highway and Pikes Gully Road	Give way	AM Peak  PM Peak  	 	Currently, CHR and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

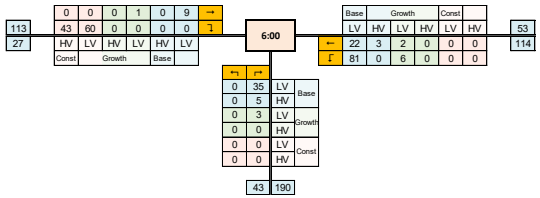
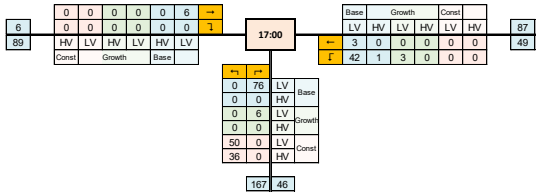
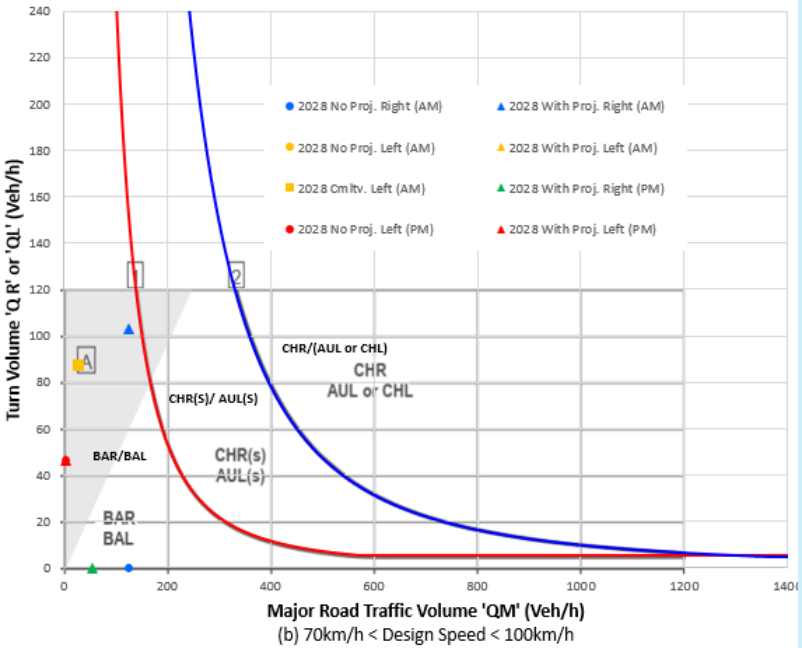
I-03: Golden Highway/Lemington Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-03	Golden Highway and Lemington Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided which is not compliant with the current demand. Current demand requires a CHR. An upgrade is required at this intersection. During construction, the requirement for a CHR is maintained. An upgrade is still required at this intersection.

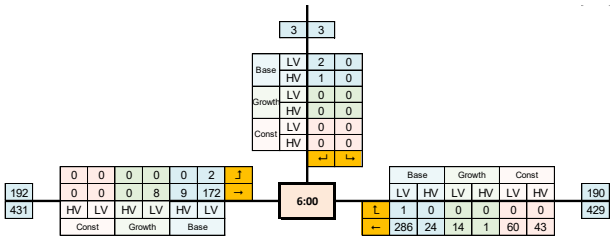
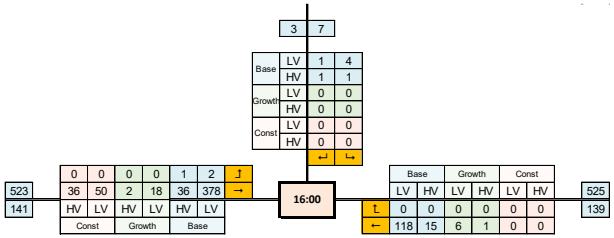
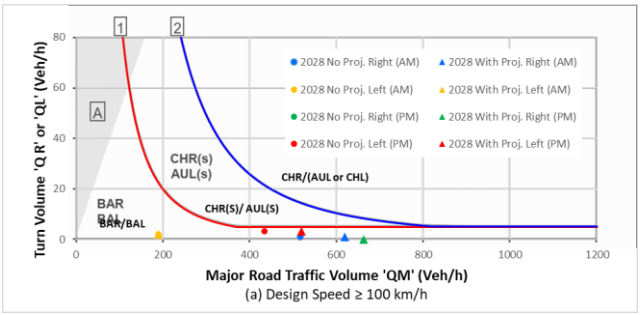
I-04: Golden Highway/Comleroi Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-04	Golden Highway and Comleroi Road	Give Way	AM Peak  PM Peak 		Currently, AUR and AUL are provided and are compliant with the current demand which requires BAR/BAL. During construction, the requirement for CHR(s) is met. Thus, an upgrade is required.

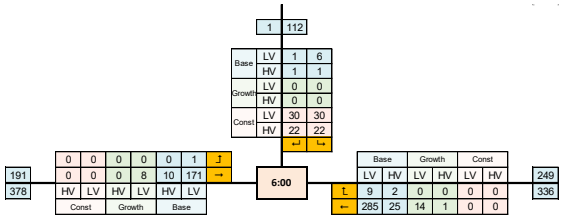
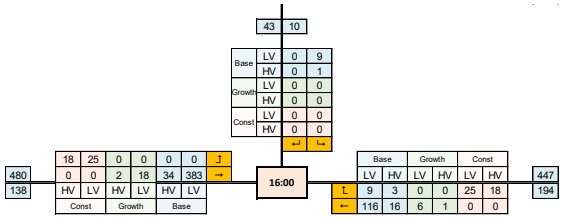
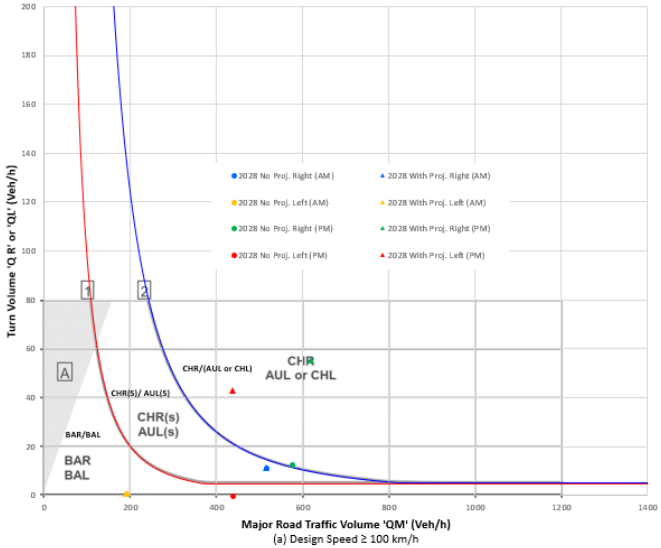
I-05: Comleroi Road/HVO private driveway – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-05	Golden Highway and Comleroi Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and CHL are provided and are compliant with the current demand which requires BAR/BAL. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required.

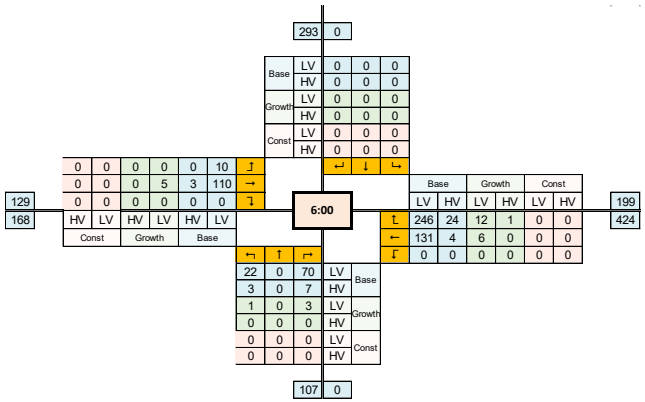
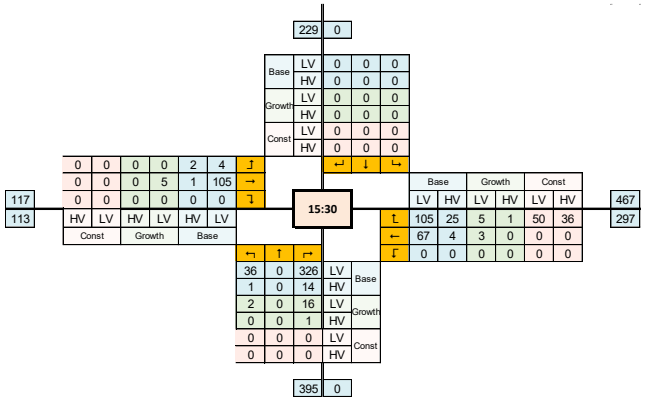
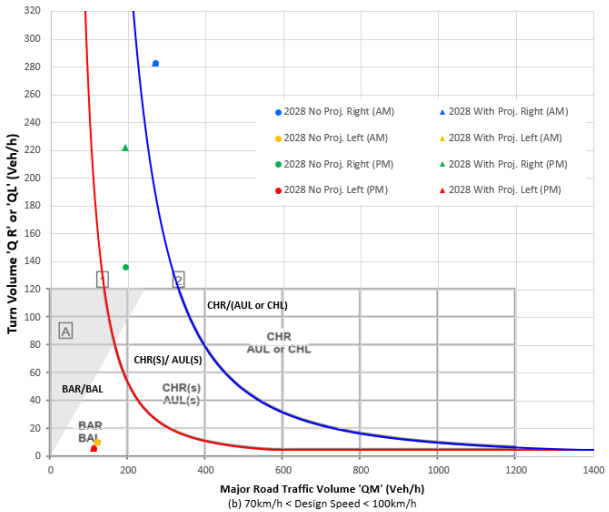
I-06: Golden Highway/Long Point Road (west) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-06	Golden Highway and Long Point Road (west)	Give Way	AM Peak  PM Peak  	 	Currently, CHR(s) and BAL are provided and are compliant with the current demand which requires BAR/BAL. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required.

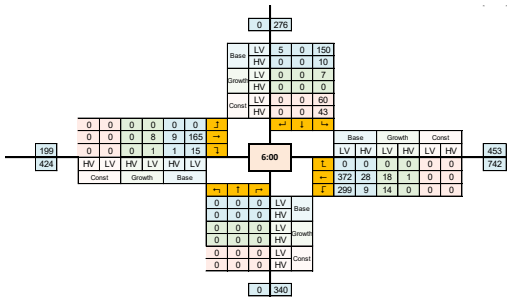
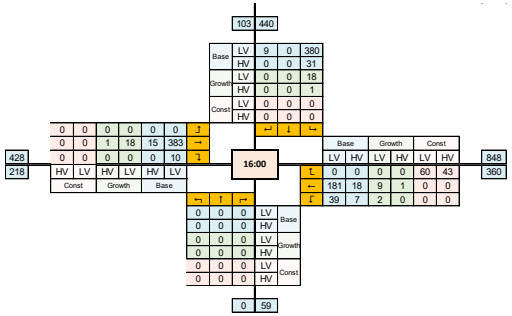
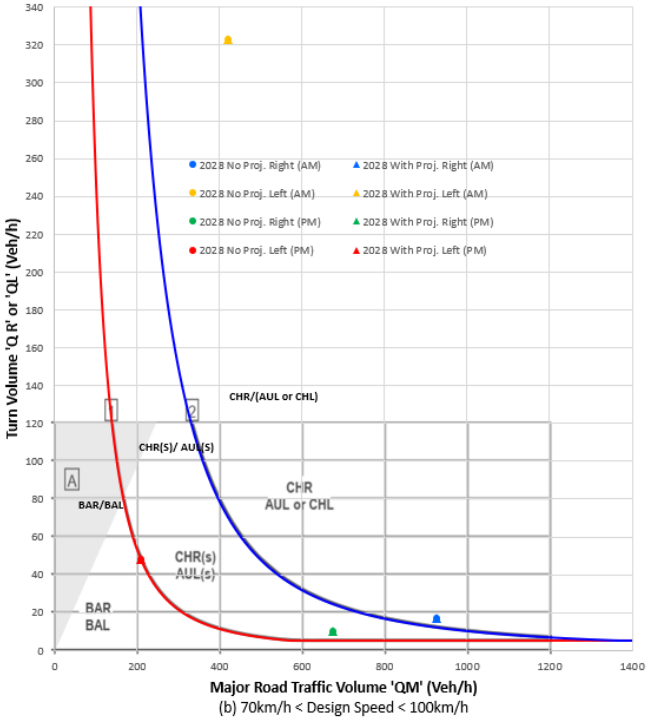
I-07: Golden Highway/Gouldsville Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-07	Golden Highway and Gouldsville Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and AUL(s) are provided which is not compliant with the current demand. Current demand requires a CHR. An upgrade is required at the intersection. During construction, the requirement of CHR is maintained and the requirement of AUL (s) is met. Thus, an upgrade is required at the intersection.

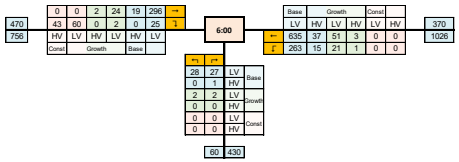
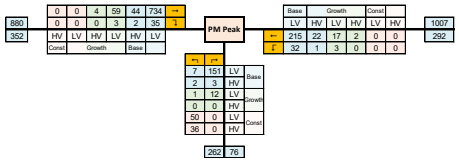
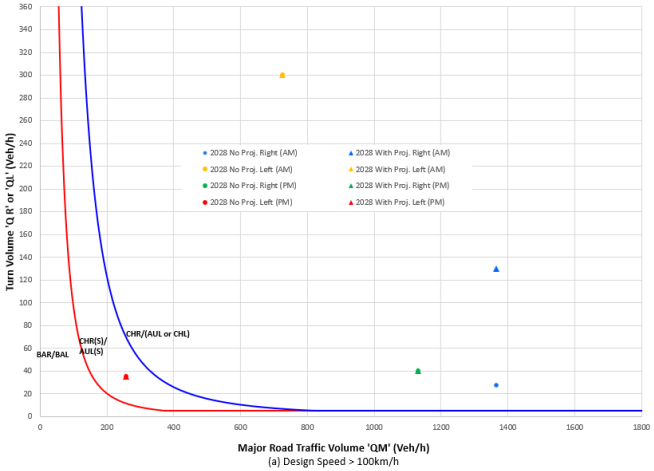
I-08a: Jerrys Plains Road (NB Ramp)/Putty Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-08a	Jerrys Plains Road and Putty Road (west)	Stop	AM Peak  PM Peak  	 	Currently, CHR and CHL are provided and are compliant with the current demand. During construction, the requirement for CHR/CHL is maintained. Thus, no upgrade is required at this intersection.

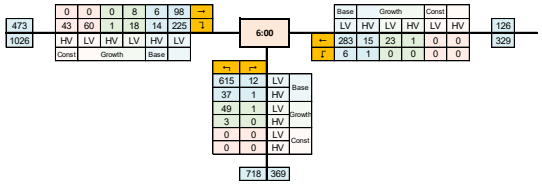
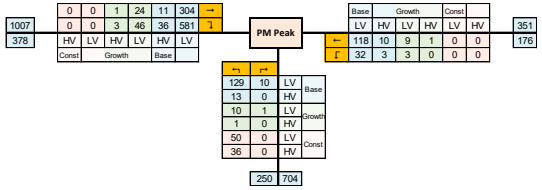
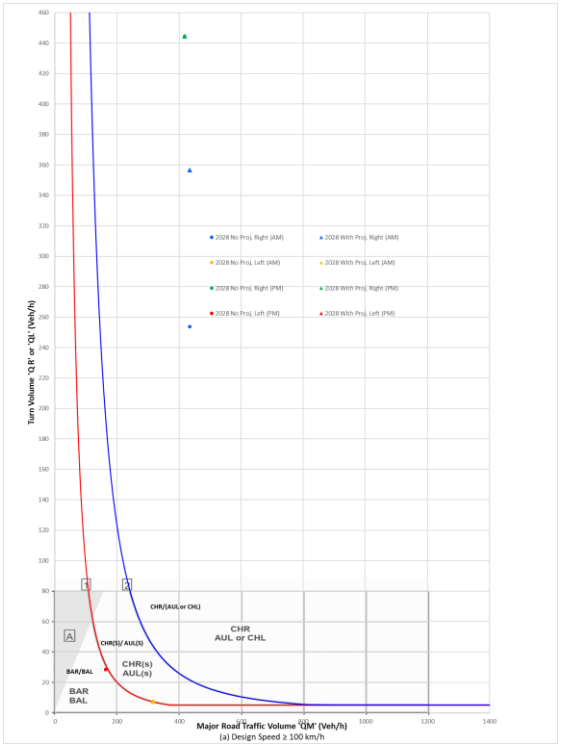
I-08b: Jerrys Plains Road (SB Ramp)/Putty Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-08b	Jerrys Plains Road and Putty Road (east)	Give Way	AM Peak  PM Peak 		Currently, CHR and CHL are provided and are compliant with the current demand. During construction, the requirement for CHR/CHL is maintained. Thus, no upgrade is required at this intersection.

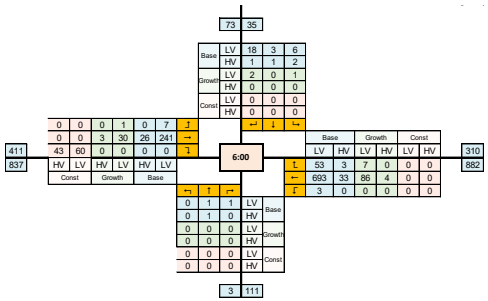
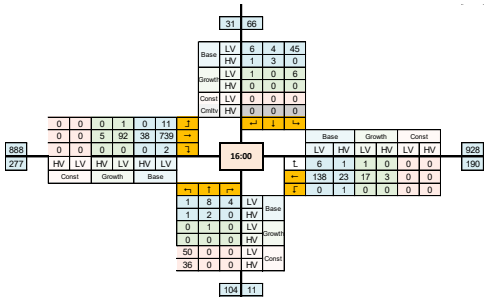
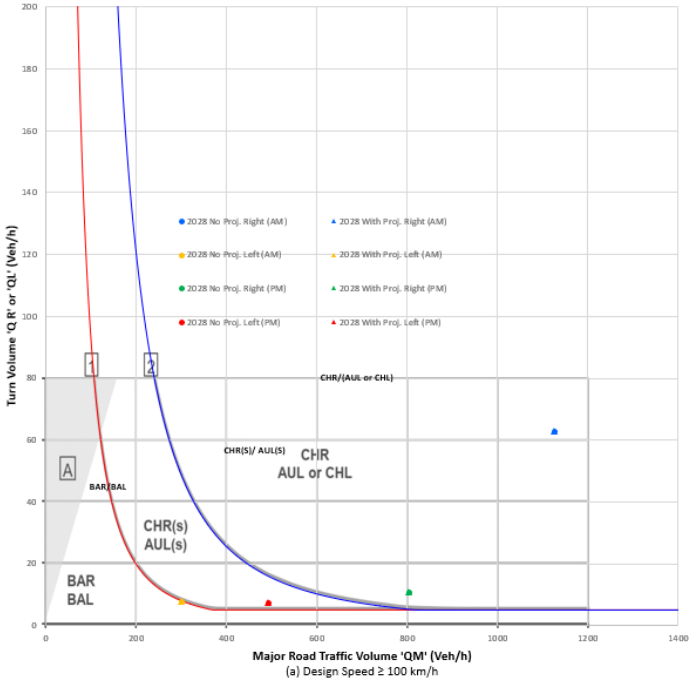
I-09: Putty Road/Broke Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-09	Putty Road and Broke Road	Give Way	AM Peak  PM Peak  	 	Currently, CHR and CHL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is required. Thus, no upgrade is required at this intersection.

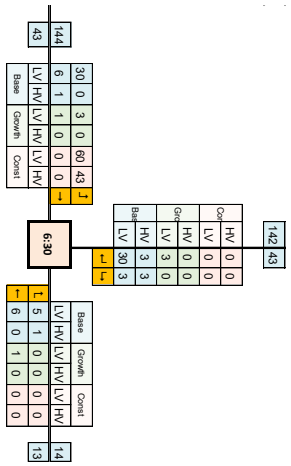
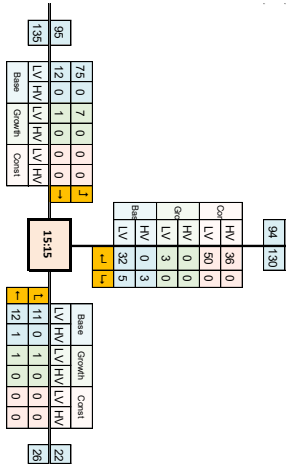
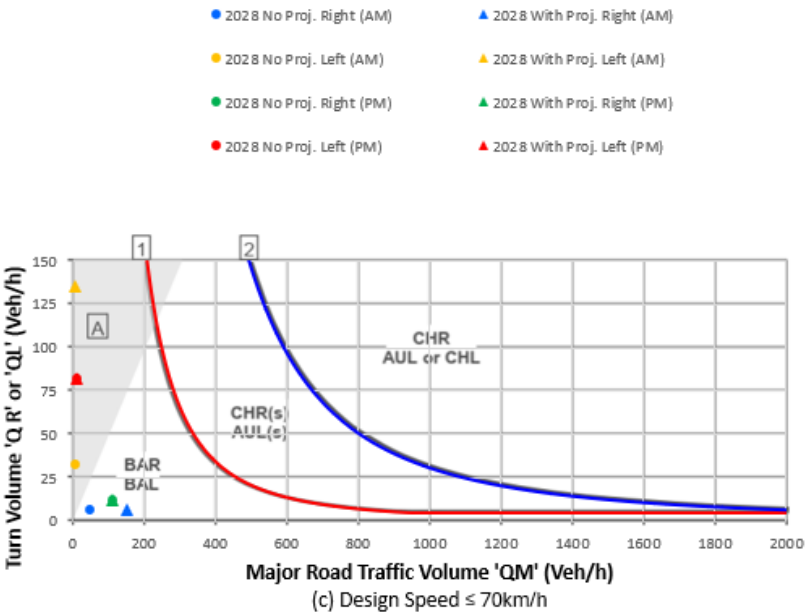
I-10: Putty Road/Mitchell Line of Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-10	Putty Road and Mitchell Line of Road	Give Way	AM Peak  PM Peak  	 	Currently, CHR and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

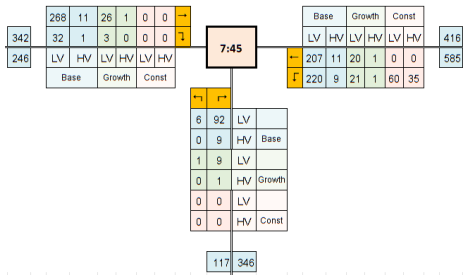
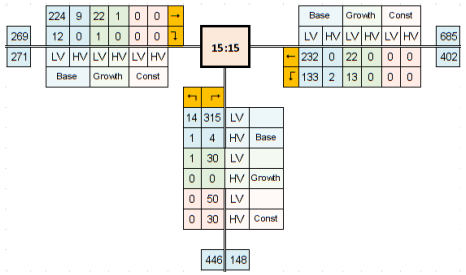
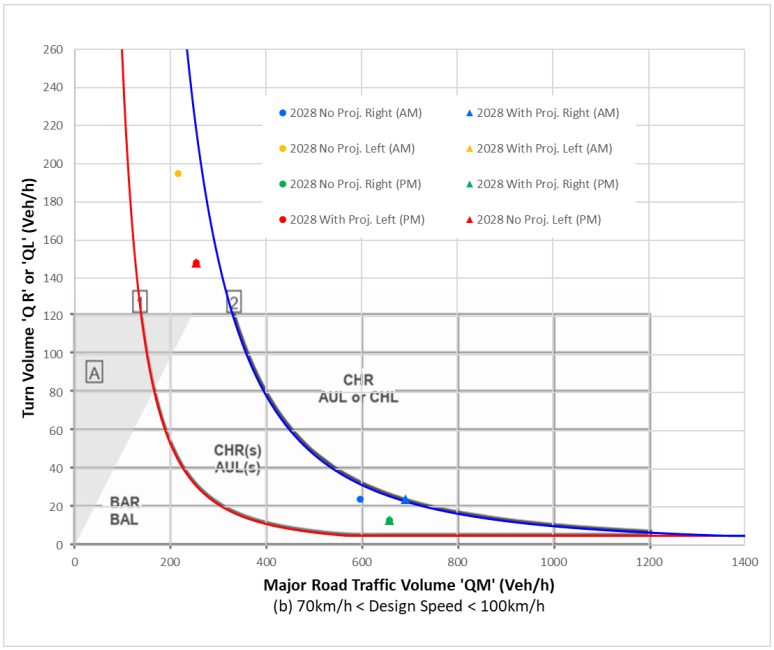
I-10b: Range Road/Golden Highway (Mitchell Line of Road) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-10b	Range Road and Golden Highway (Mitchell Line of Road)	Stop	AM Peak  PM Peak 		Currently, CHR and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

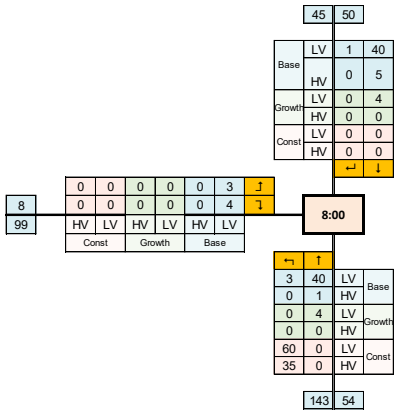
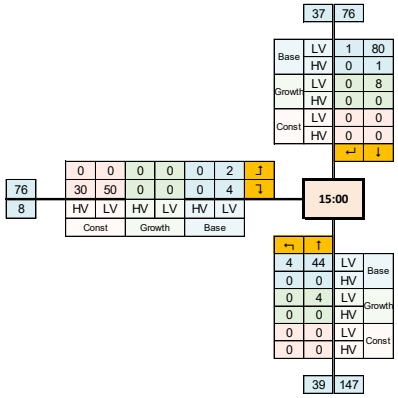
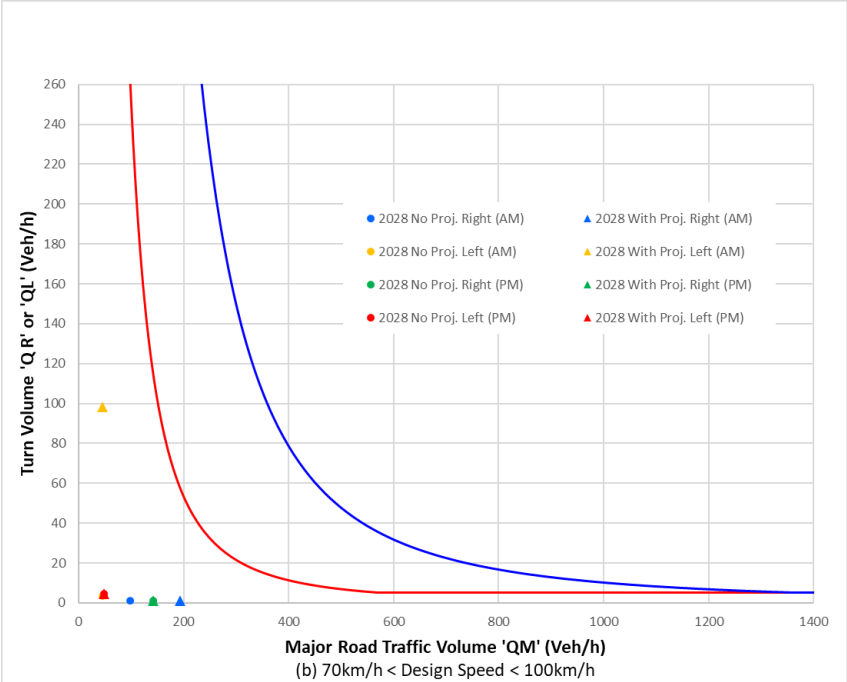
I-11: Wollombi Street/Singleton Street – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-11	Wollombi Road and Singleton Street	Stop	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

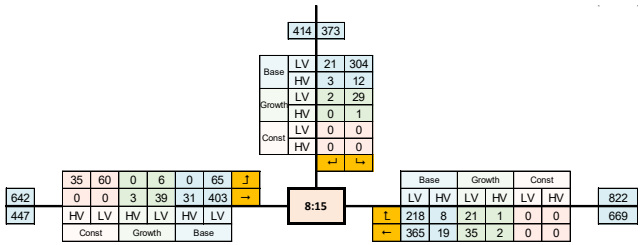
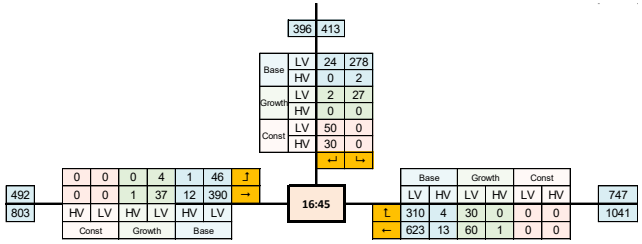
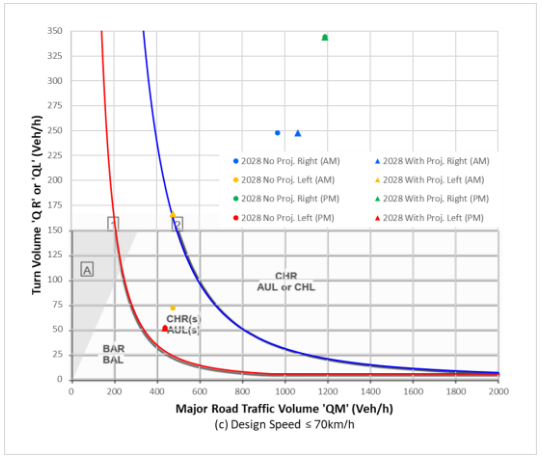
I-14: Broke Road/Wine Country Drive – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-14	Broke Road and Wine Country Drive	Stop	AM Peak  PM Peak  	 	Currently, CHR and CHL are provided and accommodate current demand. During construction, the requirement for CHR (s)/AUL(s) is maintained. Thus, no upgrade is required at this intersection.

I-15: McDonalds Road/Oakey Creek Road/Pokolbin Mountains Road – proposed access intersection turn warrant assessment

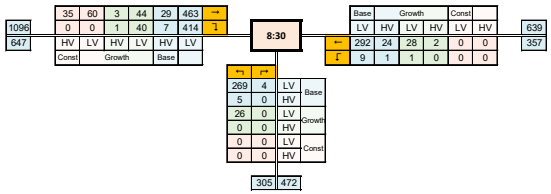
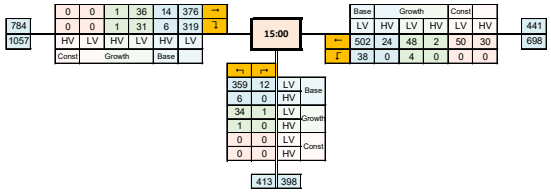
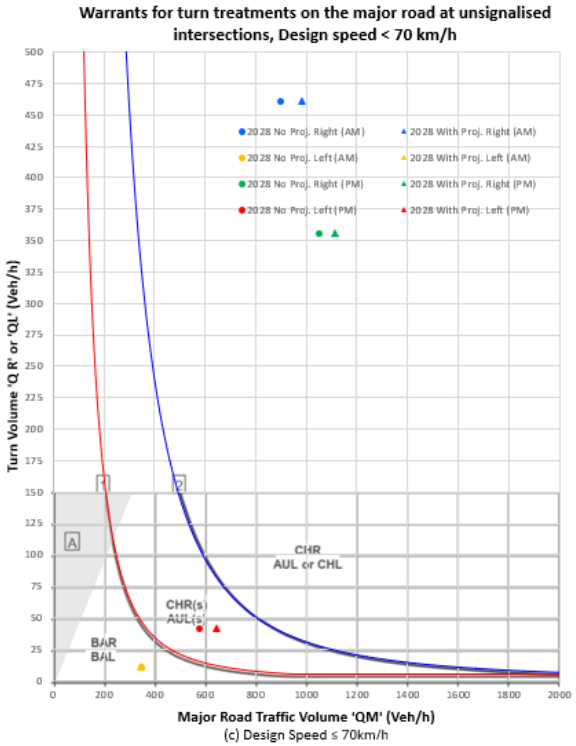
ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-15	McDonalds Road, Oakey Creek Road and Pokolbin Mountains Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

I-17: Wollombi Road/Mount View Road (Cessnock) – proposed access intersection turn warrant assessment

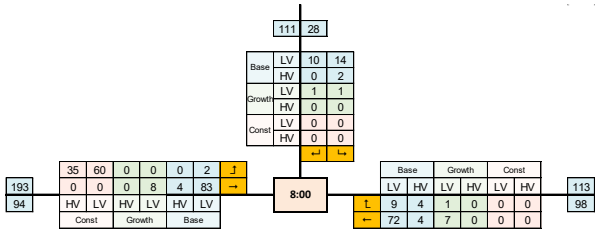
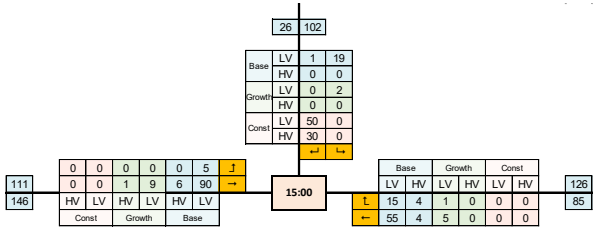
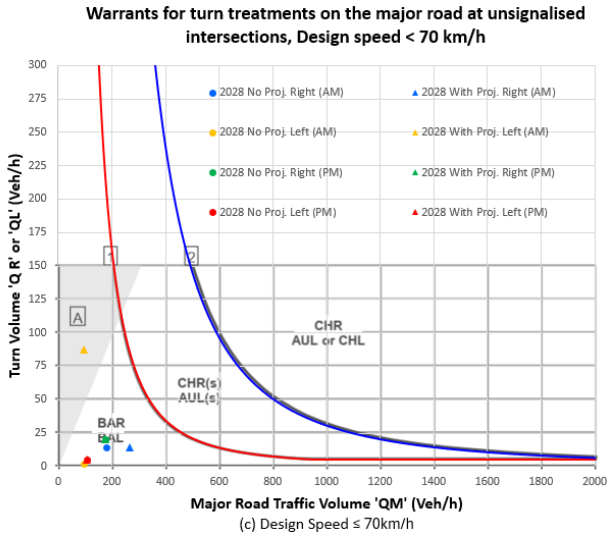
ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-17	Wollombi Road and Mount View Road	Give Way	AM Peak  PM Peak  	 	Currently, BAL and CHR are provided which is not compliant with the current demand. Current demand requires an AUL(s). An upgrade is required at the intersection. During construction, the requirement of AUL(s) is maintained. Thus, an upgrade is required at the intersection. Cessnock Council is planning to upgrade this intersection to signals as part of the Stage 2 Wollombi Road Upgrade project. Construction is expected to commence in early 2026. Therefore, any identified intersection treatments have not been included

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
					as part of the HTP.

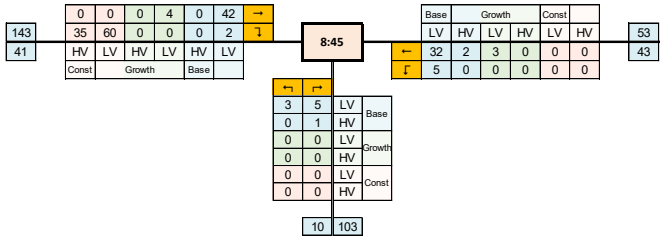
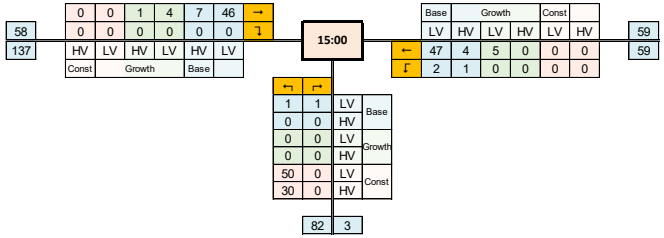
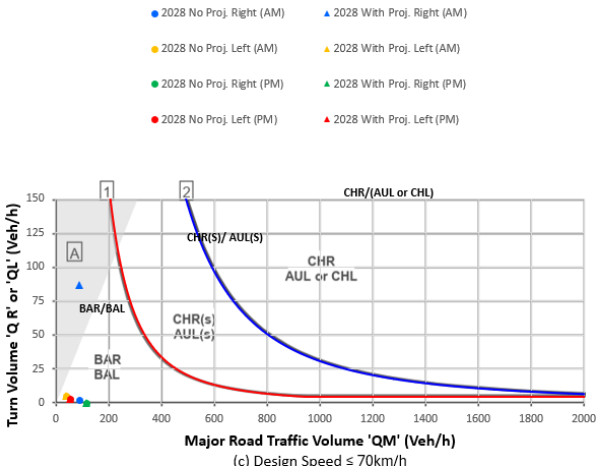
I-18: Wollombi Road/West Avenue Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-18	Wollombi Road and West Avenue	Stop	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided which is not compliant with the current demand. Current demand requires an AUL(s) and CHR. During construction, the requirement of AUL (s)/CHR is maintained. No upgrade due to through construction traffic only. Cessnock Council is planning to upgrade this intersection to signals as part of the Stage 2 Wollombi Road Upgrade project.. Therefore, any identified intersection treatments have not been included as part of the HTP. Engagement with Cessnock City Council on the likely timing of these works will continue.

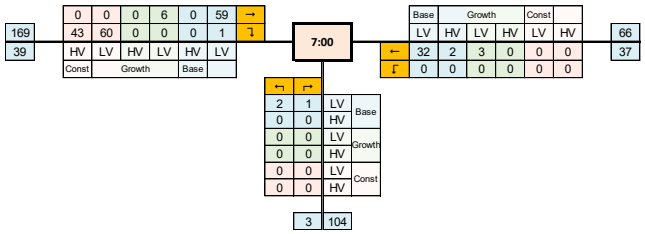
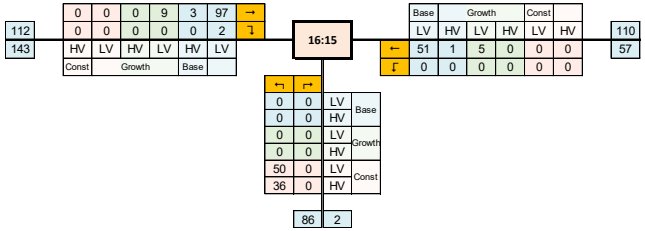
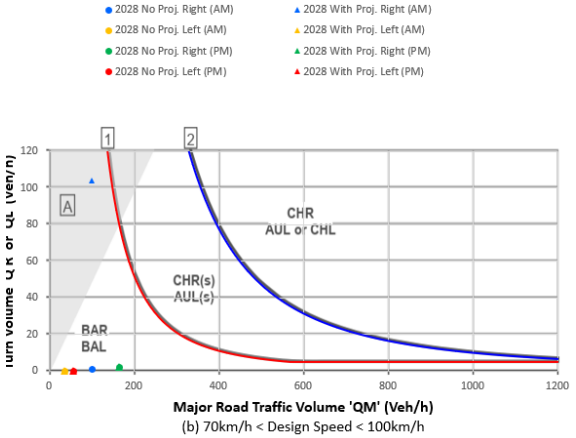
I-19: Wollombi Road/Mount View Road (Millfield) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-19	Wollombi Road and Mount View Road (Millfield)	Give Way	AM Peak  PM Peak 		Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

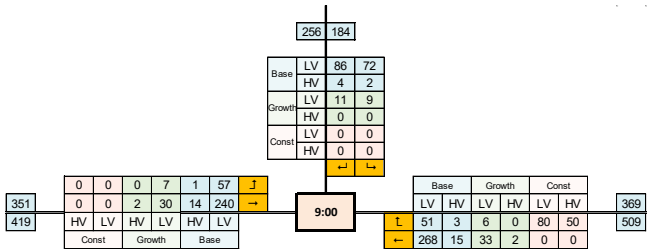
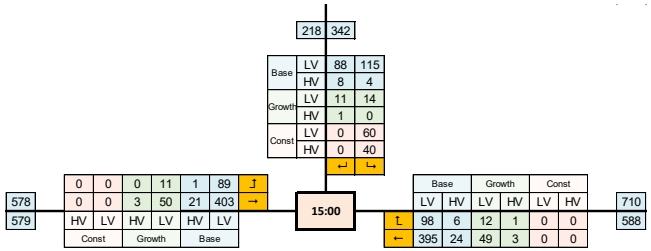
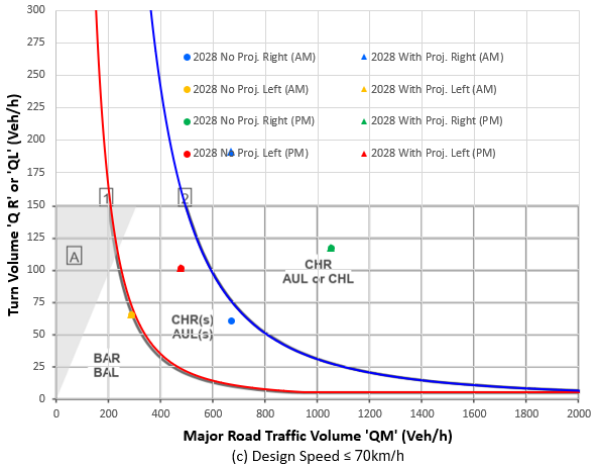
I-20: Wollombi Road/Hayes Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-20	Wollombi Road and Hayes Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

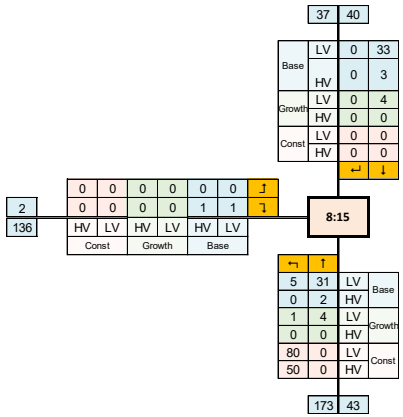
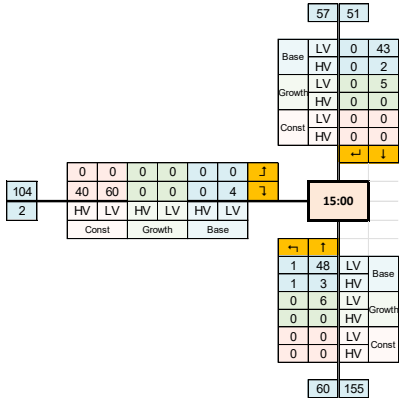
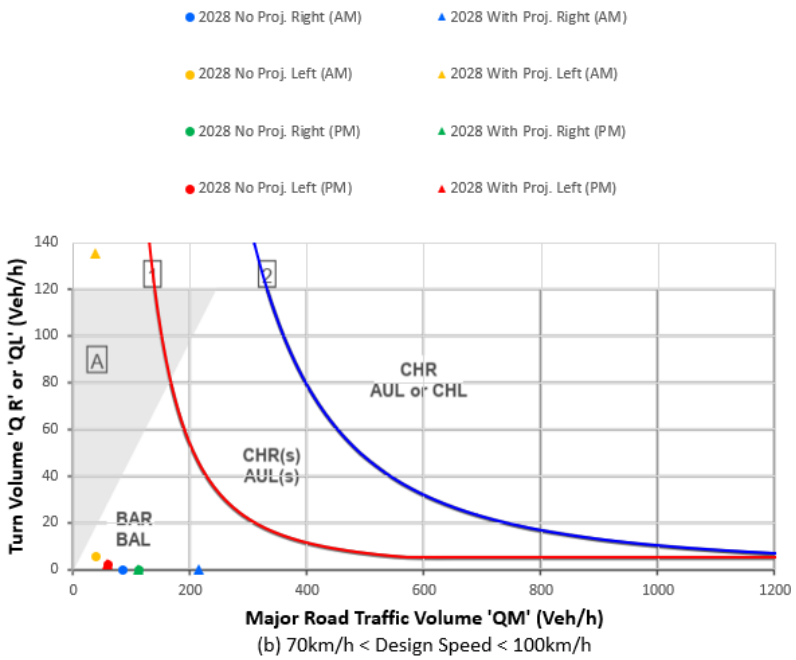
I-21a: Cessnock Road/Oakey Lane – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-21a	Cessnock Road and Oakley Lane	Give Way	AM Peak  PM Peak  	 	Currently, AUR and AUL are provided and are compliant with the current demand, which requires BAR/BAL. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

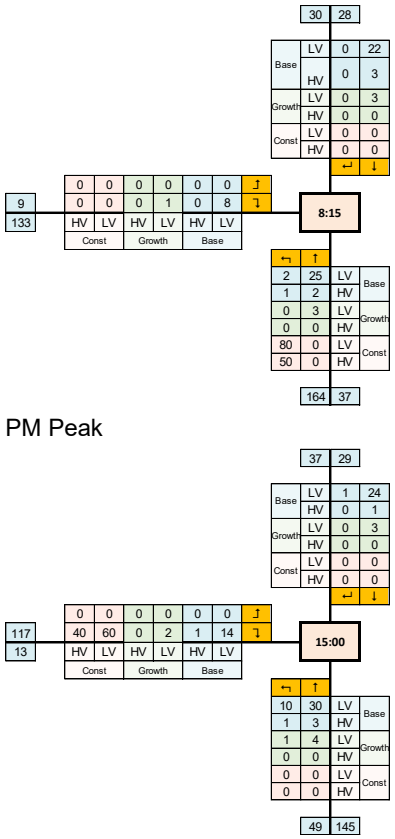
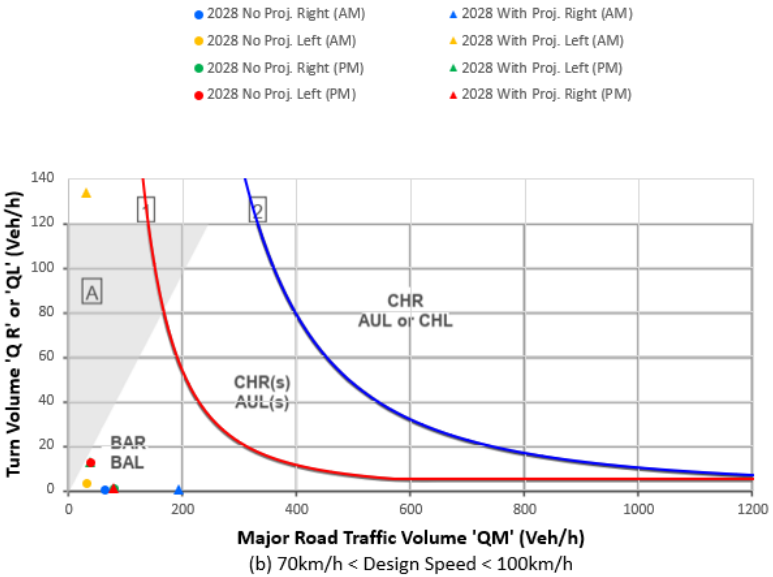
I-23: Martinsville Road/Freemans Drive – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-23	Martinsville Road and Freemans Drive	Give Way	AM Peak  PM Peak  	 (c) Design Speed ≤ 70km/h	Currently, AUR and AUL are provided which is not compliant with the current demand. Current demand requires a CHR. An upgrade is required at this intersection. During construction, the requirement for AUL(s)/CHR is maintained. Thus, an upgrade is required at this intersection.

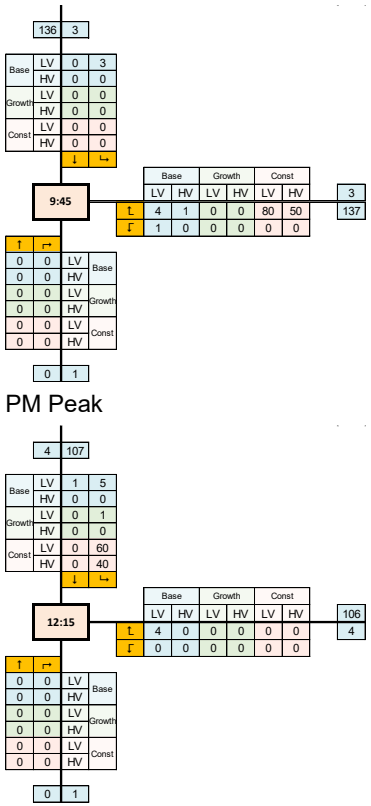
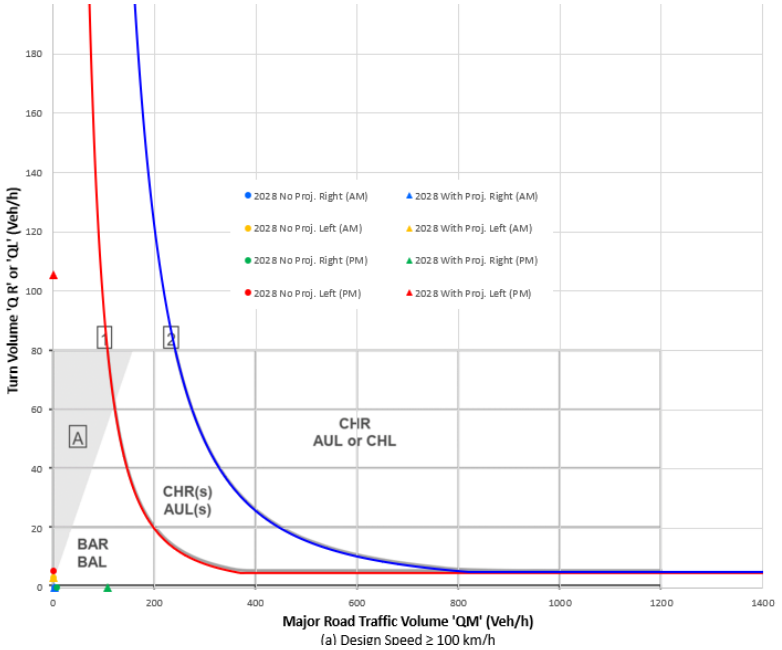
I-24: Martinsville Road/Pringles Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-24	Martinsville Road and Pringles Road	Give Way	AM Peak  PM Peak  	 (b) 70km/h < Design Speed < 100km/h	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

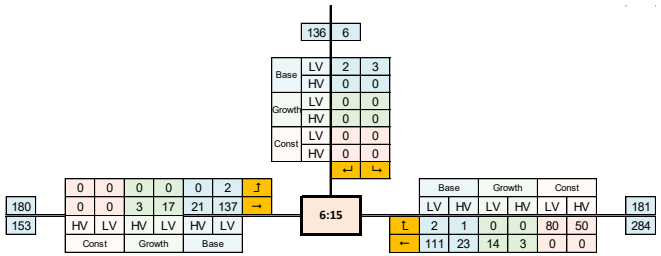
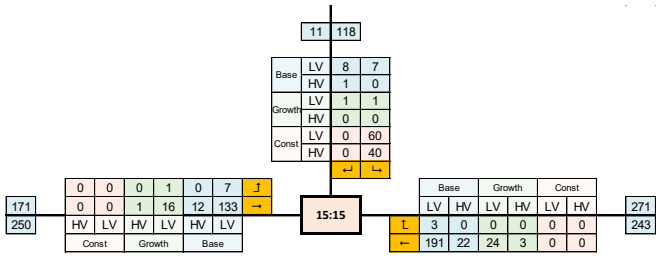
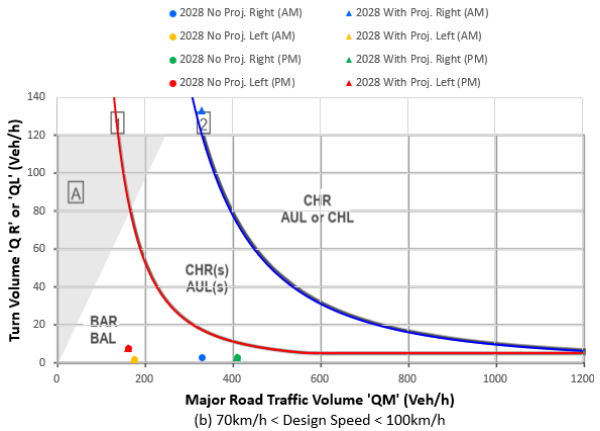
I-25: Martinsville Road/Watagan Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-25	Martinsville Road and Watagan Road	Give Way	AM Peak  PM Peak 	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

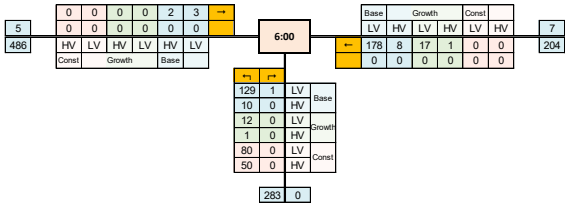
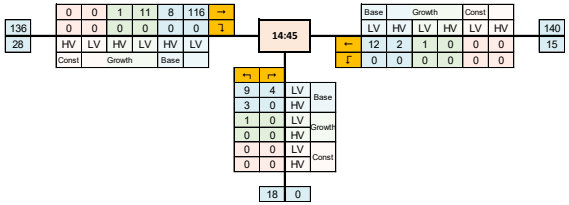
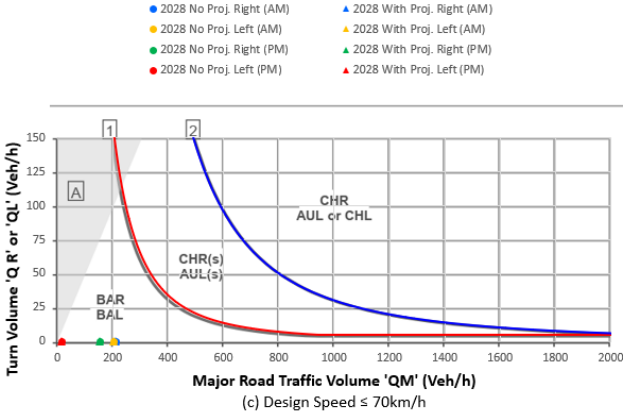
I-26: Watagan Forest Road/Martinsville Hill Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-26	Watagan Forest Road and Martinsville Hill Road	Give Way	AM Peak  PM Peak 		Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

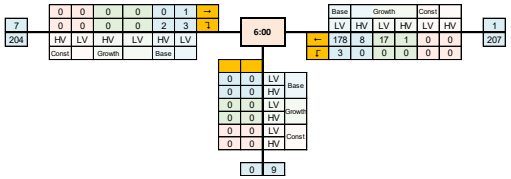
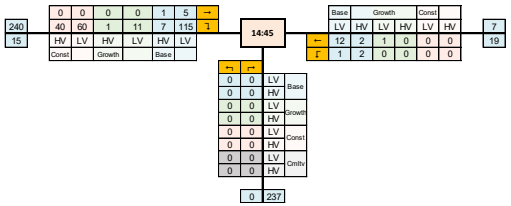
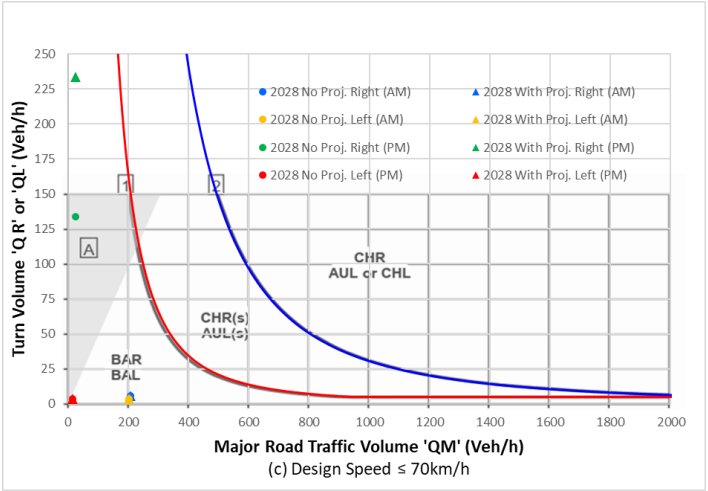
I-28: Freemans Drive/Mount Faulk Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-28	Freemans Drive and Mount Faulk Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for CHR(s) is met. Thus, an upgrade is required at this intersection.

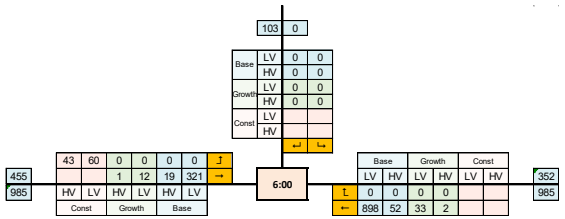
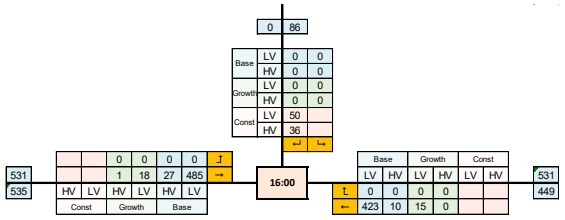
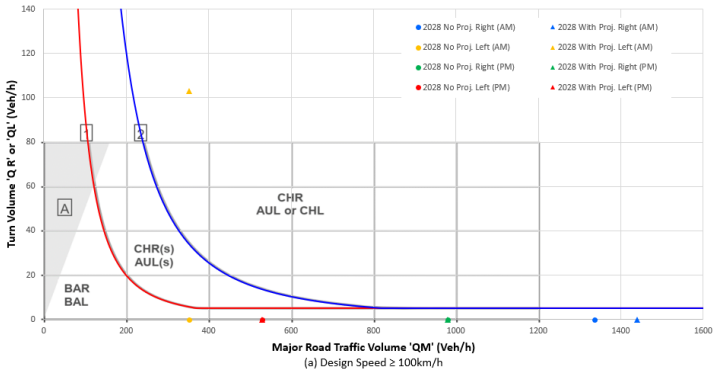
I-29a: Wangi Road/Rocky Point Road (west) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-29a	Wangi Road and Rocky Point Road west	One-way Off-Ramp/Give Way	AM Peak  PM Peak  	 (c) Design Speed ≤ 70km/h	Road layout is currently a one-way off-ramp. Thus, no upgrade is required at this intersection.

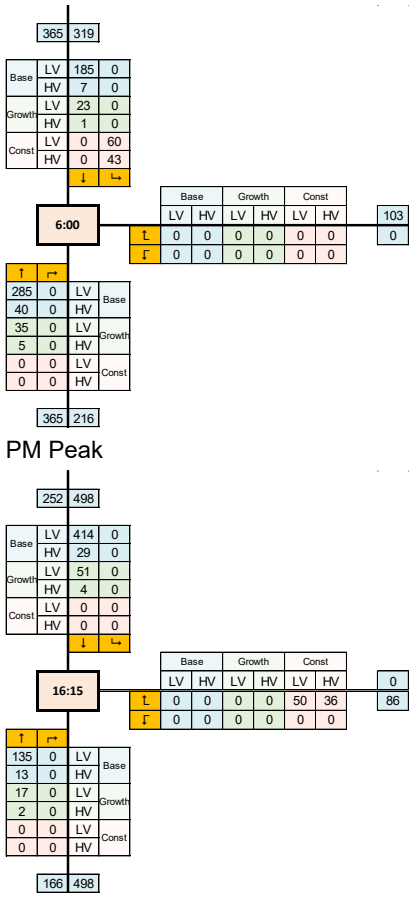
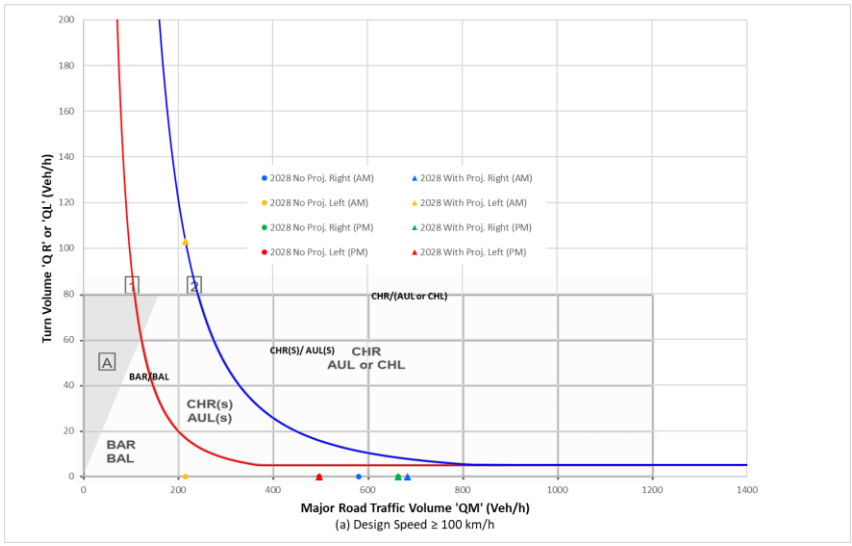
I-29b: Wangi Road/Rocky Point Road (east) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-29b	Wangi Road and Rocky Point Road east	One-way On-Ramp/Give way	AM Peak  PM Peak 		Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

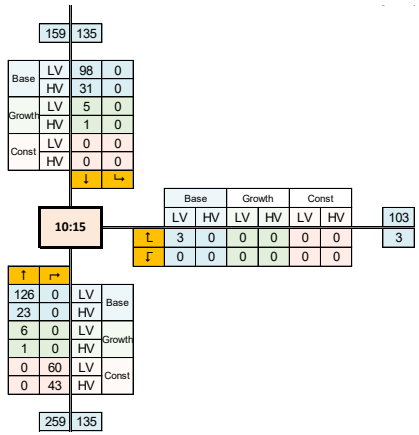
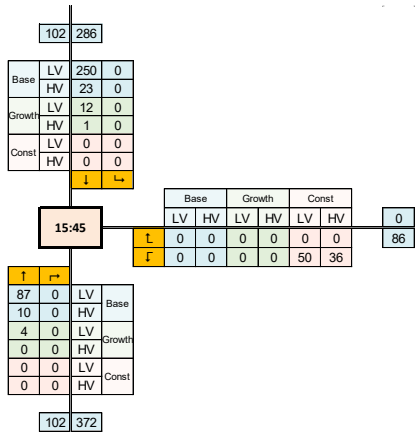
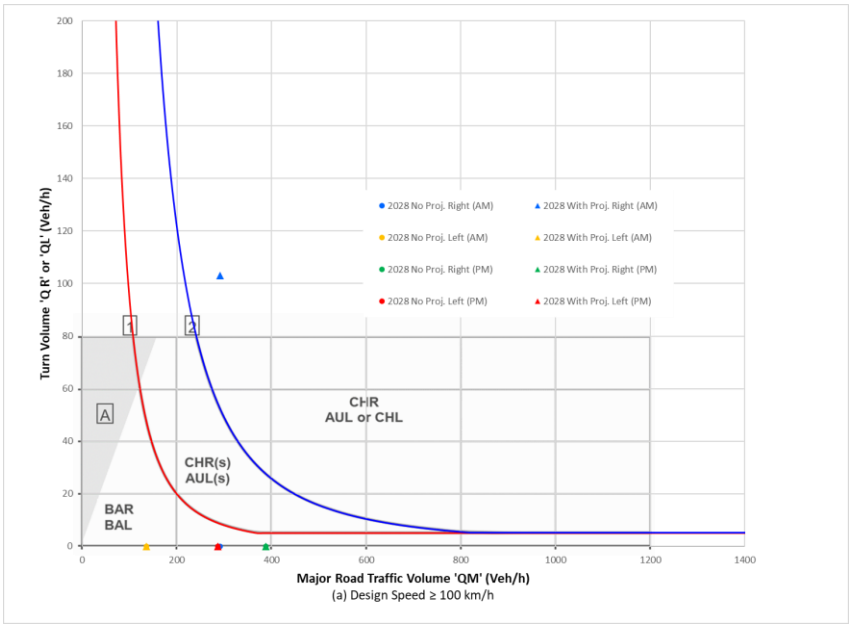
I-31: Putty Road/Existing Track – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-31	Putty Road and Existing Track	Stop	AM Peak  PM Peak  	 	Currently, AUR and BAL are provided and are compliant with the current demand, which requires BAR/BAL. During construction, the requirement of AUL is met. Thus, an upgrade is required at the intersection.

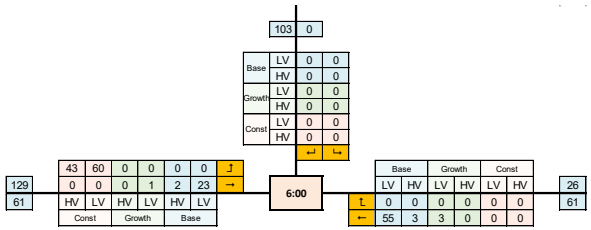
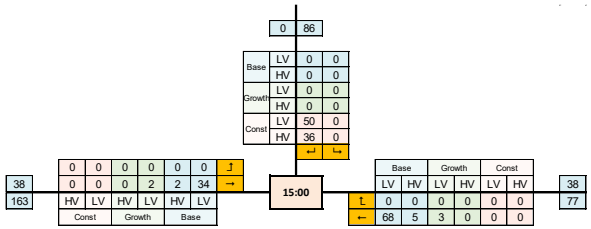
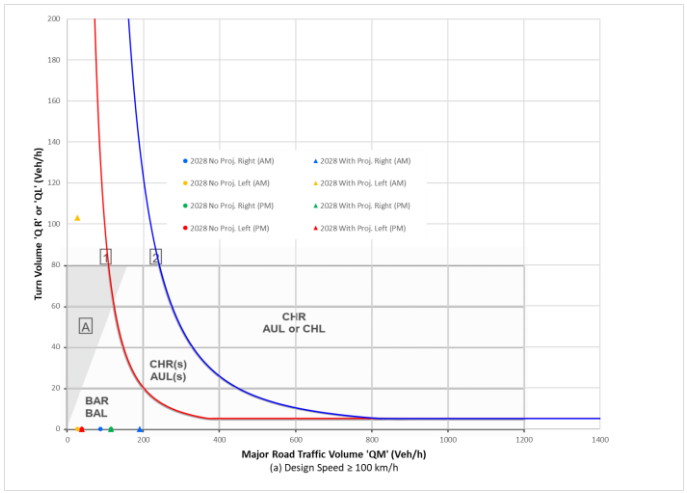
I-32: Golden Highway/Existing Access Across Rail Track (MTW) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-32	Golden Highway and Existing Access Across Rail Track	Give Way	AM Peak  PM Peak 		Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement of AUL is needed. Thus, an upgrade is required at the intersection.

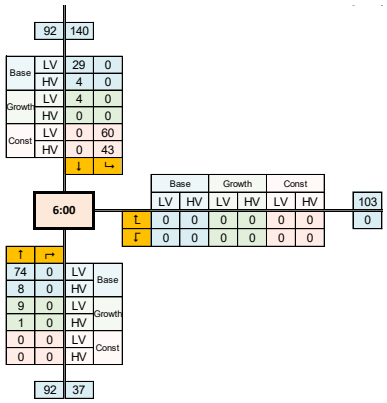
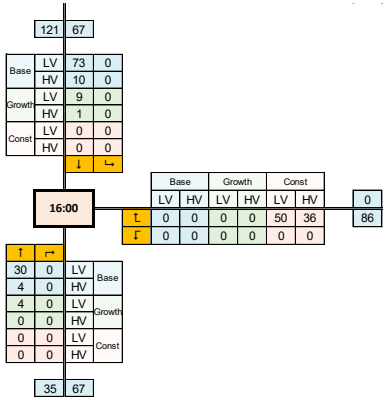
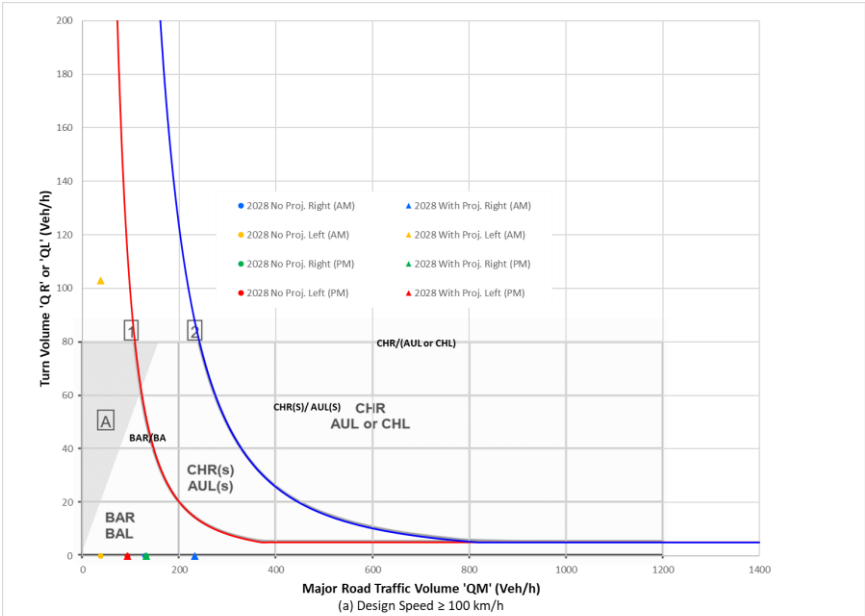
I-33: Golden Highway/Unknown Road (east of Lemington Road) – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-33	Golden Highway and Unknown Road (east of Lemington Road)	Give Way	AM Peak  PM Peak 		Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement of CHR is met. Thus, an upgrade is required at the intersection.

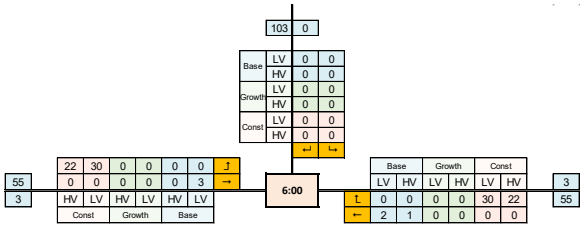
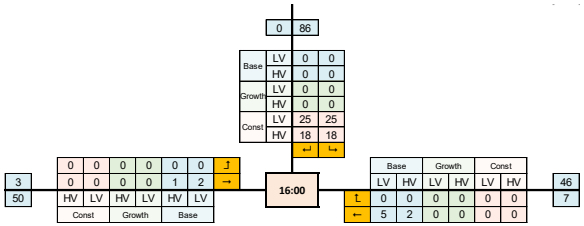
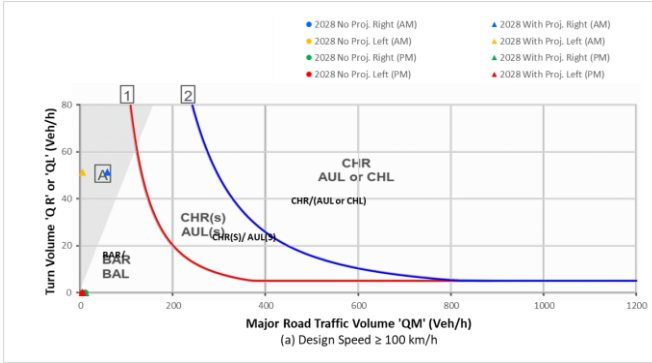
I-37: Cessnock Road/New Access – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-37	Cessnock Road and New Access	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

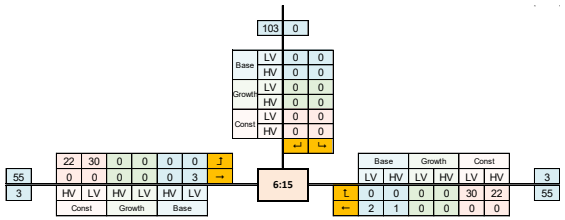
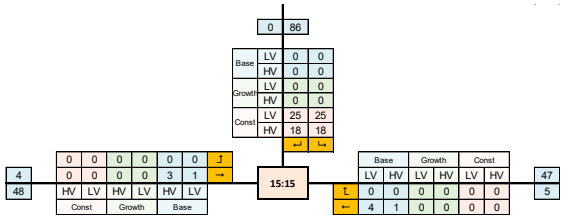
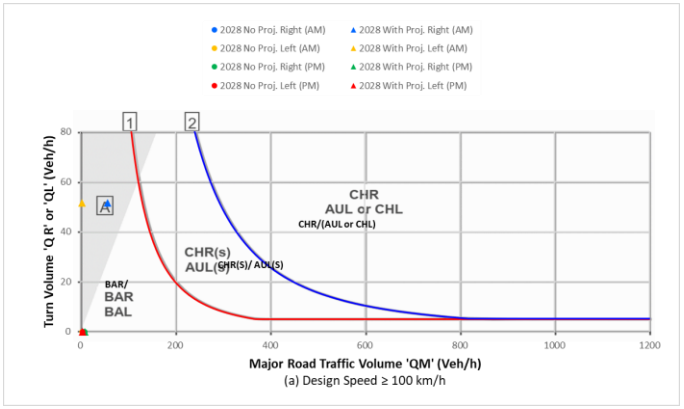
I-38: Broke Road/Existing Access – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-38	Broke Road and Existing Access Road	Stop	AM Peak  PM Peak  	 	Currently, AUR and AUL(s) are provided and are compliant with the current demand, which requires BAR/BAL. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

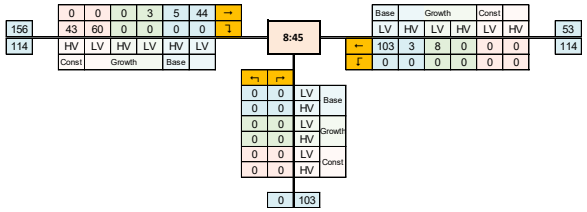
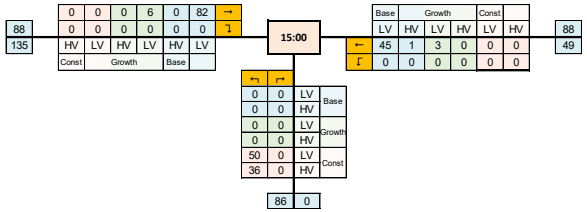
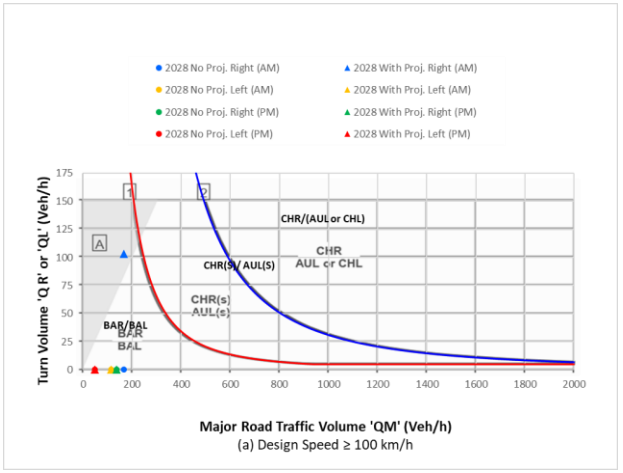
I-40: Long Point Road West/Existing Easement 1 – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-40	Long Point Road West and Existing Easement 1	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

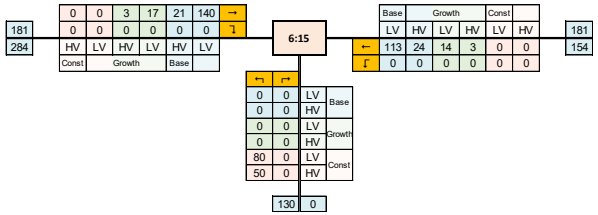
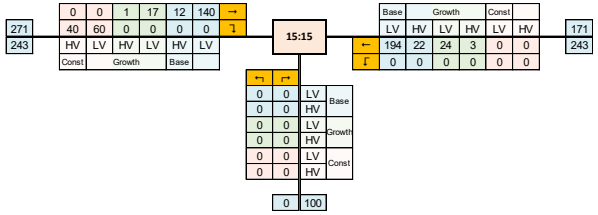
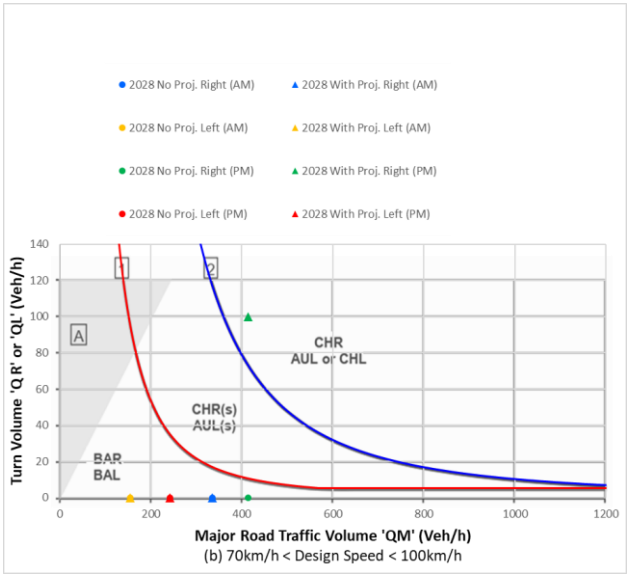
I-41: Long Point Road West/Existing Easement 2 – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-41	Long Point Road West and Existing Easement 2	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

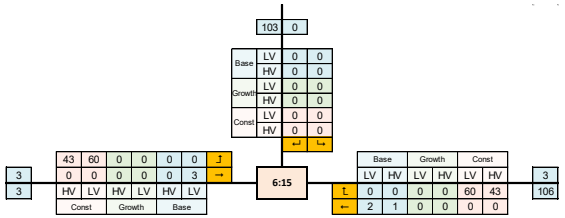
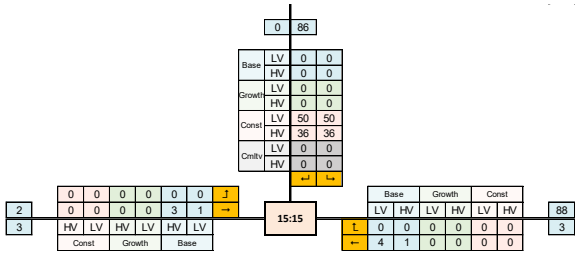
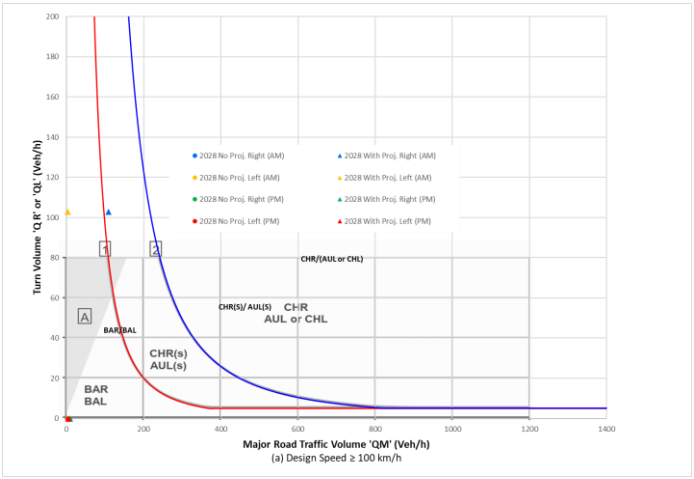
I-42: Archerfield Road/Existing Access – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-42	Archerfield Road and Existing Access	Stop	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

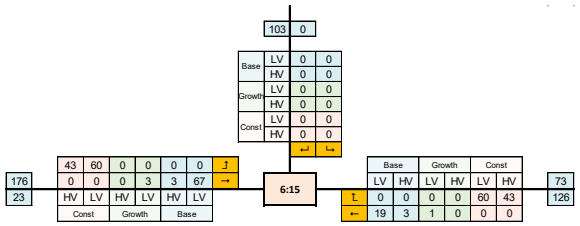
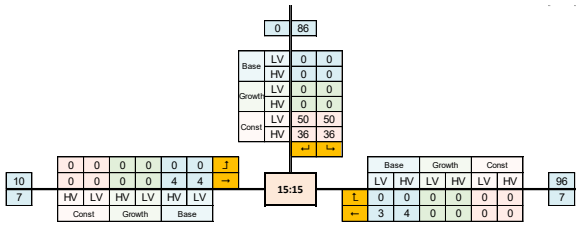
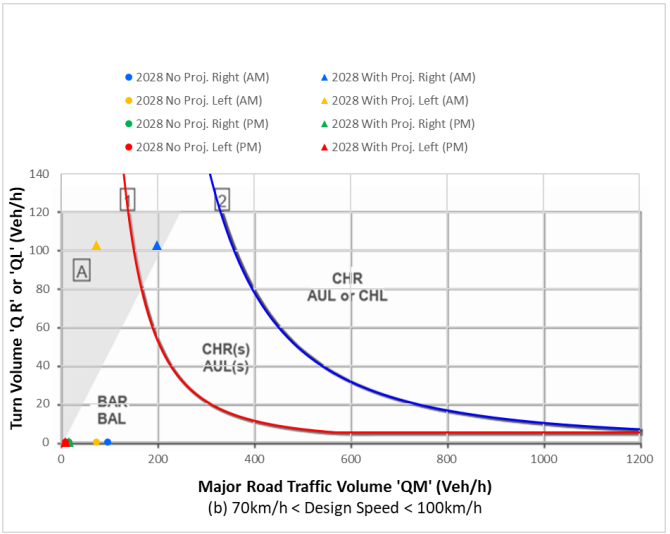
I-45: Freemans Drive/New Access to Construction Support Site – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-45	Freemans Drive / New Access to Construction Support Site	Give Way	AM Peak  PM Peak  	 	During construction, the requirement of BAL/CHR(s) is met. Thus, an upgrade is required at the intersection.

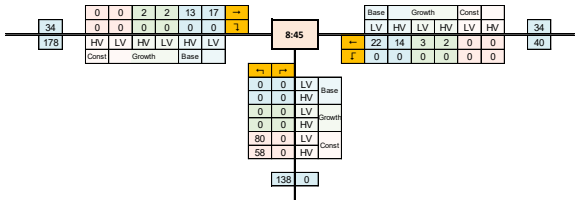
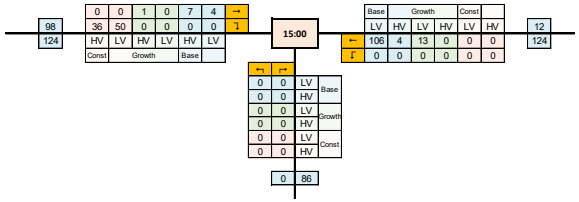
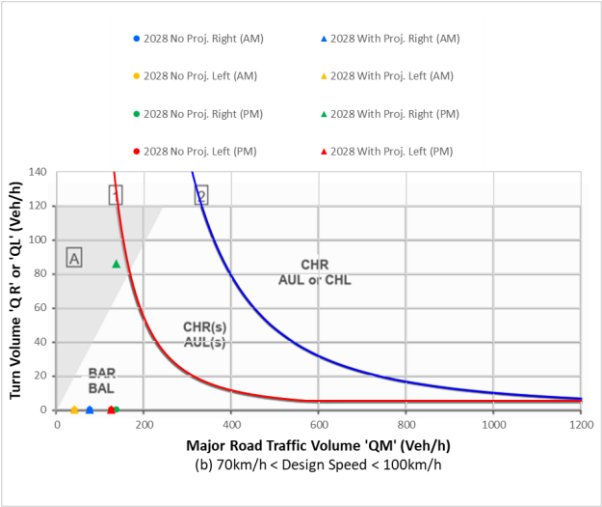
I-46: Long Point Road West/Existing Track – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-46	Long Point Road West and Existing Track	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

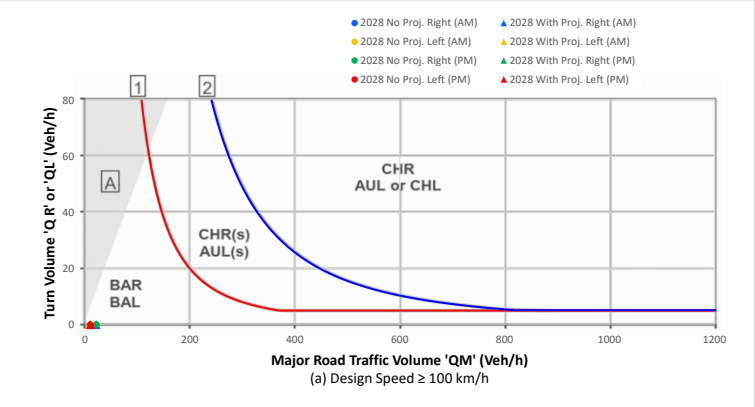
I-47: Pikes Gully Road/New Access to Construction Support Site – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-47	Pikes Gully Road / New Access to Construction Support Site	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

I-48: Hebden Road/New Access to Construction Support Site – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-48	Hebden Road / New Access to Construction Support Site	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

I-51: Gouldsville Road/Access to Gouldsville Road Construction Support Site – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-51	Gouldsville Road/Access to Gouldsville Road Construction Support Site	Give Way	AM Peak PM Peak		During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

AM Peak

		12	9	
Base	LV	7	0	
	HV	2	0	
Growth	LV	0	0	
	HV	0	0	
Const	LV	0	0	
	HV	0	0	
		↓	↳	

6:00	Base		Growth		Const	
	LV	HV	LV	HV	LV	HV
↰	0	0	0	0	0	0
↱	0	0	0	0	60	43

↑	↱		
10	0	LV	Base
2	0	HV	
0	0	LV	Growth
0	0	HV	
0	0	LV	Const
0	0	HV	
12	112		

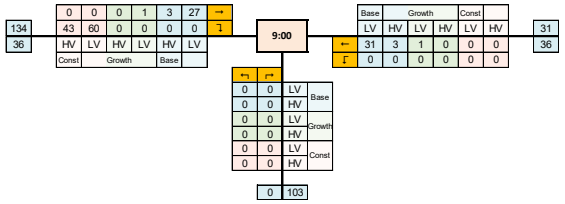
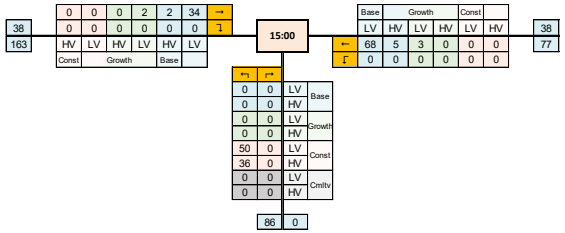
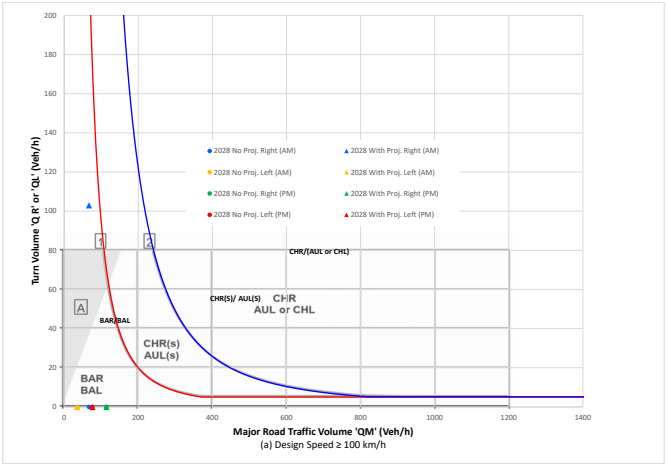
PM Peak

	12	10	
Base	LV	9	0
	HV	1	0
Growth	LV	0	0
	HV	0	0
Const	LV	0	0
	HV	0	0
	↓	↳	

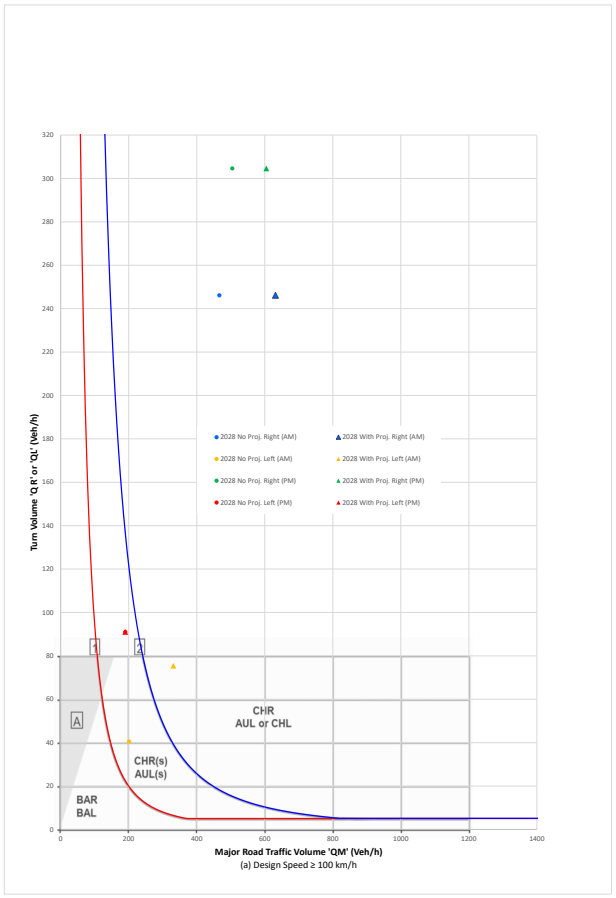
16:00	Base		Growth		Const	
	LV	HV	LV	HV	LV	HV
↰	0	0	0	0	0	0
↱	0	0	0	0	0	0

↑	↱		
9	0	LV	Base
3	0	HV	
0	0	LV	Growth
0	0	HV	
0	50	LV	Const
0	36	HV	
98	10		

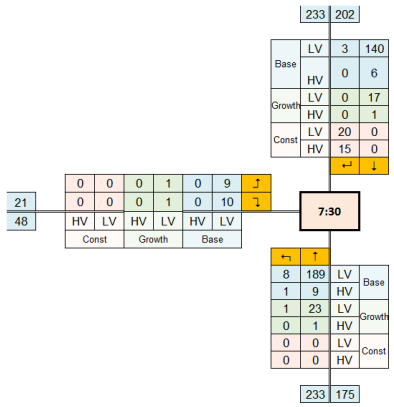
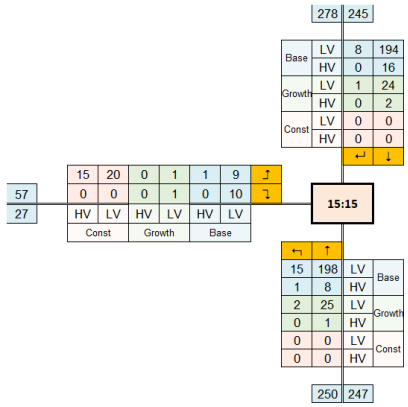
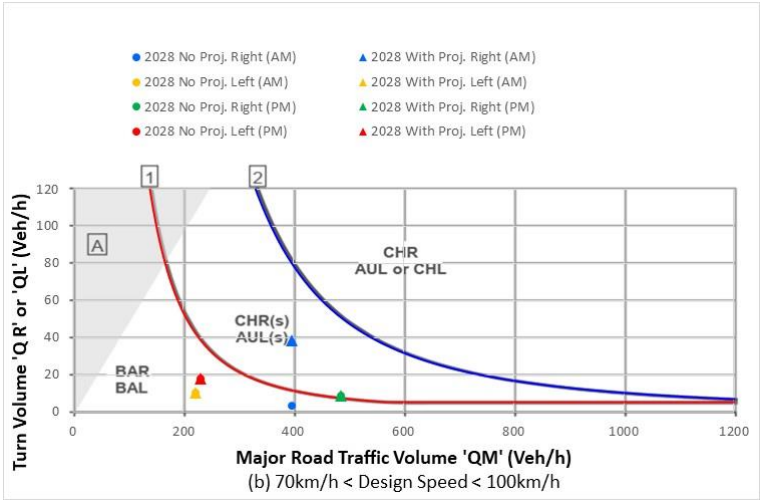
I-53: Cessnock Road/New Access – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-53	Cessnock Road and New Access	Give Way	AM Peak  PM Peak  	 	During construction, the requirement for BAR/BAL is maintained. Thus, no upgrade is required at this intersection.

I-57: Freemans Drive/Newport Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-57	Freemans Drive and Newport Road	Give Way	AM Peak 294 407 Base LV 169 34 Base HV 10 2 Growth LV 21 4 Growth HV 1 0 Const LV 80 20 Const HV 50 15 7:45 Base LV 59 3 Base HV 7 0 Growth LV 288 7 Growth HV 36 1 Const LV 0 0 Const HV 0 0 182 212 Base LV 18 7 Base HV 23 26 Growth LV 2 1 Growth HV 0 0 Const LV 0 0 Const HV 471 663 PM Peak 429 281 Base LV 159 75 Base HV 10 6 Growth LV 20 9 Growth HV 1 1 Const LV 0 0 Const HV 0 0 15:15 Base LV 61 2 Base HV 8 0 Growth LV 218 8 Growth HV 27 1 Const LV 20 15 Const HV 0 0 193 265 Base LV 6 6 Base HV 24 33 Growth LV 1 1 Growth HV 60 0 Const LV 40 0 Const HV 628 444		Currently, CHR(s) and AUL are provided and are compliant with the current demand. During construction, the requirement for CHR/AUL is maintained. Thus, no upgrade is required at this intersection.

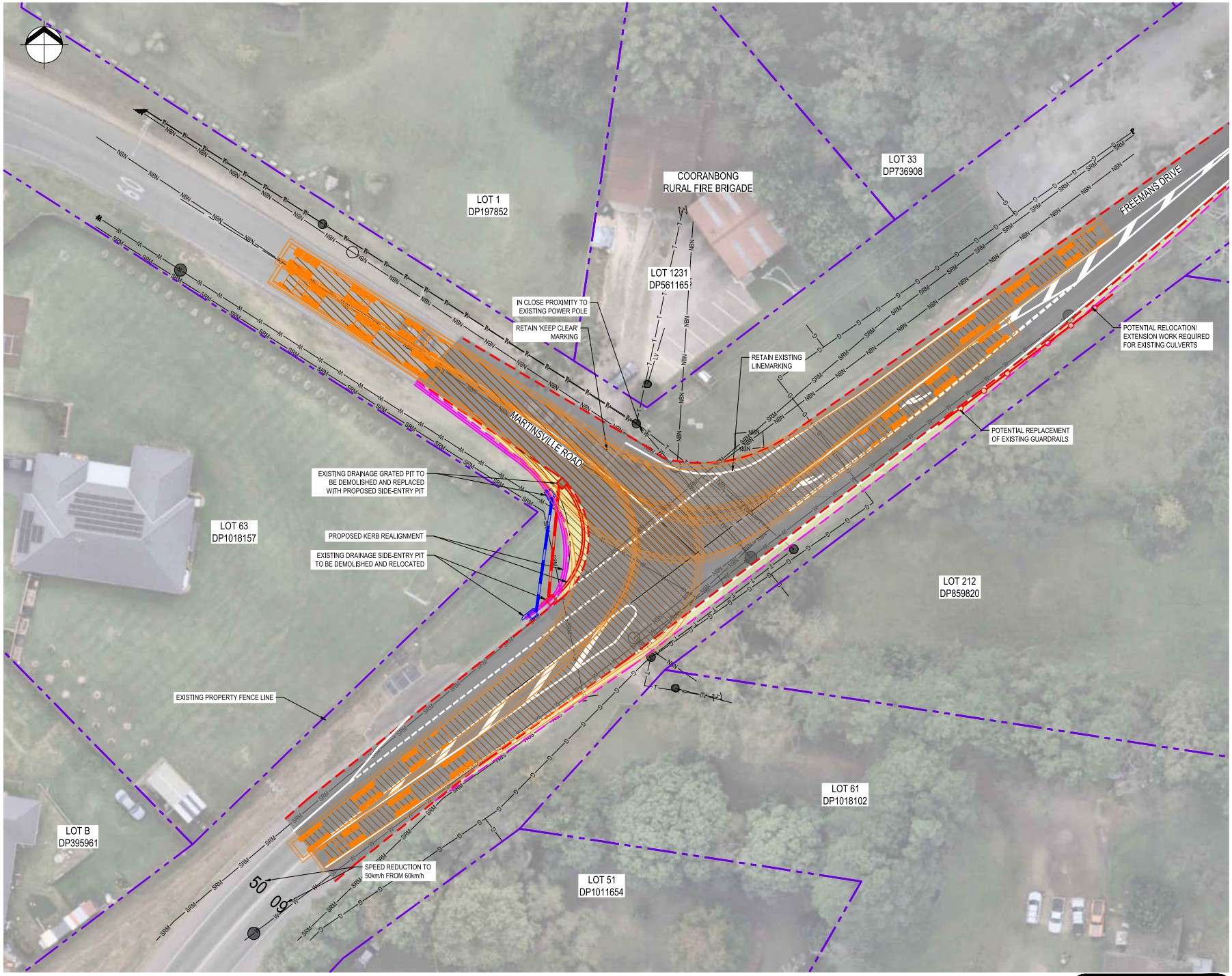
I-58: Freemans Drive/Mount Nellinda Road – proposed access intersection turn warrant assessment

ID	Intersection	Control	HTP 2028 with Construction Peak Volumes	Turn Warrant Assessment	Impact
I-58	Freemans Drive and Mount Nellinda Road	Give Way	AM Peak  PM Peak  	 	Currently, BAR and BAL are provided and are compliant with the current demand. During construction, the requirement for CHR(s) is met. Thus, an upgrade is required at the intersection.

APPENDIX D

PROPOSED INTERSECTION UPGRADES AND MODIFICATIONS

Drawing Plotted: 11:58 AM



NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING NBN (BYDA)
- EX. SEWER RISING MAIN (BYDA)
- EXISTING GAS MAIN (BYDA)
- EXISTING WATER MAIN (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING SIGNAGE
- EXISTING EDGE OF BITUMEN
- EXISTING KERB
- EXISTING DRAINAGE PIPE
- EXISTING DRAINAGE PIT
- PROPOSED KERB
- PROPOSED EDGE OF BITUMEN
- PROPOSED LINEMARKING
- PROPOSED SIGNAGE
- PROPOSED DRAINAGE PIPE
- PROPOSED DRAINAGE PIT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION				
0A	RE-ISSUED FOR TENDER	R.A.	B.S.	A.L.	28.11.25
0	ISSUED FOR TENDER	R.A.	B.S.	A.L.	15.09.25

Original Scale (A1) 1:250m	Design	R.ANDERSON	15.09.25
	Drawn	R.ANDERSON	15.09.25
	Dsg Verifier	D.FINN	15.09.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	15.09.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-23 FREEMANS DR AND MARTINSVILLE RD CONSTRUCTION LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0601-4

Rev.: 0B

Document No.: 2583080-CA-ANC-0601-4.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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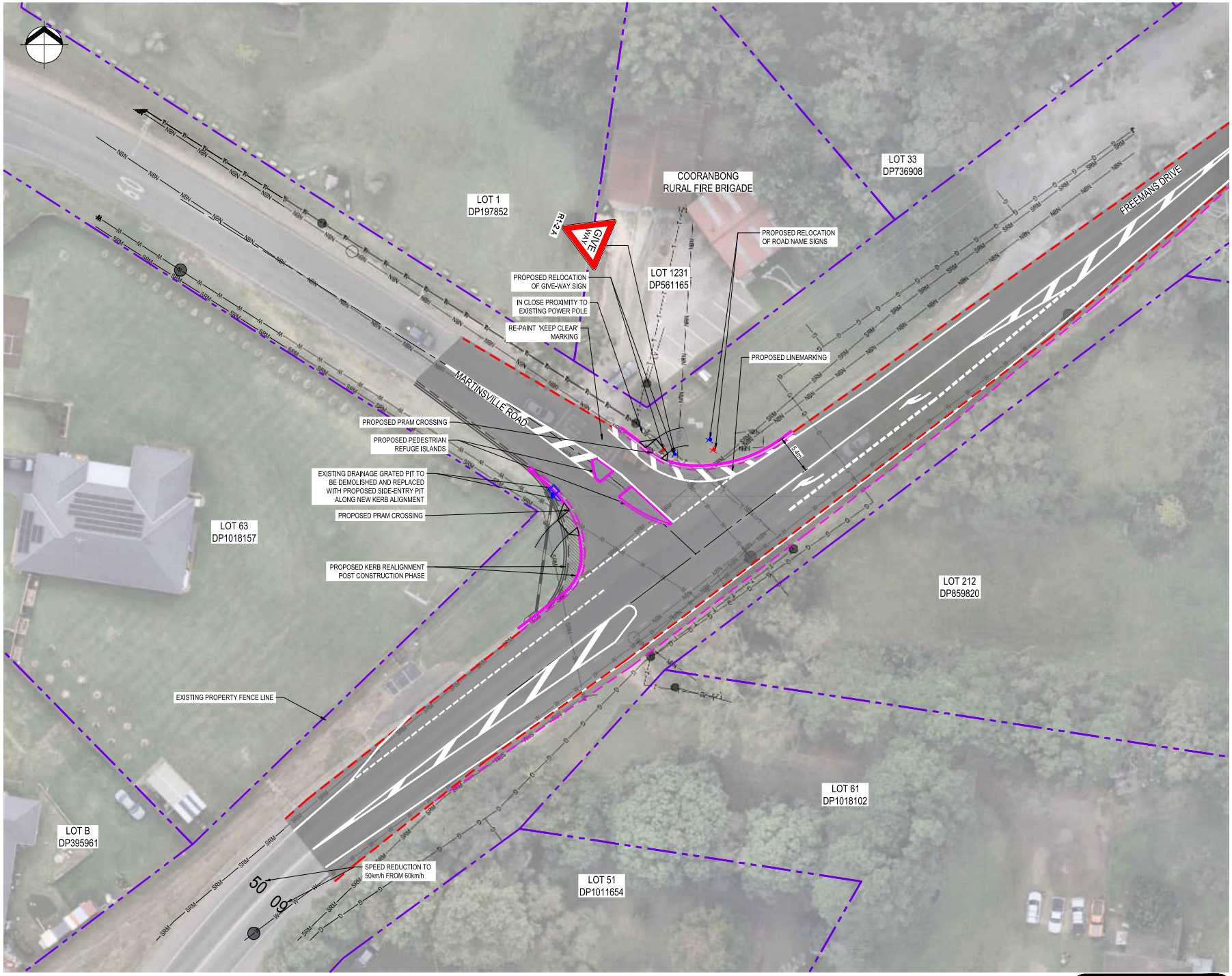

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING NBN (BYDA)
- EX. SEWER RISING MAIN (BYDA)
- EXISTING GAS MAIN (BYDA)
- EXISTING WATER MAIN (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING SIGNAGE
- EXISTING EDGE OF BITUMEN
- CONSTRUCTION LAYOUT KERB
- CONSTRUCTION LAYOUT DRAINAGE PIPE
- CONSTRUCTION LAYOUT DRAINAGE PIT
- PROPOSED KERB
- PROPOSED EDGE OF BITUMEN
- PROPOSED LINEMARKING
- PROPOSED SIGNAGE
- PROPOSED DRAINAGE PIPE
- PROPOSED DRAINAGE PIT
- AREA REQUIRING DEMOLITION AFTER CONSTRUCTION PHASE

No.	Revision	By	Chk	Appd	Date
0	FOR INFORMATION				

Original Scale (A1) 1:250m	Design	R.ANDERSON	16.12.25
	Drawn	R.ANDERSON	16.12.25
	Dsg Verifier		
Reduced Scale (A3) 1:500m	Drg Check		

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-23 FREEMANS DR AND MARTINSVILLE RD POST CONSTRUCTION LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0601-5

Rev.: 0

Document No.: 2583080-CA-ANC-0601-5.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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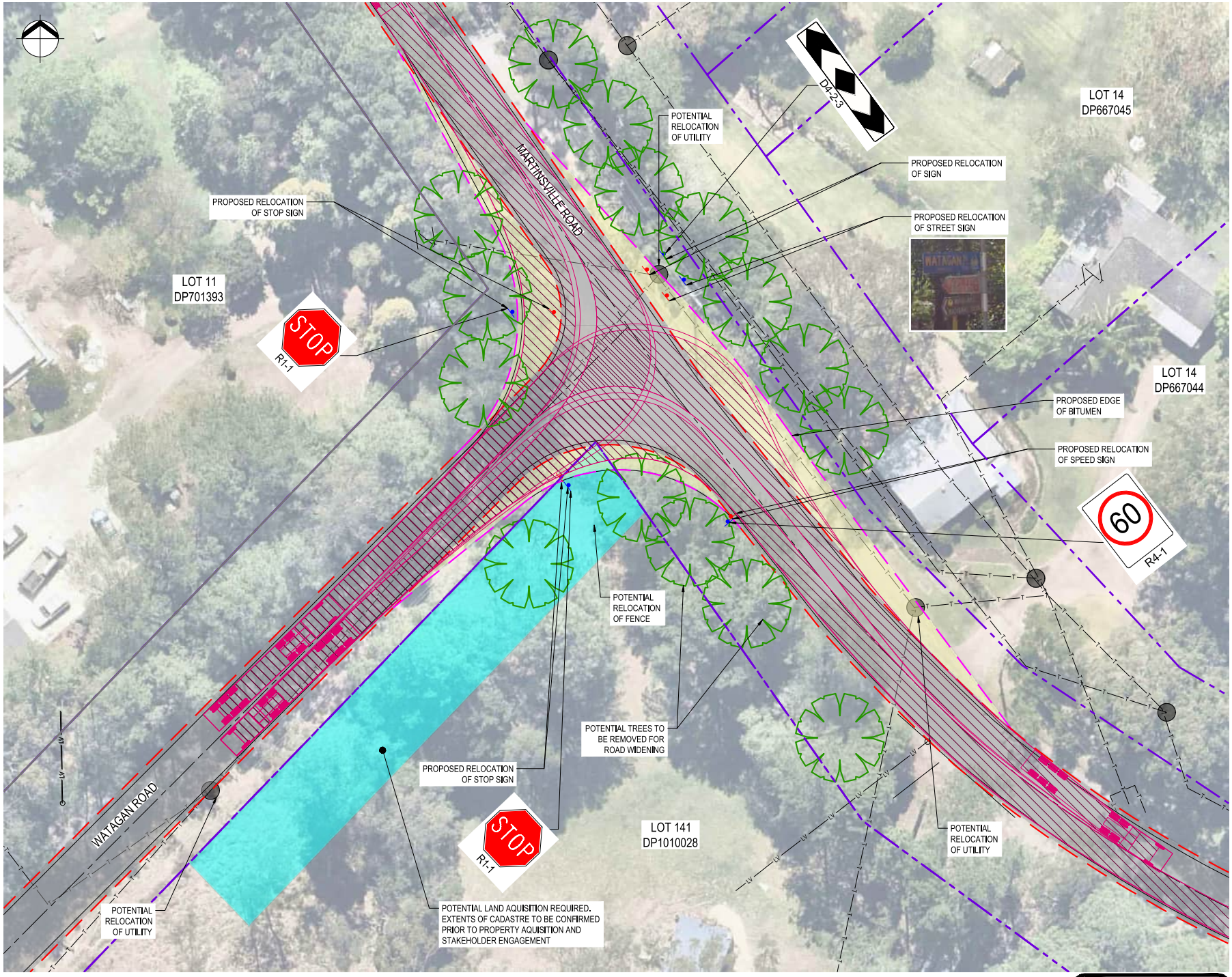

NOTE:

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2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING TELSTRA (BYDA)
- EXISTING AUSGRID LV (BYDA)
- EXISTING ROAD CENTRELINE
- EXISTING SIGNAGE
- PROPOSED SIGNAGE
- EXISTING EDGE OF BITUMEN
- PROPOSED EDGE OF BITUMEN
- EXISTING TREE
- PAVEMENT AREA REQUIRING KERB WIDENING
- POTENTIAL LAND ACQUISITION
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	REISSUED FOR TENDER	C.R.L.	B.S.	A.I.	28.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.I.	24.01.25

Original Scale (A1) 1:200m	Design	B.STRANG	24.01.25	Approved For Construction*
	Drawn	W.GOH	24.01.25	
	Dsg Verifier	D.FINN	24.01.25	
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25	Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-25 MARTINSVILLE RD AND WATAGAN RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0602 | Beca Project Number: | Rev.: 0A

Document No.: 2583080-CA-ANC-0602.DWG

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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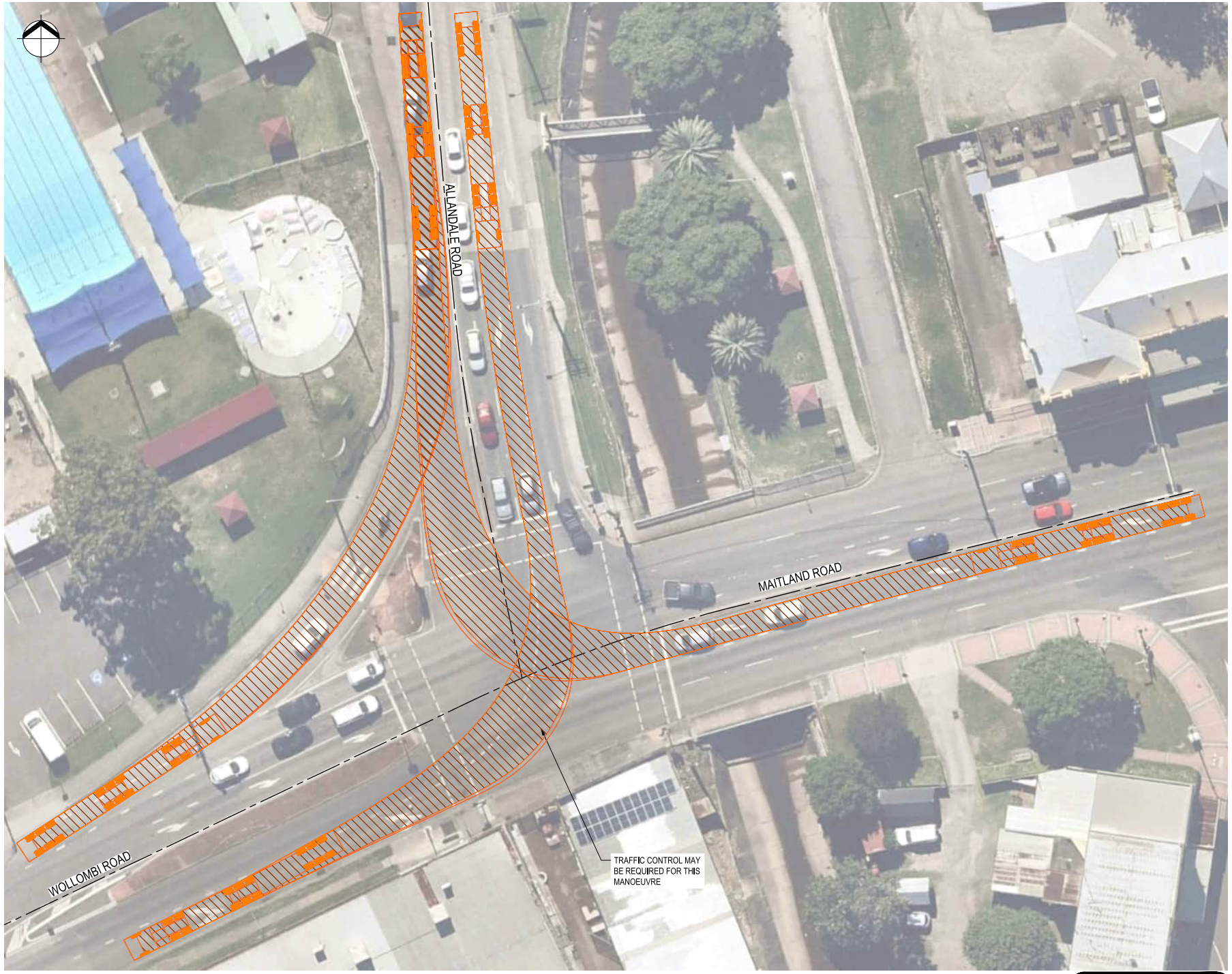
Drawing Plotted: 11:40 AM



NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.

LEGEND

EXISTING ROAD CENTRELINE

SWEPT PATH
26m B-DOUBLE
TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-16a WOLLOMBI RD AND ALLANDALE RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0603 Rev.: 0A

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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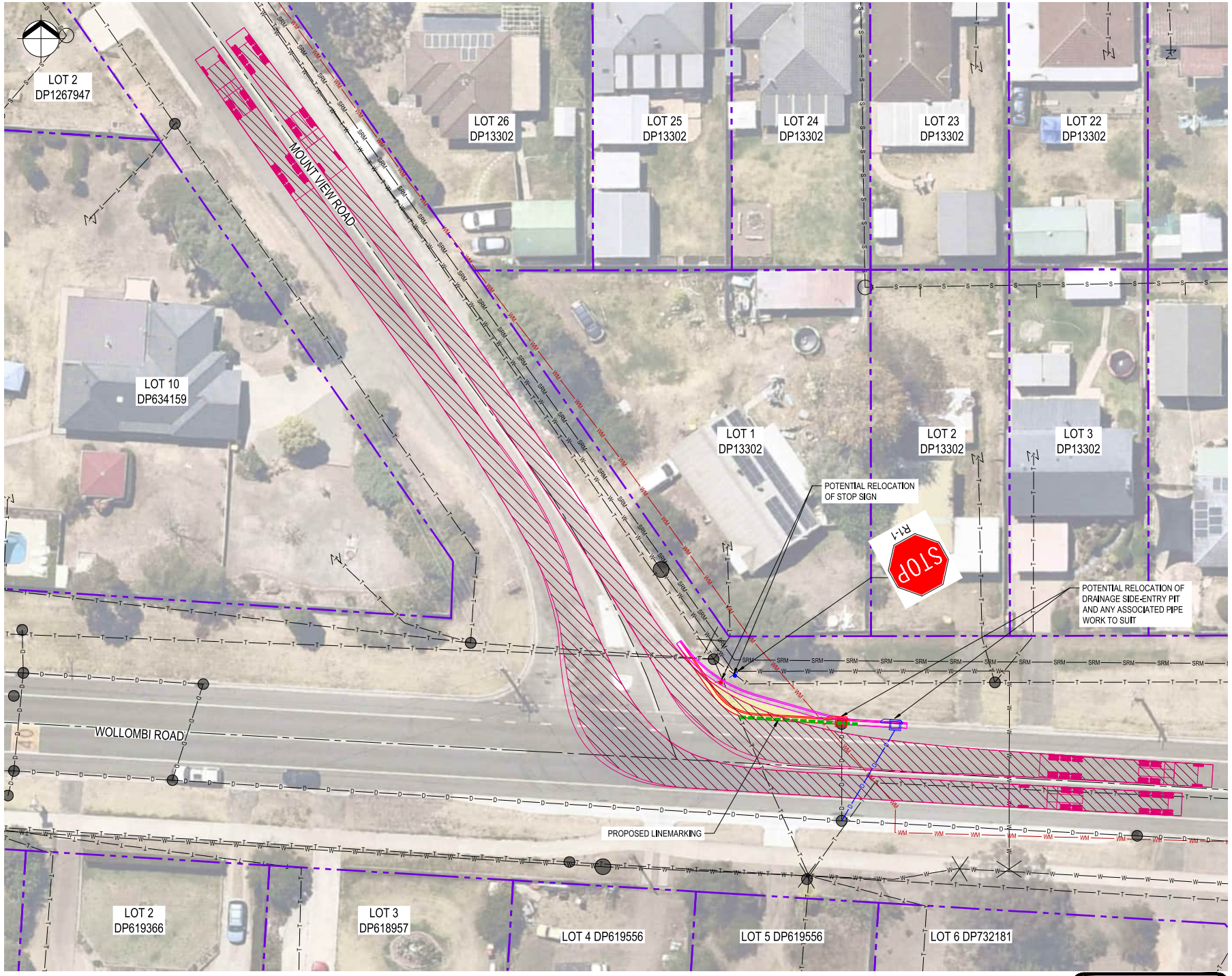
Document No.: 2583080-CA-ANC-0603.DWG

Drawing Plotted: 11:40 AM



NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING SEWER MAIN (BYDA)
- EX. SEWER RISING MAIN (BYDA)
- EXISTING DRAINAGE (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. WATER MAIN - ABANDONED
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING KERB
- EXISTING DRAINAGE PIT
- EXISTING SIGNAGE
- PROPOSED KERB
- PROPOSED LINEMARKING
- PROPOSED DRAINAGE PIT
- PROPOSED DRAINAGE
- PROPOSED SIGNAGE
- PAVEMENT AREA REQUIRING KERB WIDENING
- SWEPT PATH - 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-19 WOLLOMBI RD AND MT VIEW RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0604 Rev.: 0A

Document No.: 2583080-CA-ANC-0604.DWG

0 2 4 8 12
Full Size A1 1:200 : Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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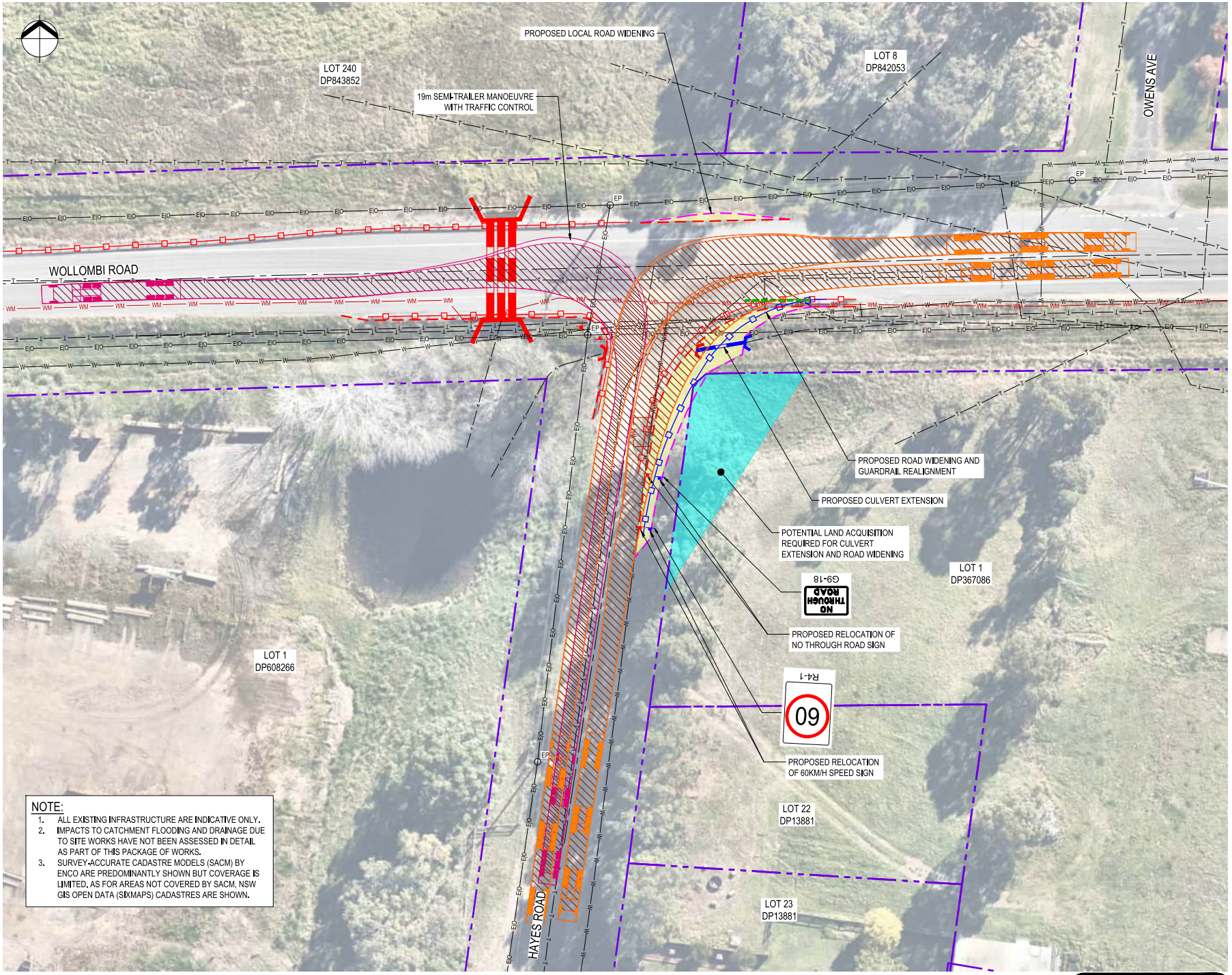

LEGEND

- EXISTING WATER MAIN (BYDA)
- EX. WATER MAIN - ABANDONED
- EXISTING TELSTRA (BYDA)
- EX. ELEC POLE AND LINE
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN
- EXISTING GUARDRAIL
- EXISTING SWALE
- EXISTING CULVERT
- EXISTING SIGNAGE
- PROPOSED EDGE OF BITUMEN
- PROPOSED GUARDRAIL
- PROPOSED LINEMARKING
- PROPOSED CULVERT EXT.
- PROPOSED SIGNAGE
- AREA REQUIRING ROAD WIDENING
- POTENTIAL LAND ACQUISITION
- SWEPT PATH - 19m SEMI-TRAILER TURN SPEED 15km/h
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

OPTION A
ACCESS ROAD UPGRADE ONLY

NOTE:
1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-20 WOLLOMBI RD AND HAYES RD OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0605-1 Rev.: 0A

Document No.: 2583080-CA-ANC-0605-1.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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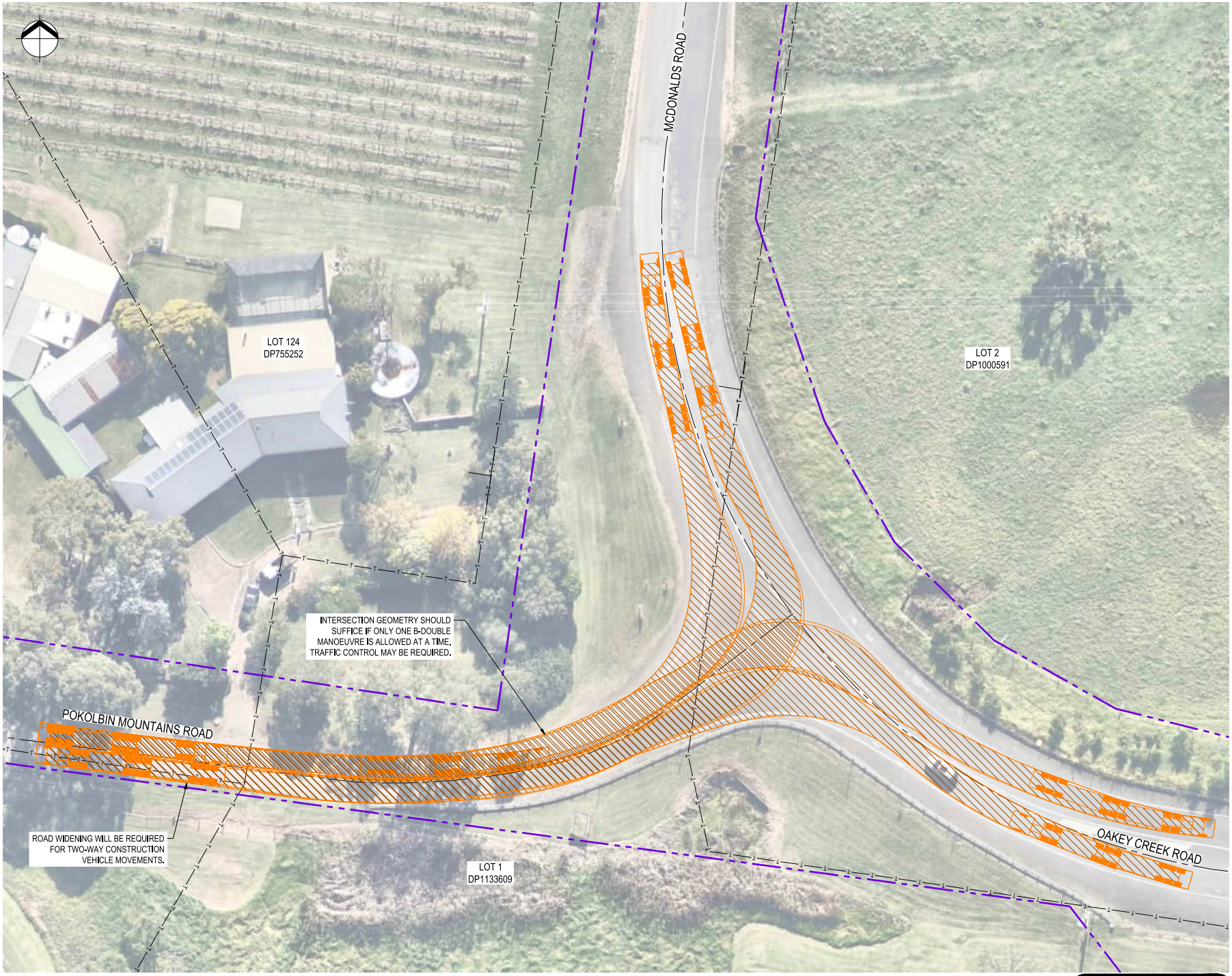

NOTE:

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2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
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LEGEND

- EXISTING TELSTRA (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

OPTION A
NO UPGRADE

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	A.SEIP	24.01.25
	Drawn	W.GOH	24.01.25
Reduced Scale (A3) 1:500m	Dsg Verifier	D.RNN	24.01.25
	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-15 MCDONALDS RD AND POKOLBIN MOUNTAINS RD OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0606-1

Rev.: 0A

Document No.: 2583080-CA-ANC-0606-1.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

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CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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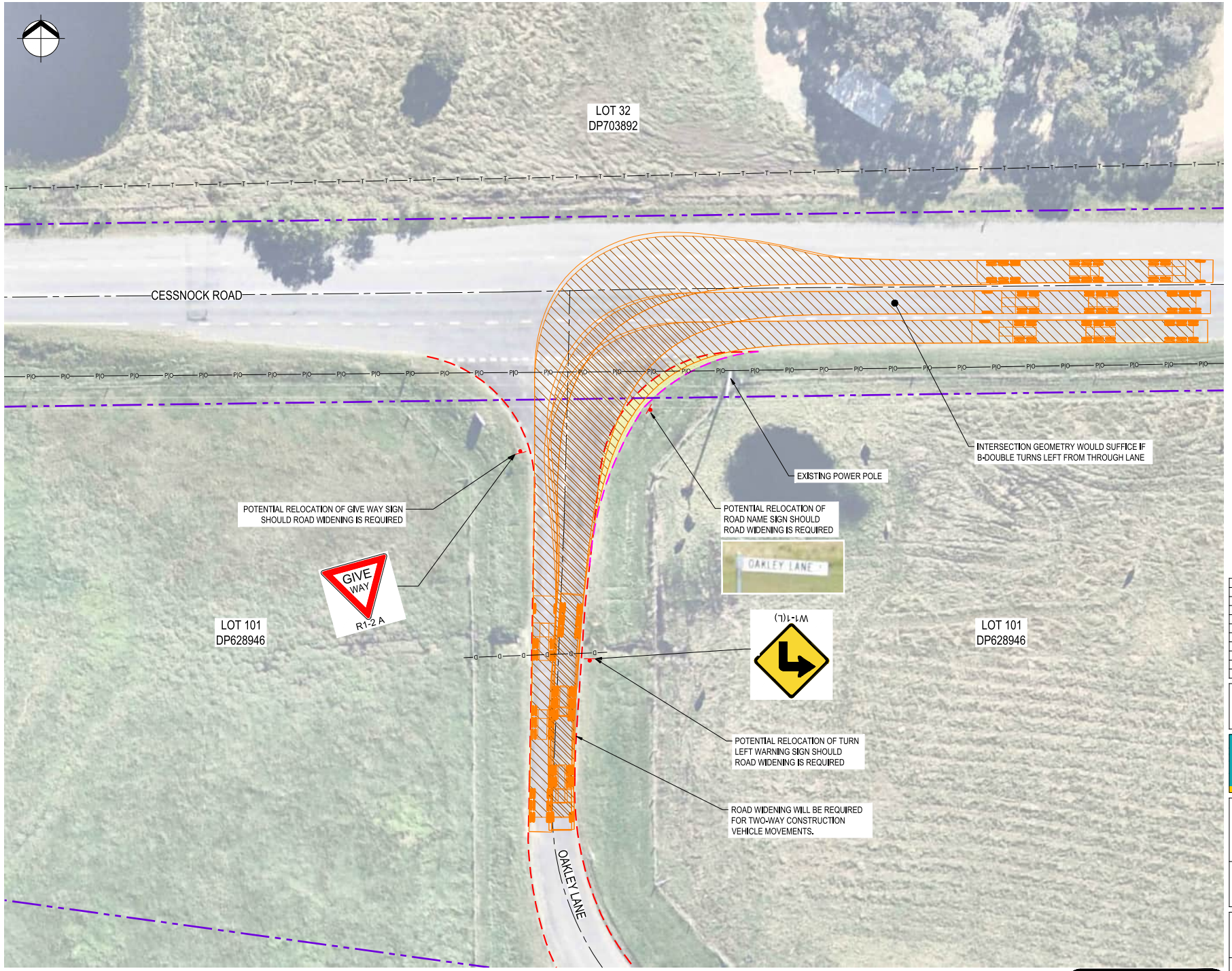

NOTE:

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2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
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LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN
- EXISTING SIGNAGE
- PROPOSED EDGE OF BITUMEN
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

OPTION A
ACCESS ROAD UPGRADE ONLY

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Design	A.SEIP	24.01.25	Approved For Construction*
Drawn	W.GOH	24.01.25	
Dsg Verifier	D.RNN	24.01.25	
Drg Check	B.STRANG	24.01.25	Date

Original Scale (A1) 1:200m
Reduced Scale (A3) 1:400m
* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-21a CESSNOCK RD AND OAKLEY LN OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0607-1

Rev.: 0A

Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m) 0 2 4 8 12

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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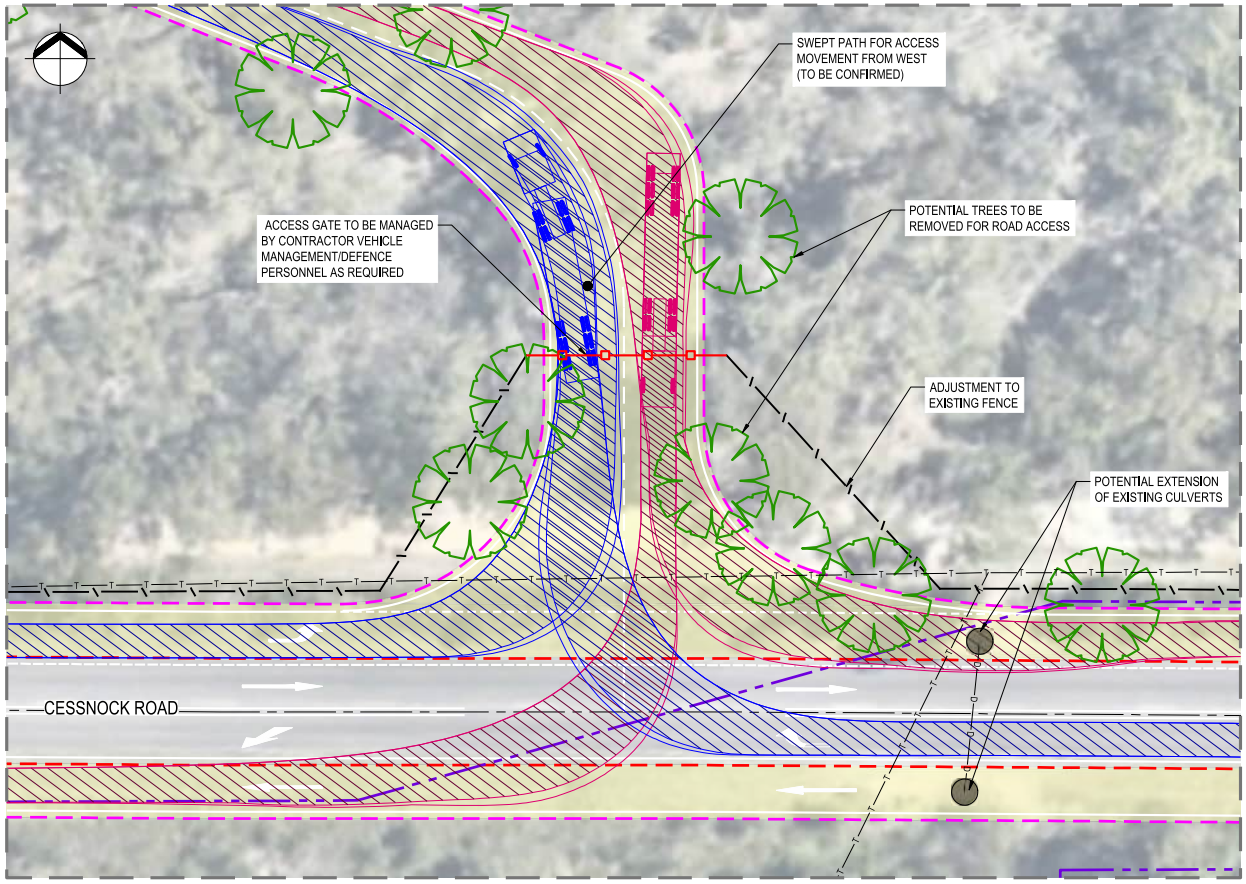
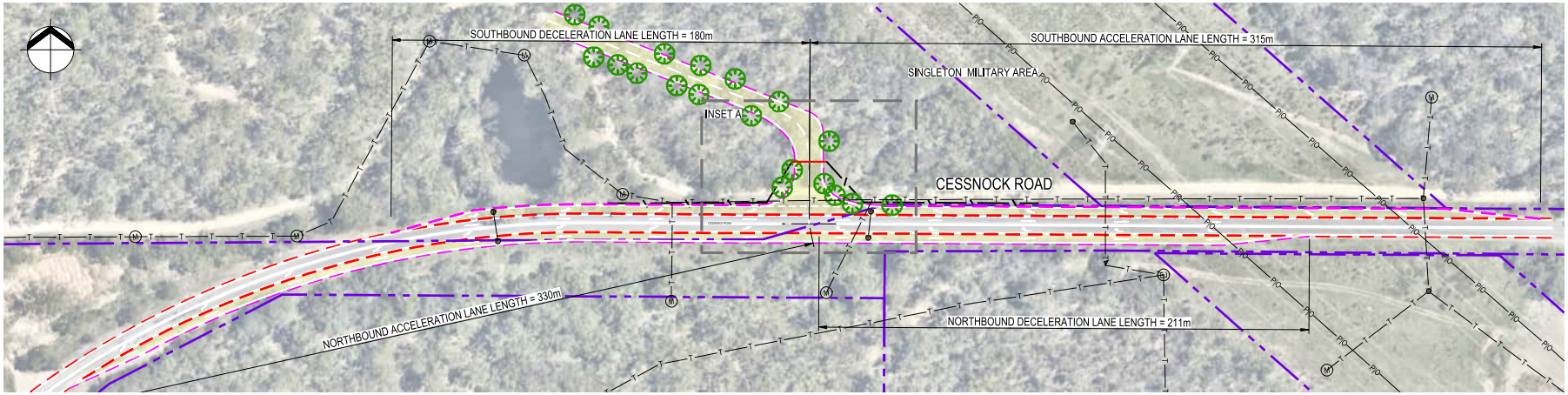
Document No.: 2583080-CA-ANC-0607-1.DWG



INSET A
1:200 @ A1



LAYOUT
1:1000 @ A1

NOTE:
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3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND
- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- PROPOSED ACCESS GATE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING TREE
- EXISTING PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER TURN SPEED 15km/h (PREFERRED MANOEUVRE)
- SWEPT PATH - 19m SEMI-TRAILER TURN SPEED 15km/h (TO BE CONFIRMED)

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) AS SHOWN	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RNN	24.01.25
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-37 CESSNOCK RD AND NEW ACCESS (TOWER 85) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0608 Rev.: 0A

Document No.: 2583080-CA-ANC-0608.DWG

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

BEFORE YOU DIG

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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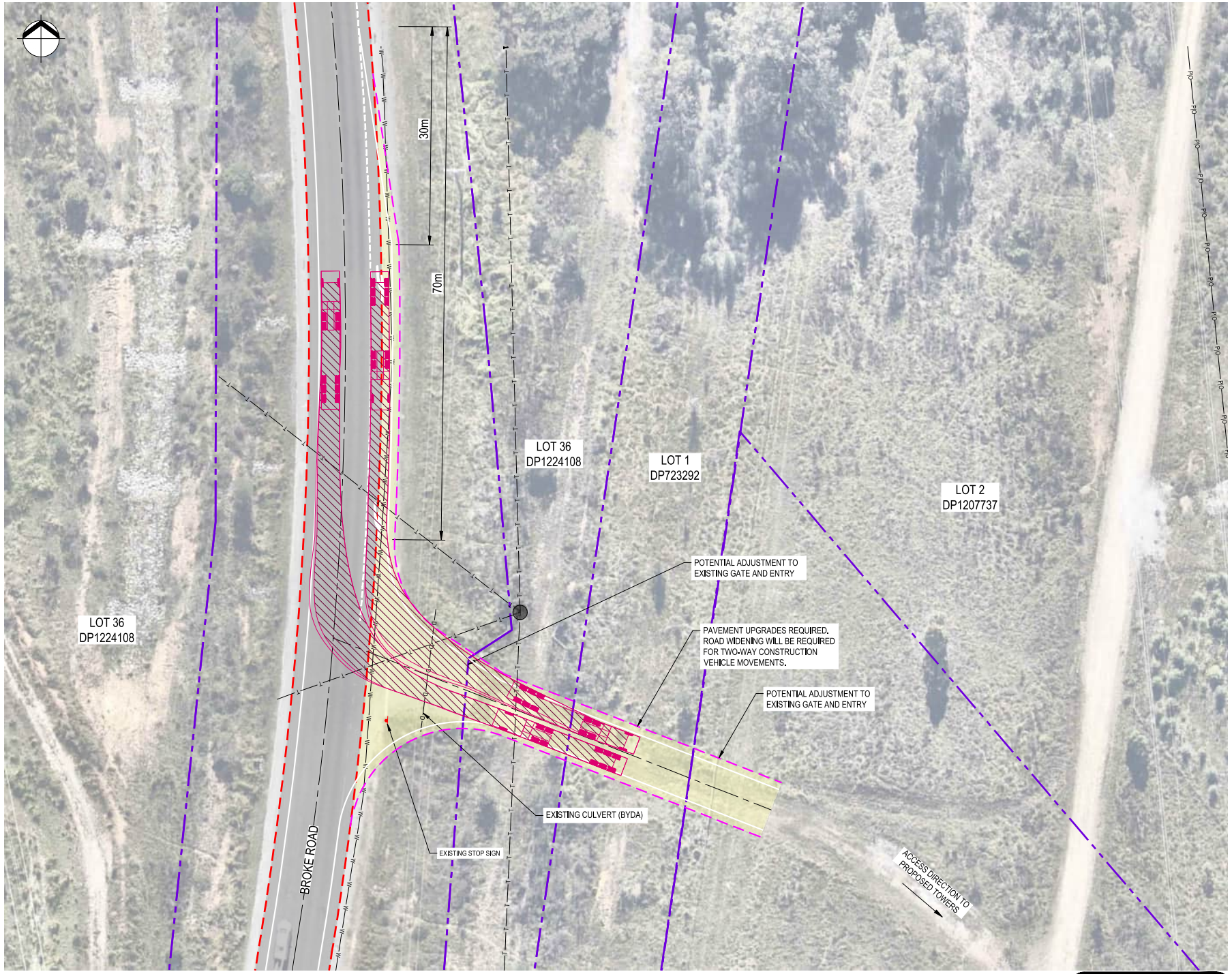

NOTE:

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-38 BROKE RD AND EX ACCESS (NEAR TOWER 95) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0609

Rev.: 0B

Document No.: 2583080-CA-ANC-0609.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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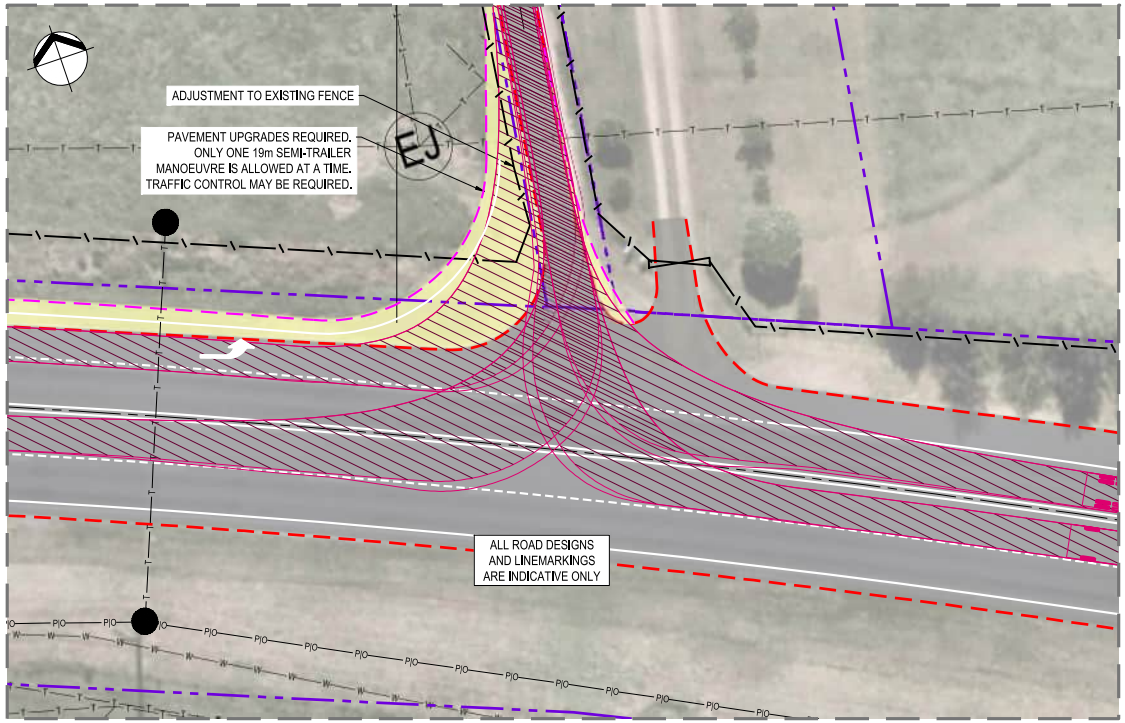


INSET A
1:200 @ A1

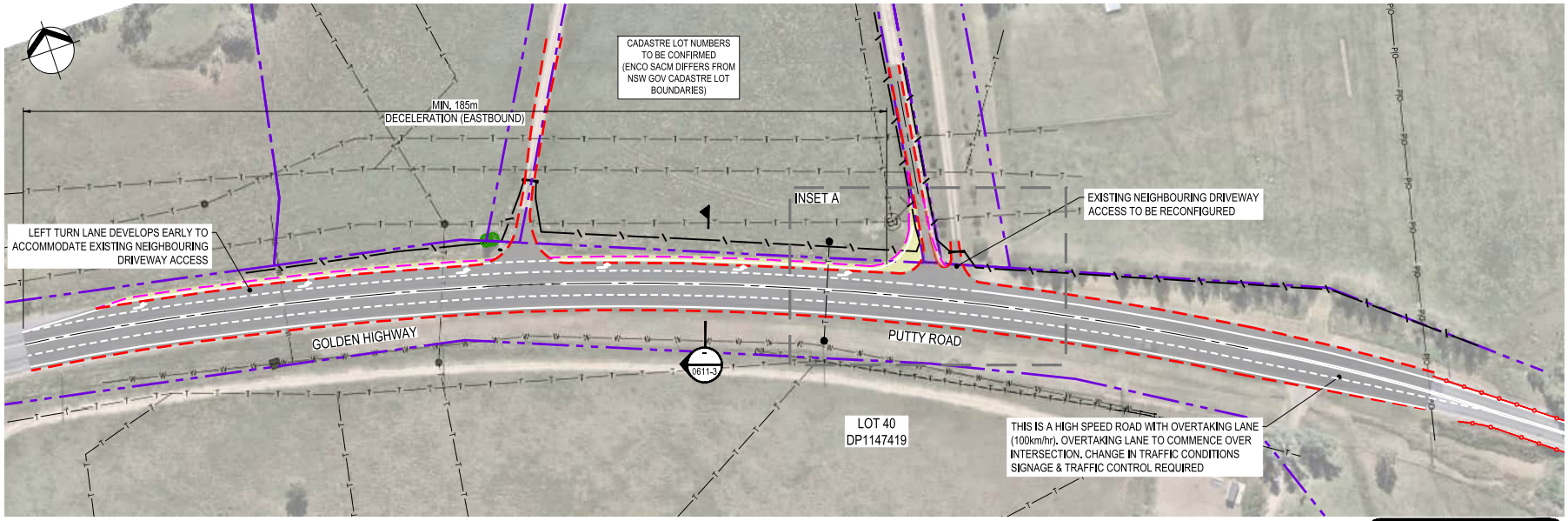
REFER TO 2583080-CA-ANC-0611-1 FOR FURTHER REMARKS ON CADASTRES, EXISTING INFRASTRUCTURES THAT MAY BE AFFECTED AND ASSOCIATED DETAILS

NOTE:
1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

OPTION B
EASTBOUND LANE UPGRADE ONLY



LAYOUT
1:700 @ A1

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

0 7 14 21 28
Full Size A1 1:700 ; Half Reduction A3 1:1400
SCALE (m)

0C	REISSUED FOR TENDER	R.A.	B.S.	A.L.	20.01.26
0B	REISSUED FOR TENDER	R.A.	B.S.	A.L.	28.11.25
0A	REISSUED FOR TENDER	R.A.	B.S.	A.L.	31.10.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25
No.	Revision	By	Chk	Appd	Date

Original Scale (A1) AS SHOWN	Design	A.SEIP	24.01.25	Approved For Construction* Date
	Drawn	W.GOH	24.01.25	
	Dsg Verifier	D.FINN	24.01.25	
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	24.01.25	
	* Refer to Revision 1 for Original Signature			

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-31 PUTTY RD AND EX TRACK OVERALL LAYOUT SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0611-2 Rev.: 0C

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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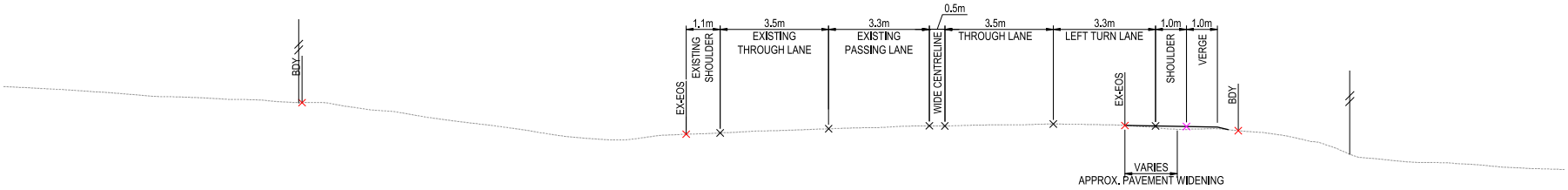
NOTE:
1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.

LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY
- EXISTING EDGE OF SEAL
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- / 0611-2 TYPICAL SECTION - PUTTY RD & EXISTING TRACK
SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	20.01.26
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN	Design			Approved For Construction*
	Drawn			
Reduced Scale (A3) AS SHOWN	Dsg Verifier			
	Drg Check			Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-31 PUTTY RD AND EX TRACK TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0611-3 Rev.: 0A

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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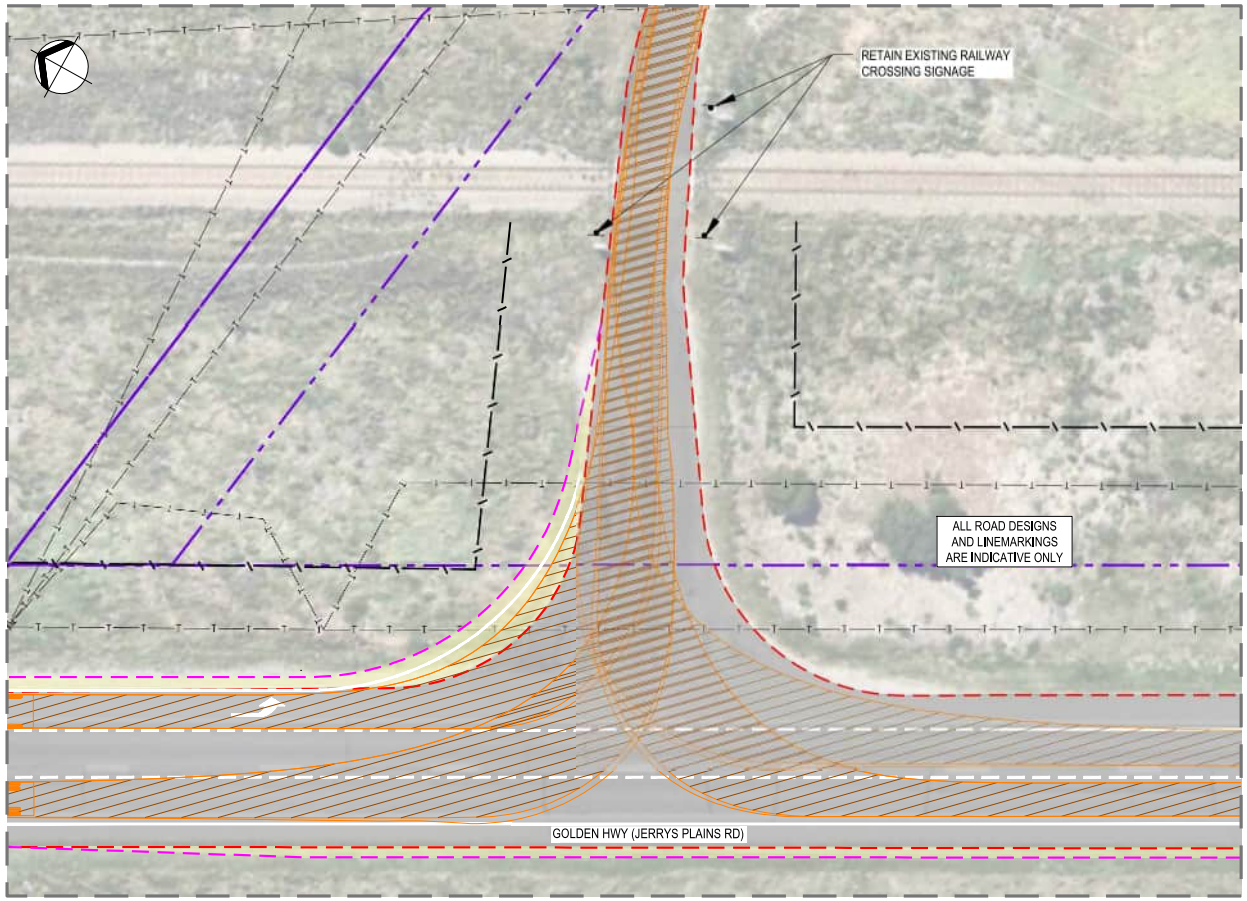
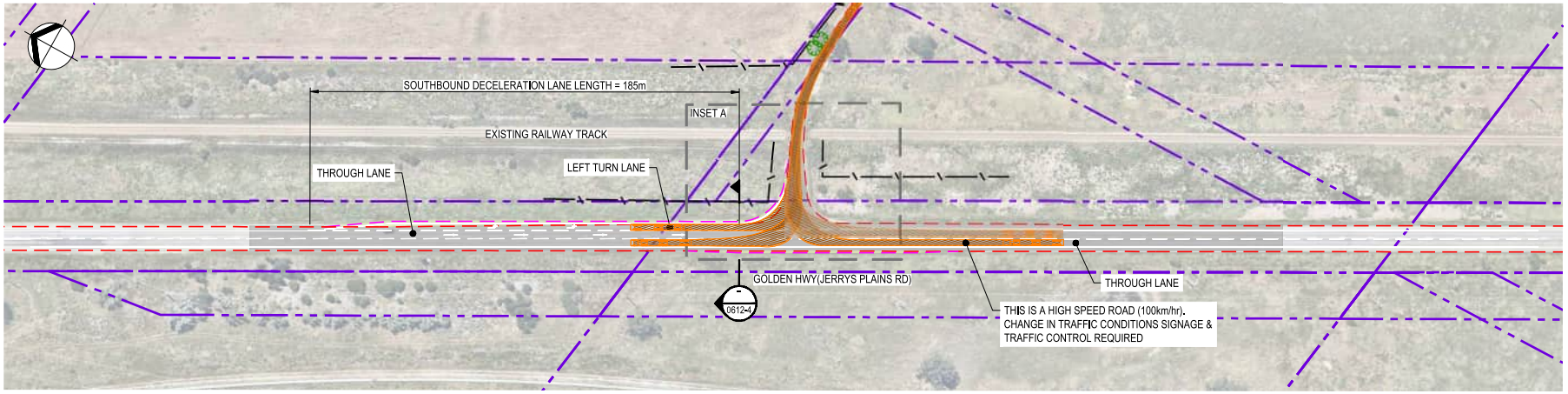
Document No.: 2583080-CA-ANC-0611-3.DWG



INSET A
1:200 @ A1

REFER TO 2583080-CA-ANC-0612-1 FOR FURTHER REMARKS ON CADASTRES, EXISTING INFRASTRUCTURES THAT MAY BE AFFECTED AND ASSOCIATED DETAILS



LAYOUT
1:1000 @ A1

NOTE:
1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	R.A.	B.S.	A.L.	23.01.26
0A	RE-ISSUED FOR TENDER	S.C.	B.S.	A.L.	25.11.25
0	ISSUED FOR TENDER	R.A.	B.S.	A.L.	03.11.25

Original Scale (A1) AS SHOWN	Design	R.ANDERSON	20.11.25	Approved For Construction*
	Drawn	R.ANDERSON	20.11.25	
	Dsg Verifier	D.RINN	20.11.25	
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	20.11.25	Date
	* Refer to Revision 1 for Original Signature			

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-32 GOLDEN HWY AND EX ACCESS (MTW) OVERALL LAYOUT SHEET 3

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0612-3 | Rev.: 0B

Document No.: 2583080-CA-ANC-0612-3.DWG

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

BEFORE YOU DIG

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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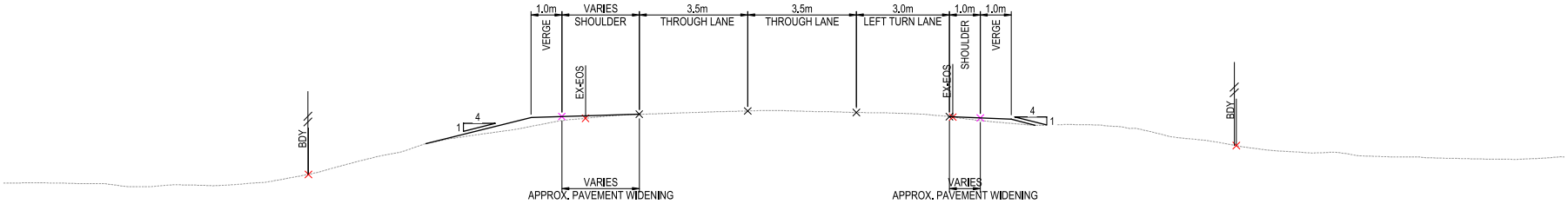
NOTE:
1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.

LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY
- EXISTING EDGE OF SEAL
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- TYPICAL SECTION - GOLDEN HWY & EXISTING ACCESS (MTW)
0612-3 SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	23.01.26
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN
Reduced Scale (A3) AS SHOWN

Design | Drawn | Dsg Verifier | Drg Check

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-32 GOLDEN HWY AND EX ACCESS (MTW) TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0612-4

Rev.: 0A

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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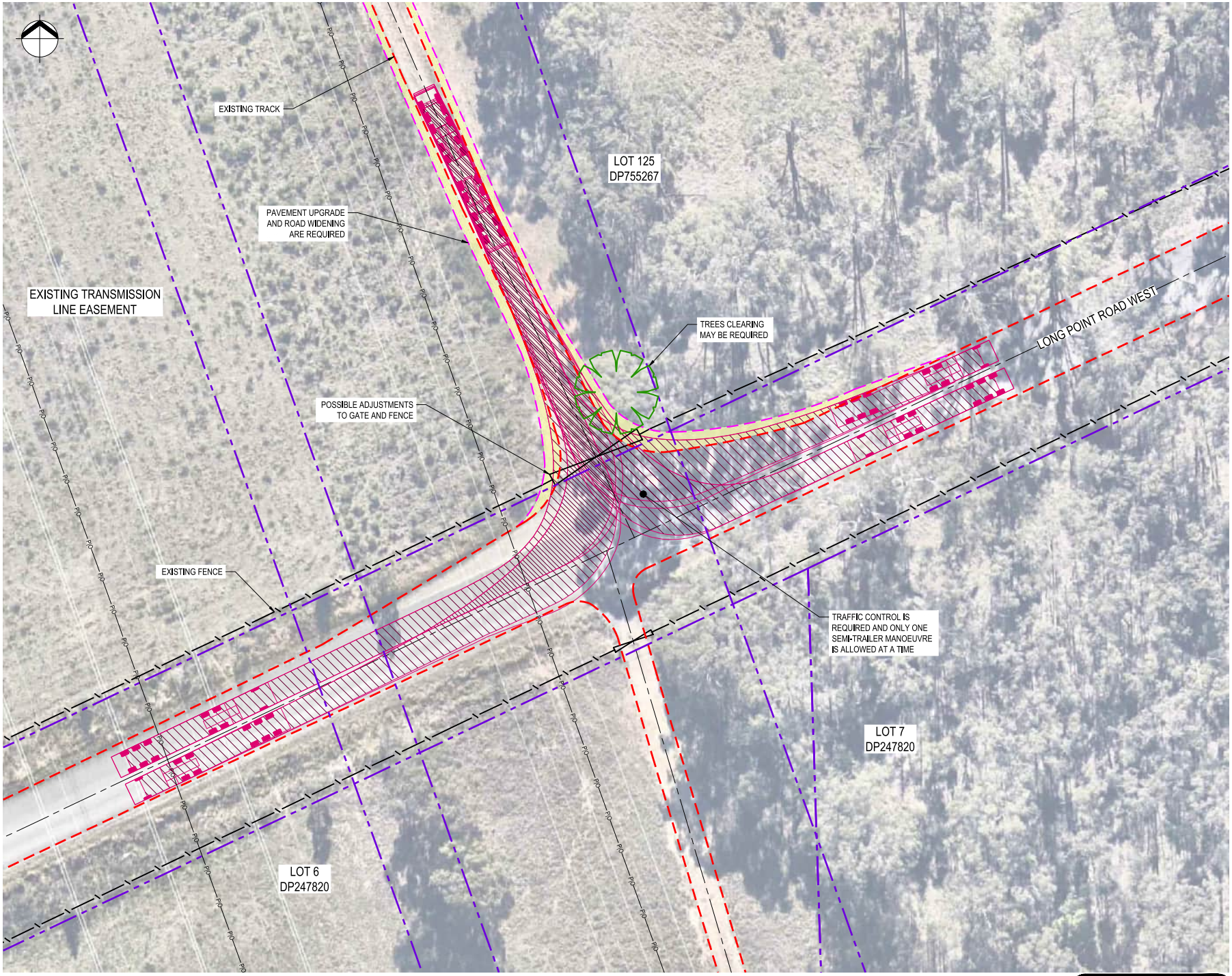
Document No.: 2583080-CA-ANC-0612-4.DWG



NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GATE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

OPTION A
ACCESS ROAD UPGRADE ONLY

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m	Design	A.SEIP	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RNN	24.01.25
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-40 LONG POINT RD W AND EX EASEMENT OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0613-1

Rev.: 0A

Document No.: 2583080-CA-ANC-0613-1.DWG

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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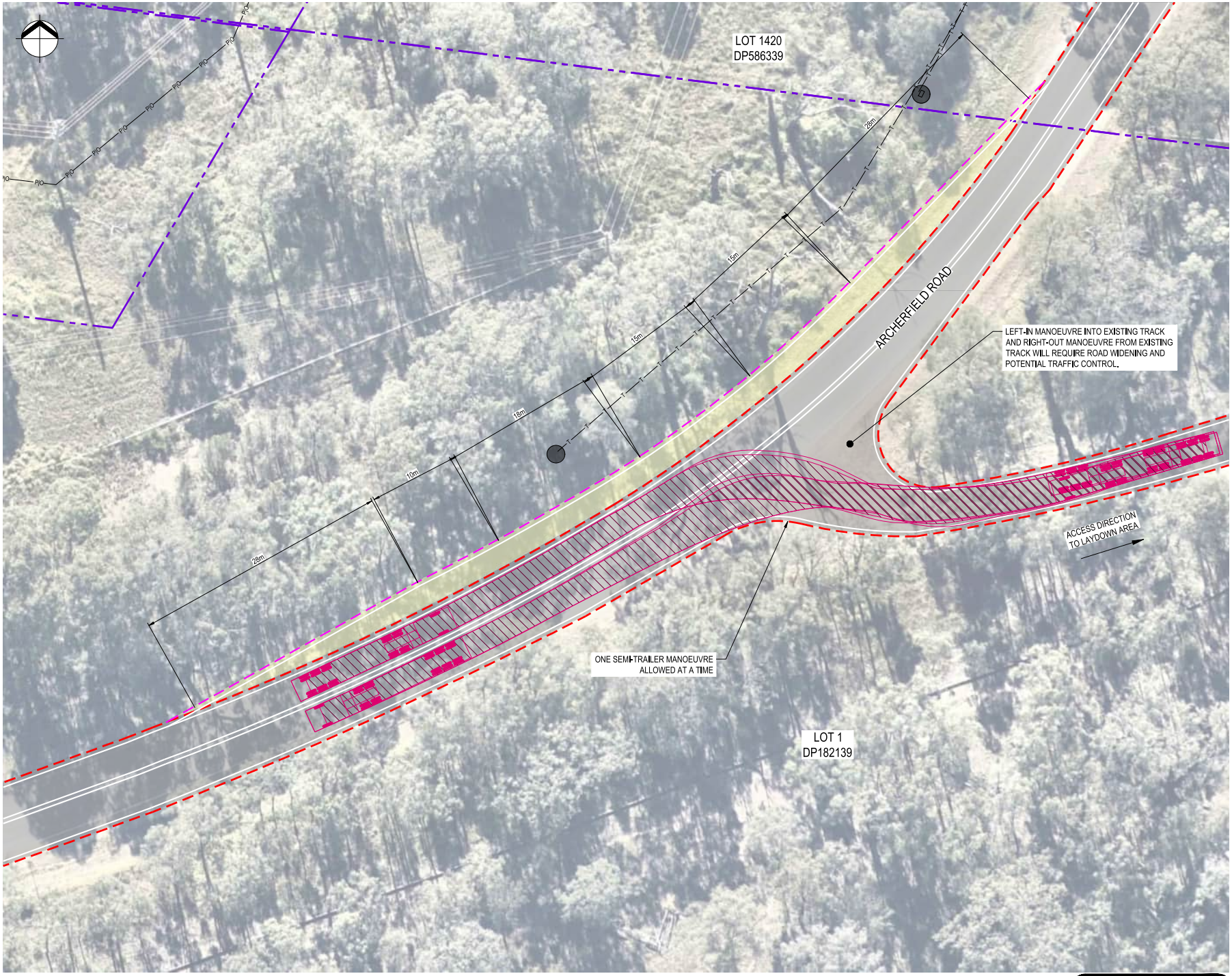

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- PROPOSED EDGE OF BITUMEN
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m / Reduced Scale (A3) 1:400m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RINN	24.01.25
	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-42 ARCHERFIELD RD AND EX ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0614 | Rev.: 0A

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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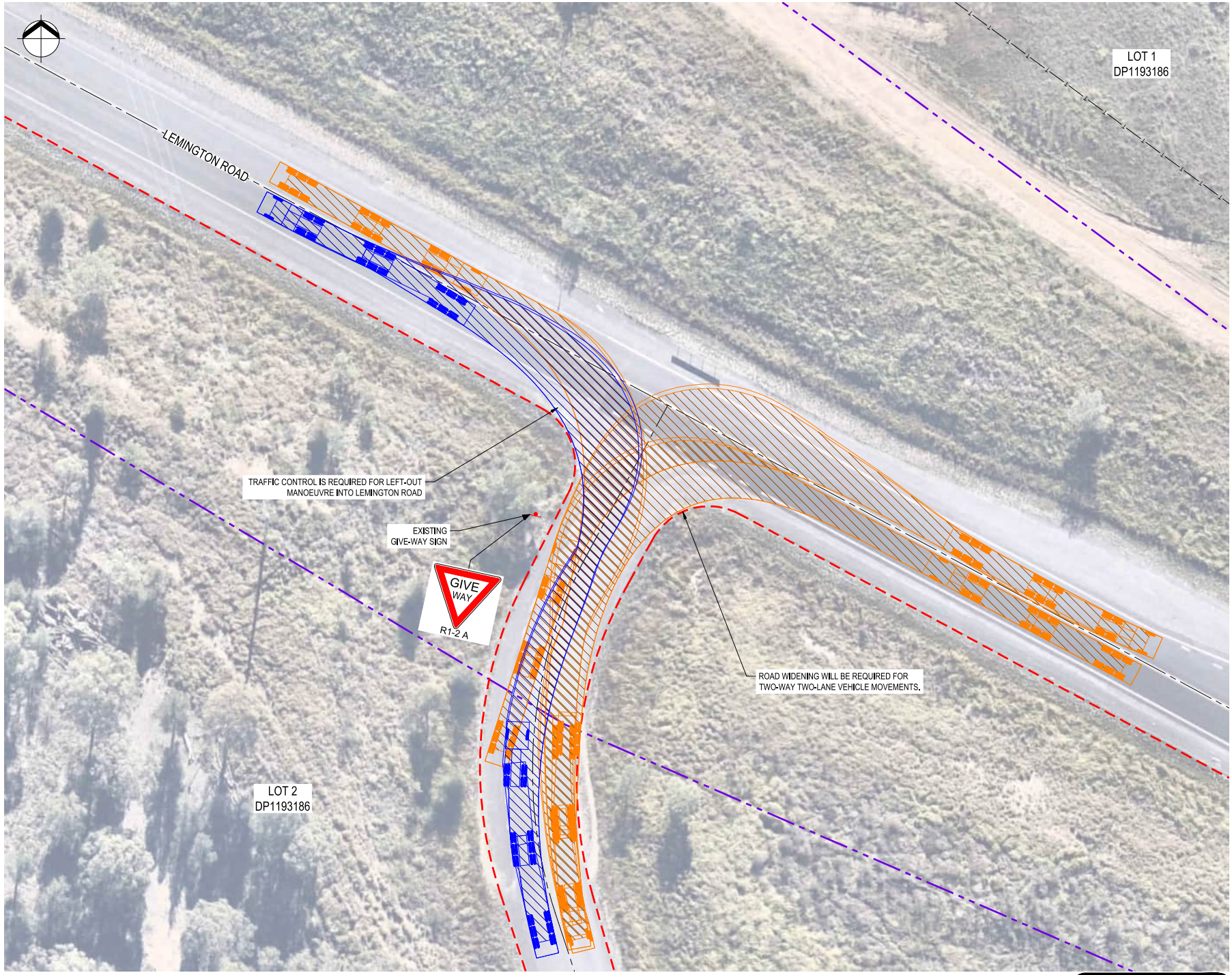

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING SIGNAGE
- SWEPT PATH - 26m B-DOUBLE TURN SPEED 15km/h (WITHOUT TRAFFIC CONTROL)
- SWEPT PATH - 26m B-DOUBLE TURN SPEED 15km/h (WITH TRAFFIC CONTROL)

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-43 LEMINGTON RD AND EX ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0615 Rev.: 0A

Document No.: 2583080-CA-ANC-0615.DWG

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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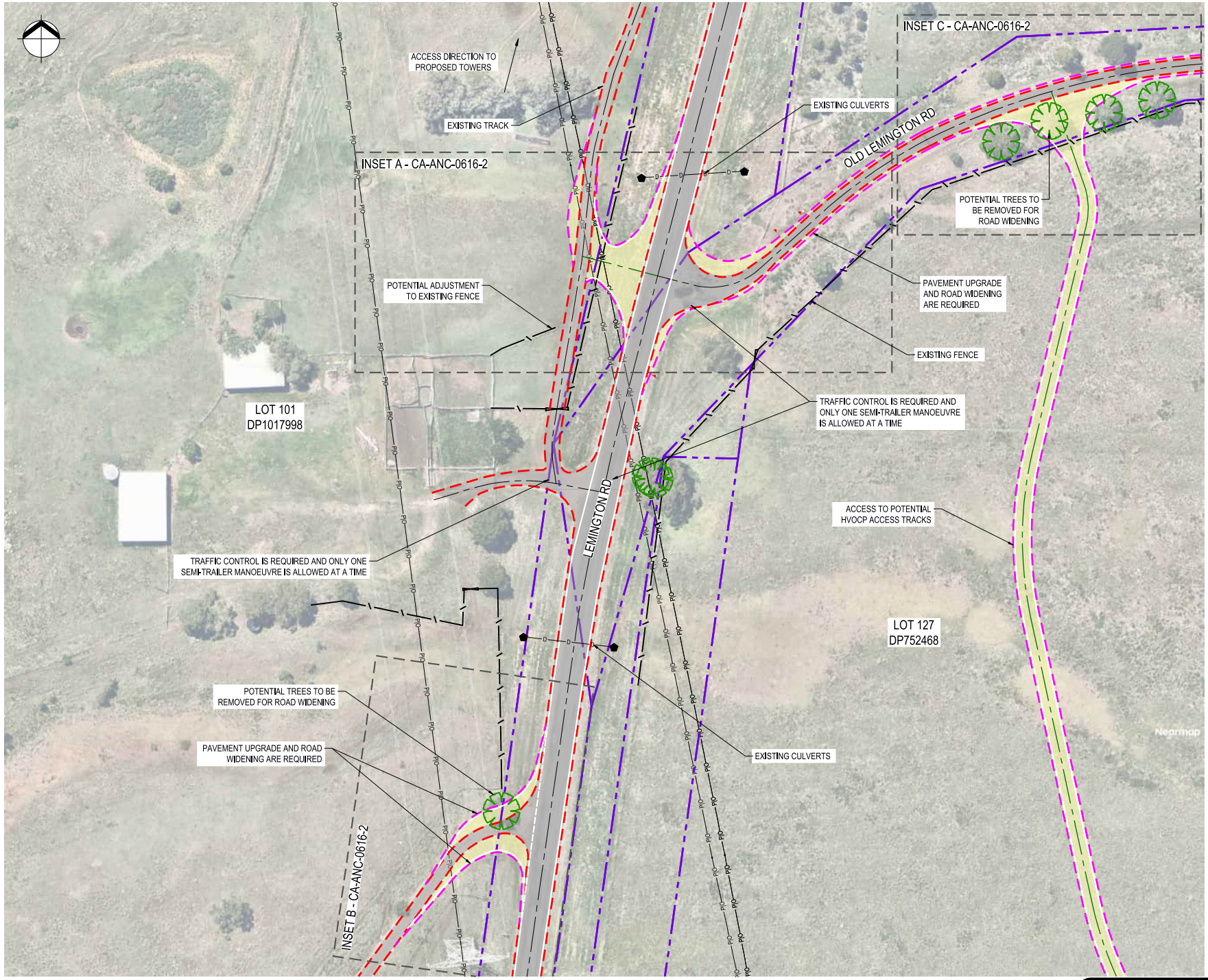

LAYOUT
1:500 @ A1

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING DRAINAGE (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GATE
- EXISTING TREE
- PROPOSED ROAD CENTRELINE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- NEW ACCESS ROAD / AREA REQUIRE ROAD WIDENING

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:500m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
Reduced Scale (A3) 1:1000m	Dsg Verifier	D.FINN	24.01.25
	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-50 LEMINGTON RD AND OLD LEMINGTON RD OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0616-1

Rev.: 0A

Document No.: 2583080-CA-ANC-0616-1.DWG

CONCEPT DESIGN
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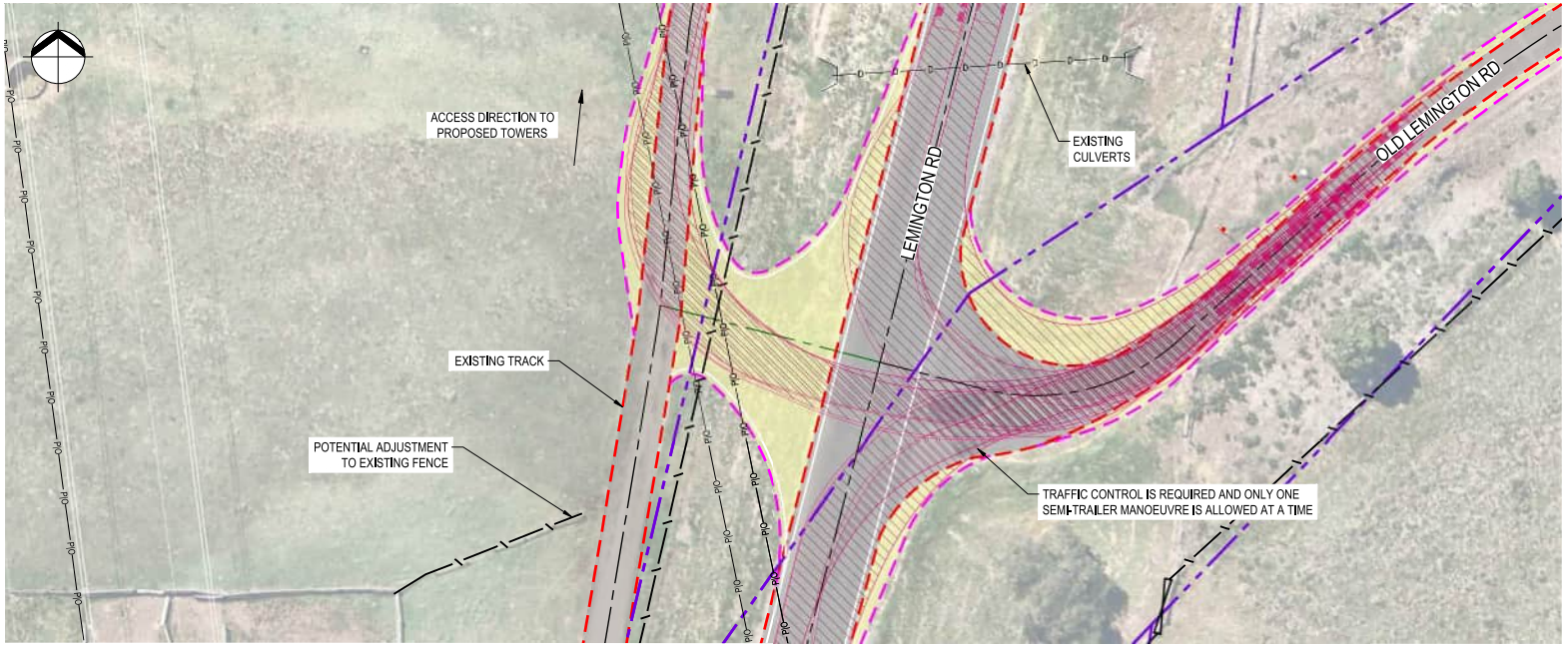


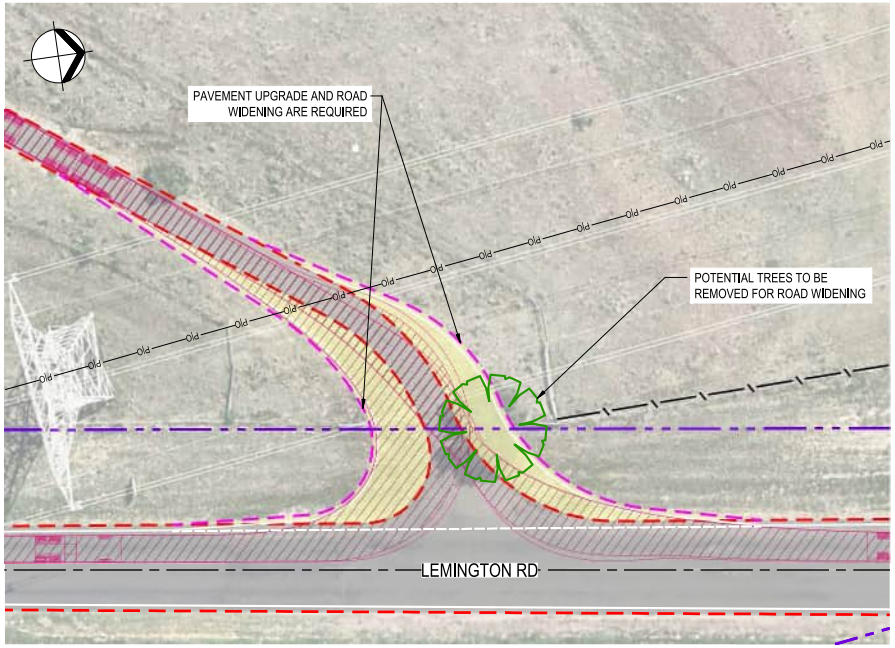
INSET A
1:250 @ A1

NOTE:

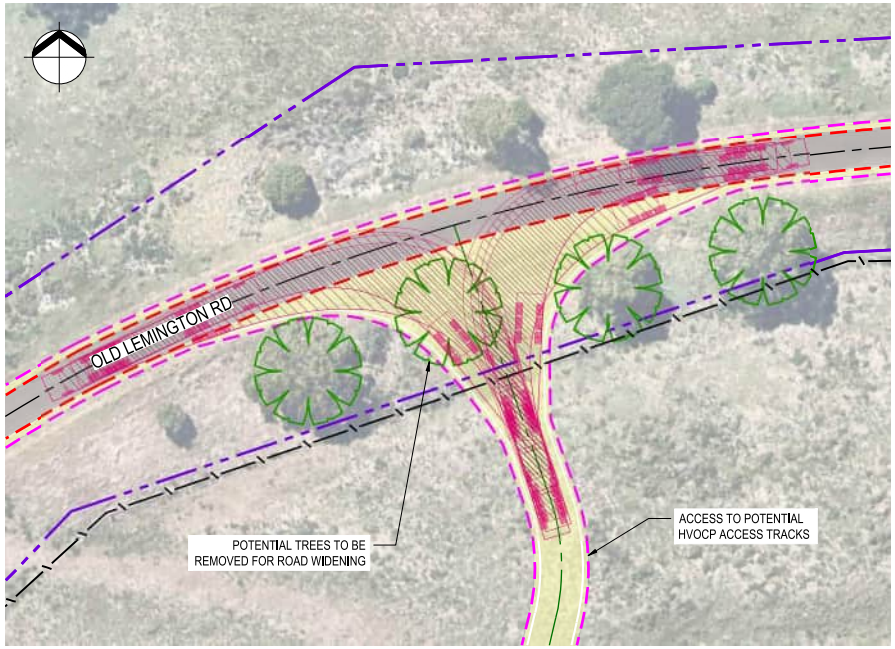
1. ALL EXISTING INFRASTRUCTURES ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING DRAINAGE (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING SIGNAGE
- EXISTING FENCE
- EXISTING GATE
- EXISTING TREE
- PROPOSED ROAD CENTRELINE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- NEW ACCESS ROAD / AREA REQUIRE ROAD WIDENING
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h



INSET B
1:250 @ A1



INSET C
1:250 @ A1

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
Reduced Scale (A3) 1:500m	Dsg Verifier	D.RINN	24.01.25
	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-50 LEMINGTON RD AND OLD LEMINGTON RD INSET A, B, C SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0616-2

Rev.: 0A

Document No.: 2583080-CA-ANC-0616-2.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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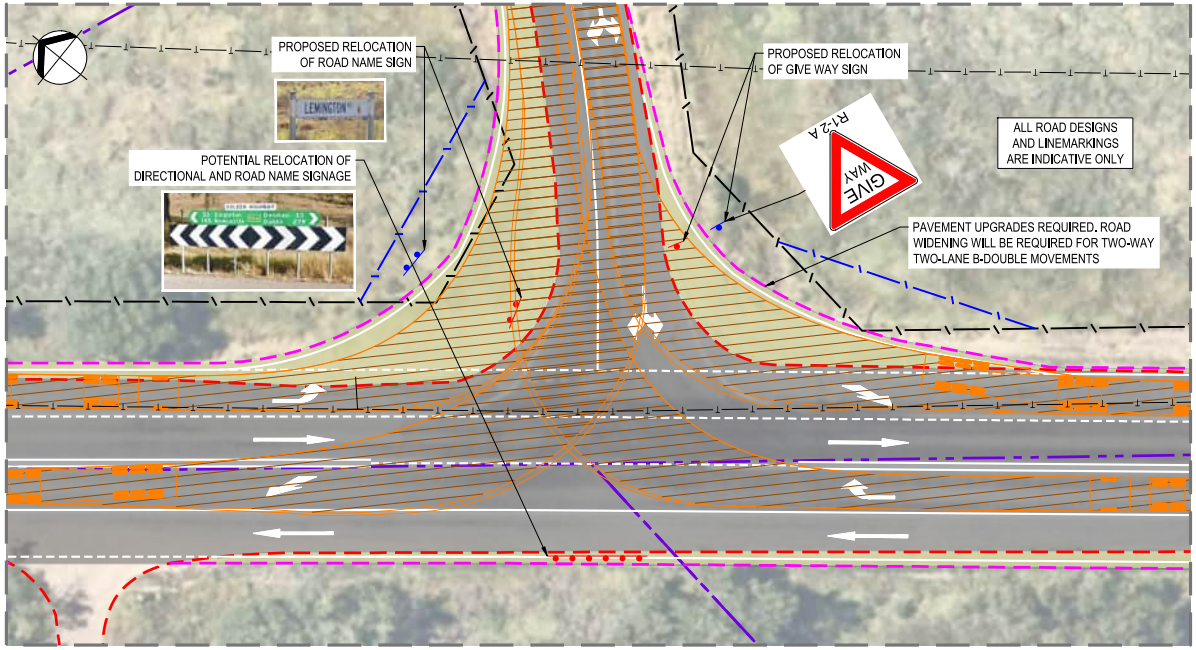
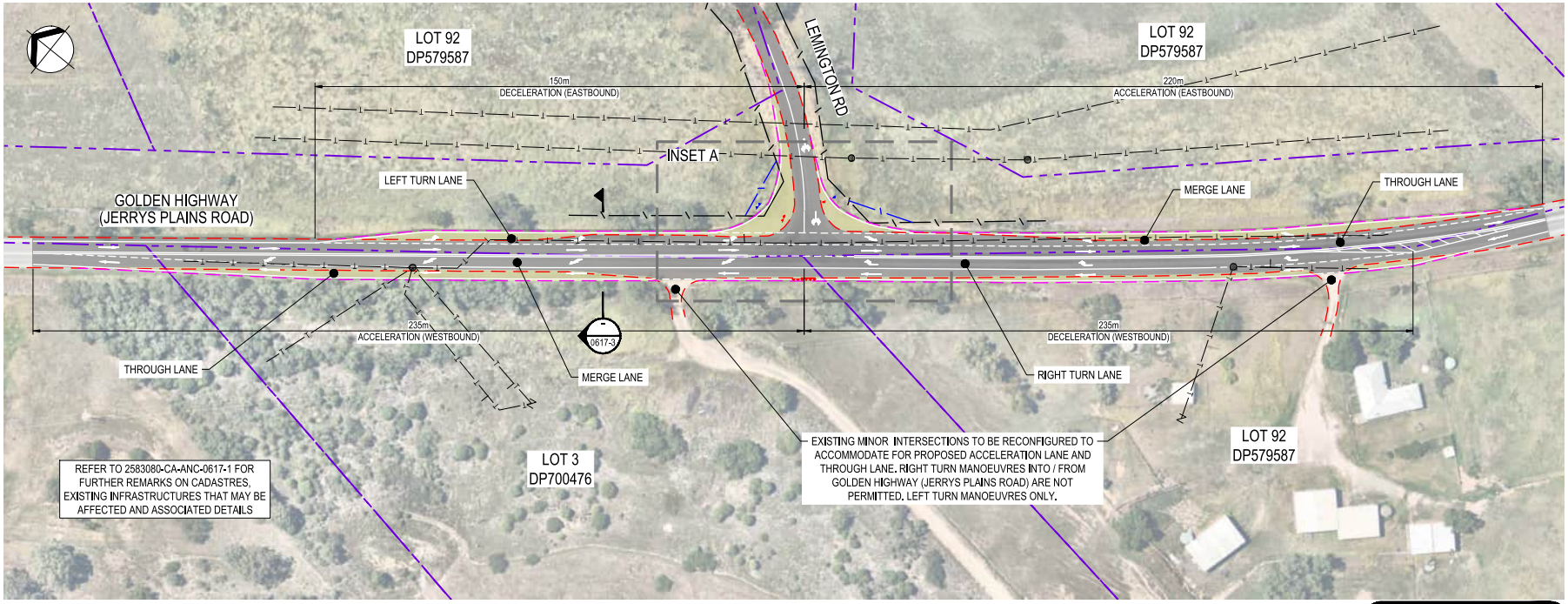


INSET A
1:200 @ A1



LAYOUT
1:700 @ A1

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

0 7 14 28 42
Full Size A1 1:700 ; Half Reduction A3 1:1400
SCALE (m)

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING SIGNAGE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PROPOSED FENCE
- PROPOSED SIGNAGE
- PAVEMENT
- AREA REQUIRE ROAD WIDENING
- SWEPT PATH 26m B-DOUBLE TURN SPEED 15km/h

OPTION B
FULL INTERSECTION UPGRADE

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) AS SHOWN	Design	A.SEIP	24.01.25	Approved For Construction*
	Drawn	W.GOH	24.01.25	
Reduced Scale (A3) AS SHOWN	Dsg Verifier	D.FINN	24.01.25	
	Drg Check	B.STRANG	24.01.25	Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-03 LEMINGTON RD AND GOLDEN HWY OVERALL LAYOUT SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0617-2 | Rev.: 0A

Document No.: 2583080-CA-ANC-0617-2.DWG

CONCEPT DESIGN
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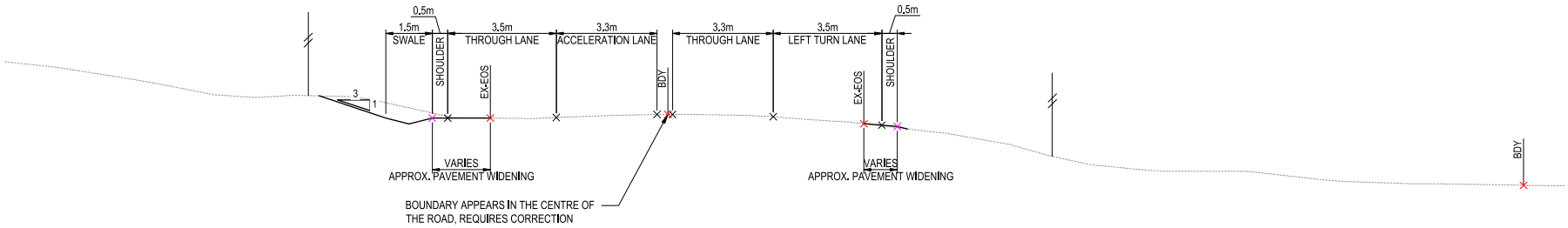
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.

LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY (BDY)
- EXISTING EDGE OF SEAL (EX-EOS)
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- TYPICAL SECTION - GOLDEN HWY & LEMINGTON RD
0617-2 SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN
Reduced Scale (A3) AS SHOWN
Design | Drawn | Dsg Verifier | Drg Check
Approved For Construction* Date
* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-03 LEMINGTON RD AND GOLDEN HWY TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0617-3 Rev.: 0

Document No.: 2583080-CA-ANC-0617-3.DWG

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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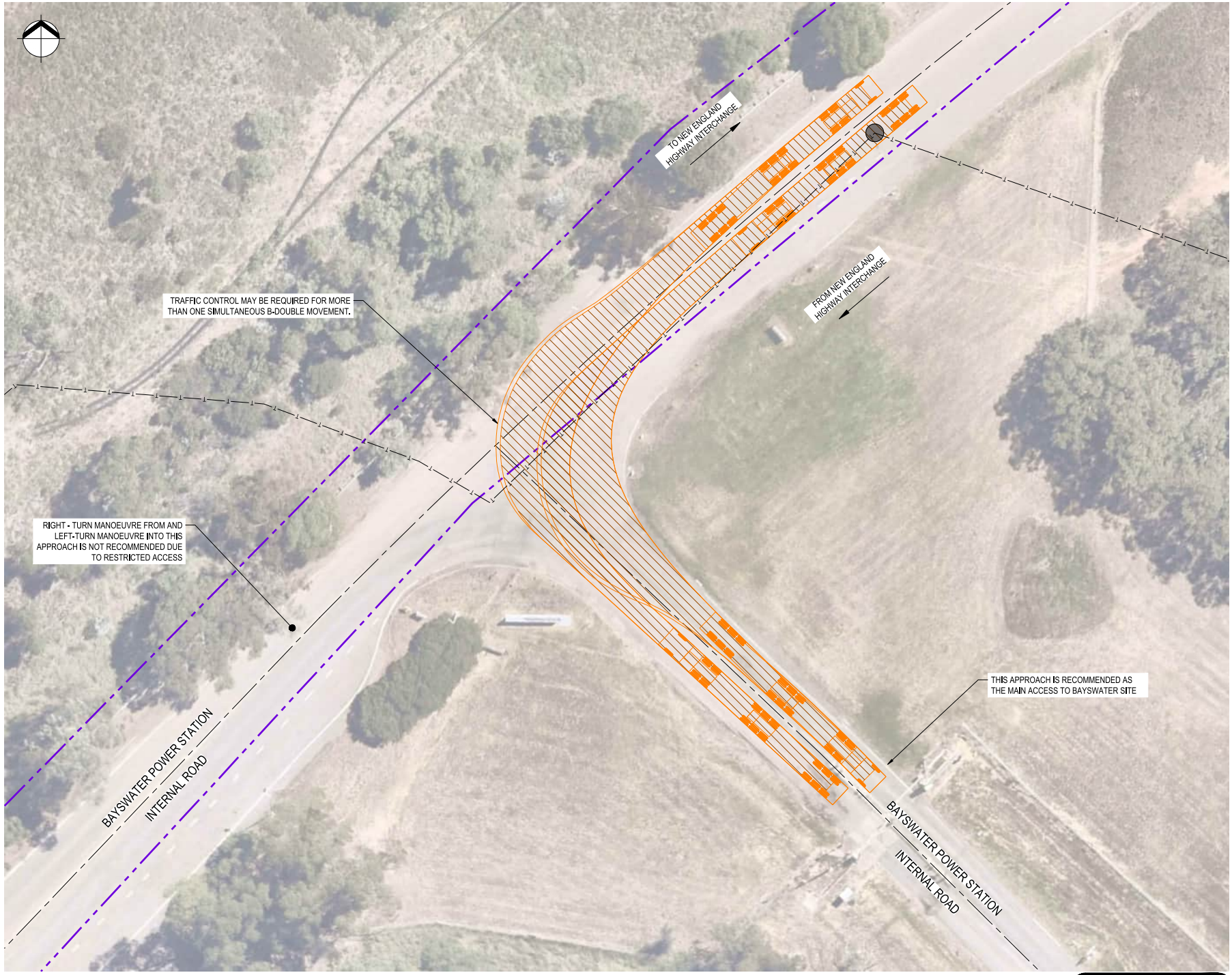

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- SWEPT PATH 26m B-DOUBLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:200m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:400m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-44 MAIN ACCESS TO BAYSWATER SITE OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0618 Rev.: 0A

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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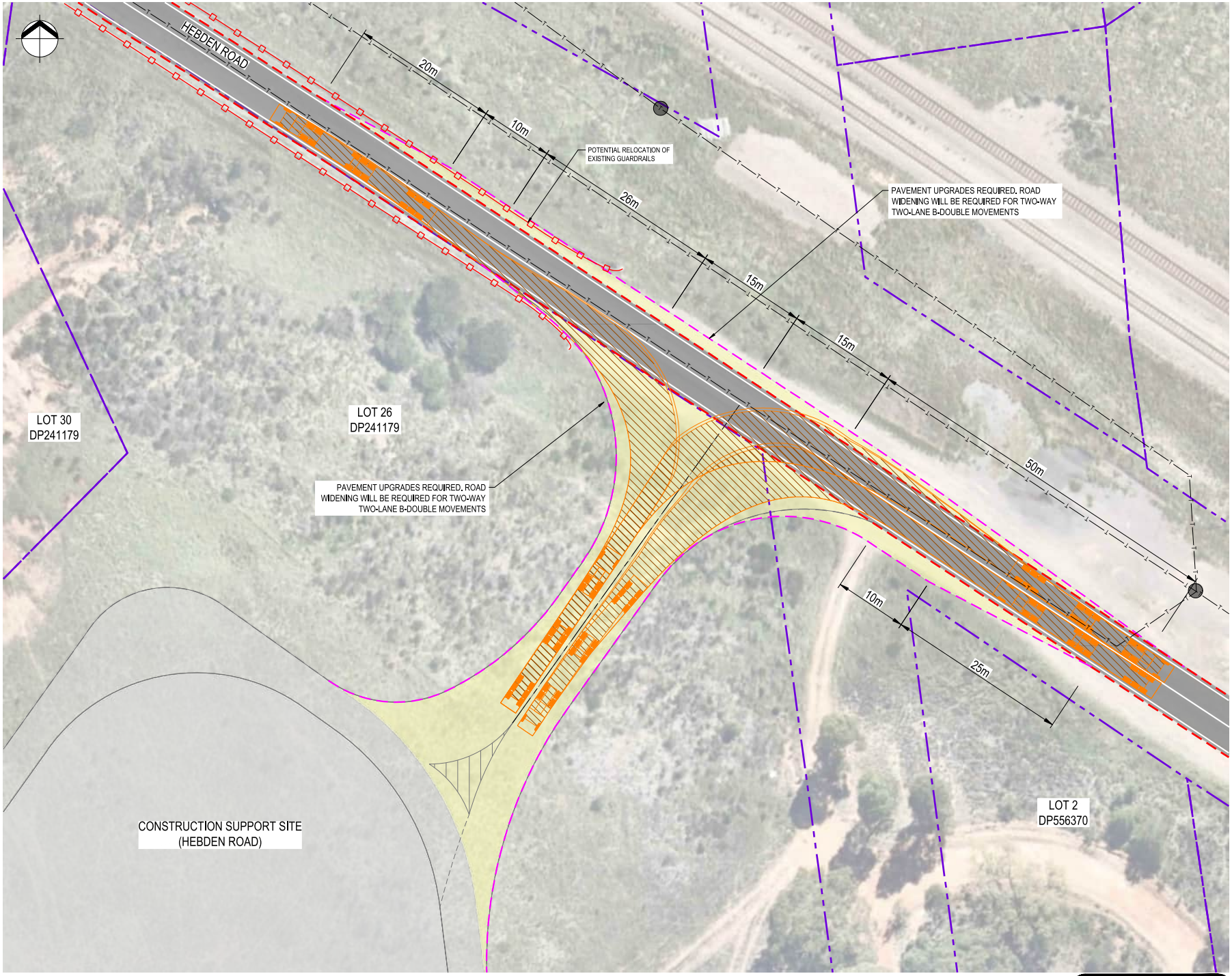
Document No.: 2583080-CA-ANC-0618.DWG



NOTE:

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2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-48 HEBDEN RD AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0619 Rev.: 0B

Document No.: 2583080-CA-ANC-0619.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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Drawing Plotted: 11:44 AM

NOTE:

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3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

CADASTRE (INDICATIVE ONLY)

SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:700m	Design	B.STRANG	24.01.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	24.01.25	
	Dsg Verifier	D.RINN	24.01.25	
Reduced Scale (A3) 1:1400m	Drg Check	B.STRANG	24.01.25	Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-29 WANGI RD AND ROCKY POINT RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0620 Rev.: 0A

0 7 14 28 42
Full Size A1 1:700 ; Half Reduction A3 1:1400
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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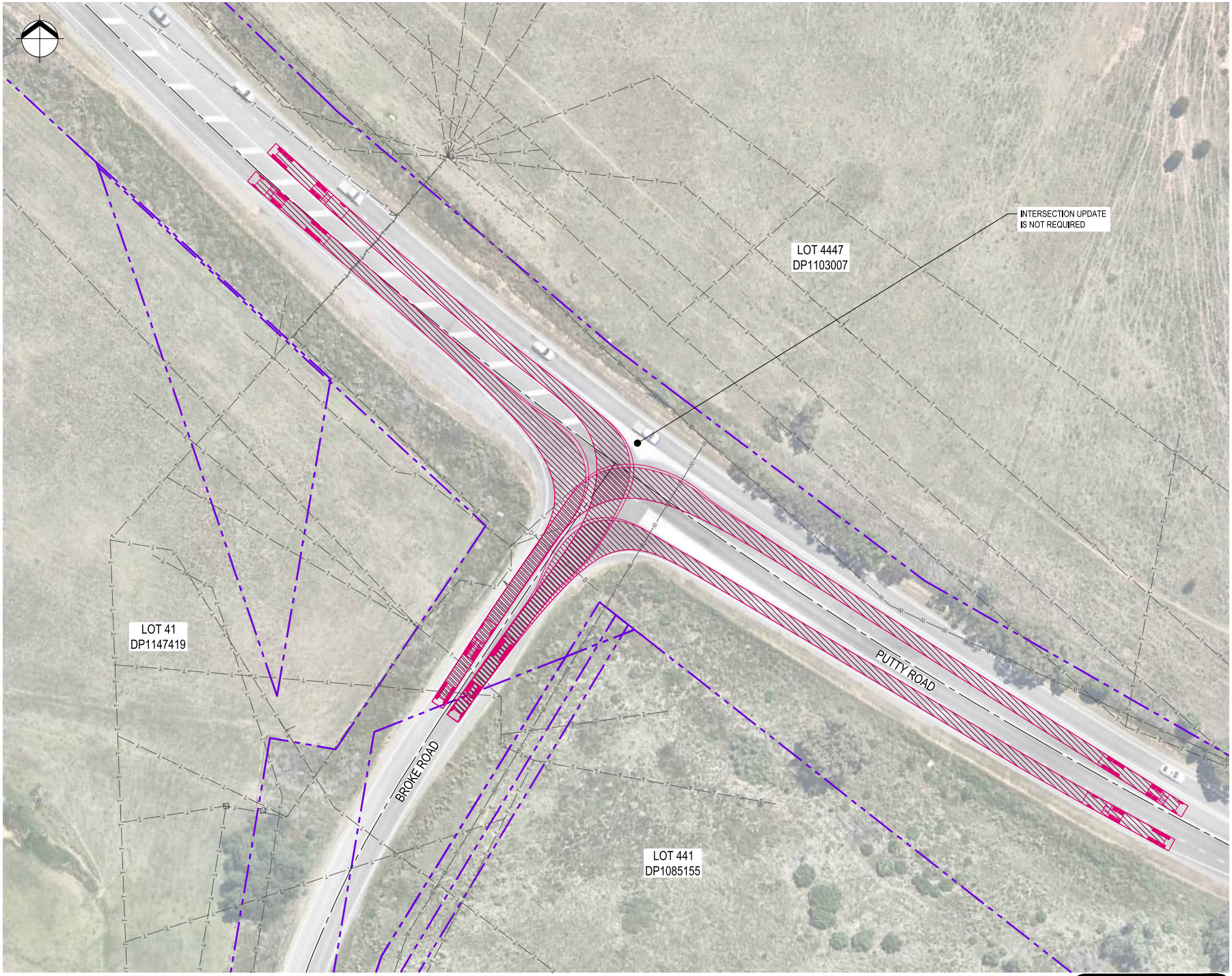
Document No.: 2583080-CA-ANC-0620.DWG



NOTE:

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2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-09 PUTTY RD AND BROKE RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0621 Rev.: 0A

Document No.: 2583080-CA-ANC-0621.DWG

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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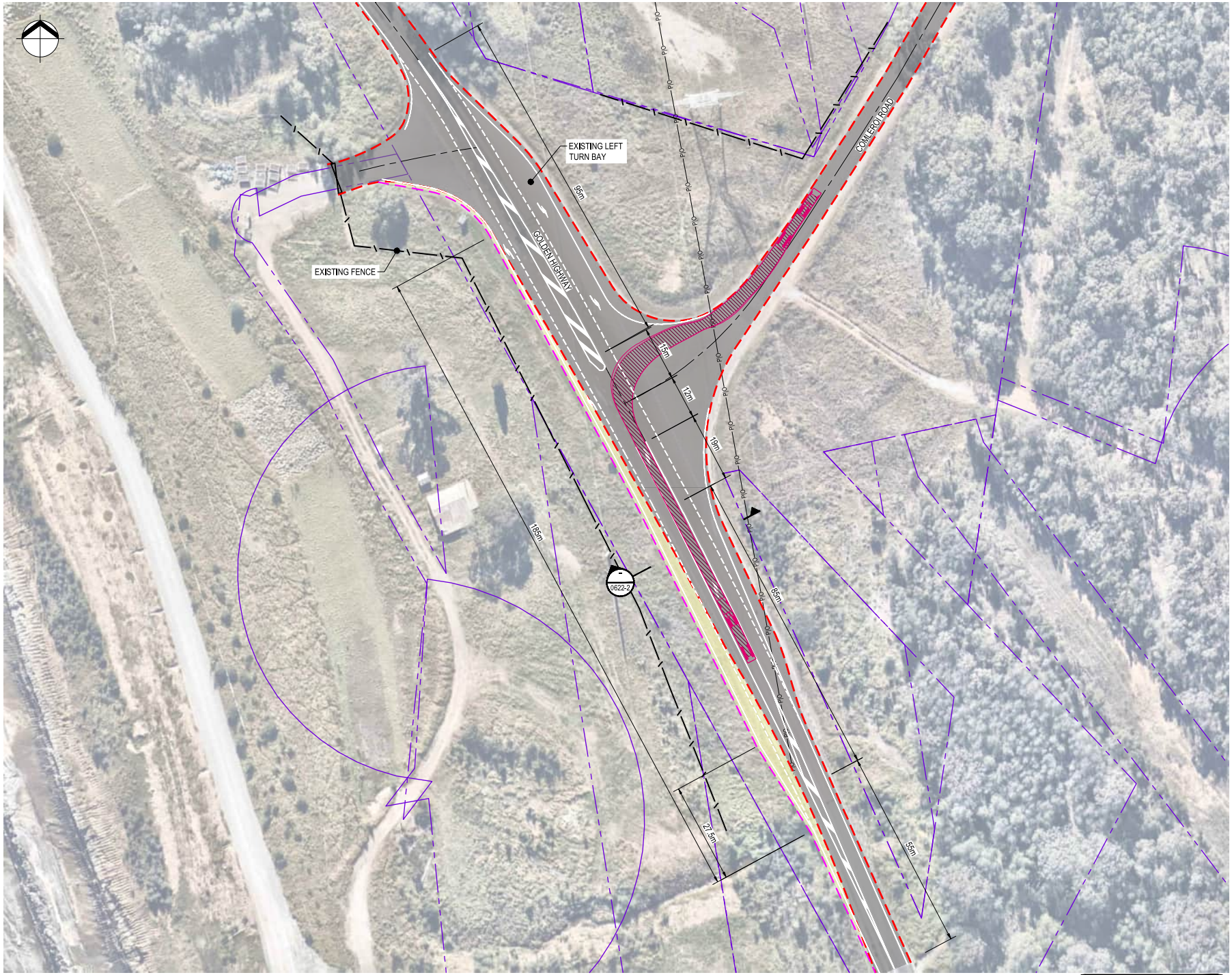

NOTE:

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0C	RE-ISSUED FOR TENDER	R.A.	B.S.	A.L.	20.01.26
0C	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	28.11.25
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	03.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.S.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-04 GOLDEN HWY AND COMLEROI RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0622-1 Rev. 0C

Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m) 0 5 10 20 30

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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Document No.: 2583080-CA-ANC-0622-1.DWG

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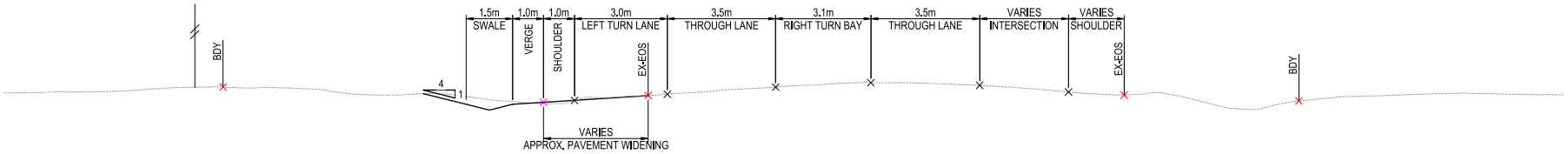
LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY (BDY)
- EXISTING EDGE OF SEAL (EX-EOS)
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- / 0622-1 TYPICAL SECTION - GOLDEN HWY & COMLEROI RD
SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	20.01.26
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN
Reduced Scale (A3) AS SHOWN

		Approved For Construction*
Design		
Drawn		
Dsg Verifier		
Drg Check		Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-04 GOLDEN HWY AND COMLEROI RD TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0622-2 Rev.: 0A

Document No.: 2583080-CA-ANC-0622-2.DWG

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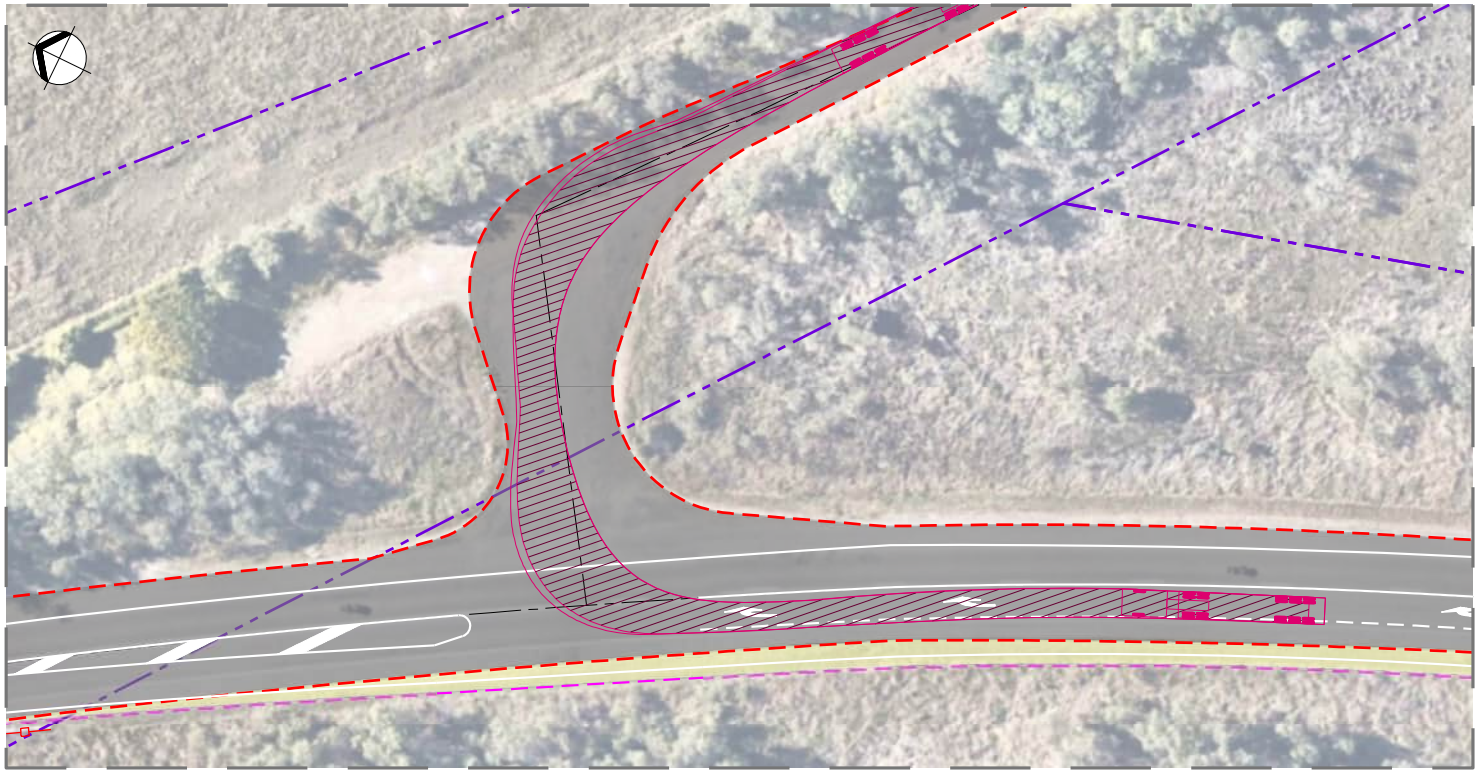

INSET A
1:250 @ A1

NOTE:

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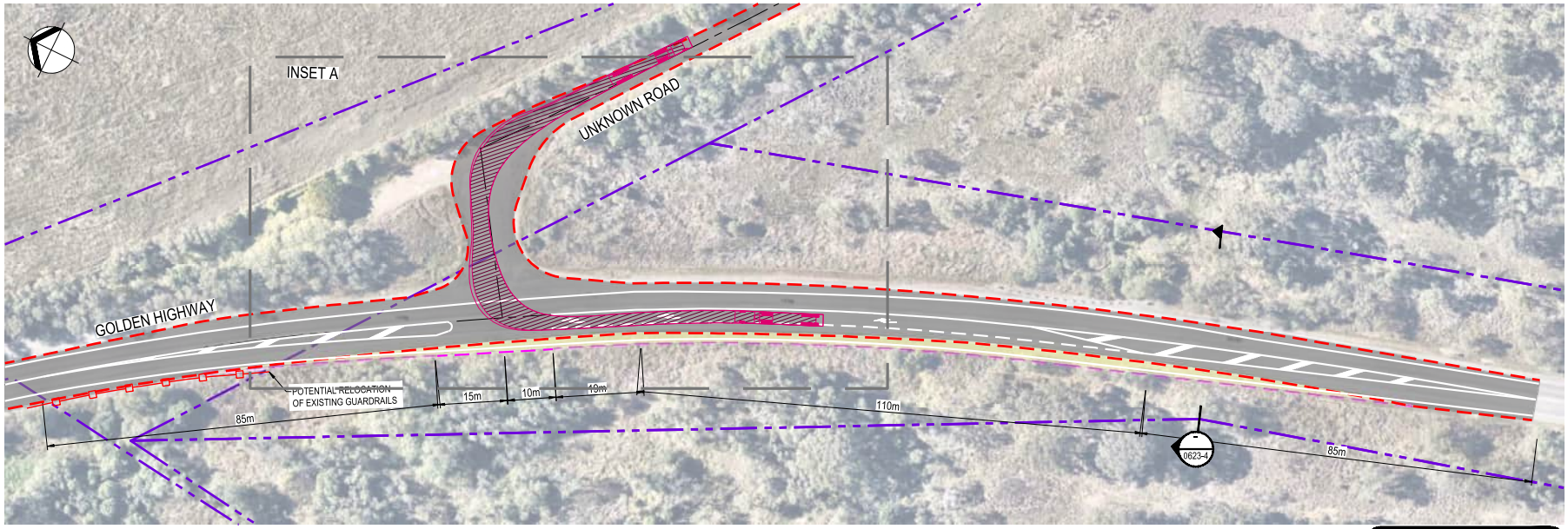
LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h



LAYOUT
1:500 @ A1

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	R.A.	B.S.	A.L.	20.01.26
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	28.11.25
0	ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25

Original Scale (A1) AS SHOWN	Design	R.ANDERSON	30.05.25	Approved For Construction*
	Drawn	C.R.LAWRENCE	30.05.25	
	Dsg Verifier	D.FINN	30.05.25	
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	30.05.25	Date
	* Refer to Revision 1 for Original Signature			

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-33 GOLDEN HWY AND UNKNOWN RD - OPTION 2 OVERALL LAYOUT SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0623-3 | Rev.: 0B

Document No.: 2583080-CA-ANC-0623-3.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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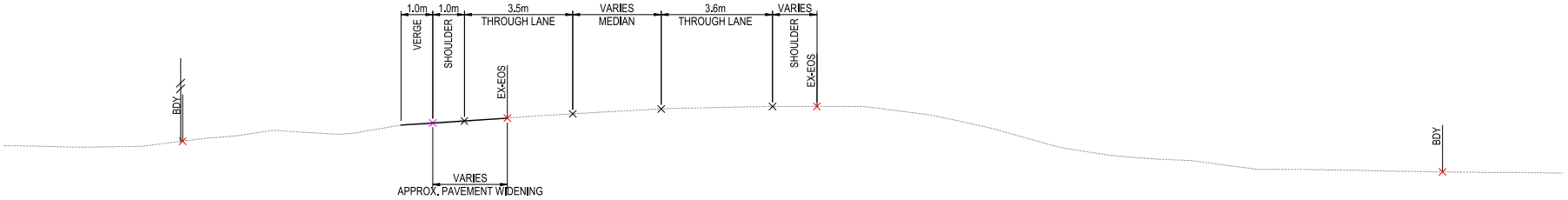
LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY (BDY)
- EXISTING EDGE OF SEAL (EX-EOS)
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- / 0623-3 TYPICAL SECTION - GOLDEN HWY & EXISTING ACCESS (MTW)
SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	20.01.26
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN	Design		Approved For Construction*
	Drawn		
Reduced Scale (A3) AS SHOWN	Dsg Verifier		
	Drg Check		Date
	* Refer to Revision 1 for Original Signature		

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-33
GOLDEN HWY AND UNKNOWN RD - OPTION 2
TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0623-4 Rev.: 0A

Document No.: 2583080-CA-ANC-0623-4.DWG

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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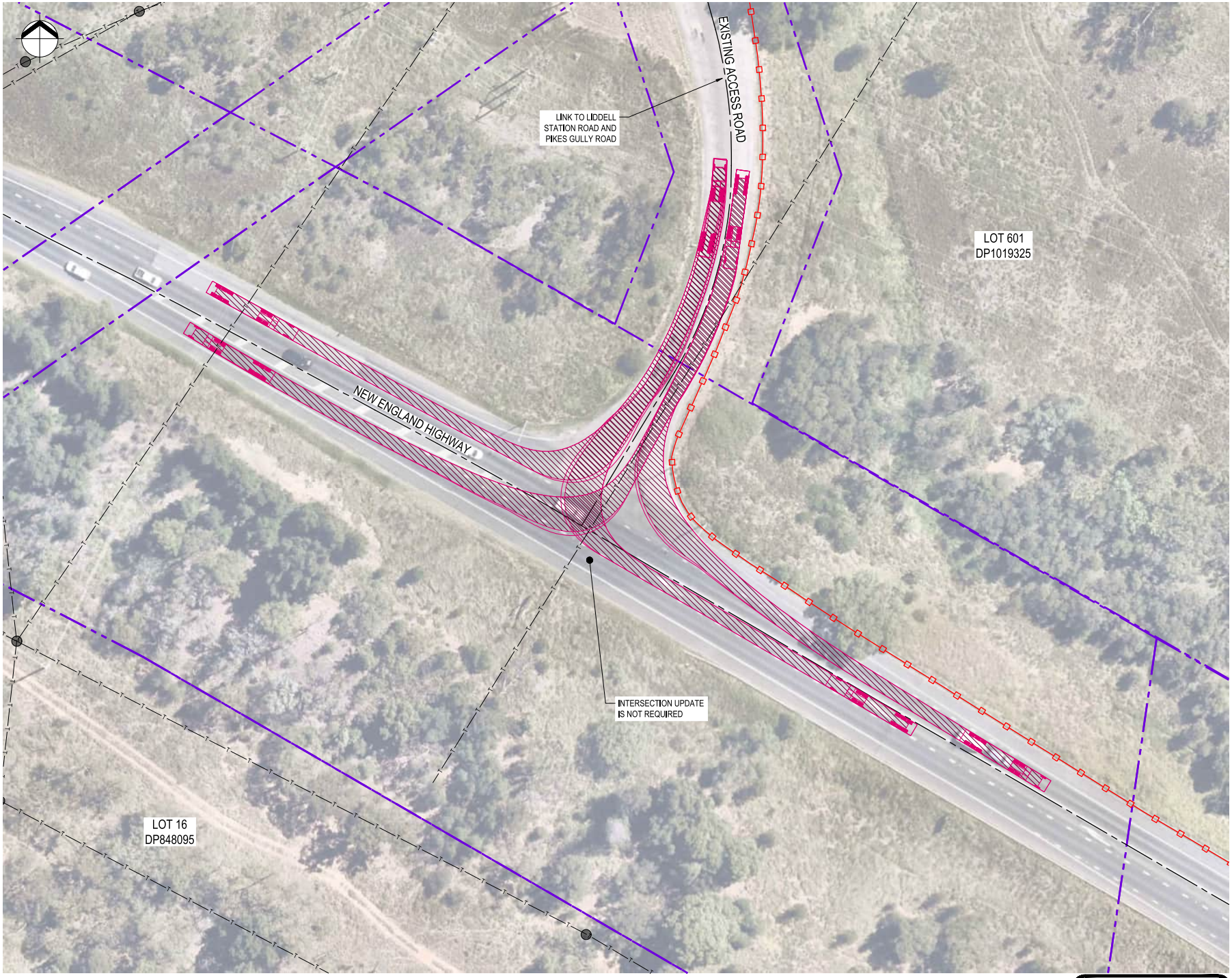

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING GUARDRAIL
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-02a NEW ENGLAND HWY AND PIKES GULLY RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0624 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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Document No.: 2583080-CA-ANC-0624.DWG

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING GUARDRAIL
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-01a NEW ENGLAND HWY AND HEBDEN RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0625

Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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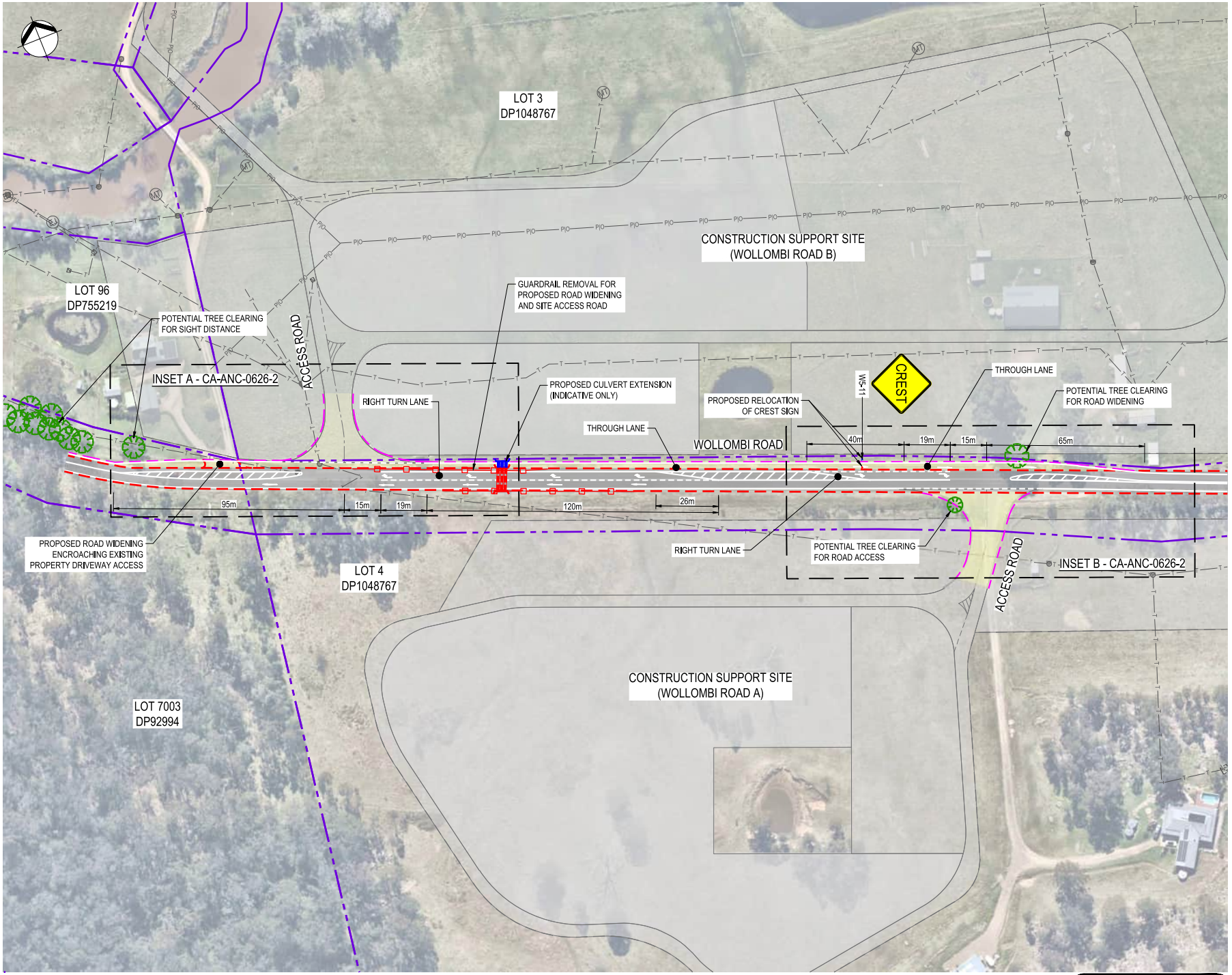

NOTE:

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LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- PROPOSED SIGNAGE
- EXISTING CULVERT
- PROPOSED CULVERT EXT.
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- AREA REQUIRING ROAD WIDENING

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:750m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:1500m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-34 WOLLOMBI RD ACCESS TO CSS OVERALL LAYOUT SHEET 1

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0626-1

Rev.: 0A

0 7.5 15 30 45
Full Size A1 1:750 ; Half Reduction A3 1:1500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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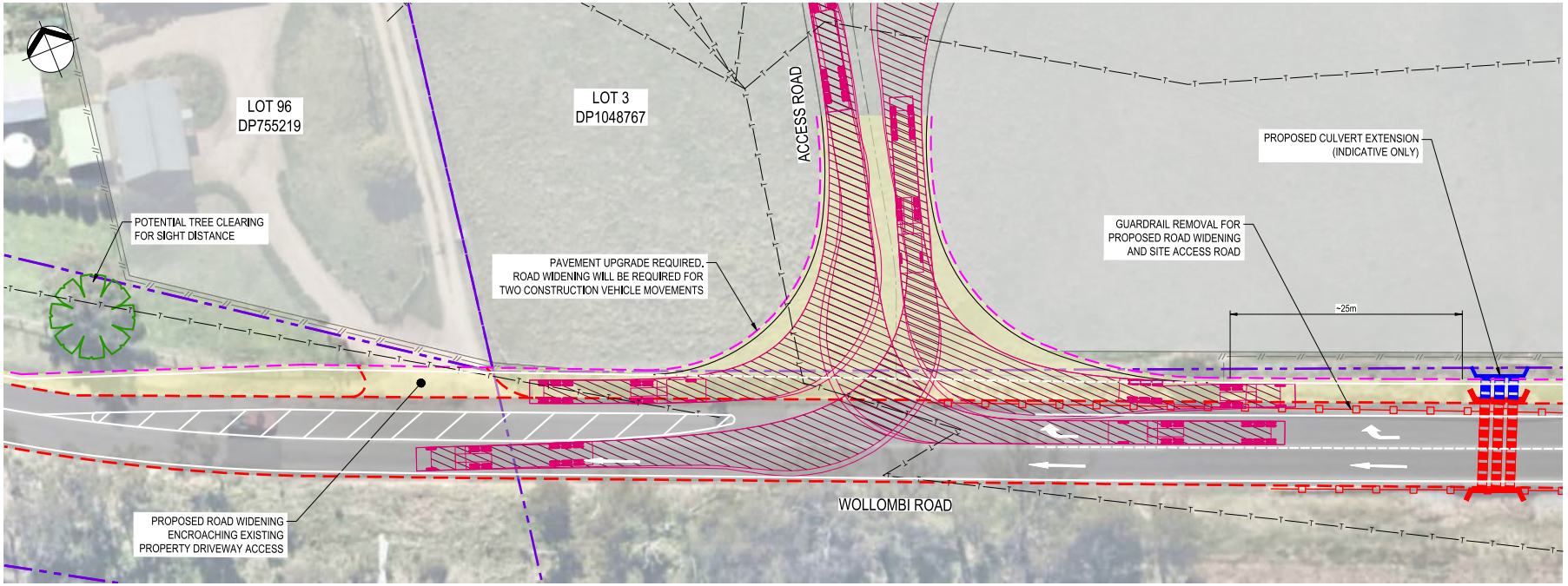
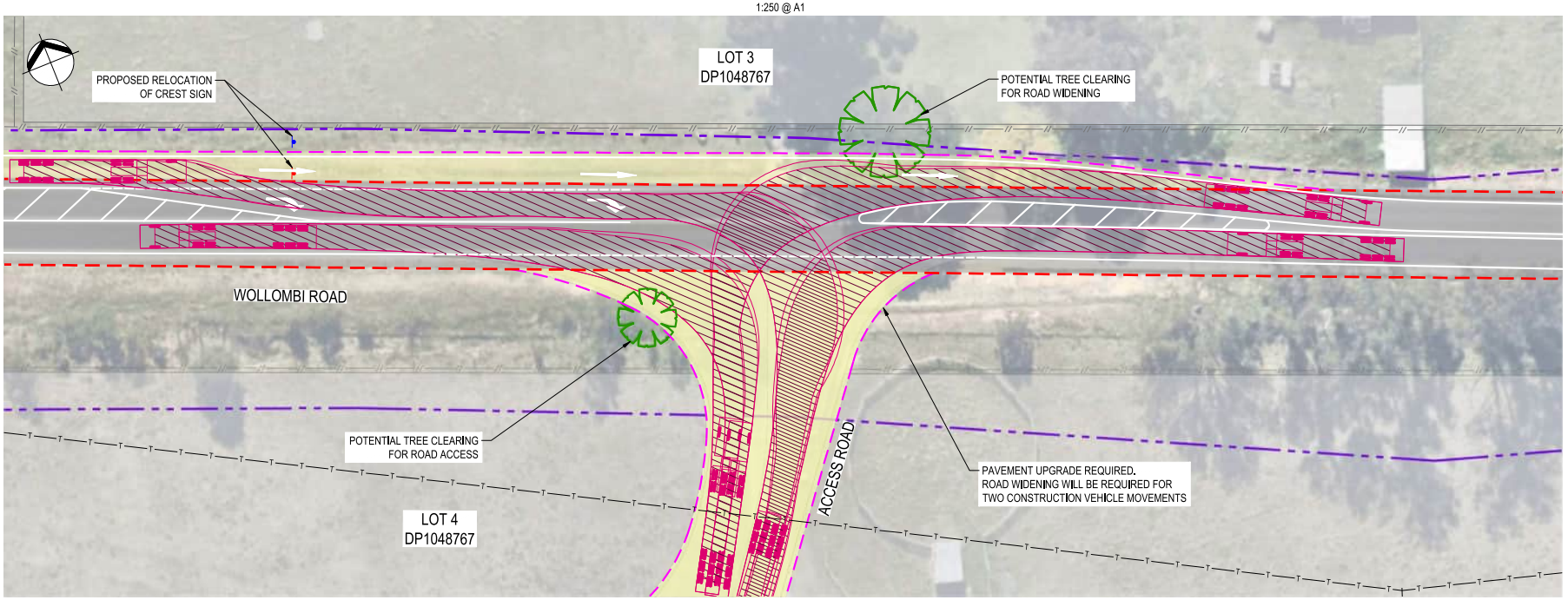
Document No. 2583080-CA-ANC-0626-1.DWG



INSET A - ACCESS TO CSS (WOLLOMBI ROAD B)

1:250 @ A1



INSET B - ACCESS TO CSS (WOLLOMBI ROAD A)

1:250 @ A1

NOTE:

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LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- PROPOSED SIGNAGE
- EXISTING CULVERT
- PROPOSED CULVERT EXT.
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:250m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RNN	24.01.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-34 WOLLOMBI RD ACCESS TO CSS INSET A AND B SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0626-2

Rev.: 0A

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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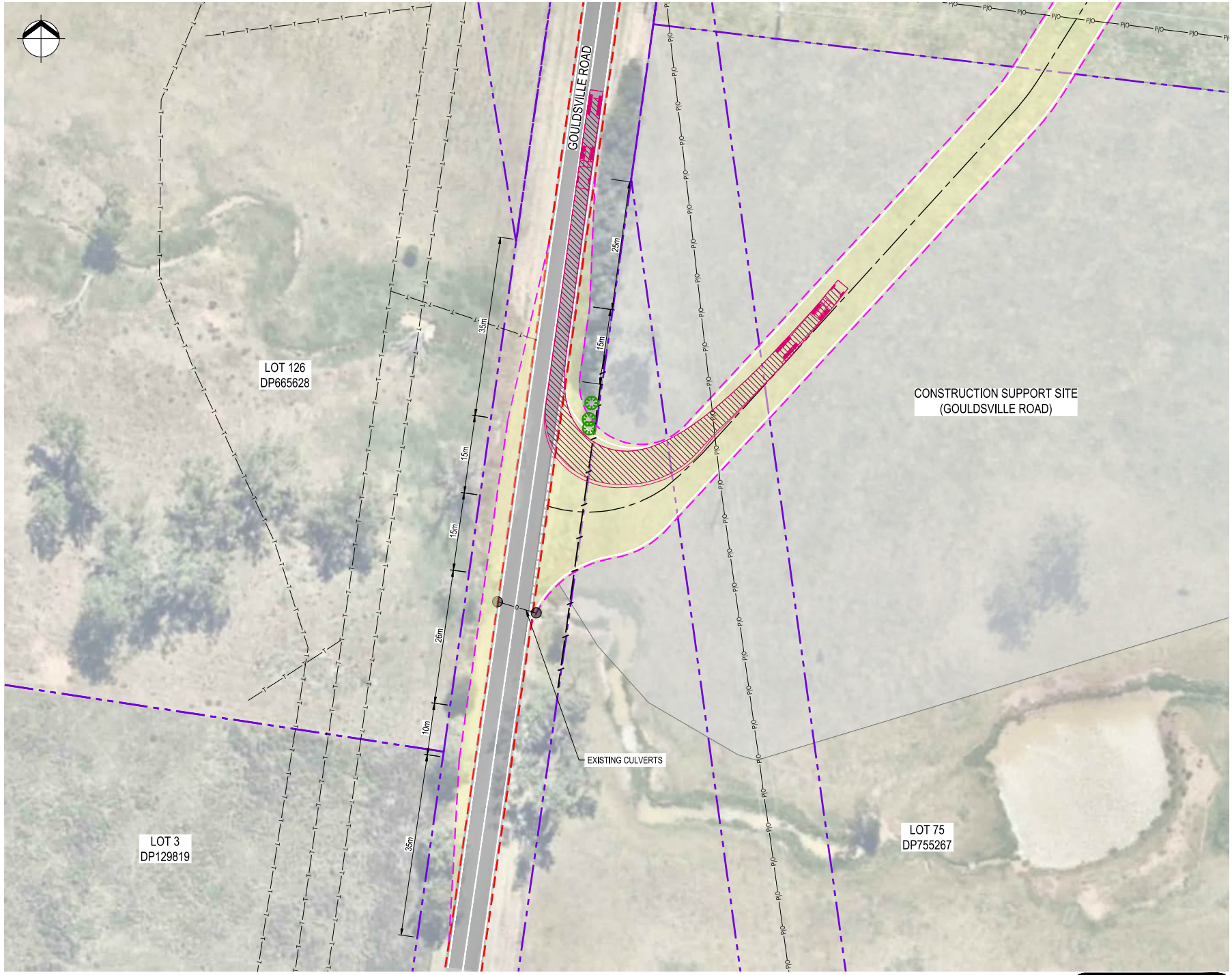
Document No.: 2583080-CA-ANC-0626-2.DWG



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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-51 GOULDSVILLE RD AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0627 Rev.: 0B

Document No.: 2583080-CA-ANC-0627.DWG

0 3.5 7 14 21
Full Size A1 1:350 : Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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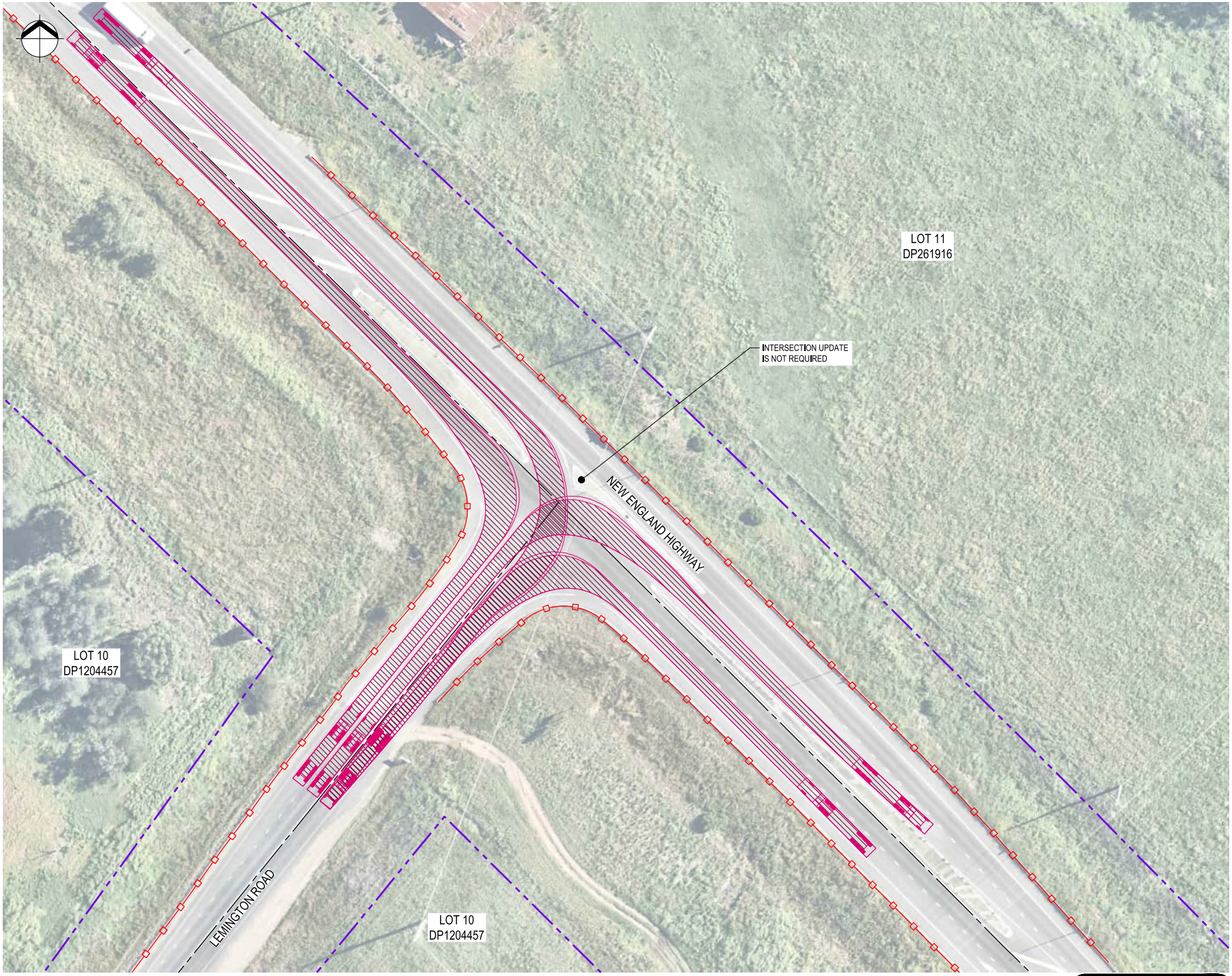

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING GUARDRAIL
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-02a NEW ENGLAND HWY AND LEMINGTON RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0628 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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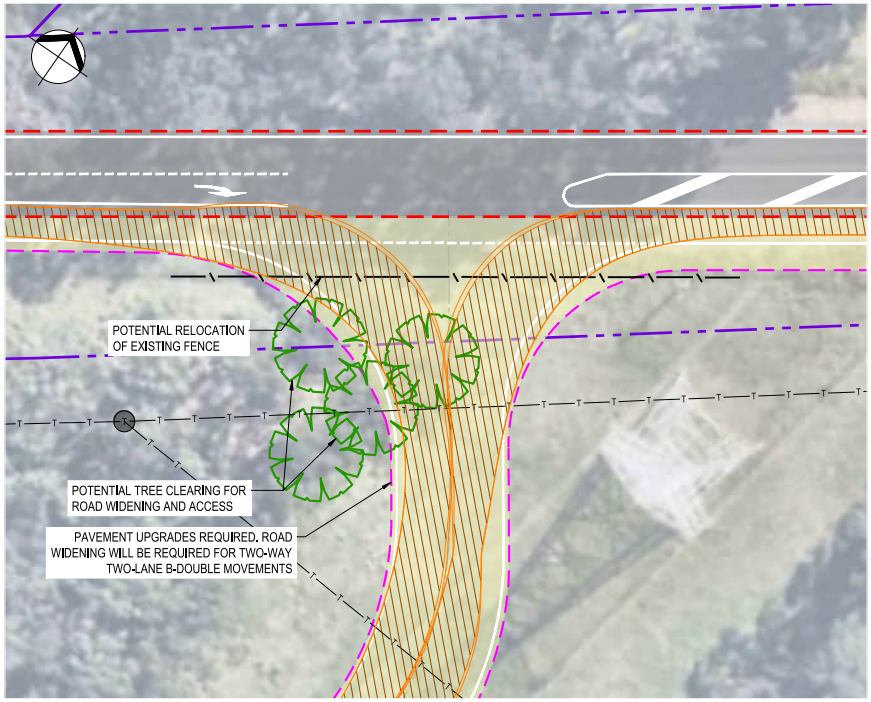

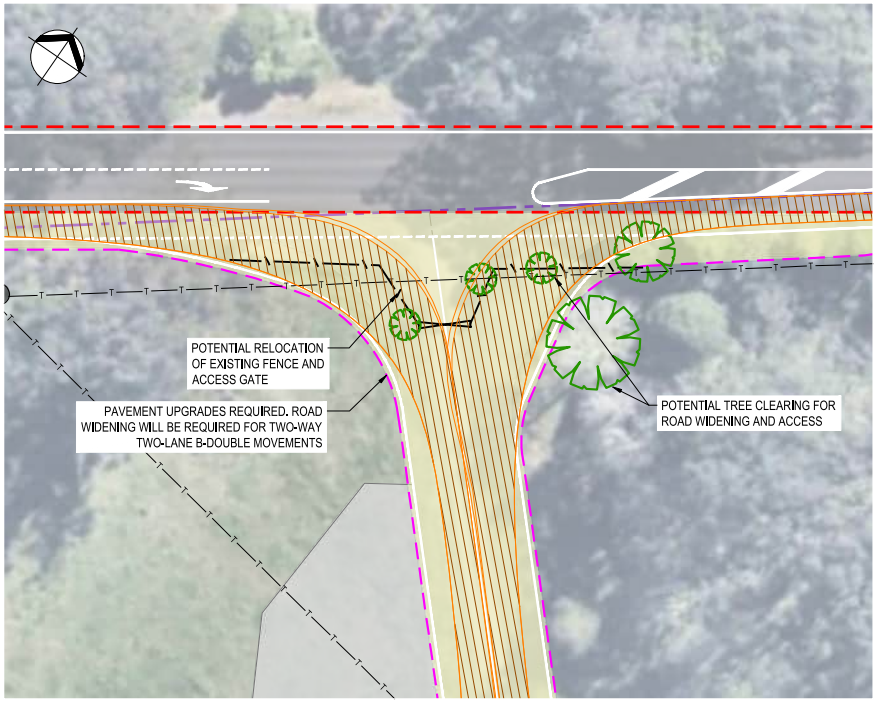

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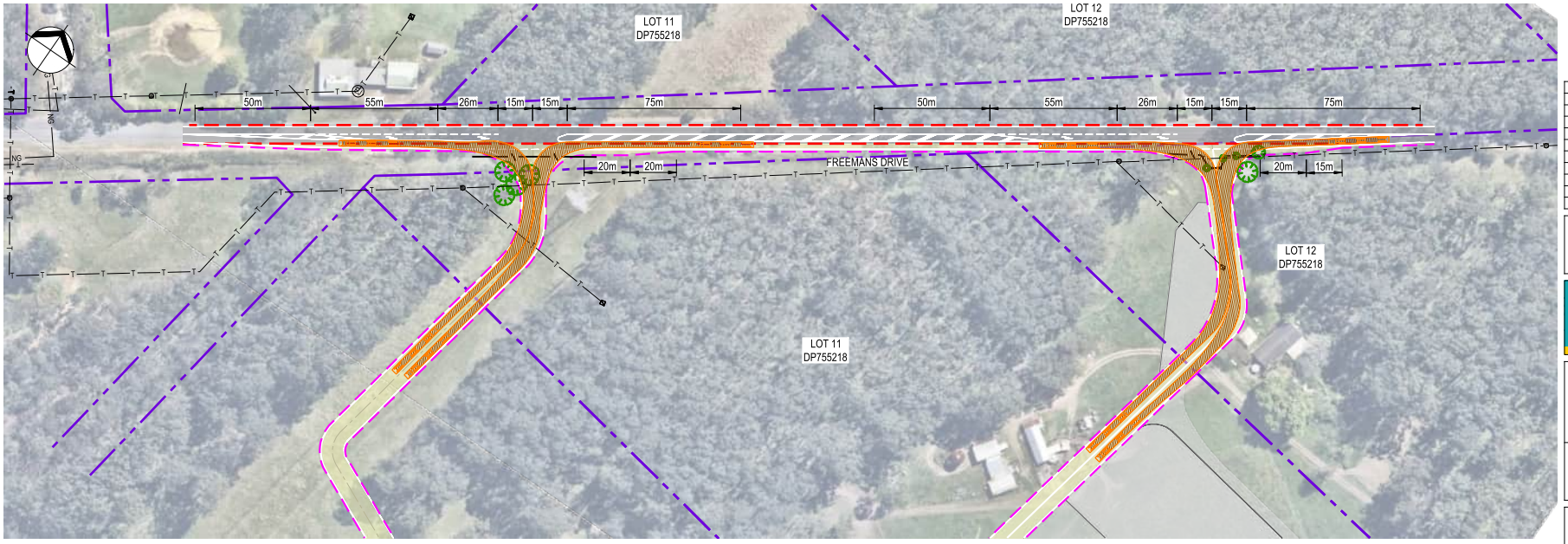
LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h



No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:700m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:1400m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-45 FREEMANS DR AND ACCESS TO CSS OVERALL LAYOUT SHEET 2

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0630-2

Rev.: 0B

Document No.: 2583080-CA-ANC-0630-2.DWG

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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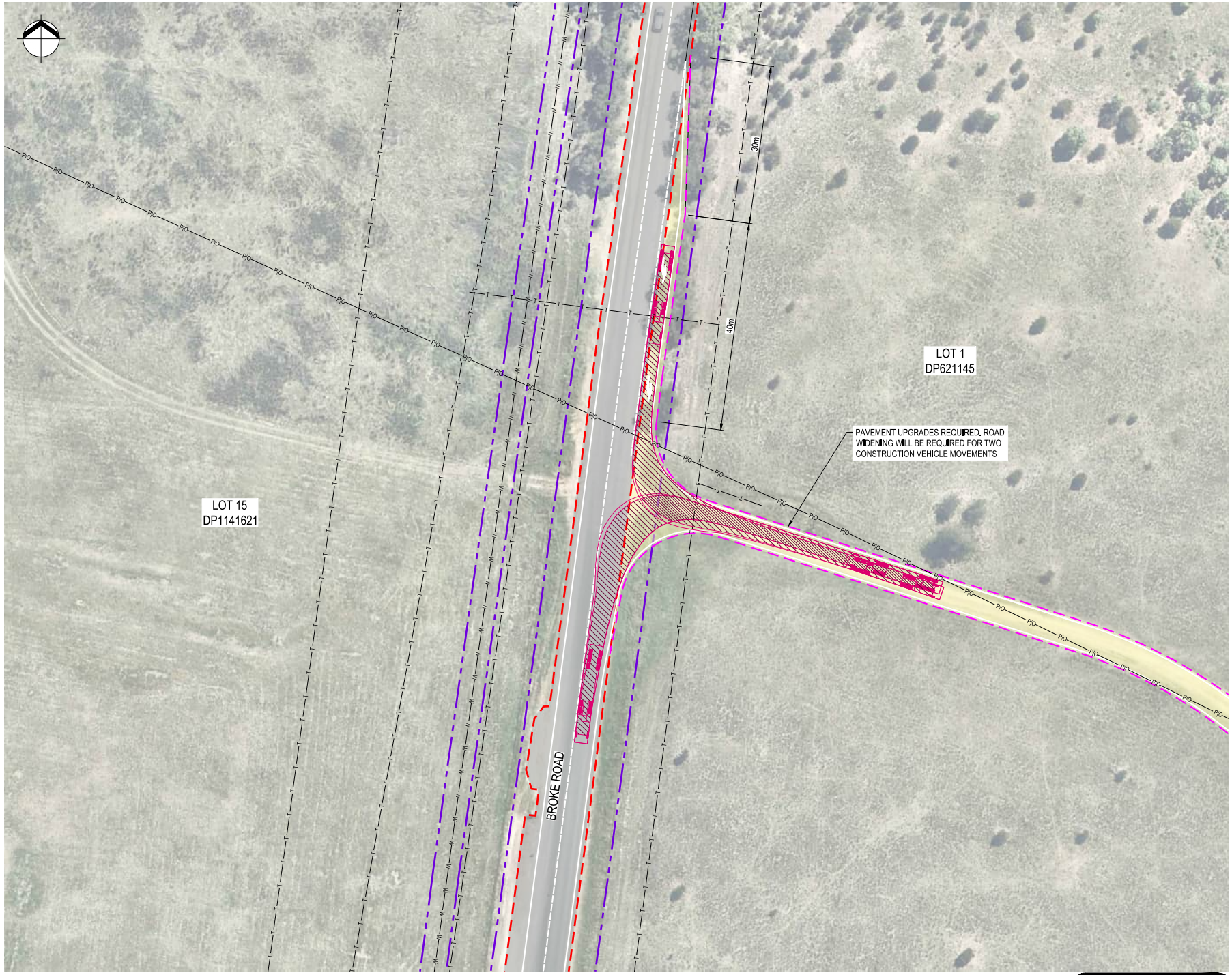

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-35 BROKE RD AND EX ACCESS (NEAR TOWER 111) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0631 Rev.: 0B

Document No.: 2583080-CA-ANC-0631.DWG

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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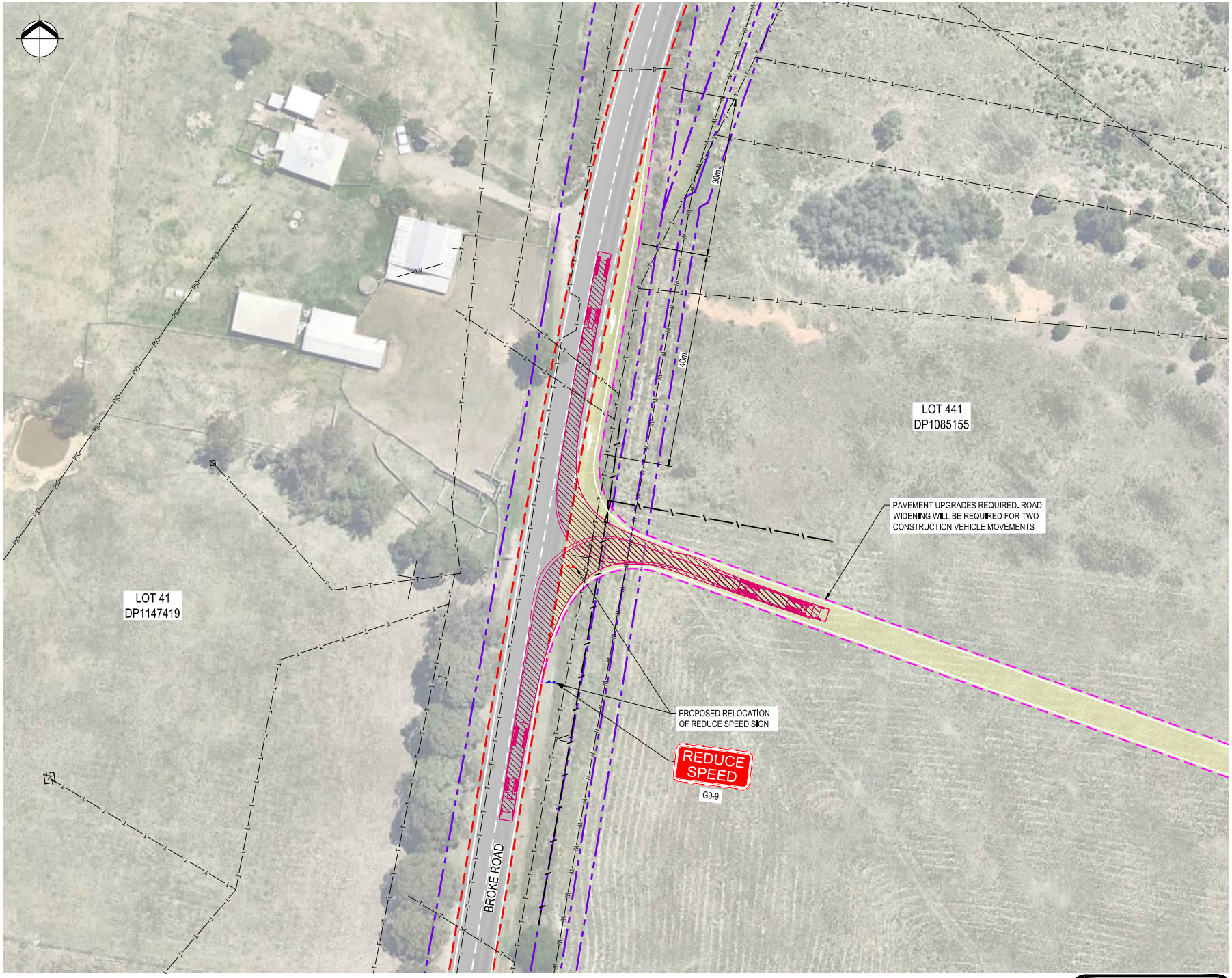

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-36 BROKE RD AND EX ACCESS (NEAR TOWER 114) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0632 Rev.: 0B

Document No.: 2583080-CA-ANC-0632.DWG

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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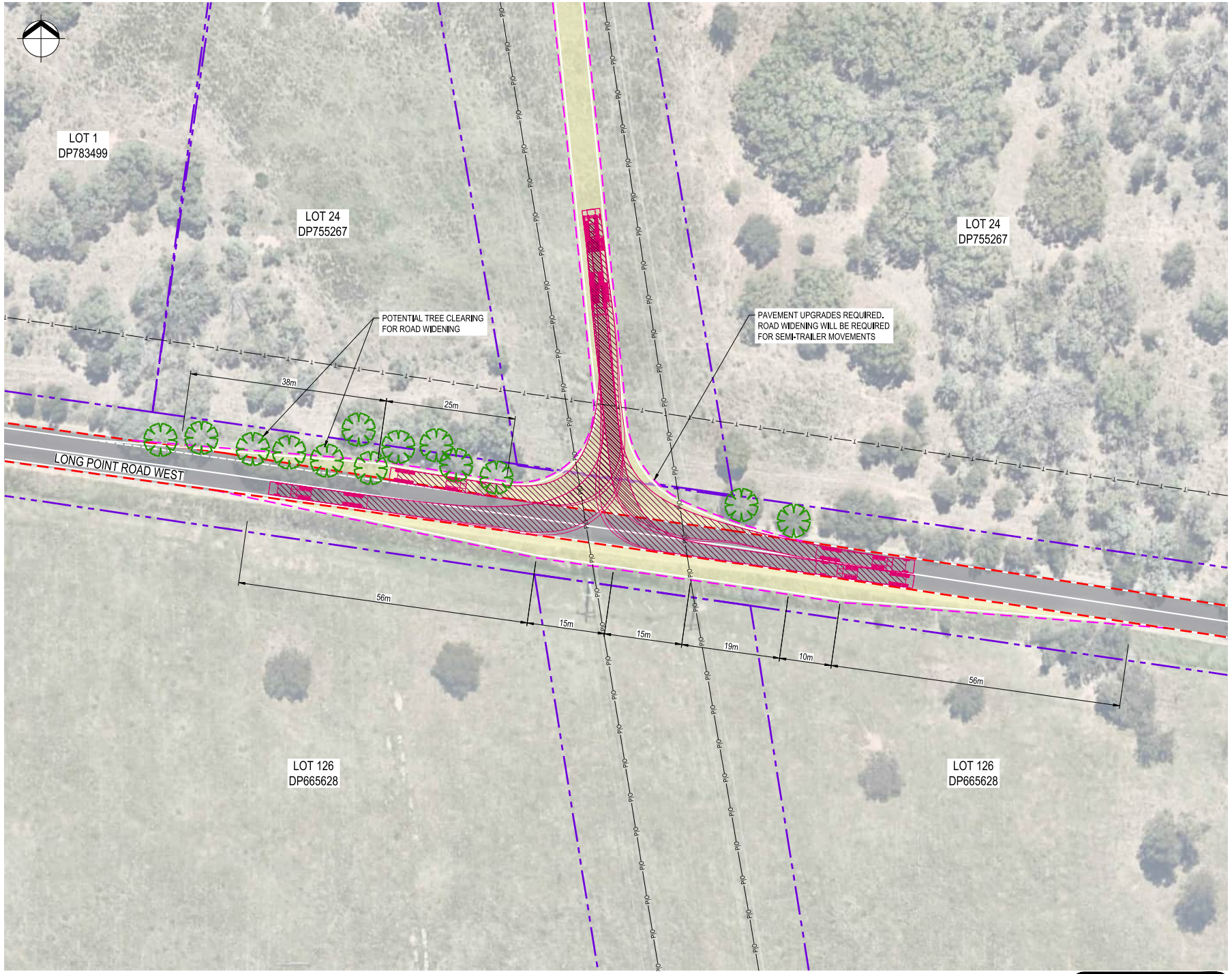

NOTE:

1. ALL EXISTING INFRASTRUCTURE ARE INDICATIVE ONLY.
2. IMPACTS TO CATCHMENT FLOODING AND DRAINAGE DUE TO SITE WORKS HAVE NOT BEEN ASSESSED IN DETAIL AS PART OF THIS PACKAGE OF WORKS.
3. SURVEY-ACCURATE CADASTRE MODELS (SACM) BY ENCO ARE PREDOMINANTLY SHOWN BUT COVERAGE IS LIMITED. AS FOR AREAS NOT COVERED BY SACM, NSW GIS OPEN DATA (SIXMAPS) CADASTRES ARE SHOWN.

LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH 19m SEMI-TRAILER TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-41 LONG POINT RD W AND NEW ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0633 Rev.: 0A

Document No.: 2583080-CA-ANC-0633.DWG

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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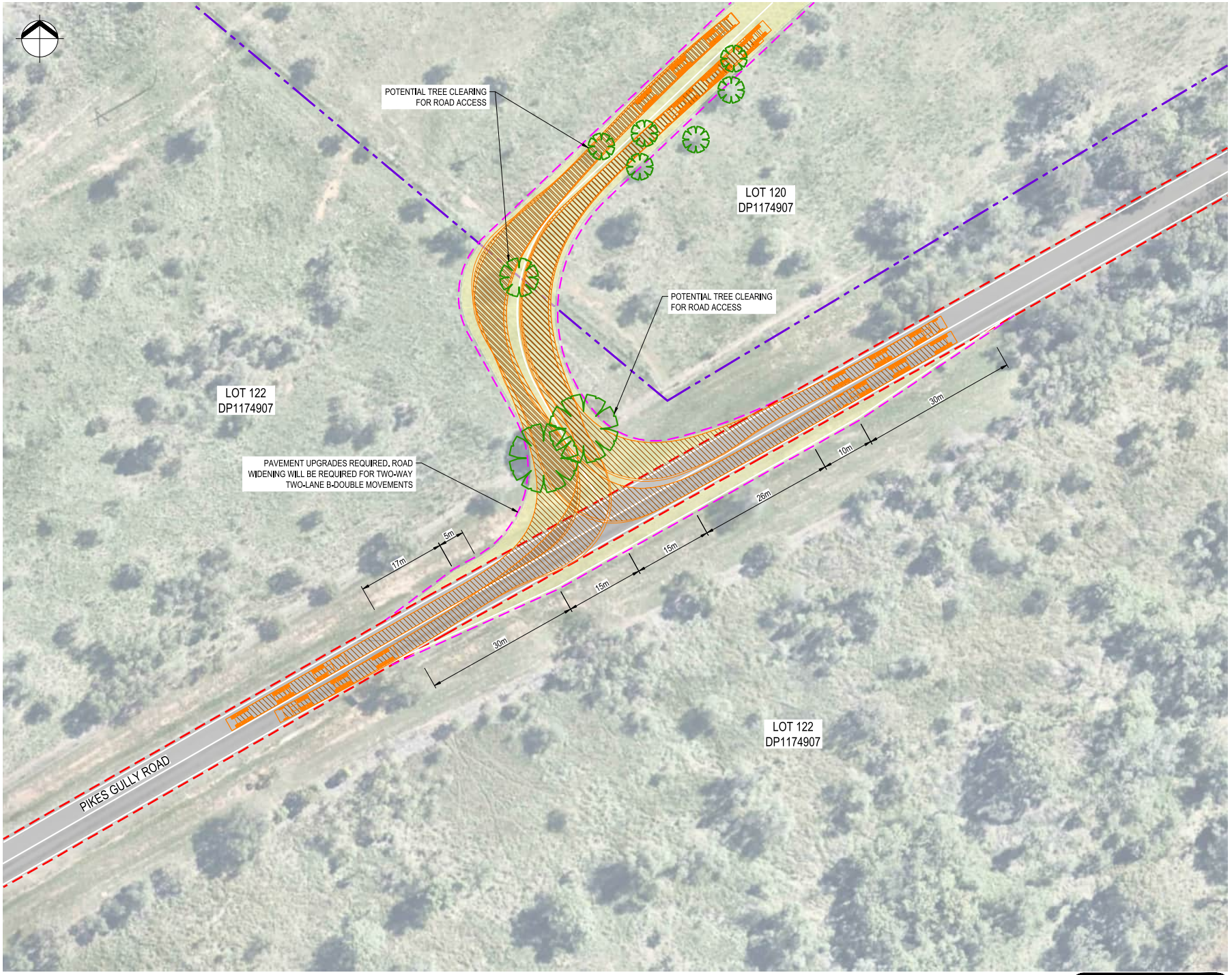

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING TREE
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.STOJANOVIC	24.01.25
Reduced Scale (A3) 1:700m	Dsg Verifier	D.FINN	24.01.25
	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-47 PIKES GULLY RD AND ACCESS TO CSS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0634 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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Document No.: 2583080-CA-ANC-0634.DWG

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING SIGNAGE
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.R.LAWRENCE	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-13a/b BROKE RD AND MCDONALDS RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0635 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 : Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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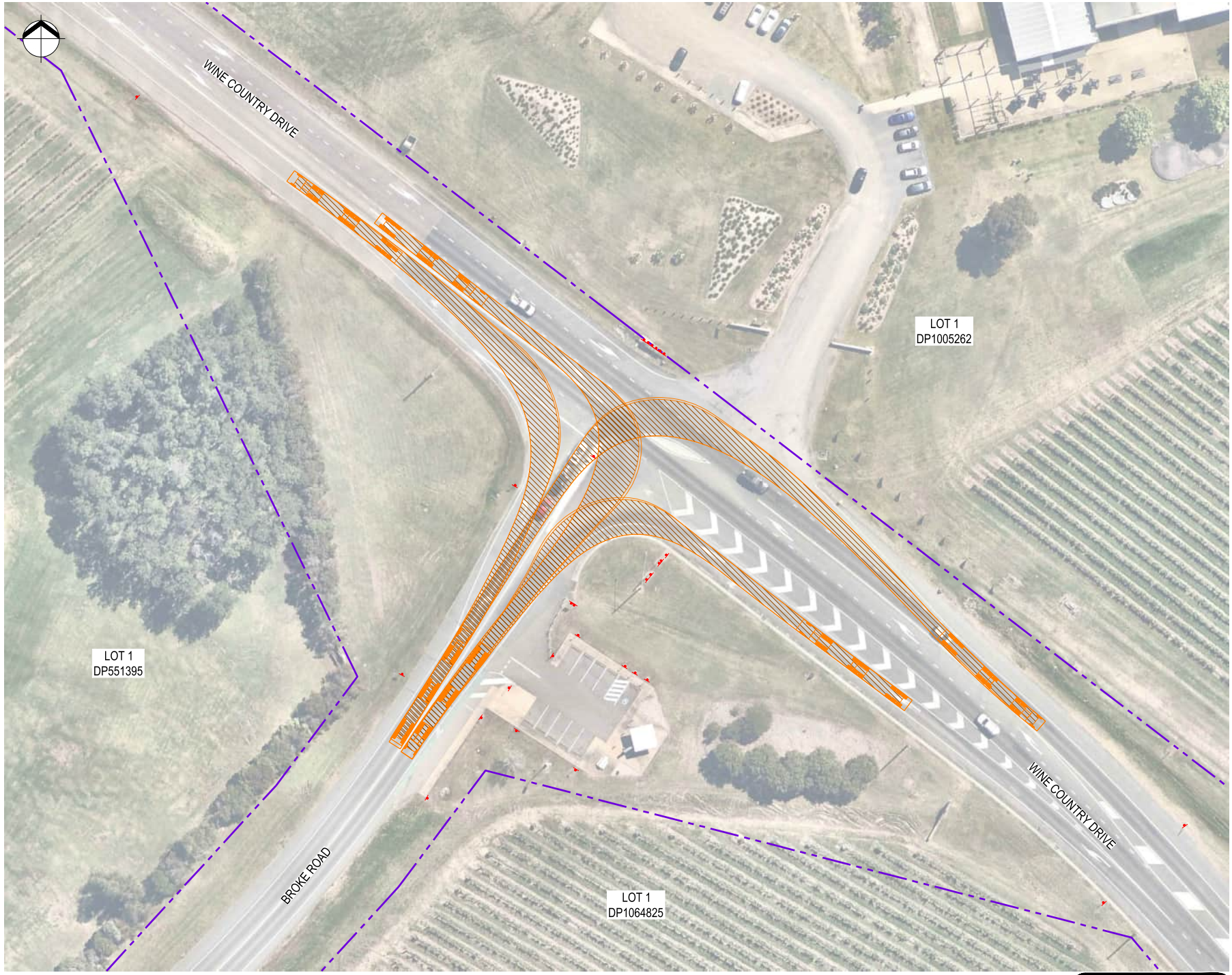
Document No.: 2583080-CA-ANC-0635.DWG



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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING SIGNAGE
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.R.LAWRENCE	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-14 WINE COUNTRY DR AND BROKE RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0636 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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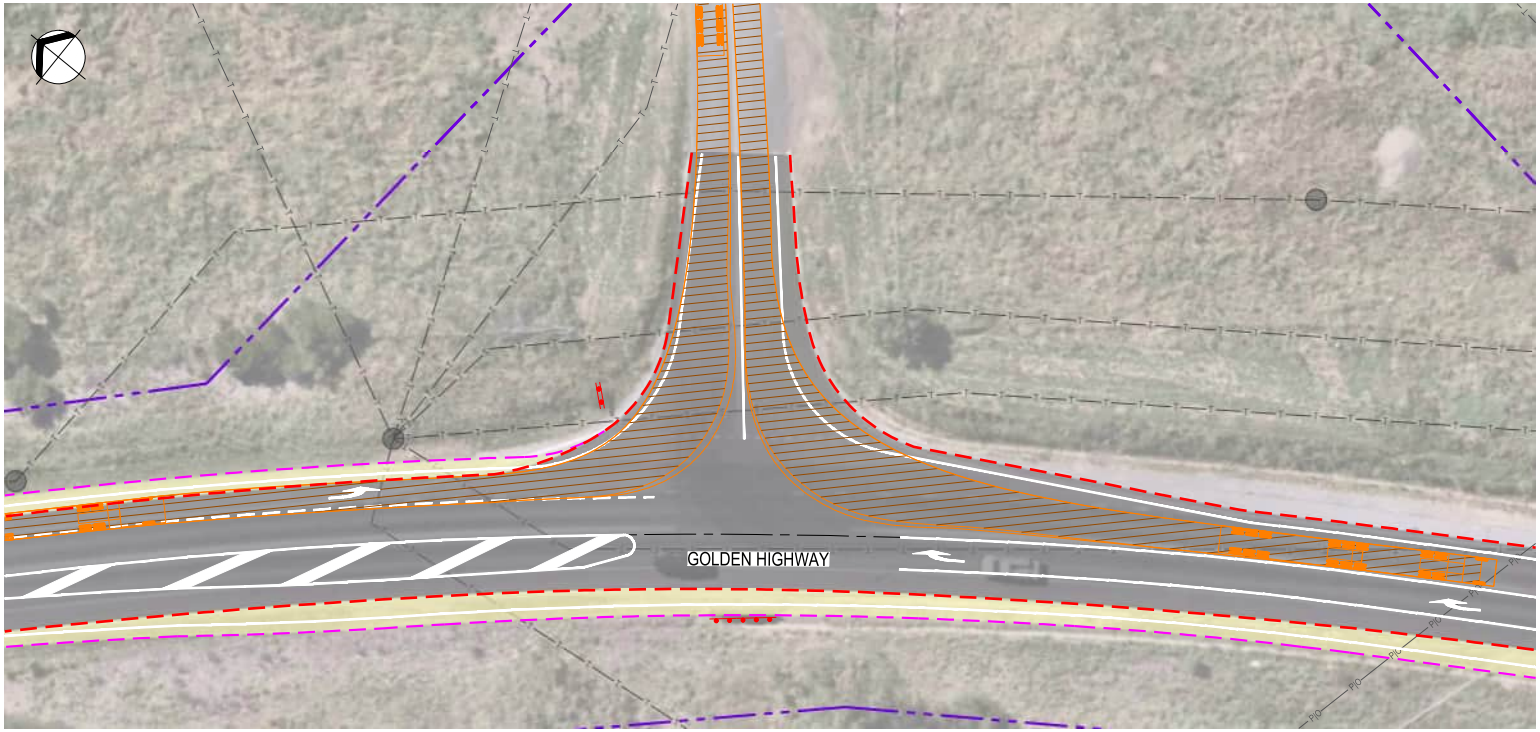
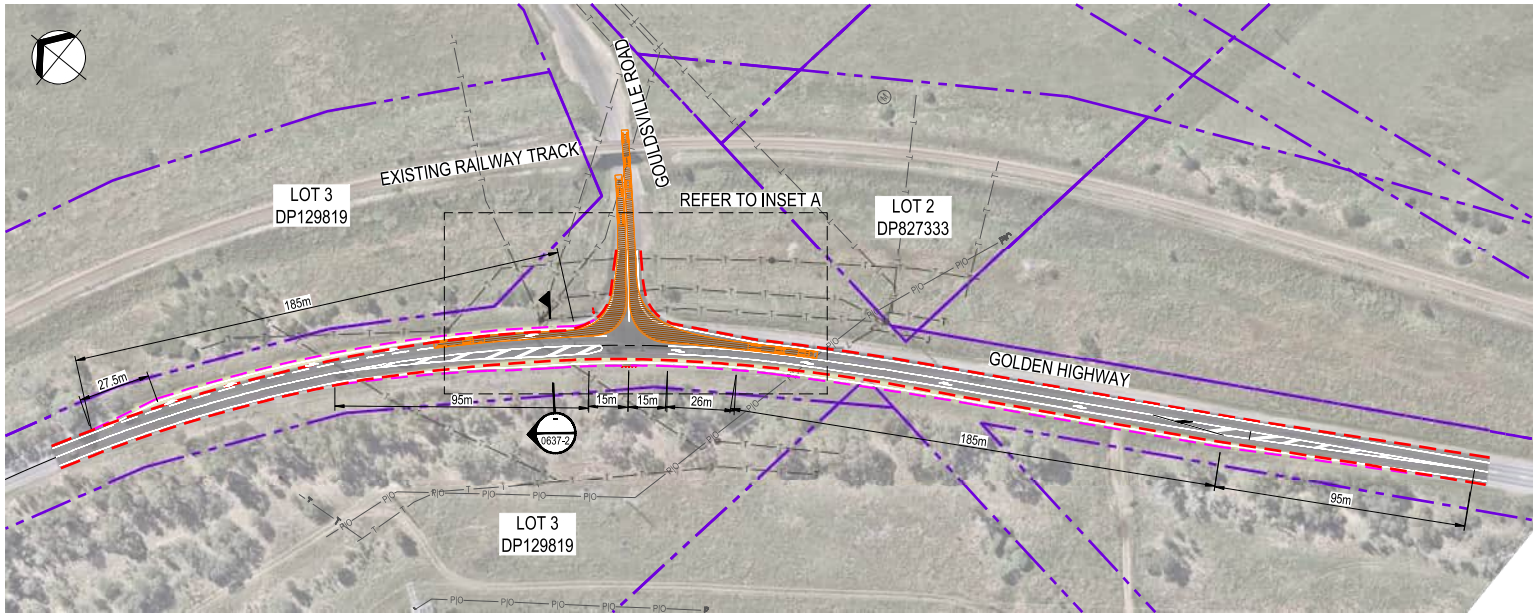


INSET A
1:250 @ A1



LAYOUT
1:1000 @ A1

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0C	RE-ISSUED FOR TENDER	R.A.	B.S.	A.L.	20.01.26
0B	RE-ISSUED FOR TENDER	S.C.	B.S.	A.L.	25.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) AS SHOWN	Design	R.ANDERSON	20.11.25
	Drawn	C.R.LAWRENCE	20.11.25
	Dsg Verifier	D.FINN	20.11.25
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	20.11.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-07 GOLDEN HWY AND GOULDSVILLE RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0637-1

Rev.: 0C

Document No.: 2583080-CA-ANC-0637-1.DWG

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

BEFORE YOU DIG

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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NOTE:
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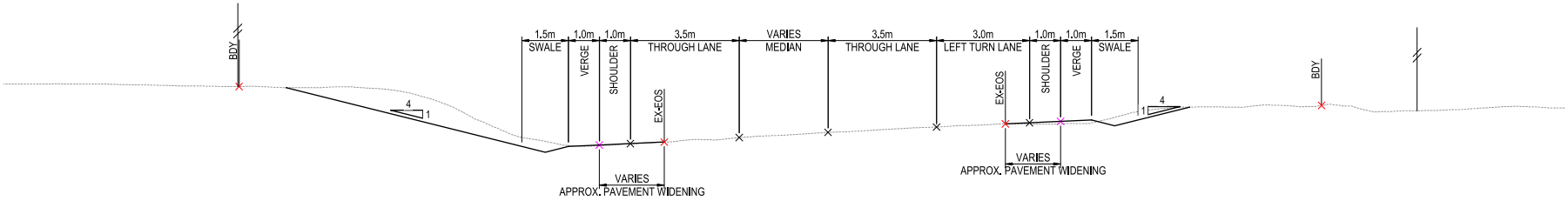
LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY (BDY)
- EXISTING EDGE OF SEAL (EX-EOS)
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- / 0637-1 TYPICAL SECTION - GOLDEN HWY & GOULDSVILLE RD
SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	20.01.26
0	ISSUED FOR INFORMATION	R.A.	B.S.	A.L.	28.11.25

Original Scale (A1) AS SHOWN	Design		Approved For Construction*
	Drawn		
Reduced Scale (A3) AS SHOWN	Dsg Verifier		
	Drg Check		Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-07 GOLDEN HWY AND GOULDSVILLE RD TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0637-2

Rev.: 0A

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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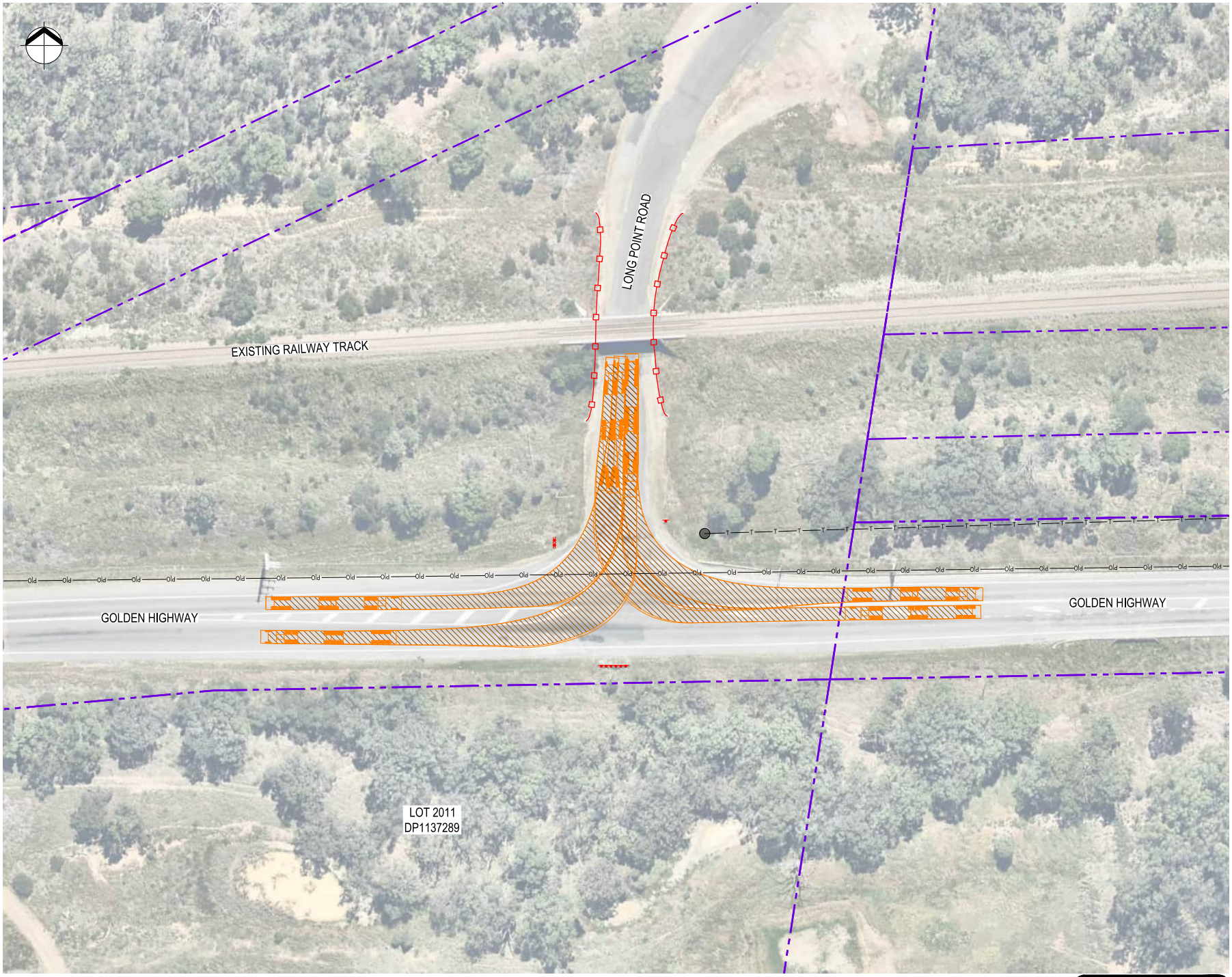
Document No.: 2583080-CA-ANC-0637-2.DWG



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LEGEND

- EXISTING TELSTRA (BYDA)
- EX. POWER LINES - OVERHEAD
- CADASTRE (INDICATIVE ONLY)
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.R.LAWRENCE	24.01.25
	Dsg Verifier	D.FINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT GOLDEN HWY AND LONG POINT RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0638 Rev.: 0

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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Document No.: 2583080-CA-ANC-0638.DWG

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING SIGNAGE
- SWEPT PATH - 26m B-DOUBLE VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	C.R.LAWRENCE	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-11 WOLLOMBI RD AND SINGLETON ST OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0639

Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 : Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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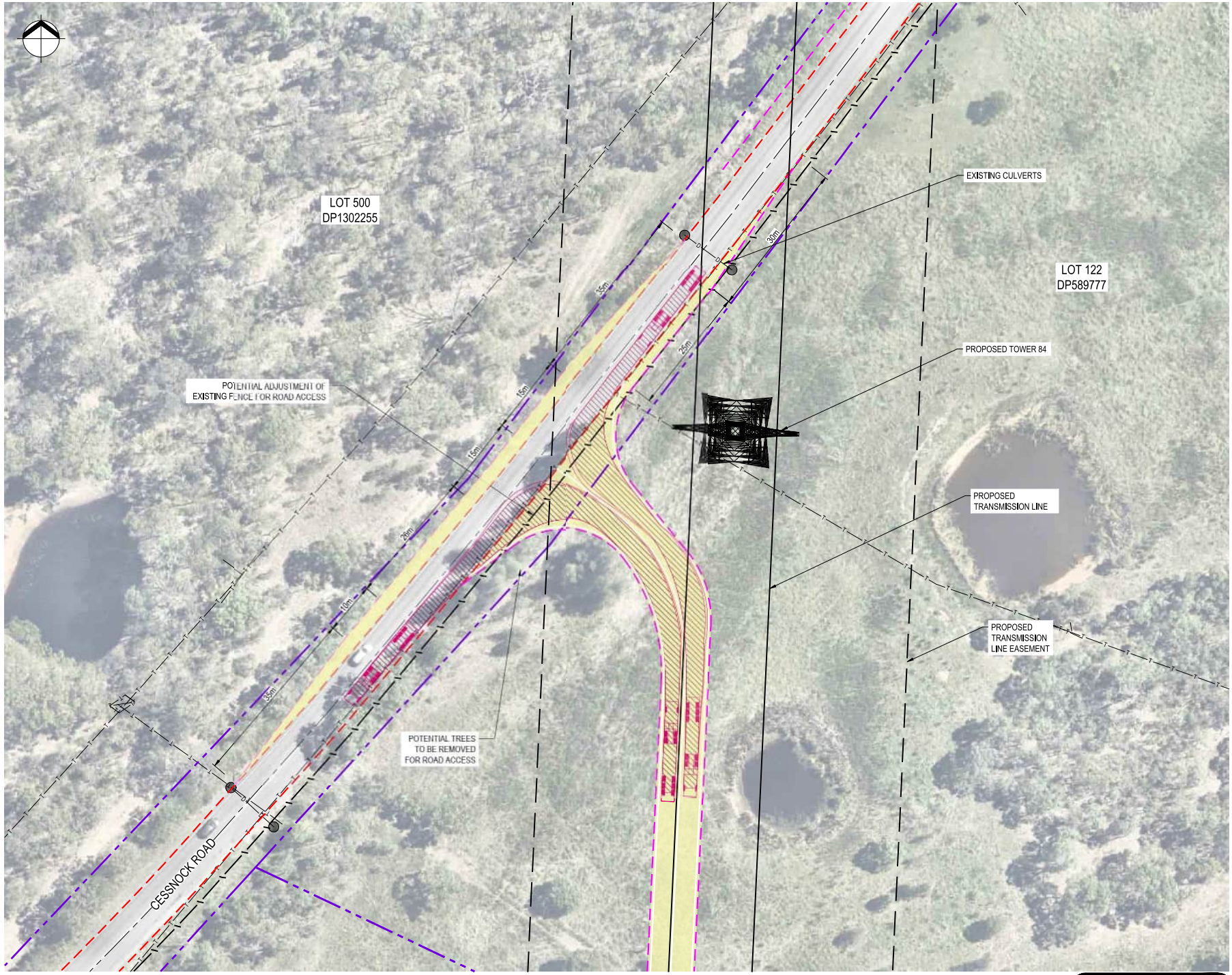

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	28.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-53 CESSNOCK RD AND NEW ACCESS (TOWER 84) OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0640 Rev.: 0B

Document No.: 2583080-CA-ANC-0640.DWG

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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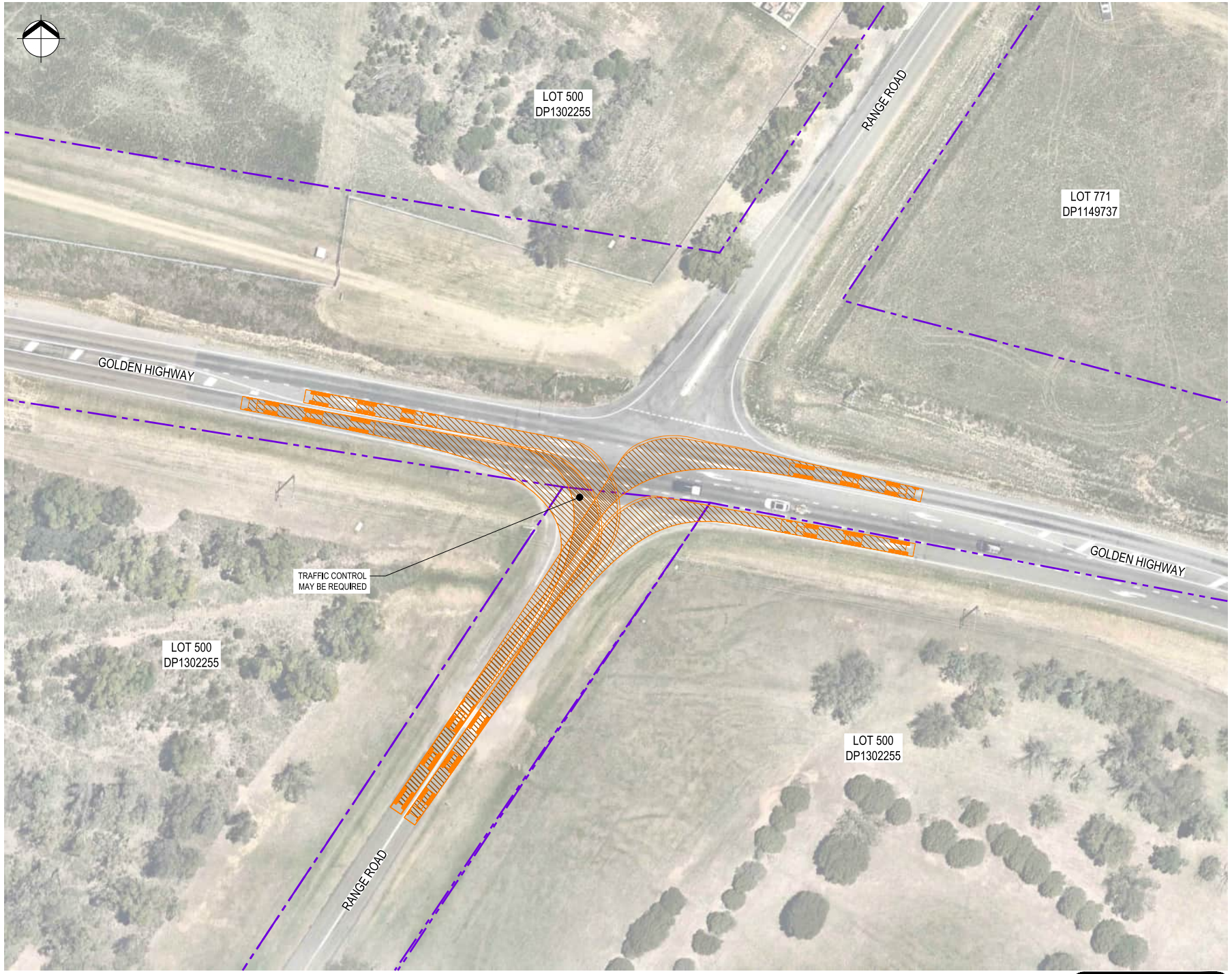

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LEGEND

CADASTRE (INDICATIVE ONLY)

SWEPT PATH - 26m
B-DOUBLE VEHICLE
TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RNN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-10b
GOLDEN HWY AND RANGE RD
OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0641 Rev.: 0A

0 3.5 7 14 21
Full Size A1 1:350 ; Half Reduction A3 1:700
SCALE (m)

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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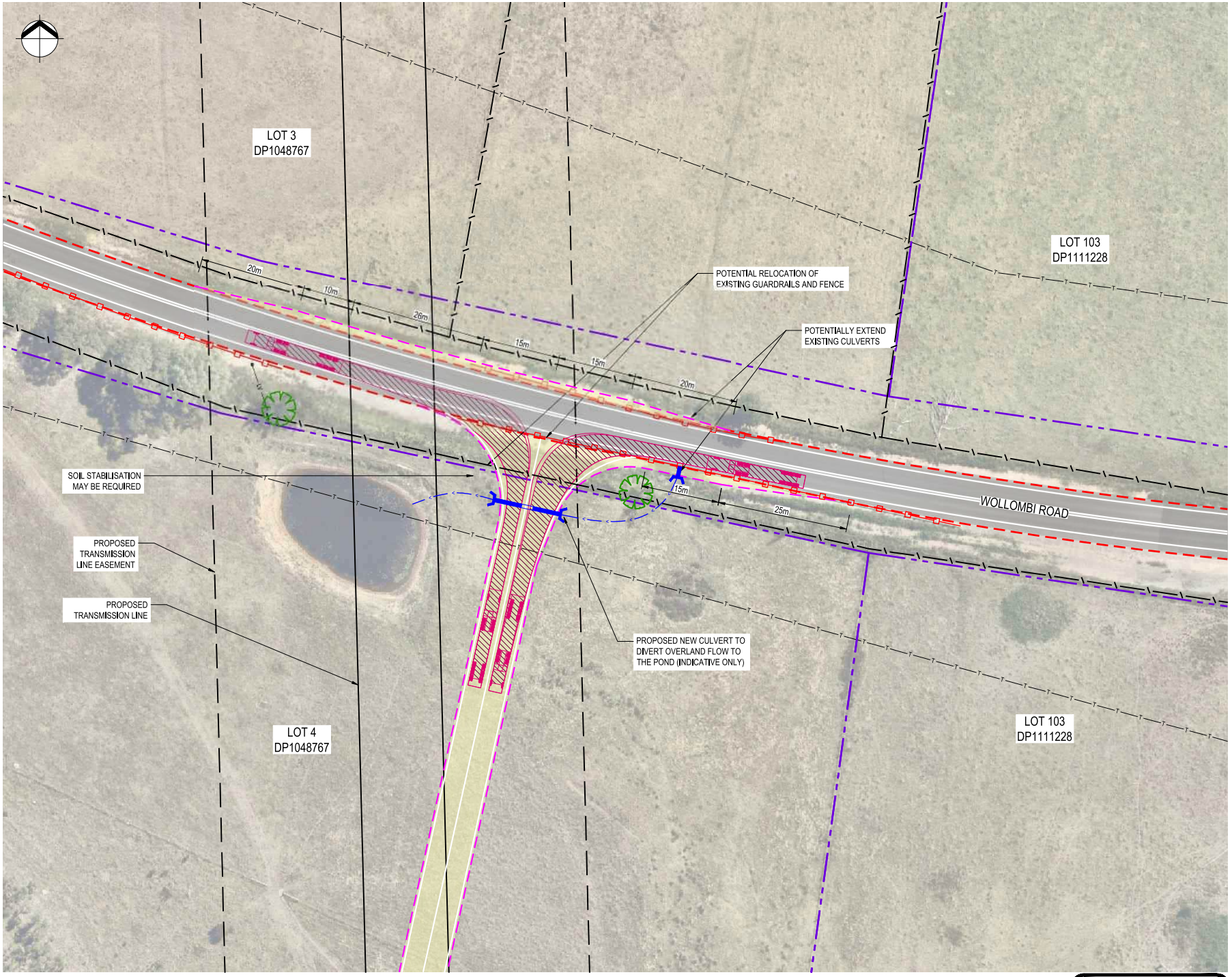

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LEGEND

- EXISTING TELSTRA (BYDA)
- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h
- PROPOSED CULVERT
- FLOW PATH (INDICATIVE ONLY)

No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	30.05.25

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-54 WOLLOMBI RD AND NEW ACCESS OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0642 Rev.: 0B

Document No.: 2583080-CA-ANC-0642.DWG

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LEGEND

—T——T— EXISTING TELSTRA (BYDA)

SWEPT PATH
19m SEMI-TRAILER
TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	W.G.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	W.G.	B.S.	A.L.	24.01.25

Original Scale (A1) 1:350m	Design	B.STRANG	24.01.25
	Drawn	W.GOH	24.01.25
	Dsg Verifier	D.RINN	24.01.25
Reduced Scale (A3) 1:700m	Drg Check	B.STRANG	24.01.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-46 LONG POINT RD W AND EX TRACK OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0643 Rev.: 0A

Document No.: 2583080-CA-ANC-0643.DWG

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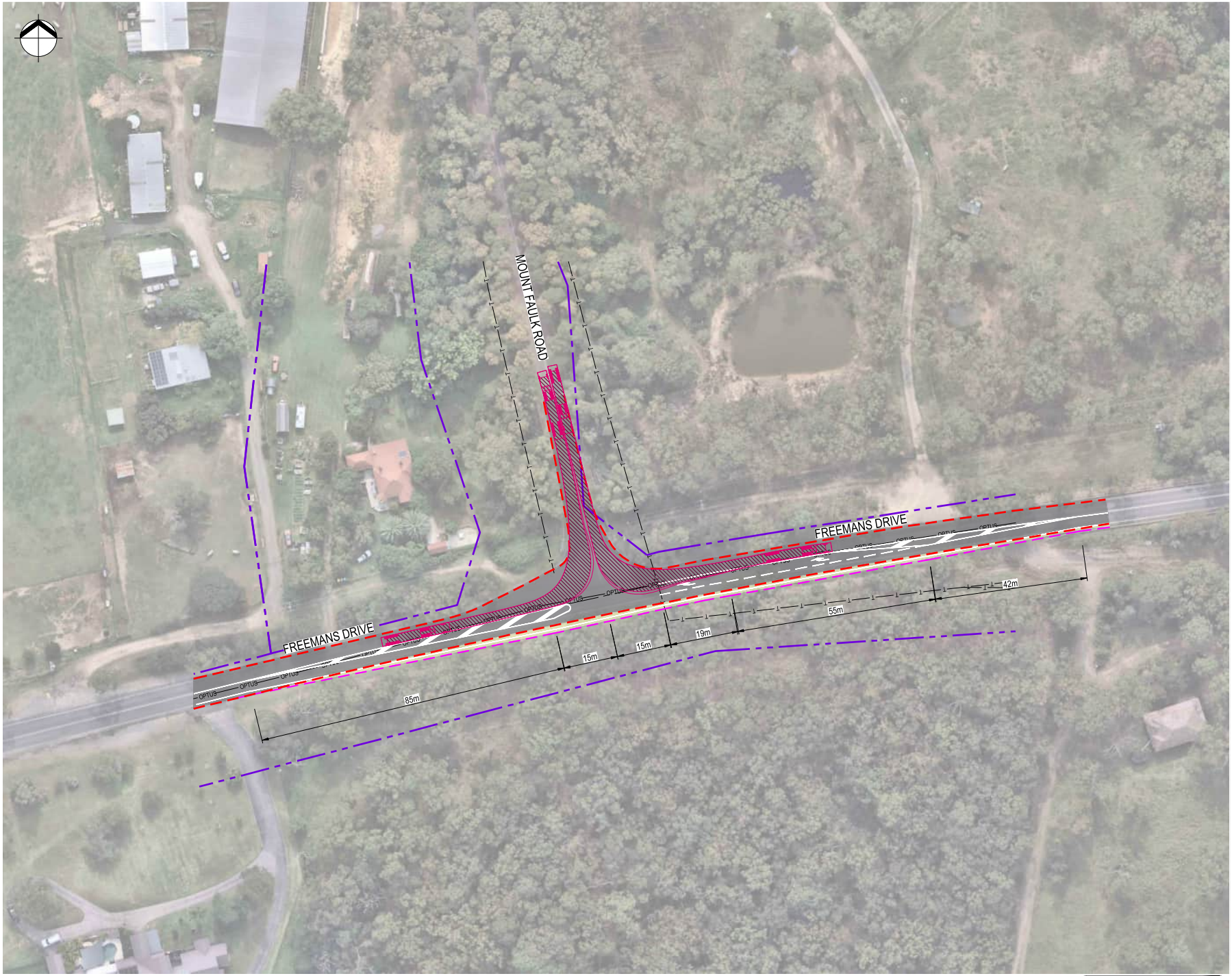

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LEGEND

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- EXISTING WATER MAIN (BYDA)
- EX. POWER LINES - OVERHEAD
- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING SIGNAGE
- EXISTING GATE
- EXISTING TREE
- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	30.05.25
	Drawn	C.R.LAWRENCE	30.05.25
	Dsg Verifier	D.FINN	30.05.25
Reduced Scale (A3) 1:1000m	Drg Check	B.STRANG	30.05.25

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-28 FREEMANS DR AND MOUNT FAULK RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0652

Rev.: 0A

Document No.: 2583080-CA-ANC-0652.DWG

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Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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No.	Revision	By	Chk	Appd	Date
0B	RE-ISSUED FOR TENDER	S.C.	B.S.	A.L.	25.11.25
0A	RE-ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	17.11.25
0	ISSUED FOR TENDER	C.R.L.	B.S.	A.L.	30.05.25

Design	R.ANDERSON	20.11.25	Approved For Construction*
Drawn	C.R.LAWRENCE	20.11.25	
Dsg Verifier	D.FINN	20.11.25	
Drg Check	B.STRANG	20.11.25	Date

Original Scale (A1) 1:200m
Reduced Scale (A3) 1:400m
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT - I-58 FREEMANS DR AND MOUNT NELINDA RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0664 Rev.: 0B

0 2 4 8 12
Full Size A1 1:200 : Half Reduction A3 1:400
SCALE (m)

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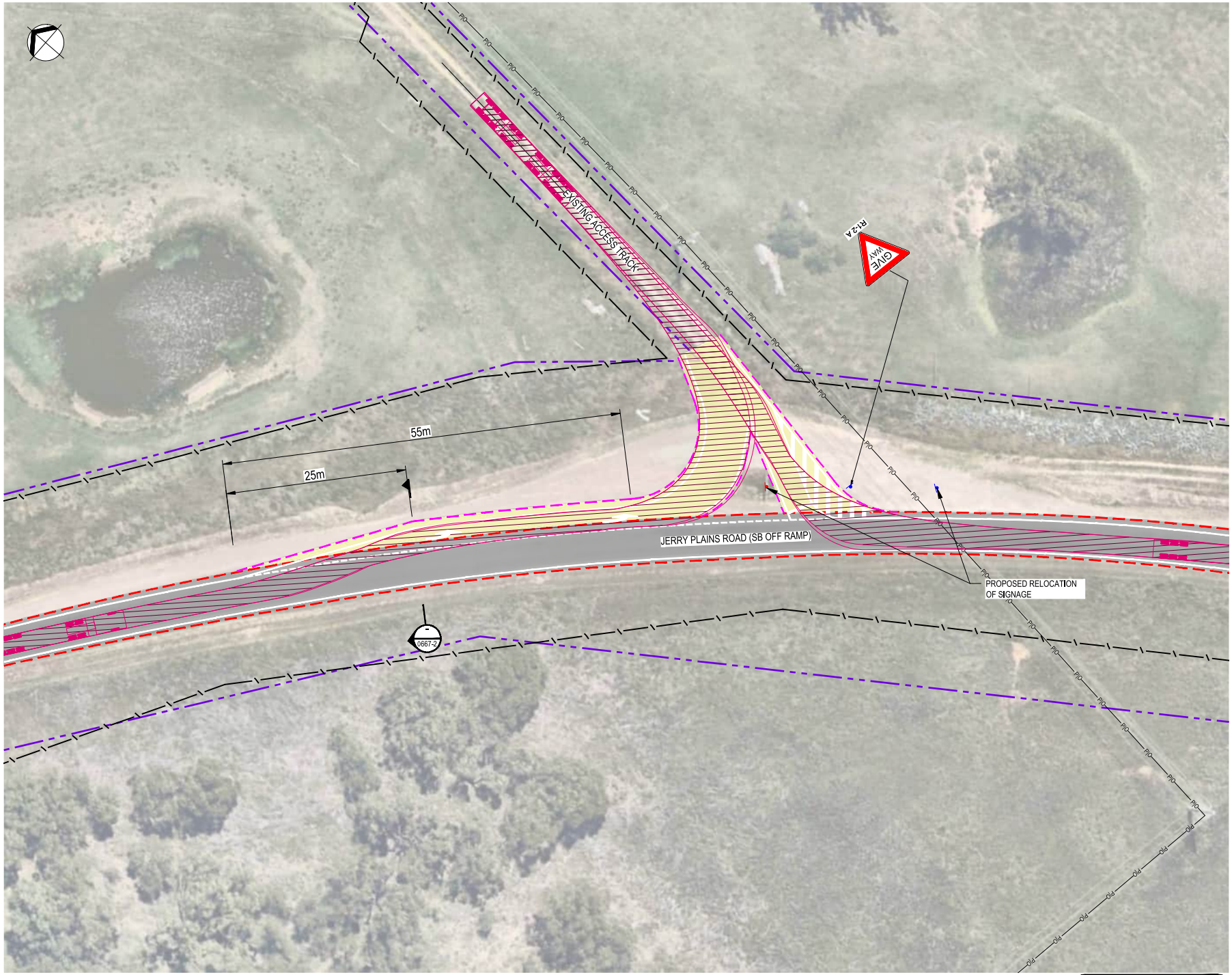

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- EXISTING DRAINAGE (BYDA)
- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- EXISTING EDGE OF BITUMEN / EDGE OF FORMATION
- EXISTING FENCE
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- EXISTING SIGNAGE
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- PROPOSED EDGE OF BITUMEN / EDGE OF FORMATION
- PAVEMENT
- AREA REQUIRING ROAD WIDENING
- SWEPT PATH - 19m SEMI-TRAILER VEHICLE TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	L.C.	B.S.	A.L.	05.12.25

Original Scale (A1) 1:250m	Design	R.ANDERSON	05.12.25
	Drawn	L.COLE	05.12.25
	Dsg Verifier	D.FINN	05.12.25
Reduced Scale (A3) 1:500m	Drg Check	B.STRANG	05.12.25
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Approved For Construction*

Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT JERRY PLAINS RD (SB RAMP) AND EX TRACK OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0667-1

Rev.: 0

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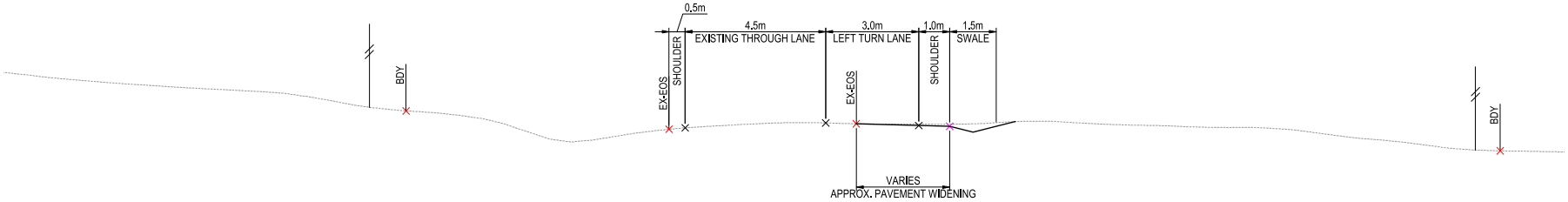
LEGEND

- EXISTING SURFACE (LiDAR)
- DESIGN SURFACE
- EXISTING BOUNDARY (BDY)
- EXISTING EDGE OF SEAL (EX-EOS)
- EXISTING FENCE
- PROPOSED LINEMARKING
- PROPOSED EDGE OF SEAL



- / 0667-1 TYPICAL SECTION - JERRY PLAINS RD (SB OFF RAMP) & EX TRACK
SCALE: NTS

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	L.C.	B.S.	A.L.	05.12.25

Original Scale (A1) AS SHOWN	Design	R.ANDERSON	05.12.25
	Drawn	L.COLE	05.12.25
	Dsg Verifier	D.FINN	05.12.25
Reduced Scale (A3) AS SHOWN	Drg Check	B.STRANG	05.12.25

Approved For Construction* Date

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT
JERRY PLAINS RD (SB RAMP) AND EX TRACK
TYPICAL CROSS SECTION

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0667-2

Rev.: 0

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APPENDIX E

OSOM VEHICLE ROUTE ASSESSMENT

COASTAL
TRANSPORT SERVICES
We'll look after you!

CONCEPT LEVEL ROUTE ANALYSIS

Produced for Energy Co and the Hunter Transmission Project

Planning the Transportation of High Risk OSOM loads from various Ports around Australia,
Planning Deliveries into the Hunter Valley / Lake Macquarie Region.

Designed & Collated by Coastal Transport Services

jamesm@coastalgroup.au

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Welcome to Coastal Transport Services!

With 39 years in the Transport Industry, we are a trusted supply chain partner to some of Australia's biggest brands. We provide transport related services to the Fast-Moving Consumer Goods (FMCG), Infrastructure, Building and Construction industries across NSW and interstate.

Coastal Transport has been participating in Sydney's, the Central Coast and Hunter's development since 1986 and has been a contributor to much of its infrastructure you see today.

Our Head Office Depot was built on the Central Coast in 2004 incorporating an in-house workshop, public weighbridge with onsite warehousing, distribution and 3PL. Our dedicated site in Sydney was established due to an increase in demand for transport and warehousing services and has continued to grow since.

With an ever-expanding fleet and customer base, Coastal Transport is currently in development of modern purpose-built facility strategically located to adjacent to the M1 at Warnervale, allowing for fast and efficient freight lines throughout the East Coast, Hunter and Sydney Regions.

As a leading expert within the industry, we are proud of the projects our customers have entrusted Coastal Transport to plan, allocate and deliver across the nation. From major infrastructure to complex logistic solutions, we have been both consultants and delivery contractors. Some of the projects we have been, or currently key partners in are:

- M7 Expansion
- BlueBet Stadium Upgrade
- Warringah Freeway Upgrade
- Multiple V8 Supercars Australia Relocation Projects
- Lake Cowal Goldmine
- Multiple Meriton Hotel Projects

We operate a modern and well-maintained fleet of vehicles at all times, and our core fleet comprises of more than 180 assets and with our willingness and drive to both expand and invest, is able to increase to meet any requirements for our customer's.

In the fast-moving world of transport, our staff stand out as trained professionals with the expertise and commitment needed to keep things running smoothly. Backed by a strong drive to continuously improve our services and industry knowledge, our team ensures safe, efficient, and reliable transport solutions, every time.

Across our sites we are responsible for looking after the well-being and safety of 108 staff. The health and safety of our employees is of the utmost importance to Coastal. We believe in maintaining a Company that is committed to having a genuine culture of safety in all parts of our business. All employees are encouraged to maintain an injury free workplace by taking personal responsibility for the well-being of staff as well as their own safety to reinforce an ethos of continual improvement.

We extend our sincere thanks for the opportunity to collaborate on this project. Your trust and partnership have been truly valued throughout every stage. As we look ahead, we remain committed to supporting your goals with the same dedication, reliability, and service quality you've come to expect. We look forward to building on this success and continuing our journey together on future projects.

Risk Assessment Analysis Guidelines

All routes have been assessed using the Transport Management Plan Guidelines. Each Load has been measured against a table of tolerances (listed below) that will determine in what a **High-Risk** movement looks like for transport. If a load is considered **High-Risk**, or is travelling along a **High-Risk Route**, a Transport Management Plan (TMP) will be required for each planned movement prior to submission of any government permits.

Table of Tolerances for High Risk Movements	
Criteria	TMP Required when
Length	> 40 metres
Height	> 5.2 metres [(1)]
Rear Overhang	> 7.5 metres
Forward Projection	> 5.5 metres
Width	> 6.0 metres
Total Combination Weight	> 184.5 tonnes

A Transport Management Plan is made up of the following criteria:

1- Combination Details of the desired Transport
2- Route Survey Details of the proposed route(s)
3- Traffic Management Arrangements
4- Stakeholder and Community consultations
5- Rail Infrastructure Manager(s) approval.

In assessing whether a particular OSOM movement is classified as “High Risk”, TfNSW will also consider the following but not limited to; time and date of movement, traffic volumes along the proposed route, speed zones along the proposed route, location, grade, terrain and road geometry, frequency of movements and type of load.

[(1)] If within 200 millimetres of overhead structure(s) along the proposed route, a route survey identifying overhead structure(s) and the traffic management arrangements for travelling under these structure(s) is required.

An internal risk assessment has been conducted for the project to ensure that as many key risks have been identified and control measures have been considered. These risks culminate to an overall rating that outlines the type of load each load will fall under.

Further risk assessments should be undertaken as part of the Traffic Management Plan, Permits and any other required logistical and legal documents closer to the planned commencement date due major infrastructure projects needing to be completed.

Risk Assessment

This comprehensive risk assessment addresses the key hazards associated with the high-risk transport movement of oversized loads meeting one or more criteria outlined in the above table, through built-up and mixed terrain environments. The Assessment covers all loads and the potential hazards present for all types of movements. The table consolidates hazards from various domains:

- Traffic Management & Infrastructure (e.g., narrow bridges, level crossings, road closures)
- Vehicle Configuration & Operational Hazards (e.g., articulation risks, swept path issues)
- Environmental Conditions (e.g., narrow roads with no shoulders, loose gravel, overhanging vegetation)
- Lighting & Visibility (e.g., inadequate lighting, visibility of personnel and barriers)
- Weather Hazards (e.g., heavy rain, strong winds, extreme heat)

Each hazard was assessed using a standard risk matrix, rating the Likelihood and Severity of potential incidents to generate an Initial Risk Rating. Appropriate Control Measures were identified and documented for each hazard, along with Residual Risk Ratings following mitigation.

This assessment provides an actionable risk profile to support Route Planning, Stakeholder Coordination, and Operational Readiness for the transport event.

The hazards and risk ratings outlined in this assessment are based on assumed operating conditions, vehicle configurations outlined in each project scope and forecasted environmental and traffic factors. If this transport were to proceed, the following disclaimers apply:

- Site-specific risk reviews and real-time route inspections must be conducted within 48 hours prior to transport.
- Weather conditions, traffic volumes, and infrastructure condition may change and alter the risk profile at short notice.
- All control measures must be verified as implemented and operational before commencement of movement.
- This document does not replace legal obligations under transport and traffic legislation. Permits, escorts, police involvement, and authority notifications remain mandatory where applicable.

Residual risks remain, and despite mitigation, incidents may still occur. All personnel must remain vigilant, operate under a site-specific Traffic Management Plan (TMP), comply with the relevant Work Health and Safety (WHS) regulations, direction of Authorities, Safe Work Method Statements, and any other relevant documentation for this transport movement.

Likelihood \ Severity	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Moderate	High	Extreme	Extreme	Extreme
Likely (4)	Moderate	High	High	Extreme	Extreme
Possible (3)	Low	Moderate	High	High	Extreme
Unlikely (2)	Low	Low	Moderate	High	High
Rare (1)	Low	Low	Moderate	Moderate	High

Risk Assessment							
Hazard	Pre Control			Control Measures	Post Control		
	Likelihood	Severity	Initial		Likelihood	Severity	Residual
Collision with roadside infrastructure	4	4	Extreme	Route survey, pilot spotters, signage, night movement, extended clearance zone	2	4	High
Pedestrian injury in built-up areas	3	5	Extreme	Barriers, pedestrian marshals, night movement, detour signage	1	4	Moderate
Vehicle breakdown or mechanical failure	3	3	High	Pre-trip inspection, recovery vehicle trailing, mechanic on call	1	3	Low
Traffic disruption / congestion	5	2	High	Road closure permits, real-time comms between critical waypoints	4	2	Moderate
Low overhead clearance (bridges, power or comms wires)	2	4	High	Elevation checks, utility provider clearance/removal if required	1	3	Low
Bridge/culvert load exceedance	1	5	High	Structural engineering clearance, alternate route if needed	1	4	Moderate
Public interference or aggressive behaviour	3	3	High	Police escort, community alerts, signage, fencing if required	2	2	Low
Swept path cornering issues (multi-articulation)	4	4	Extreme	Steerable trailers, intersection control, swept path analysis, pilot guidance	2	3	Moderate
Load instability under dynamic steering stress	2	5	High	Restraint certification, driver training, load checks at intervals	1	4	Moderate
Loss of articulation coordination	3	4	High	Comms protocols, VHF/UHF radios, GPS tracking for each unit	2	3	Moderate
Jackknife or trailer whip on grades	2	5	High	Low-incline route preference, torque control and engine braking, route selected for avoidance of grades	1	4	Moderate
Reversing or route correction with multiple trailers	4	3	High	Route selected to eliminate any form of Reversing, subject to permit approval	2	2	Low
Signal miscommunication (driver/pilot/crew)	3	4	High	Crew briefing, dual-band radios, comms hierarchy established	1	3	Low
Blocked road access to emergency services	3	5	Extreme	Coordination with emergency services, designated emergency clearance paths, movement curfew	2	4	Moderate
Public confusion due to closures and detours	4	3	High	Variable message signs (VMS), public notices prior to commencement, traffic control presence	2	2	Low
Risk to traffic control personnel	3	4	High	Hi-vis PPE, barricades, TCP-trained traffic personnel, police presence	1	3	Low
Improper detour routing (unsuitable for volume/weight)	2	4	High	TMP integration with council-approved detour plans if required	1	3	Low
Inadequate vehicle lighting (front, rear, side)	3	4	High	Certified auxiliary lighting system, high-intensity rear markers, ADR-compliant lighting scheme	1	3	Low
Spotter/pilot personnel not visible in low light	4	4	Extreme	LED arm bands, Reflective PPE, wearable lighting and backlit wands for High Risk pinch points	2	3	Moderate
Route sections poorly lit or in blackout zones	3	4	High	Pre-move night survey, temporary lighting tower	2	3	Moderate

Risk Assessment							
Hazard	Pre Control			Control Measures	Post Control		
	Likelihood	Severity	Initial		Likelihood	Severity	Residual
				deployment, floodlights on escort vehicles on			
Flashing beacon visibility obstructed by load size	3	3	High	Elevated beacon mounts, perimeter strobes, beacon check during pre-start walkaround	1	2	Low
Narrow roads with no shoulders	4	4	Extreme	Route pre-clearance, off-peak movement, traffic management points at choke areas	2	4	High
Overhanging tree branches striking load or obscuring view	4	3	High	Arborist survey, pruning/clearing prior to move	2	2	Low
Loose gravel or unstable unsealed road sections	3	4	High	Load distribution plan, low-speed transit, alternate routing	2	3	Moderate
Movement on non-closed roads (live traffic exposure)	5	4	Extreme	Escort/pilot vehicle spacing, police presence, restricted overtaking zones for public	4	4	High
Load or vehicle contact with road-edge drop-offs (no shoulder)	4	5	Extreme	Infrastructure Upgrades, traffic control to buffer movement zone, reduced speed zones	2	4	High
Visibility limitations due to natural light (sun glare, shadow)	4	3	High	Time-of-day scheduling, tinted visors, pilot/police front spotting with wide-angle comms	2	2	Low
Wildlife or domestic animals entering route	3	3	High	Spotters for rural fringe, horn sound protocol, low speed movements (Olney)	1	2	Low
Train level crossing—collision risk due to delay or timing	3	5	Extreme	Rail operator coordination (track possession or clearance), planned time window, flagman on site	1	4	Moderate
Train level crossing—vehicle grounding or stuck due to low clearance	2	5	High	Clearance assessment, approach assessment (35km or greater in speed)	1	4	Moderate
Bridge too narrow for load width	4	4	Extreme	Bridge bypass route, load disassembly (if feasible), night-only movement with complete closure	2	4	High
Bridge unable to accommodate swept path of multiple trailers	4	4	Extreme	Swept path simulation (Auto TURN or similar), steerable trailer planning, centreline tracking with pilot guidance	2	3	Moderate
Bridge structural limits exceeded (mass or axle group spacing)	3	5	Extreme	Engineering certification, axle configuration optimization, use of bridge bypass or bypass road	1	4	Moderate
Heavy rain causing reduced traction or road flooding	4	4	Extreme	Monitor weather forecast, reschedule during heavy rain, deploy lead vehicle to assess water depth	2	3	Moderate
Strong wind affecting high-profile or wide loads	4	4	Extreme	Wind speed monitoring, wind threshold limits defined, movement paused during gusts >40km/h	2	3	Moderate
Extreme heat affecting tires or hydraulic systems	3	3	High	Monitor equipment temps, enforce stop cycles, tire pressure adjusted for ambient heat if required	2	2	Low

Section 1 – Project Details

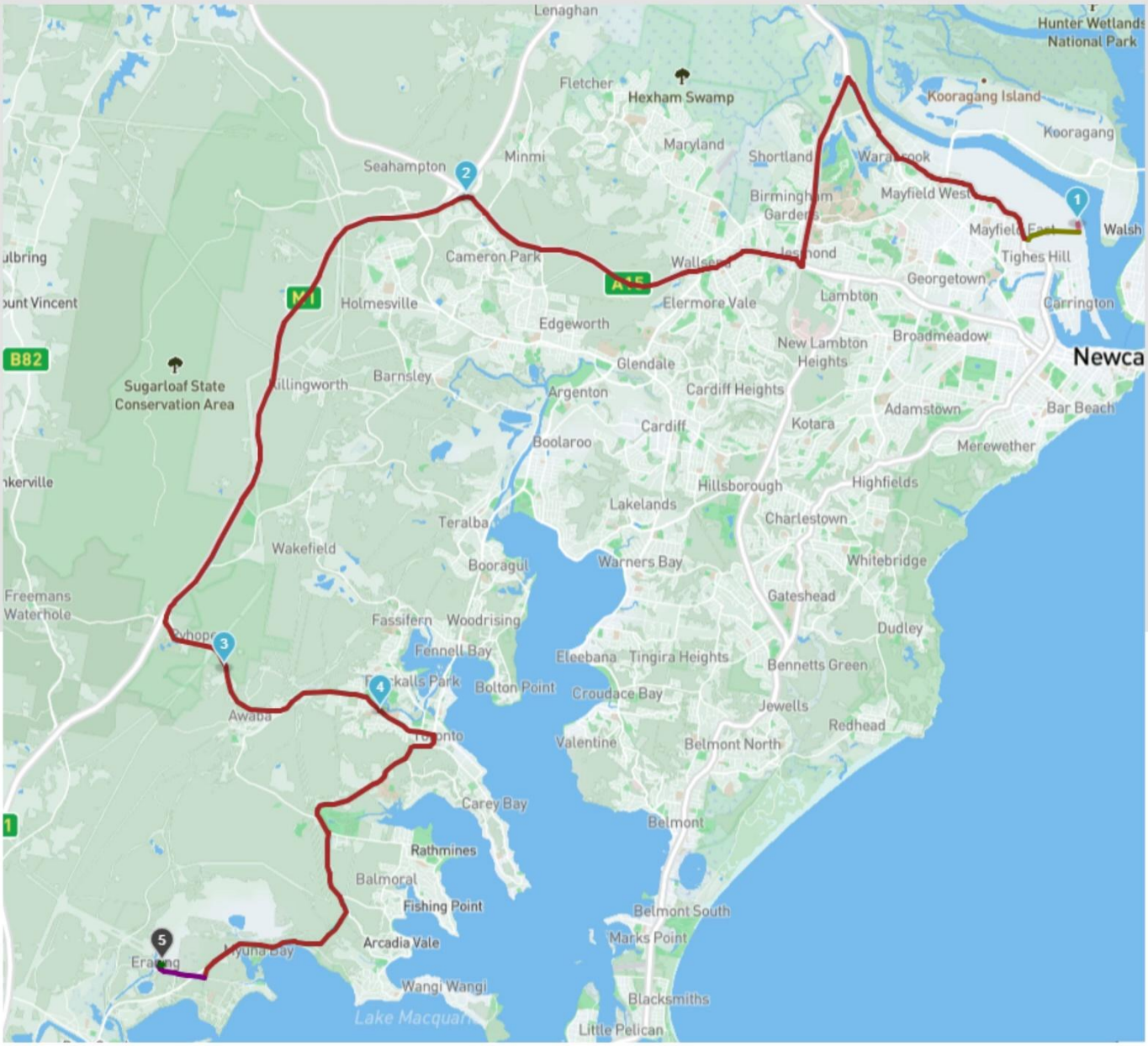
Customer Name:	Energy Co (Transport NSW)
Scope of Project:	Transporting High Risk OSOM loads from the Port of Newcastle to various delivery locations through the Hunter Valley / Lake Macquarie Region, including two interstate deliveries of OSOM loads into the Lake Macquarie Region / Upper Hunter Scope of work to include all Hazards, Risks, Transport issues that may be present with the planned size, weights and routes, equipment required and any adjustment to designated routes.
Estimated Start:	Mid 2028
Quantity of Loads:	Twelve (12) Loads
Load Profiles:	Loads outlined as Length x Width x Height @ Tonnes Seven (7) Transformers – 5.92m x 5.24m x 4.20m @ 125t Each Three (3) Reactors – 6.40m x 3.30m x 4.00m @135t Each One (1) Building – 23.60m x 4.30m, 4.15m @ 50t One (1) Building 28.40m x 4.30m, 4.15m @ 50t
Delivery Schedule and Planning:	For the purposes of this Project, the schedule is being split into multiple scopes of work. 1- Seven (7) Loads from the Port of Newcastle to Eraring Sub Station 2- Three (3) Loads from the Port of Newcastle to Bayswater South Switching Station 3- One (1) Building 23.6m Long from the Port of Newcastle to Olney State Forest Switching Station 4- One (1) Building 28.4m Long from the Port of Newcastle to Bayswater South Switching Station Each Scope of work will be grouped together under the delivery and loading requirements so long as they remain the same. Each Scope of work is to be carried out under the assumption that all suggested actions and implementations from all relevant governing bodies (including but not limited to the NHVR and NSW Emergency Services) have been considered and planned accordingly. Travel Plans are under the assumption that any upgrades to carriageways and other routes have been taken into consideration and completed prior to the commencement of load. Delivery Schedule and Permits can be subject to change from outside sources like weather or structural conditions.
Planning Notes	Project Part One will be split into A and B estimated Travel Routes given Structural Upgrades that will need to be taken account on each route. A – Port of Newcastle to Eraring, via Toronto B – Port of Newcastle to Eraring, Use of Private Coal Road **Comments regarding Route Selection** The route assessment has considered overhead obstruction clearances and known bridge/culvert mass limitations as part of the selection of the most appropriate route for the given components and OSOM vehicle combinations. For example, the route for Oversize and Over Mass (OSOM) movements into Eraring Power Station has been selected after consideration of multiple bridge and road clearance constraints. The chosen route avoids the necessity of traversing Morisset entirely. Low powerlines and narrow bridges both exiting and approaching Dora Creek significantly increase the operational risks that have been identified through risk assessments by Coastal Transport Services. Utilising Awaba Road up to the preferred access via the Private Coal Road avoids the primary concerns regarding height and width restrictions through Morisset.

Section 1 – Project Details

Given the bridge height limit of 5.2m on Awaba Road, a maximum deck height of 900mm for the 10x8 platform trailer (or alternative trailer configuration such as a beam-set) would apply to navigate below the low height bridge. However, if a standard 10X8 platform trailer exceeding 900mm deck height is used, the carrier is advised to seek access via the Private Coal Road and follow all route requirements outlined in the submitted documentation.

As part of the initial route selection process, the route via Freemans Drive to Newport Road and into Dora Creek to bypass Morisset was considered and eliminated due to multiple low clearance bridges, those being: 5.1m on both Freemans Drive and Newport Road, and 3.3m on Newport Road heading into Dora Creek.

PROJECT SCOPE 1A



Seven Loads from the Port of Newcastle, to Eraring Sub Station Via Toronto

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Load Point:	Port of Newcastle
Load Address:	*Dock Four (4) Mayfield - TBC* Mayfield Four (4) has been selected for this schedule (Appendix A), is classified as General and Container Precinct, allowing for easier access to the loading process, along with pre-approved routes from Dock to Primary Travel Routes exiting Newcastle.
Destination:	Eraring Sub Station
Destination Address:	Rocky Point Rd, Eraring NSW 2264 – Travel via Awaba Road, Toronto and Wangi Road
Number of Loads:	Seven (7)
Classification of Load:	**High Risk OSOM**
Item Dimensions:	5.92m x 5.24m x 4.20m – 125 tonnes
Required Combination and Escorting:	2 Pull 1 Push, 10x8 OR 8x8 Platform Trailer no greater than 1.2M in height **– 40**+ meters in length Police Intervention and Escorting WILL be required for the length of the journey. Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers. Transport Management Plan will be required.
Combination Dimensions	48.00m Long x 5.24m Wide x 5.1m > 5.4m High* Length will be determined on the Splitter Bars used for each prime mover. Combination height will be greater than 5.1M high if a low loader platform trailer greater than 900mm is utilised for this movement

Type	Qty	Description	Length (mm)
Block Trucks	2	Kenworth T909	7990
Prime Mover	1	Kenworth T909	7990
Draw Bars	2	TRT Standard Draw Bar	2750
Dolley	1	TRT 2R8 Dolley	4650
Platform Trailer	1	TRT 10X8 Platform Trailer	29123

Type		Articulation Point		Description	Length (mm)
Block Truck		1		Kenworth T909	7990
Draw Bar				TRT Standard Draw Bar	2750
Prime Mover		1		Kenworth T909	**12650**
Dolley	Dolley		1	TRT 2R8 Dolley	
Platform Trailer				TRT 10X8 Platform Trailer	**28585**
Draw Bar		1		TRT Standard Draw Bar	2750
Block Truck				Kenworth T909	7990
Total		4		Total	**48.235M**

LGA Zones:	**New South Wales –** Newcastle Port Corporation Newcastle City Council Lake Macquarie City Council

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Travel Notes:	Route ID - 2MA24-0 v10 & 2MA24-0 v12 (noting v12 is the correct route, but needing to work from waypoint 2 to waypoint 1 with road closure) Combination **OVER** 40M • Permit Required for all types of Travel • Transport Management Plan Required • Pilots Required for all types of Travel • Planned travel at Night only, pending scope of works and time of loading • Night Travel Requirements – Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers Combination in between 4.6M and 5.5M Wide • Permit Required for all types of Travel • Pilots Required for all types of Travel • Planned travel at Night only, pending scope of works and time of loading • Night Travel Requirements – Two (3) Pilot Vehicles AND One (1) Authorised Escort Vehicle Driver Combination over 5.0M in Height. While main thoroughfares are being used for this movement, the vehicle must comply with all potential overhead issues present on the routes. Where Tree Maintenance is recommended, this indicates that there are low hanging trees that would impact the unit being travelled. Weight Restrictions on Tarro Bridge, takes that route out of action. Route must comply through Inner City Bypass and travel to the M1 Motorway. This route CANNOT be used if the combination exceeds 5.2M. Awaba Road contains a bridge that has a maximum of 5.2M Clearance and cannot be travelled under on a trailer greater than 5.2M in height. Estimated Distance – 60km – Travel Time indeterminate due to size and combination.
Route	Route 1 – 1. Start: Quayside Close, Tighes Hill NSW 2. Selwyn Street, Mayfield North 3. George Street, Mayfield East 4. Industrial Drive, [Mayfield East - Mayfield West] Sections 5 – 12 can potentially be bypassed by using the Hexham Bypass. Weight Limits, Permits and time of completion all fall into how this needs to be planned. Notes in the Key Milestones sections outline the specific route to be taken, eliminating the need for using the Inner-City Bypass, and high-risk movements of Jesmond, Wallsend and Cameron Park. This is highlighted in **Key Milestones** *5. Maitland Road, [Mayfield West - Sandgate]* *6. Newcastle Inner City Bypass, [Sandgate - Jesmond]* *7. Newcastle Road, Jesmond* *8. Unknown, Jesmond* *9. Newcastle Road, [Jesmond - Wallsend]* *10. Unknown, Wallsend* *11. Thomas Street, Wallsend* *12. Newcastle Link Road, [Wallsend - Cameron Park]* 13. M1 Pacific Motorway Onramp, Cameron Park 14. Pacific Motorway Onramp, Cameron Park 15. Pacific Motorway, [Cameron Park - Freemans Waterhole] 16. Palmers Road Exit, Freemans Waterhole

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

17. Unknown, Freemans Waterhole
18. Cessnock Road, [Ryhope - Awaba]
19. Awaba Road, Toronto
20. The Boulevarde, Toronto
21. Cary Street, Toronto
22. Excelsior Parade, Toronto
23. Mount Waring Road, Toronto
24. Wangi Road, [Toronto - Rathmines]
25. Unknown, Rathmines
26. Wangi Road, [Rathmines - Myuna Bay]
27. Unknown, Eraring
28. Rocky Point Road, Eraring
29. End: Eraring Sub Station, Rocky Point Road, Eraring NSW

*All of this route is Classified as **High-Risk Movement**; all adjoining streets will need to be closed prior to travel due to the high-risk factors of this movement to the general public and infrastructure.*

Key Points and Access Conditions

Noting on Steps 5 & 6 that roadworks is currently being completed on Inner City Bypass Entrance and Exit onto Newcastle Road, these will be completed prior to the project commencing

Maitland Road, [Mayfield West - Sandgate] – Hard Left onto Inner City Bypass, Swept path shows this is achievable without issues.

Newcastle Inner City Bypass, [Sandgate - Jesmond] – Traffic Conditions estimated to be okay when bypass is completed.

Newcastle Road, [Jesmond - Wallsend] – Tree Maintenance will be required along the tighter portions of the road up the hill.

Unknown, Wallsend – Roundabout will require planning to ensure safe passage through to Thomas Street. Street Signs will need to be removed due to the width of the load and turning circle.

Newcastle Link Road, [Wallsend - Cameron Park] – No issues on route itself, noting that the Minmi Roundabout is very busy through the day and early morning. Night Travel to avoid congestion recommended. As is the on-ramp to the M1

Pacific Motorway, [Cameron Park - Freemans Waterhole] – No issues, standard routing for OSOM required on this road for travel.

Palmers Road Exit, Freemans Waterhole – Median Strip and oncoming traffic. Block Traffic from both directions to ensure sufficient turning arcs are maintained. – High Risk. Remove Street Signs and end ensure traffic is blocked to complete turn

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Cessnock Road, [Ryhope - Awaba] - Both Directions will require lane blocking due to width of items. Load will be blocking both lanes entire way up and through Awaba Road.

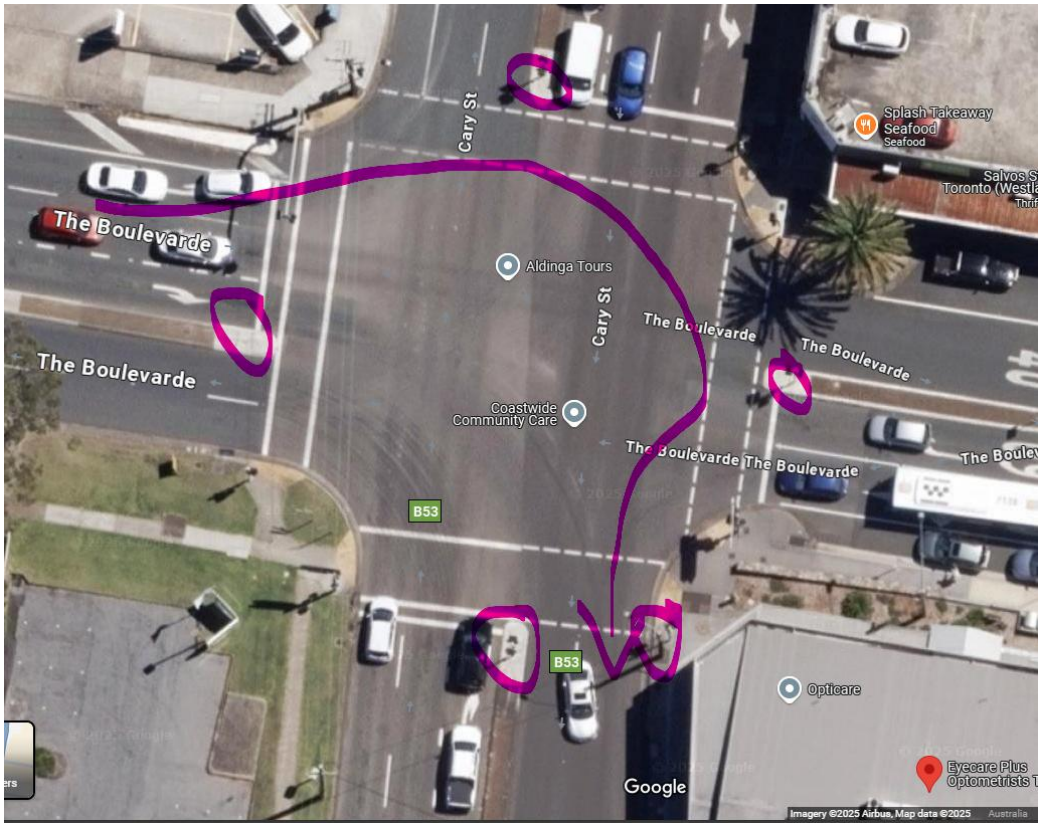
Awaba Road, Toronto – Both Directions require lane blocking due to width of items. Load will be blocking both lanes entire way up and through Awaba Road.

Cessnock, Wilton and Awaba Road – Area for Safe Stopping on the Left, will require planning to ensure can safely stop if needed. **The Purpose of this stop is to aid in any additional side road or main road closures further in the journey into Toronto.**

The Boulevarde, Toronto – Both lanes taken up for entire street from the Boulevard up to Cary intersection, remove signs and safety barriers on path

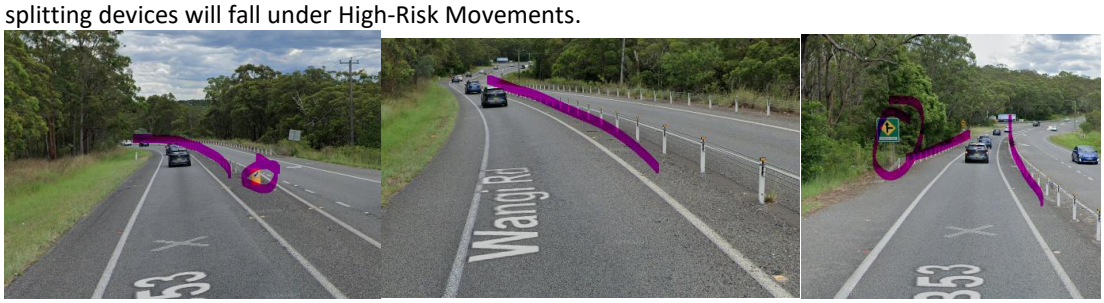
Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Cary Street, Toronto & Excelsior Parade, Toronto – Hard turn right and up the hill will require planning to complete the manoeuvre, high risk on Traffic Lights pending the turning circle and combination required. Temporary removal of some traffic lights and signs may be required to complete this manoeuvre.



Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Mount Waring Road, Toronto – Down the hill past the fire station has Lane Splitting devices, and concrete bollards at the start and finish points of the sections. Tree management and careful manoeuvring towards the end of the splitting devices will fall under High-Risk Movements.



Wangi Road, [Toronto - Rathmines] – Long Sweeping Blind corner for this movement, Block adjoining road for oncoming from Wilton Road intersection to avoid high risk traffic in opposite direction.

Unknown, Rathmines - Roundabout at Dorrington and Wangi Road – Roundabout has a high lip and cannot be travelled over. Use Opposite side of the road to travel through and up the hill. Street Signs will need to be removed on the Median Strips of the roundabout.

Wangi Road, [Rathmines - Myuna Bay] –

a. Over the crest past Donnelly Road, long sweeping right corner with concrete dividers in between. Slow long manoeuvre is required for this turn.

b. Wangi Road, [Rathmines - Myuna Bay] – Past Eucalypt Close, removal of all lanes splitting devices and tree management required to navigate this corner including concrete bollards

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

c. Wangi Road, [Rathmines - Myuna Bay] – Past Myuna Bay Entrance Road – High Risk Crest, Blind Sweeping Left Corner, with a Dip and Crest just after. Block oncoming traffic from here until Rocky Point Road

Unknown, Eraring – Entrance to Rocky Point Road –

Block Oncoming Traffic on Rocky Point Road, Wangi Road, and any traffic entering Northbound to Rocky Point Road. Use the Northbound Lane (oncoming road) to enter Rocky Point Road. The combination required will be too large to navigate the tight right hand turn onto Rocky Point. Tree Maintenance is recommended prior to the trip.

Enter Eraring via main entrance.

Travel Times and Requirements

Sections **16** through completion of this journey is considered to be **High Risk**. Roads will need to be closed completely in segments from Cessnock Road to the completion of the journey at Rocky Point Road.

Toronto presents major issues with the turning circle from the Boulevarde to Carey Street. As thorough planning can be done, there is always factors in which this route should not be utilised to travel.

Given the height of the load, night travel and strict movements will need to be adhered to for the length of the journey. Low Bridges need to be avoided at all costs. Given that the Awaba Road / Newstan-Eraring Private Coal Road overpass is 5.2M Clearance, the alternate route listed below is a more viable option of a trailer with a height of 900mm cannot be used for this journey.

Given Sizing of the loads, Night Travel is mandatory due to the width of the load and the Risks present to the general public. Night Travel also reduces the impact on traffic for Road Closures.

Route is pre-approved for standard OSOM movements, with Permit Approval being required prior to travel for the weight and over dimension aspects, however once route plans are submitted this will determine the appropriate routes required.

Loading should take place in according with Port unloading policies and safe working procedure, whether this is day loading or early afternoon. Transport should not commence until no later than 10PM to allow for the safest roadways for travel.

Transport should only be conducted on Weeknights, no weekend travel for these loads. **Police will be required for side street closures and lane blocking for the length of the journey.**

Travel Management Plan is required for this Journey.

Project Scope Part 1a: Seven (7) Loads from Port of Newcastle to Eraring Substation

Additional pilots may be required pending the sizing or weight requirements after the permit has been submitted, to be advised by the governing bodies of each council sector

Project Scope Part 1: Seven (7) Loads from Port of Newcastle to Eraring Substation Summary

Route Assessments and Summary

It is in the opinion of Coastal Transport Services that the optimal route to be selected for this journey,

The Trailer Combination will exceed 50M with a Two Block Truck towing a Drawn Platform Trailer with one Push Block Truck, this will require a travel management plan for all seven loads and must not deviate from the travel plans.

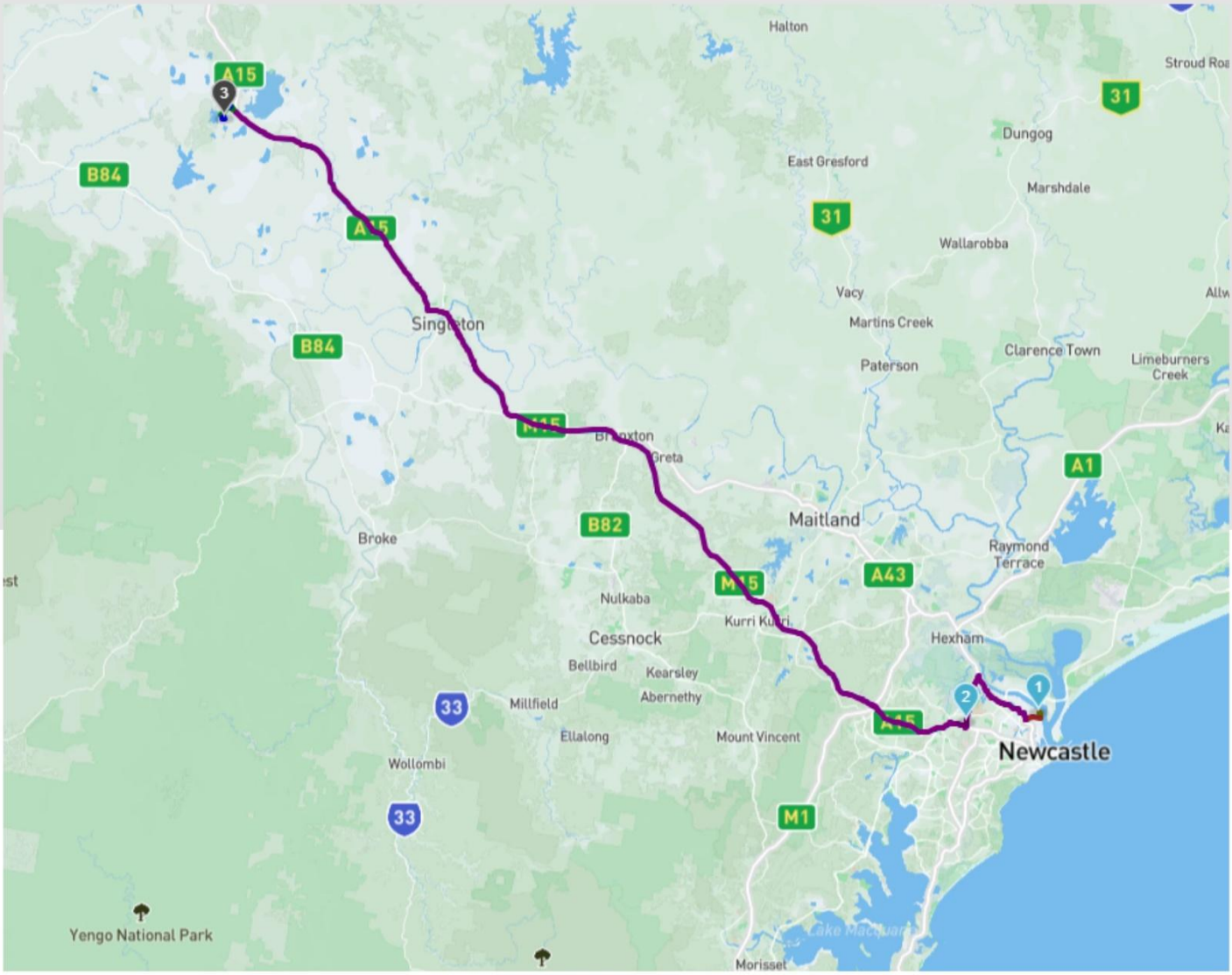
An additional route has also been assessed, mainly utilising the M1 to travel further south to Morisset and using Dora Street to travel north towards the entrance to Eraring. This route has not been selected for this route due to the Bridge heading over Dora Creek, and the limitations it may hold for Transport. If the routes outlined in this report are not deemed as appropriate and further assessments are to be undertaken for this, relevant experts in the construction and integrity of the Dora Creek bridge will need to be consulted during this process to ensure the selected combination is able to safely traverse the bridge and continue on towards Eraring.

Coastal Transport suggests this Route Option, is the safest and preferred option to transport the items safely into the Eraring Substation site from Awaba Road. Noting that this is pending the chosen vehicle and trailer configuration.

Regardless of route options that are chosen, it is recommended that this movement be completed in one continuous segment to alleviate any potential delays, hazards and risks associated with general public movement. Rest areas on this route are extremely limited, with the only viable option impacting the general flow of traffic just before the Newstan-Eraring Private Coal Road. Given the size and multiple of the movement, and the multiple high-risk factors on this route, the time this load would take cannot be safely determined, however it would not take more than a maximum 8 hours per load to complete, which is the allowable time from 10PM to 6AM in which this standard combination will be allowed to operate.

Permission to run under exemption hours whilst in operation of this vehicle ought to be obtained by the transport provider to allow for this movement to happen without the limitations on time to complete this journey.

PROJECT SCOPE 2



Three Loads from the Port of Newcastle, to Bayswater Switching Station

Project Scope Part 2: Three (3) Loads from Port of Newcastle to Bayswater South Switching Station

Load Point:	Port of Newcastle
Load Address:	*Dock Four (4) Mayfield – TBC**** Mayfield Four (4) has been selected for this schedule (Appendix A), is classified as General and Container Precinct, allowing for easier access to the loading process, along with pre-approved routes from Dock to Primary Travel Routes exiting Newcastle.
Destination:	Bayswater South Switching Station
Destination Address:	New England Highway, Muswellbrook, NSW 2333
Number of Loads:	Three (3) Loads
Classification of Load:	**High Risk OSOM.**
Item Dimensions:	6.40m x 3.30m x 4.00m – 135 tonnes
Required Combination and Escorting:	2 Pull 1 Push, 10x8 OR 8x8 Platform Trailer **– 40**+ meters in length Police Intervention and Escorting WILL be required for the length of the journey. Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers. Transport Management Plan will be required.
Combination Dimensions	48.00m Long x 3.30m Wide x 4.9m to 5.2m High*

Type	Qty	Description	Length (mm)
Block Trucks	2	Kenworth T909	7990
Prime Mover	1	Kenworth T909	7990
Draw Bars	2	TRT Standard Draw Bar	2750
Dolley	1	TRT 2R8 Dolley	4650
Platform Trailer	1	TRT 10X8 Platform Trailer	29123

Type		Articulation Point		Description	Length (mm)
Block Truck		1		Kenworth T909	7990
Draw Bar				TRT Standard Draw Bar	2750
Prime Mover		1		Kenworth T909	**12650**
Dolley	Dolley		1	TRT 2R8 Dolley	
Platform Trailer				TRT 10X8 Platform Trailer	**28585**
Draw Bar		1		TRT Standard Draw Bar	2750
Block Truck				Kenworth T909	7990
Total		4		Total	**48.235M**

Length will be determined on the Splitter Bars used for each prime mover.
Combination height will be greater than 5.1M high if a low loader platform trailer greater than 900mm is used for this journey

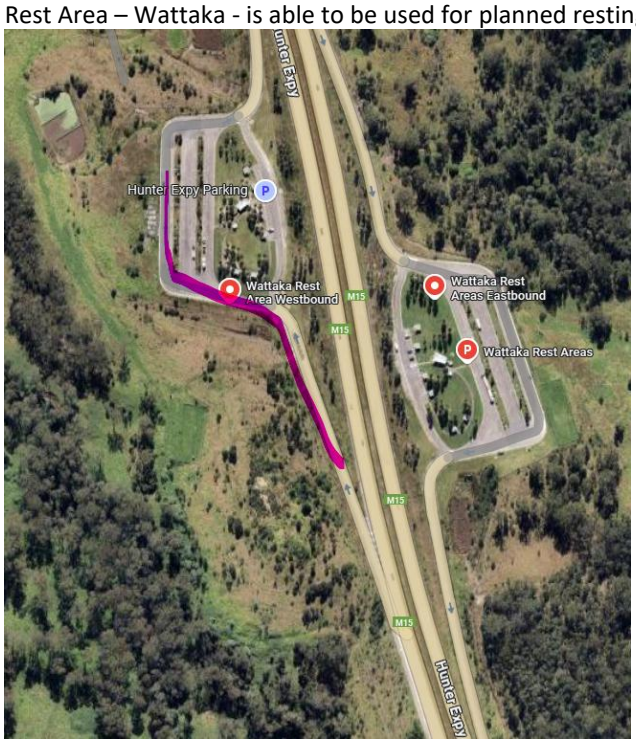
LGA Zones:	**New South Wales –** Newcastle Port Corporation Newcastle City Council Lake Macquarie City Council Cessnock City Council Maitland Council Singleton Council

Project Scope Part 2: Three (3) Loads from Port of Newcastle to Bayswater South Switching Station	
	Muswellbrook Shire Council
Travel Notes:	Combination **OVER** 40M • Permit Required for all types of Travel • Transport Management Plan Required • Pilots Required for all types of Travel • Planned travel at Night only, pending scope of works and time of loading • Night Travel Requirements – Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers • Police Intervention and traffic control at particular pinch points Weight Restrictions on Tarro Bridge, takes that route out of action. Route must comply through Inner City Bypass and travel to the M1 Motorway.
Route	Route ID - 2MCGJ-4 v2 1. Start: Quayside Close, Tighes Hill NSW 2. Selwyn Street, Mayfield North 3. George Street, Mayfield East 4. Industrial Drive, [Mayfield East - Mayfield West] Sections 5 – 12 can potentially be bypassed by using the Hexham Bypass. Weight Limits, Permits and time of completion all fall into how this needs to be planned. Notes in the Key Milestones sections outline the specific route to be taken, eliminating the need for using the Inner-City Bypass, and high-risk movements of Jesmond, Wallsend and Cameron Park. 5. Maitland Road, [Mayfield West - Sandgate] 6. Newcastle Inner City Bypass, [Sandgate - Jesmond] 7. Newcastle Road, Jesmond 8. Unknown, Jesmond 9. Newcastle Road, [Jesmond - Wallsend] 10. Unknown, Wallsend 11. Thomas Street, Wallsend 12. Newcastle Link Road, [Wallsend - Cameron Park] 13. Hunter Expressway, [Cameron Park - Lower Belford] 14. New England Highway, [Lower Belford - Singleton] ***15. Maitland Road, Singleton - SINGLETON BYPASS*** ***16. George Street, Singleton - SINGLETON BYPAS*** *17.* ***New England Highway, [Singleton - Muswellbrook] - SINGLETON BYPASS*** 18. End: Bayswater South Switching Station, New England Highway, Muswellbrook NSW
Key Points and Access Conditions	***Noting on Steps 5 & 6 that roadworks is currently being completed on Inner City Bypass Entrance and Exit onto Newcastle Road, these will be completed prior to the project commencing*** Maitland Road, [Mayfield West - Sandgate] – Hard Left onto Inner City Bypass, will need to take up multiple lanes on the oncoming traffic side of the roundabout to complete the turn. Newcastle Inner City Bypass, [Sandgate - Jesmond] – Traffic Conditions estimated to be okay when bypass is completed. Newcastle Road, [Jesmond - Wallsend] – Tree Maintenance will be required along the tighter portions of the road up the hill. Unknown, Wallsend – Roundabout will require planning to ensure safe passage through to Thomas Street. Street Signs will need to be temporarily removed due to the width of the load and turning circle.

Project Scope Part 2: Three (3) Loads from Port of Newcastle to Bayswater South Switching Station

Newcastle Link Road, [Wallsend - Cameron Park] – No issues once on the Link Road, highlighting that the first roundabout is not developed on either side, and should be checked prior to applying for permit when transport is required, and that the Minmi Roundabout is very busy at all times.

Rest Area – Wattaka - is able to be used for planned resting area for this journey.



New England Highway, [Lower Belford - Singleton] – Noting that this road has numerous narrow bridges, crests and blind sweeping corners along the road. Additional care should be taken on this portion of the journey. Night Travel with all required escorts and police intervention in place will alleviate any further risks.

New England Highway, [Singleton - Muswellbrook] – Road is sufficient for travel to site, dual lane still allows for the safe movement of oversize over mass items, however care needs to be taken on all crests and sweeping corners associated with the movement. Night travel with all sufficient escorts is required.

Bayswater South Switching Station – No issues or access for entry into site gate.

Project Scope Part 2: Three (3) Loads from Port of Newcastle to Bayswater South Switching Station

Travel Times and Requirements

Given Sizing of the loads, Night Travel is mandatory due to the width of the load and the Risks present to the general public. Night Travel also reduces the impact on traffic for Road Closures.
Combination in between 2.5m and 3.5m Wide require a 1 Pilot vehicle, however given the weight and length of the combination, the rules for a 40M + Combination in length will apply for the purpose of Travel.
– ***Additional pilots may be required pending the sizing or weight requirements after the permit has been submitted, to be advised by the governing bodies of each council sector***

Permit for All forms of Travel due to Weight required. Above Route plan to be followed. Critical High-Risk Points are highlighted below and the nature, including traffic management plan due to the high-risk nature of the load.

Route is pre-approved for standard OSOM movements, with Permit Approval being required prior to travel for the weight and over dimension aspects, however once route plans are submitted this will determine the appropriate routes required.

Loading should take place in according with Port unloading policies and safe working procedure, whether this is day loading or early afternoon. Transport should not commence until no later than 10PM to allow for the safest roadways for travel.

Transport should only be conducted on Weeknights, no weekend travel for these loads. **Police will be required for side street closures and lane blocking for the length of the journey.**

Travel Management Plan is required for this Journey.

Additional pilots may be required pending the sizing or weight requirements after the permit has been submitted, to be advised by the governing bodies of each council sector

Project Scope Part 2: Three (3) Loads from Port of Newcastle to Bayswater South Switching Station - Summary

Route Assessments and Summary

The Route assessed from Newcastle to Bayswater is deemed to be high risk, due to the size and weight of the loads, as well as the sheer size in combination that would be required to transport the item safely to site.

Critical points noted at the time of assessment (May 2025) outline in the route that Singleton Bypass will be completed when the loads are due for transport. This will allow for the bypass of Singleton and allow for a safer passage from the south of Singleton to north of McDougals Hill.

Multiple route options have been assessed; however, the Hunter Express Way and New England Highway is the safest and most viable option with the Singleton Bypass to be completed.

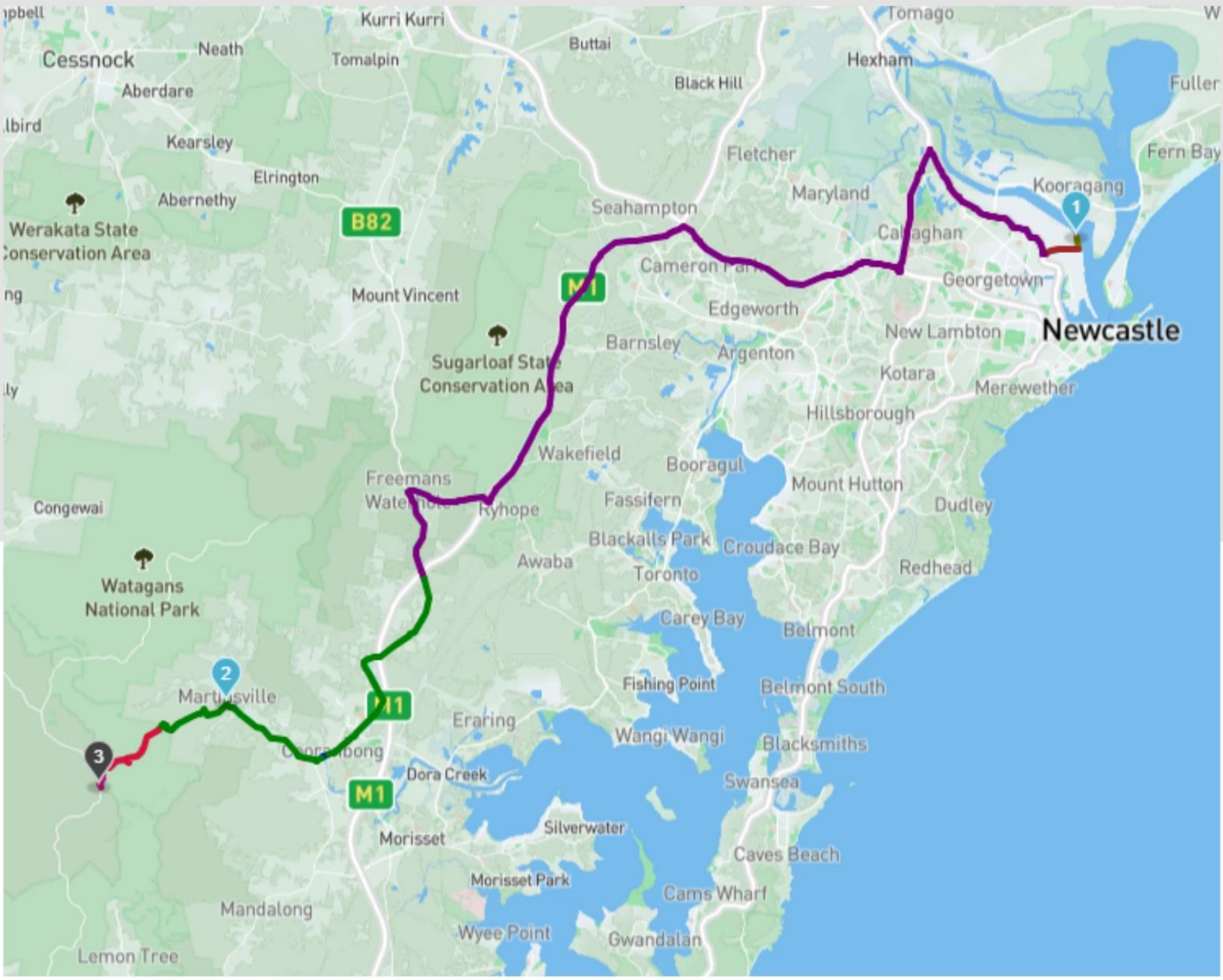
Wattaka Rest Area on the Hunter Expressway is the only viable option for rest areas on this journey and should be utilized as a major rest area for this portion. Noting that the rest area requirements and conditions may change depending on all escorting requirements issued through the notices.

Once outside of the Newcastle CBD, and onto the Hunter Expressway, the risk of transport is greatly reduced. The high traffic area of the Inner-City Bypass, Newcastle Road and Wallsend segments cannot be avoided, and must be used at night only for this combination.

At the time of assessment, all known overhead power line heights along the proposed routes have been taken into consideration. These routes have been selected as the most suitable options to minimise the risk of interference with overhead infrastructure.

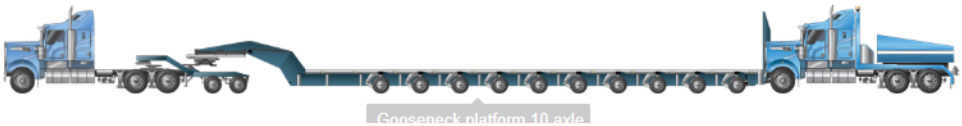
When applying for the relevant permits for this movement, the issuing authority may designate alternative routing due to height restrictions or other factors that were not able to be confirmed or approved during the assessment process.

PROJECT SCOPE 3A



One Load from the Port of Newcastle, to Olney Switching Station

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station

Load Point:	*Port of Newcastle*
Load Address:	*Dock Four (4) Mayfield* Mayfield Four (4) has been selected for this schedule (Appendix A), is classified as General and Goods Precinct, allowing for easier access to the loading process, along with pre-approved routes from Dock to Primary Travel Routes exiting Newcastle.
Destination:	Olney Switching Station
Destination Address:	Intersection of Watagan Forest Road and Jiffy Pot Road via Freemans Drive -33.087800,151.355279
Number of Loads:	One (1) Load
Classification of Load:	**High Risk OSOM**
Item Dimensions:	23.60m x 4.30m, 4.15m @ 50t
Required Combination and Escorting:	Prime Mover – 2R8 Dolly, 8x8 Extendable Platform Trailer. Allowances for up to 7.5M Overhang to comply with NSW, QLD and SA OSOM Allowance Regulations. Total Combination over 40M Police Intervention will be required at particular pinch points through the Journey Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers. Transport Management Plan will be required. Without understanding the infrastructure upgrades to be undertaken, a Block Truck assisting in the climb up the mountain may be required. Turning the combination into the below. 
Combination Dimensions	41m Long x 4.30m Wide x 4.95m > 5.25m High*

Type	Qty	Description	Length (mm)
Prime Mover	1	Kenworth T909	7990
Dolley	1	TRT 2R8 Dolley	4650
Platform Trailer	1	TRT 8X8 Platform Ext. Trailer	22904

Type		Articulation Point		Description	Length (mm)
Prime Mover		1		Kenworth T909	**12650**
Dolley	Dolley		1	TRT 2R8 Dolley	
Platform Trailer				TRT 8X8 Platform Ext.Trailer	**28500***
Total		2		Total	**41.15M***

*Noting that the Overall Length will be determined by the specific trailer. For the purpose of this assessment TRT 8x8 Extendable Platform Trailer has been selected.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station	
	Length will be determined on the Splitter Bars used for each prime mover. Combination height will be greater than 5.1M high if a low loader platform trailer greater than 900mm is utilised for this journey. The Journey has been planned on a 5.25M Load Height to consider the safest possible path for a combination at both heights.
LGA / Road Manager Zones:	**New South Wales –** Newcastle Port Corporation Newcastle City Council Lake Macquarie City Council Forestry Corporation of New South Wales
Travel Notes:	Combination in between 40M and above • Permit Required for all types of Travel • Pilots Required for all types of Travel • Planned travel at Night only, pending scope of works and time of loading • Night Travel Requirements – Three (3) Pilot Vehicles AND One (1) Authorised Escort Vehicle Driver
Route	Route ID - 2MCH9-3 v2 1. Start: Mayfield 4 Berth (Multipurpose Terminal), Mayfield North NSW 2. Quayside Close, Mayfield North 3. Selwyn Street, Mayfield North 4. George Street, Mayfield East 5. Industrial Drive, [Mayfield East - Mayfield West] 6. Maitland Road, [Mayfield West - Sandgate] 7. Newcastle Inner City Bypass, [Sandgate - Jesmond] 8. Newcastle Road, Jesmond 9. Unknown, Jesmond 10. Newcastle Road, [Jesmond - Wallsend] 11. Unknown, Wallsend 12. Thomas Street, Wallsend 13. Newcastle Link Road, [Wallsend - Cameron Park] 14. M1 Pacific Motorway Onramp, Cameron Park 15. Pacific Motorway Onramp, Cameron Park 16. Pacific Motorway, [Cameron Park - Freemans Waterhole] 17. Palmers Road Exit, Freemans Waterhole 18. Cessnock Road, Freemans Waterhole 19. Palmers Road, Freemans Waterhole 20. Freemans Drive, [Freemans Waterhole - Cooranbong] 21. Watagan Road, Martinsville 22. Martinsville Hill Road, Martinsville 23. End: Watagan Forest Rd, Ravensdale NSW 2259
Key Points and Access Conditions	***Noting on Steps 5 & 6 that roadworks is currently being completed on Inner City Bypass Entrance and Exit onto Newcastle Road, these will be completed prior to the project commencing*** Maitland Road, [Mayfield West - Sandgate] – Hard Left onto Inner City Bypass, this intersection has been upgraded to take up to 100m turbines. No issues present on this intersection. Newcastle Inner City Bypass, [Sandgate - Jesmond] – Traffic Conditions estimated to be okay when bypass is completed. Newcastle Road, [Jesmond - Wallsend] – Tree Maintenance will be required along the tighter portions of the road up the hill. Thomas Street, Wallsend – Tight left turn at roundabout, will be achievable in combination however streets adjoining will need to be blocked to allow for a clear runup.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station

Palmers Road Exit, Freemans Waterhole – Tree Maintenance required, hard right turn onto Freemans Drive. Police and escort vehicles to block both lanes to ensure safe turn from Freeway. Street Signs will need to be removed on the median strip prior to conducting the turn.

Palmers Road, Freemans Waterhole – Roundabout at the bottom of Palmers Road and Freemans Drive will require temporary removal of signage on the median strips for the combination to navigate safely. Block all traffic onto the roundabout from all directions to allow for the combination to navigate the corner. Median Strips to be assessed by the selected transport provider to ensure the height and turning circle allow for safe mounting of all median strips to allow for load stability.

Freemans Drive, [Freemans Waterhole - Cooranbong] – Road has multiple narrow bridge crossings, overpasses, blind corners and crests. The route is High-Risk and will require Police and Escort vehicles to block oncoming traffic at segmental waypoints on the road to allow the vehicle to pass safely. Blocking the entire road is recommended for the safest mode of transport.

Avondale Intersection presents further issues and built-up areas, requires blocking at the petrol station intersection of multiple directions, as well as the removal of all street signs on intersection to allow the use of the oncoming lane through this portion.
Load leads directly through Cooranbong; further high-risk activity will be undertaken to ensure the lanes of oncoming traffic are blocked through Cooranbong and over the narrow bridge.

It is recommended to wait until daylight to complete the remainder of the Journey. The high-risk travel from Martinsville Road to destination is too high to complete before daylight.

Martinsville Road, [Cooranbong - Martinsville] – From this point on, recommendation is to either close the road to public travel so that the combination can travel in one stage to the Watagan Road entrance, or complete in stages allowing any traffic to flow past at intervals. Given that this is a single load and not multiple loads, closing the road for this portion of the route is recommended.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station

Watagan Road Entrance – Hard left turn, requires a wide swing and all points of the road. High Risk Manoeuvre and road closures for this to be completed.

Watagan Road, Martinsville to END Destination. **The current infrastructure in place currently is not viable for transport in a standard Semi Trailer combination**, however it is understood that the Hunter Transmission Project is proposing to upgrade access roads and tracks between Martinsville Road and the proposed switching station access to facilitate construction access. This would include the OSOM combination that has been considered for the delivery of key infrastructure components to this site.

The road has multiple hairpin turns, blind corners, steep inclines combining both hairpin and blind corners, overhanging and encroaching forestry on both sides of the road. The road will need to be widened and strengthened to on the early part to ensure the safe travel of the building can be achieved.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station

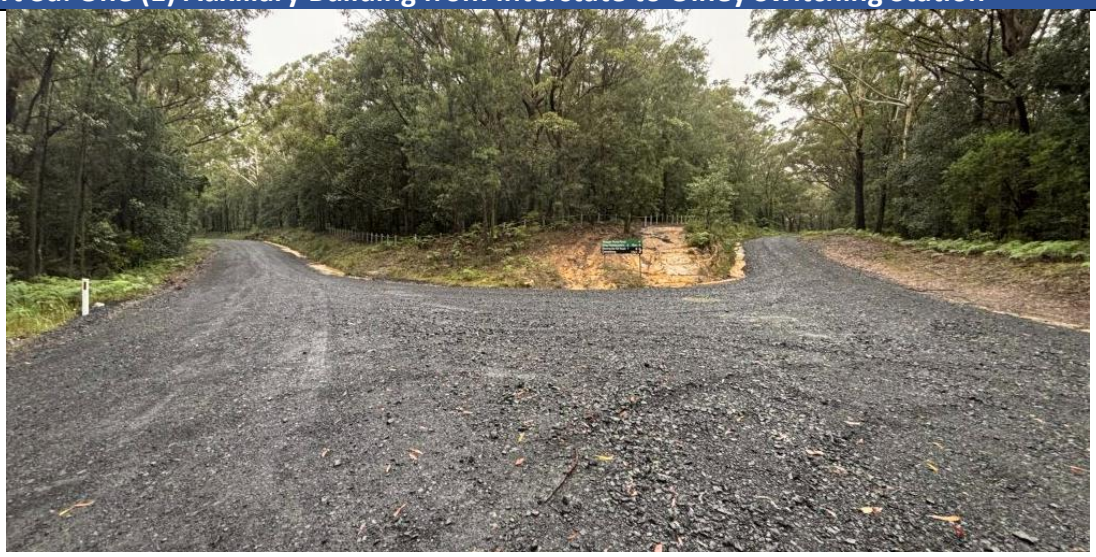
Once entering Martinsville Hill Road, the road changes again with no tarmac, only gravel surfaces from that point through the remainder of the journey. There is a severe, long sweeping hairpin on an incline that will cause major issues for a combination vehicle to get around.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station

Steep Incline and forestry regulations may mean that no bridging of the roads can be completed, and that hairpin turn must stay in place. From there until the next major intersection. This hairpin turn is surrounded by overhanging and narrow forestry; substantial changes will need to be made for this part of the trip to be completed.

This was the last major issue impacting access to Watagan Forest Road. Long sweeping left turn is achievable in a combination. Assessment undertaken on this road is in the assumption that roadworks have been completed to allow for combination access to the planned entrance along Jiffy Pot Road.

Project Scope Part 3a: One (1) Auxiliary Building from Interstate to Olney Switching Station



Travel Times and Requirements

Given Sizing of the loads, Night Travel is recommended due to the weight and length of the load.

Night Travel Conditions:

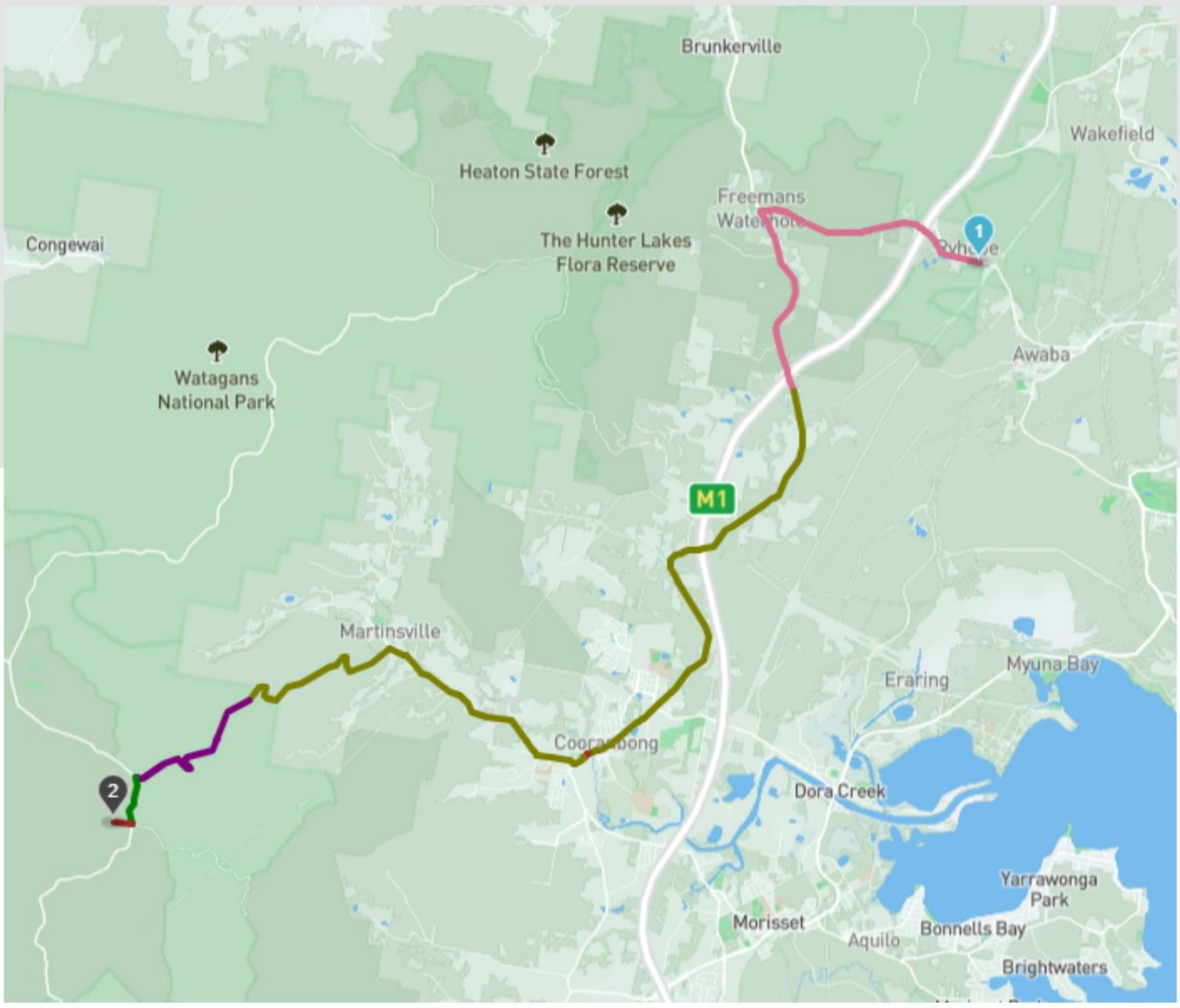
Combination in between 3.5m and 4.6m Wide require 2 Pilot vehicles, however given the weight and length of the combination, the rules for a 40M + Combination in length will apply for the purpose of Travel. – ***Additional pilots may be required pending the sizing or weight requirements after the permit has been submitted, to be advised by the governing bodies of each council sector***

Closure of Martinsville Road to Destination is recommended for the duration of this trip. Eliminating any risks associated with traffic on this route is paramount due to how high risk the transport along these roads will be.

Permit for All forms of Travel due to Weight required. Above Route plan to be followed. Critical High-Risk Points are highlighted above and the nature, including traffic management plan due to the high-risk nature of the load.

The route has been assessed to enter via the south and through Morisset, however without confirmed plans of building, combination and load restraint specifications on trailers and prime movers, the overpass bridge on Freemans Drive, south of Cooranbong has been ruled out due to the low clearance of two 5.1M bridges.

PROJECT SCOPE 3 ROUTE SUMMARY



Freemans Waterhole to Olney Switching Station

Project Scope Part 3: One (1) Auxiliary Building to Olney Switching Station - Summary

Route Assessments and Summary

Routes have been assessed and planned for three different options of importing, Adelaide, Brisbane and Newcastle. All Three routes present their own high-risk challenges, primarily built-up areas such as the Inner Metro areas of the Origin Ports, Coffs Harbour or Newcastle. Route options for Adelaide and Brisbane have not been selected due to the length of the journey and the feasibility of importing these goods into other ports of origin.

Each origin point has their own Risks associated with the movement of each item, including main roads, built up areas, however these risks are deemed appropriate and manageable for the purpose of transport so long as all permitted criteria is maintained through the journey.

Pending the completion of major infrastructure projects such as the Hexham Flyover, M1 Extension or Singleton Bypass, the routes can be completed up until Freemans Drive, Ryhope, without any major issues.

Additional routes have been assessed for the entry into Cooranbong via the M1 and Morisset, however without a visual inspection of the building and combination setup, there is no guarantee that the height limits will be able to conform with low bridge height requirements on Freemans Drive, South of Cooranbong. The route can be assessed after confirmation and visual inspection of the building is completed to ensure the heights will not encroach further than 5.05M High.

Alternate routes have been assessed for the site, including arriving from the North and traversing down from Cessnock, however, Heaton Road is in further disrepair due to major safety issues with rockslides and landslides. At the time of assessment, there is no indication of this road being a viable option of transport within the foreseeable future.

Whilst we have noted the key elements in this assessment as high risk, we have completed the initial review and route plans on three key lanes that have been ear marked for transit. Additionally, multiple professionals in Heavy Equipment Transport have been consulted regarding the movement for the last portion of the journey up to the switching station.

It is understood that major infrastructure upgrades to the roads and adjoining forestry leading into, and through Olney are planned to be undertaken. It is critical that these suggested road upgrades are completed, and a secondary Route Assessment is undertaken on proposed plans prior to commencing to ensure the viability of the project.

Given there are many factors involved, including but not limited to budget, government approvals, time constraints, and feasibility of the planned works and the environmental impact on the State Forest, two scenarios have been presented below outlining alternate methods of transport for the last portion of the Journey into Olney.

Additional Considerations - The building could be modified at a manufacturing level prior to importing to reduce the issues present with this particular route. These items can be shipped and transported in one module that is **fixed together** to comply with non-divisible load requirements from the port of origin to a relevant depo close-by that can facilitate the safe dismantle of the items to make the transport from here a much smoother process as multiple loads.

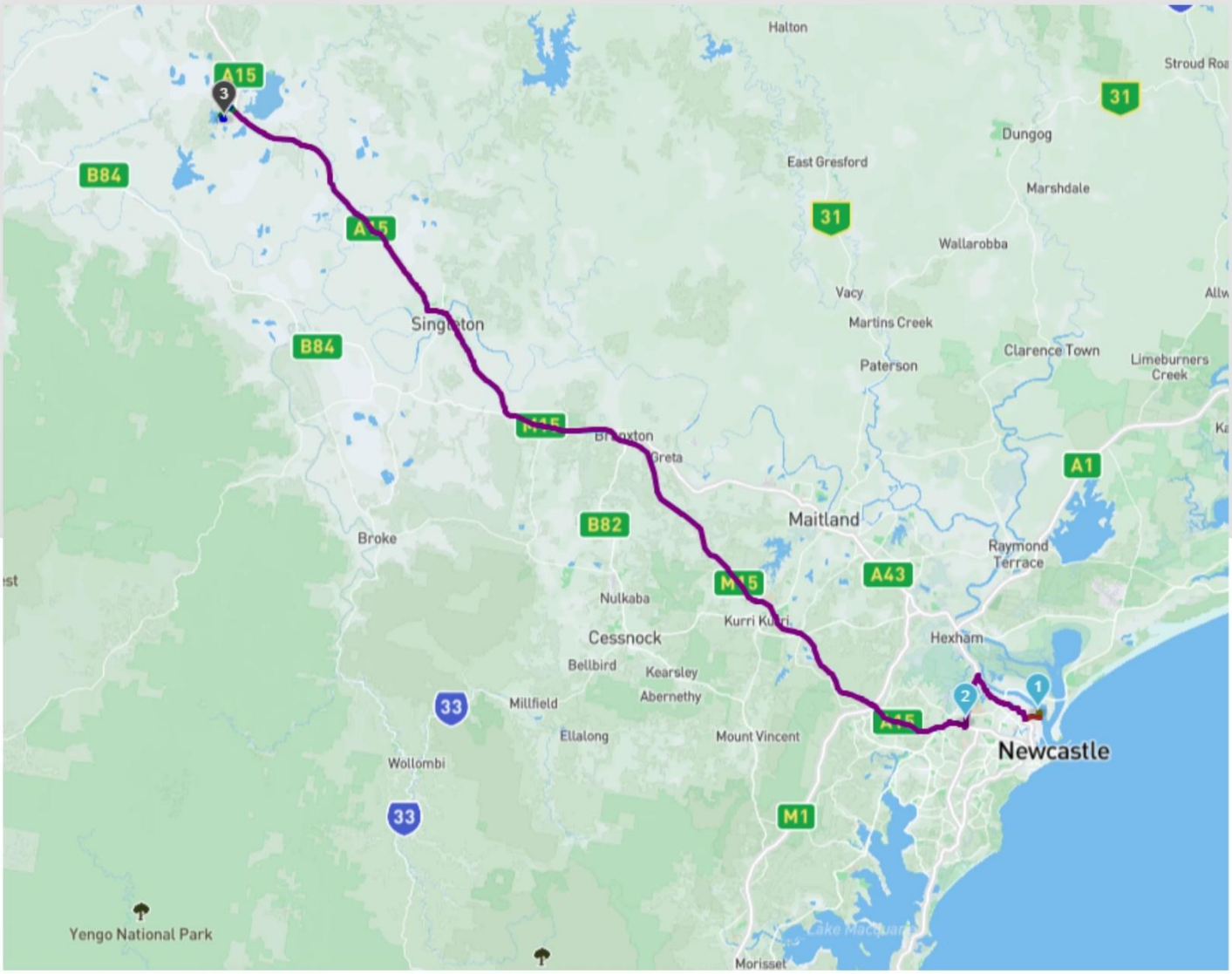
Splitting the item into Four even compartments will reduce the weight and dimensions of the load drastically. Each compartment will be roughly 8M Long x 4.2M Wide x 4.2M high @ 8 Tonnes each. This can be completed on a standard Prime Mover and Low Loader combination, without the requirement for an extendable trailer, and potentially without the requirement for a Dolly. Reducing the overall length of the combination further which is one of the key risk factors of this movement. The reduction in size drastically reduces risks surrounding the movement, however it will increase the number of loads needing to be undertaken.

Any suggestions are further to the ones outlined in section 3a, 3b and 3c for each route themselves, and will be critical for completing the journey regardless of what port of origin the buildings arrive at.

Project Scope Part 3: One (1) Auxiliary Building to Olney Switching Station - Summary

Scenario One	**Road Transport –** The length and weight of the total combination will need to be considered for all infrastructure upgrades on the roads leading off Martinsville Road onto Watagan Forest Road. Watagan Road, Martinsville Hill Road and Watagan Forest Rd will need to be widened and strengthened on both sides to allow for a combination including its Dolley to traverse up the mountain. A Combination at 40 meters or more with multiple articulation points will be required to traverse a tight hairpin further up leading onto the final stretch of work, this vehicle will not make it around this corner without major upgrades to widen and remove a substantial amount of forestry first. Suggesting that the lanes are widened to a minimum of 3.5M each way, with 1M Internal shoulders on all corners to allow for the unit to safely navigate the forest roads. This is to be completed from Martinsville Road to the conclusion of the journey at Jiffy Pot Road. Relevant engineers will need to be consulted, and the route will need a further assessment undertaken once plans have been approved to ensure they align with the safe delivery of the building into the forest as one component. If the item can be modified to reduce the overall length as noted in **Additional Considerations** above, the length and weight of the total combination will be greatly reduced to a standard weight under the Gross Mass Limit. The road will still need to be widened and strengthened on both sides to allow for a combination including its Dolley to traverse up the mountain, however the route itself becomes substantially safer to navigate with a combination at a standard length. Noting that this would increase the movements into the switching station from One movement, to Four. In summary, a strenuous amount of work needing to be completed within the next three years for the roads leading into and up the mountain needs to be completed. The route will still be classified as high risk, and the closure of the entire road will need to be implemented to ensure the safe transport of these items into the site. Further analysis of the route to be completed as part of the traffic management plan after the issuance of the development plans up and into the site have been provided.
Scenario Two	**Road / Air Transport –** Road Transport has been tasked for assessment in this portion of the journey, however pending the viability of the road upgrades and further route assessments on the roads, a second option should be considered outside of road transport that would reduce the risks associated with the movement along the forestry and adjoining roads. Transport options from the Port of Origin will still align with this report, however if the building is modified at a manufacturing level as outlined in Additional Considerations above prior to importing to reduce the issues present with this particular route, the weight and dimensions become feasible for the use of Air Transport into the Switching Station. The building will be in a situation where it can be safely air lifted from a depo close by into position via a select few helicopter heavy lifting companies across the state. We have consulted various companies regarding the lifting capacity and dimensions allowable for Helicopter Lifting Services, and the outlined scenario is something that can achieved safely so long as the building fits the dimension and weights outlined above. This scenario should obtain an independent consultant to complete further assessments after the Switching Station construction and deforestation has been completed to ensure that this is a viable options for the optimal location and placement of the building.

PROJECT SCOPE 4A



One Load from Port of Newcastle to Bayswater South Switching Station

Project Scope Part 4a: One (1) Auxiliary Building from Interstate to Bayswater South Switching Station

Load Point:	*Port of **Newcastle***
Load Address:	*Dock Four (4) Mayfield* Mayfield Four (4) has been selected for this schedule (Appendix A), is classified as General and Container Precinct, allowing for easier access to the loading process, along with pre-approved routes from Dock to Primary Travel Routes exiting Newcastle.
Destination:	Bayswater South Switching Station
Destination Address:	New England Highway, Muswellbrook, NSW 2333
Number of Loads:	One (1) Load
Classification of Load:	**High Risk OSOM**
Item Dimensions:	28.40m x 4.30m, 4.15m @ 50t
Required Combination and Escorting:	Prime Mover – 2R8 Dolly, 10x8 Ext. Platform Trailer. Allowances for up to 7.5M Overhang to comply with NSW, QLD and SA OSOM Allowance Regulations. Total Combination 40M+ Police Intervention will be required at pinch points along the journey Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers for ALL types of Transport Transport Management Plan will be required.
Combination Dimensions	46m Long x 4.30m Wide x 4.95m > 5.25m High*

Type	Qty	Description	Length (mm)
Prime Mover	1	Kenworth T909	7990
Dolley	1	TRT 2R8 Dolley	4650
Platform Trailer	1	TRT 10X8 Platform Trailer	29123

Type		Articulation Point		Description	Length (mm)
Prime Mover		1		Kenworth T909	**12650**
Dolley	Dolley		1	TRT 2R8 Dolley	
Platform Trailer				TRT 10X8 Platform Trailer	**33400***
Total		2		Total	**45.879M***

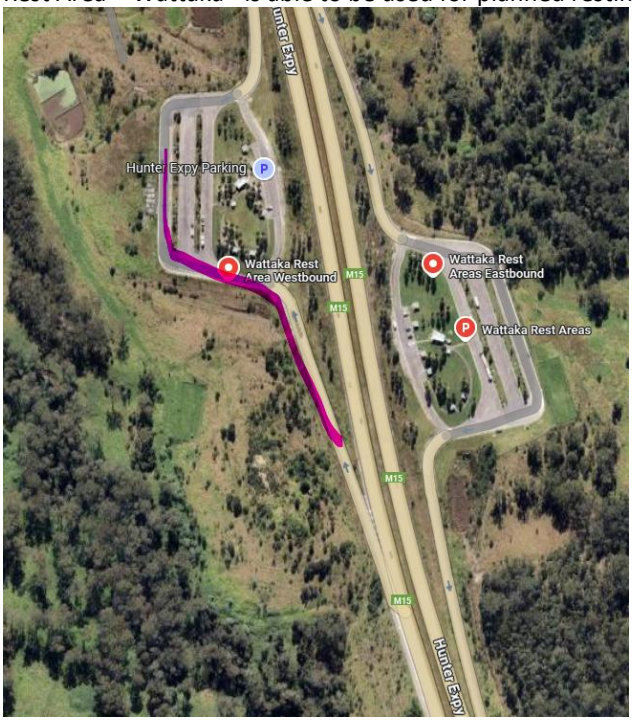
*Noting that the Overall Length will be determined by the specific trailer. For the purpose of this assessment TRT 10x8 Extendable Platform Trailer has been selected.

LGA Zones:	**New South Wales –** Newcastle Port Corporation Newcastle City Council Lake Macquarie City Council Cessnock City Council Maitland Council Singleton Council Muswellbrook Shire Council
Travel Notes:	Combination **OVER** 40M • Permit Required for all types of Travel

Project Scope Part 4a: One (1) Auxiliary Building from Interstate to Bayswater South Switching Station	
	• Transport Management Plan Required • Pilots Required for all types of Travel • Planned travel at Night only, pending scope of works and time of loading • Night Travel Requirements – Three (3) Pilot Vehicles AND Two (2) Authorised Escort Vehicle Drivers • Police Intervention and traffic control at particular pinch points Combination **OVER** 5.2M in Height • Transport Management Plan is required in conjunction with all other relevant documents and applicable permits. Weight Restrictions on Tarro Bridge, takes that route out of action. Route must comply through Inner City Bypass and travel to the M1 Motorway. Approximate Distance 120km
Route	Route ID - 2MCGJ-4 v2 1. Start: Quayside Close, Tighes Hill NSW 2. Selwyn Street, Mayfield North 3. George Street, Mayfield East 4. Industrial Drive, [Mayfield East - Mayfield West] 5. Maitland Road, [Mayfield West - Sandgate] 6. Newcastle Inner City Bypass, [Sandgate - Jesmond] 7. Newcastle Road, Jesmond 8. Unknown, Jesmond 9. Newcastle Road, [Jesmond - Wallsend] 10. Unknown, Wallsend 11. Thomas Street, Wallsend 12. Newcastle Link Road, [Wallsend - Cameron Park] 13. Hunter Expressway, [Cameron Park - Lower Belford] 14. New England Highway, [Lower Belford - Singleton] 15. Maitland Road, Singleton 16. George Street, Singleton 17. New England Highway, [Singleton - Muswellbrook] 18. End: Bayswater South Switching Station, New England Highway, Muswellbrook NSW
Route Issues and Recommended Adjustments	***Noting on Steps 5 & 6 that roadworks is currently being completed on Inner City Bypass Entrance and Exit onto Newcastle Road, these will be completed prior to the project commencing*** Maitland Road, [Mayfield West - Sandgate] – Hard Left onto Inner City Bypass, will need to take up multiple lanes on the oncoming traffic side of the roundabout to complete the turn. Newcastle Inner City Bypass, [Sandgate - Jesmond] – Traffic Conditions estimated to be okay when bypass is completed. Newcastle Road, [Jesmond - Wallsend] – Tree Maintenance will be required along the tighter portions of the road up the hill. Unknown, Wallsend – Roundabout will require planning to ensure safe passage through to Thomas Street. Street Signs will need to be temporarily removed due to the width of the load and turning circle. Newcastle Link Road, [Wallsend - Cameron Park] – No issues once on the Link Road, highlighting that the first roundabout is not developed on either side, and should be checked prior to applying for permit when transport is required, and that the Minmi Roundabout is very busy at all times.

Project Scope Part 4a: One (1) Auxiliary Building from Interstate to Bayswater South Switching Station

Rest Area – Wattaka - is able to be used for planned resting area for this journey.



New England Highway, [Lower Belford - Singleton] – Noting that this road has numerous narrow bridges, crests and blind sweeping corners along the road. Additional care should be taken on this portion of the journey. Night Travel with all required escorts and police intervention in place will alleviate any further risks.

New England Highway, [Singleton - Muswellbrook] – Road is sufficient for travel to site, dual lane still allows for the safe movement of oversize over mass items, however care needs to be taken on all crests and sweeping corners associated with the movement. Night travel with all sufficient escorts is required.

Bayswater South Switching Station – No issues or access for entry into site gate.

Travel Times and Requirements

Given Sizing of the loads, Night Travel is mandatory due to the weight and length of the load.

Night Travel Conditions:
Combination in between 2.5m and 3.5m Wide require a 1 Pilot vehicle, however given the weight and length of the combination, the rules for a 40M + Combination in length will apply for the purpose of Travel. – ***Additional pilots may be required pending the sizing or weight requirements after the permit has been submitted, to be advised by the governing bodies of each council sector***

Permit for All forms of Travel due to Weight required. Above Route plan to be followed. Critical High-Risk Points are highlighted below and the nature, including traffic management plan due to the high-risk nature of the load.

Project Scope Part 4: One (1) Auxiliary Building to Olney Switching Station - Summary

Route Assessments and Summary

Routes have been assessed and planned for three different options of importing, Adelaide, Brisbane and Newcastle. All Three routes present their own high-risk challenges, primarily built-up areas such as the Inner Metro areas of the Origin Ports, Coffs Harbour or Newcastle. Route options for Adelaide and Brisbane have not been selected due to the length of the journey and the feasibility of importing these goods into other ports of origin.

Each origin point has their own Risks associated with the movement of each item, including main roads, built up areas, however these risks are deemed appropriate and manageable for the purpose of transport so long as all permitted criteria is maintained through the journey.

Each origin point has their own Risks associated with the movement of each item, including main roads, built up areas, however these risks are deemed appropriate and manageable for the purpose of transport so long as all permitted criteria is maintained through the journey.

Port of Newcastle is the shortest and most direct route. This route contains high-risk manoeuvres along Jesmond Road and leading to the Newcastle Link Road, however all risks can be mitigated with the proper escorting controls in place for this journey. Outside of the CBD, there are no critical risks associated with this route that would warrant any major infrastructure upgrades outside of current planned projects. Key Infrastructure projects like the Newcastle Inner City Bypass at Rankin Park and Singleton Bypass will need to be completed prior to this movement being conducted.

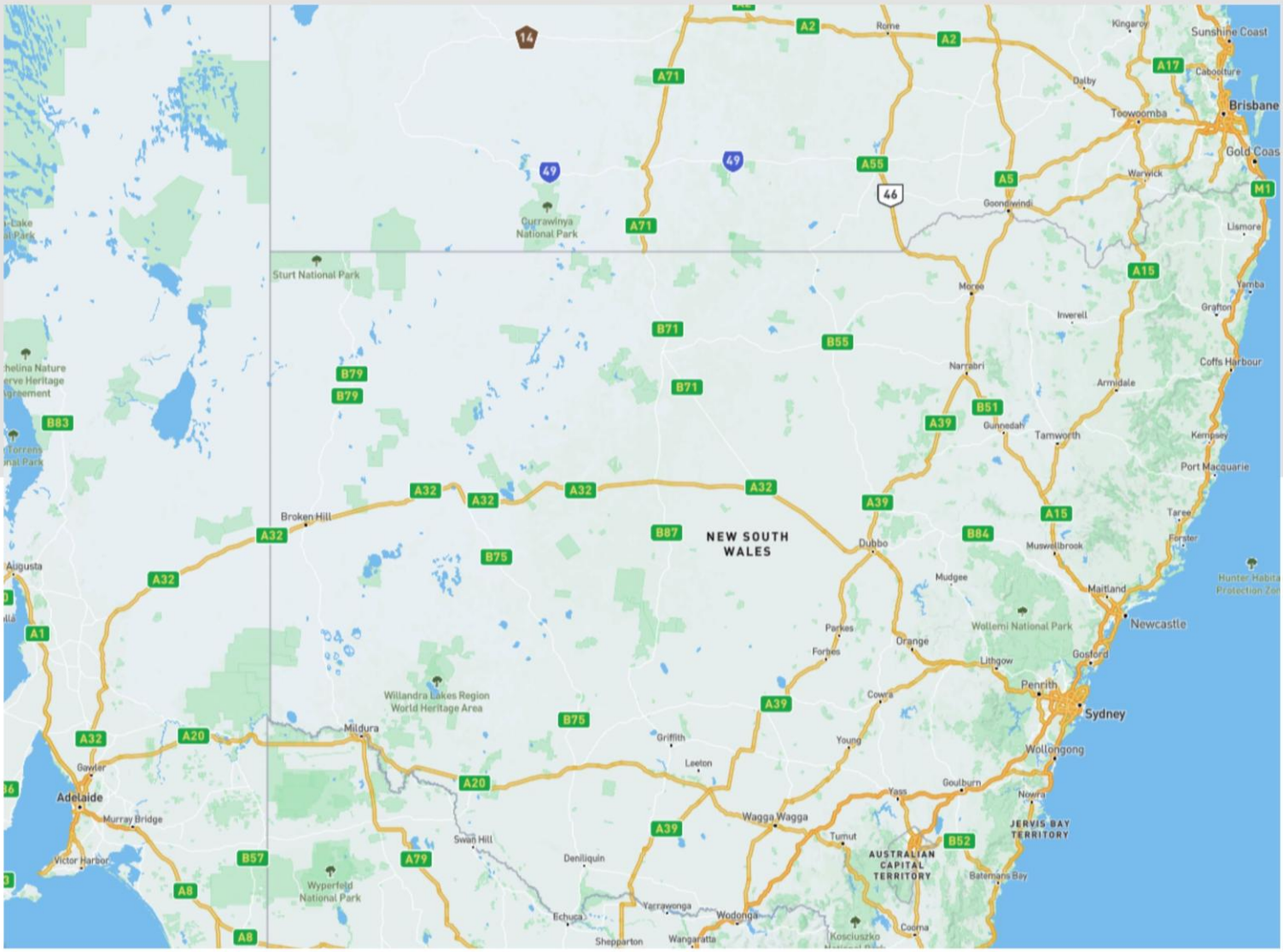
Port of Brisbane has some critical pinch points along the route. The Tweed Heads Airport Tunnel is required to be detoured due to size and length. This can be done on pre-approved OSOM routes but poses risks in addition to the ones present on the Pacific Highway. Planned maintenance on critical tunnels and infrastructure further along the Pacific Highway after Tweed Heads will need to be considered prior to planning to ensure no clashing of schedules. Key Infrastructure projects including the Coffs Harbour Bypass, M1 extension to Raymond Terrace and the Singleton Bypass all need to be completed prior to movement being conducted.

Port of Adelaide is the least preferred route for this movement. Once you traverse outside of Adelaide, there are no Major cities along the route until you reach Dubbo. Having said this, there are plenty of minor suburbs and towns along the route that will be classified as critical pinch points. Broken Hill will require upgrades to culverts and stormwater drains as noted above, Nyngan Level Crossing also classifies as a critical pinch point. There are multiple level crossings, narrow bridges and small towns along this route that all pose safety risks if the transport plan is not followed.

In the opinion of Coastal Transport, all routes assessed can be completed without major implications to safety of the public and items so long as all control measures are followed. The optimal port of origin to mitigate risks associated with the movement will be the Port of Newcastle, followed by Brisbane. Coastal Transport also understands that the arrival destination is not confirmed as of yet and the plans may change between the submission of this report to the issuance of transport.

Any suggestions are further to the ones outlined in section 4a, 4b and 4c for each route themselves, and will be critical for completing the journey regardless of what port of origin the buildings arrive at.

PLANNING NOTES & KEY MILESTONES

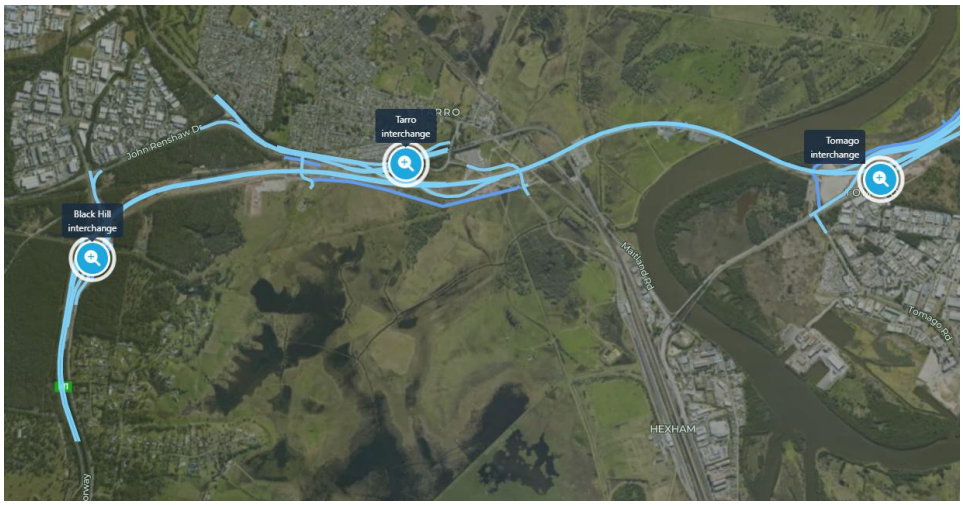


Key Milestone information for the Infrustructure Upgrades of NSW Road Networks

Planning Notes – Key Milestones

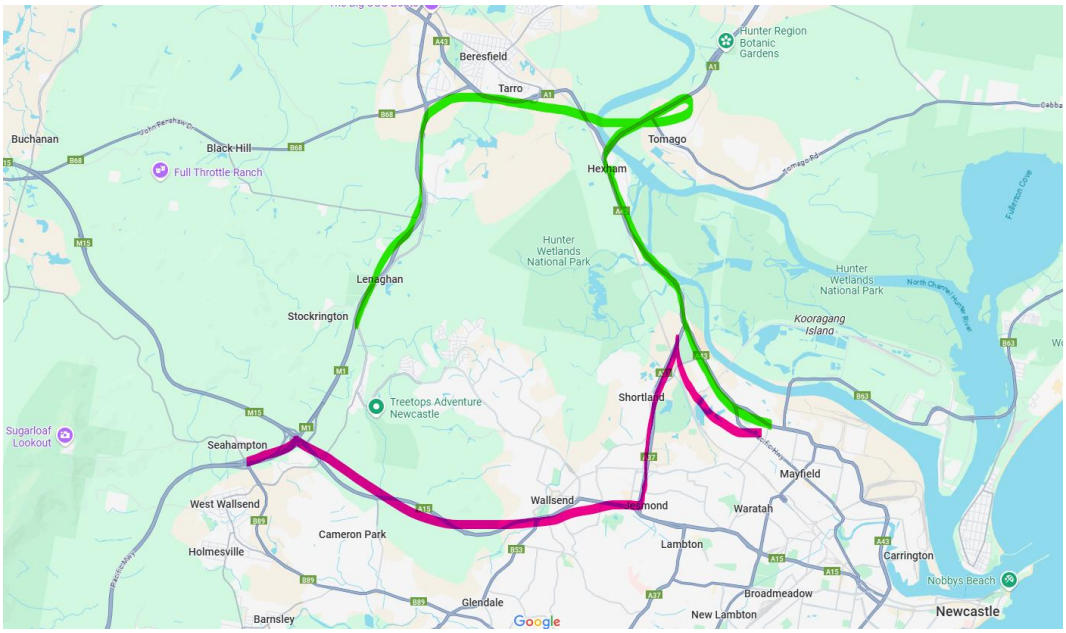
M1 Pacific Motorway Extension to Raymond Terrace

The Hexham Flyover is currently in development and will eliminate the necessity for a lot of high-risk movements in and around Beresfield. This Bypass must be completed prior to the transport of any loads travelling south to avoid the Hexham Bridge.



As noted in the above routes, the inner-city bypass has been used for all modes of transport from Newcastle to the M1, as the Weight Restrictions over the Tarro Bridge do not allow for these combinations to move safely across the area. If the Hexham Bypass is viable and can eliminate the need for high-risk routes, then it should be used as an alternative. The route should be investigated further once the completion of the bypass has been completed and road limits for both dimension and weights have been confirmed.

Scope One – the relevant route bypass for the purpose of this report starts at *Maitland Road, [Mayfield West - Sandgate]* and will end at *M1 Pacific Motorway Onramp, Cameron Park*.



Maitland Road, [Mayfield West - Sandgate] – Vehicle is to continue onto the Pacific Highway, ensuring all escorting requirements are maintained. Vehicle is to merge left and continue onto and over the Hexham Bridge, Northbound. The Bridge MUST be closed at the time of travel for the safety of general public, due to both the size and combination.

The Combination continues on the old section of the pacific highway up until the Tomago Interchange, where a U-turn manoeuvre is to be completed under the overpass. The road will need to be blocked in all directions for this combination to safely navigate this intersection. Once under the bypass, the vehicle will be free to travel back along the new Hexham Flyover and return to the M1 Motorway.

Planning Notes – Key Milestones

Continue on the M1 for the duration of this trip and return to the original route plans from *M1 Pacific Motorway Onramp, Cameron Park.*

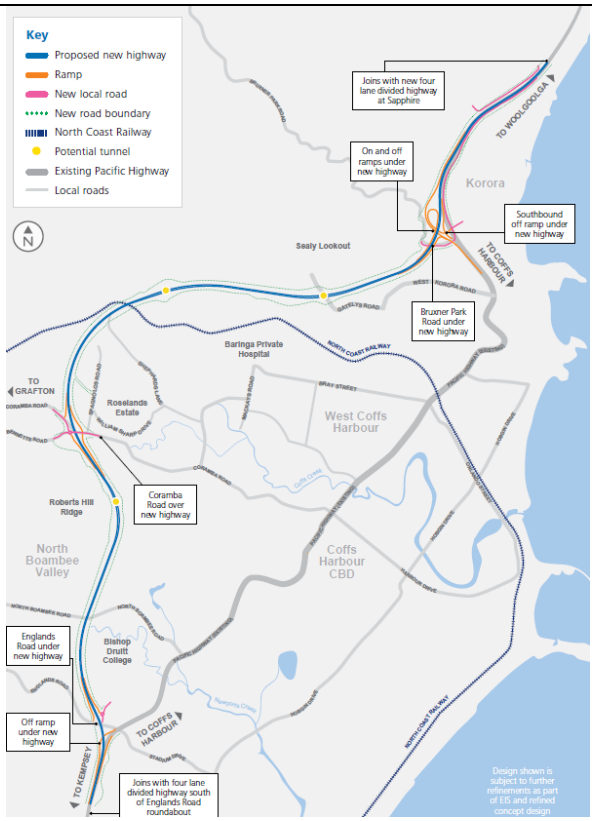
This route cannot be locked in stone until the completion of the Hexham Bypass and M1 Extension to Raymond Terrace. This Infrastructure is critical for any leg being completed from Northbound. Hexham Bridge Southbound cannot accommodate the current planned building sizes for this project.

The M1 Extension so planned to be completed by mid-2028, allowing for a full bypass of high-risk areas and thoroughfares through Heatherbrae. This portion of the journey is critical for anything travelling from the Port of Brisbane, as it will allow the elimination of a high-risk portion of the route altogether.

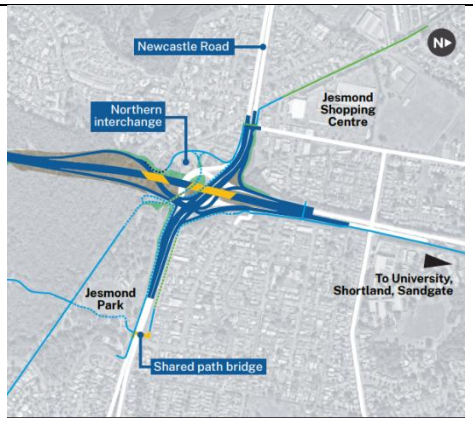
Coffs Harbour Bypass

Coffs Harbour Bypass is scheduled to be completed in late 2027, this will eliminate any High-Risk movement issues within the main thoroughfare of Coffs Harbour. This will remove sections in both Scope 3c and 4c, allowing for safe travel not limited to any oversize over mass travel time restrictions along the Pacific Highway.

Completion of this project is the last portion of the Pacific Highway upgrade, ensuring that there are four lanes of travel from Hexham to the Queensland border.



Planning Notes – Key Milestones

Singleton Bypass	Completion of the Singleton Bypass will ensure that all travel through and around the high-risk area is eliminated. The planned completion in 2026 will be classified as a Key Milestone for planning purposes. If this route is not complete and cannot be achieved, routes via the New England Highway become un achievable due to the high-risk nature of the movement.	
Horrocks Highway	Horrocks Highway is required to be used when exiting the Port of South Australia, travelling past Gawler, and towards the Barrier Highway. This section of road is scheduled to be completed in late 2025 and should be marked as a Key Milestone prior to planning or applying for any Permits for this route.	
Rankin Park to Jesmond – Newcastle Inner City Bypass	The Newcastle Inner City Bypass upgrade will require another review once the project has been completed for multiple componants of this report. Sections 1, 2 and 4, Newcastle Port of Origin, all have portions of their journey that require this section to be completed prior to travel. Further assessments should be conducted prior to the issuance of transport to confirm the route assessed is optimal for the transport of the items.	

Planning Notes – Key Milestones

Disclaimer

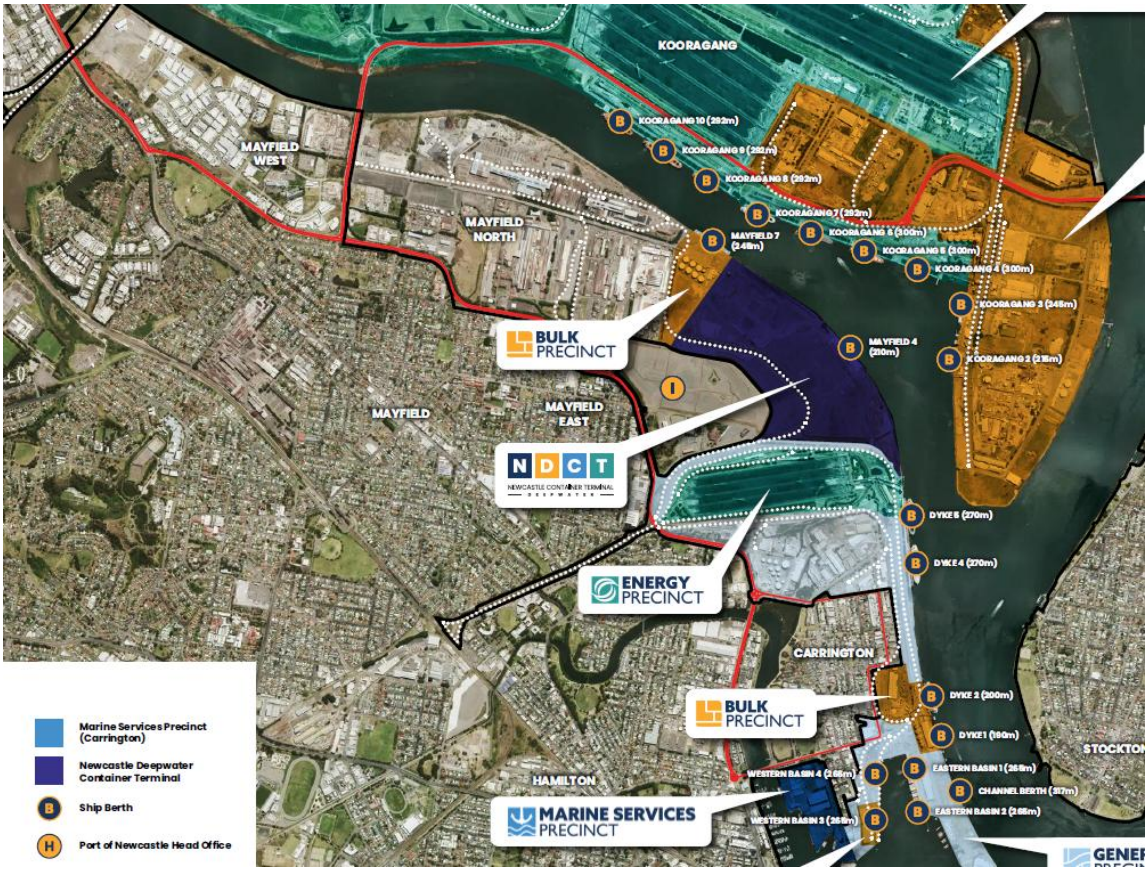
This route study is a guide only; government and other business authority approvals would be required before these routes could be deemed suitable for transporting the components over the listed routes. Any, and all parties using information contained this submission do so at own risk. The Risk and Concept Level Assessment conducted is based on all current road rules, regulations and infrastructure information available as of April 2025, further assessments may be required closer to the planned project commencement dates to ensure the most up-to-date and accurate information is available prior to submission of any NHVR or Government Permits.

While we strive for accuracy and up-to-date industry knowledge, transport regulations and conditions can vary by region and change over time. We recommend consulting with relevant authorities or certified professionals for specific legal, operational, or compliance matters.

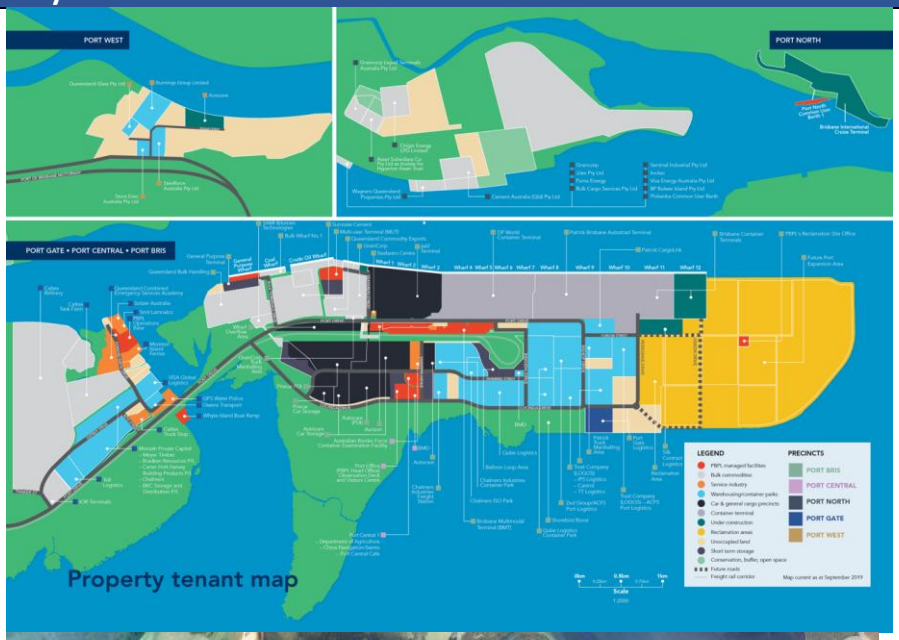
Actual approved routes may differ from those surveyed. Proposed routes may change subject to approvals from authorities. Any advice, recommendations, or information provided by our team, whether verbally, in writing, or through our materials, is intended for general guidance only.
Coastal Transport Services Pty Ltd accept no responsibility for the use of all information contained within this report.

References

Port Maps – Newcastle, Brisbane, Adelaide



Planning Notes – Key Milestones



Planning Notes – Key Milestones

Sources

Local Government Area Boundaries and Mapping Information - Office of Local Government NSW
National notices | NHVR
Federal Register of Legislation - Multi-State Class 1 Load Carrying Vehicle Mass Exemption Notice 2023 (No.1)
SPU - Transport Management Plan Coversheet - Oversize and/or Overmass (OSOM)
Forestry NSW
Contact - Port of Newcastle
info@pon.com.au – 02 4908 8200
FLINDERS ADELAIDE CONTAINER TERMINAL
Nick Pedler – 02 8248 9313 – Nick.Pedler@fphgroup.com.au
Qube Holdings LTD | Australia's largest Logistics Provider
Hunter Transmission Project - Infrastructure Pipeline
Hunter Transmission Project | Planning Portal - Department of Planning and Environment
Horrocks Highway Upgrades - Department for Infrastructure and Transport - South Australia
Singleton Bypass - New England Highway | Transport for NSW
M1 Pacific Motorway extension to Raymond Terrace | Transport for NSW
Map | Singleton Bypass | Transport for NSW (RMS)
Coffs Harbour bypass | NSW Government
Coffs Harbour Bypass
Rankin Park to Jesmond - Newcastle Inner City Bypass | Transport for NSW
Jason Hogan – Hogans Heavy Haulage – hhh@hogansheavyhaulage.com.au
Safe Movement Guideline for Pilot and Escort Operations in Queensland

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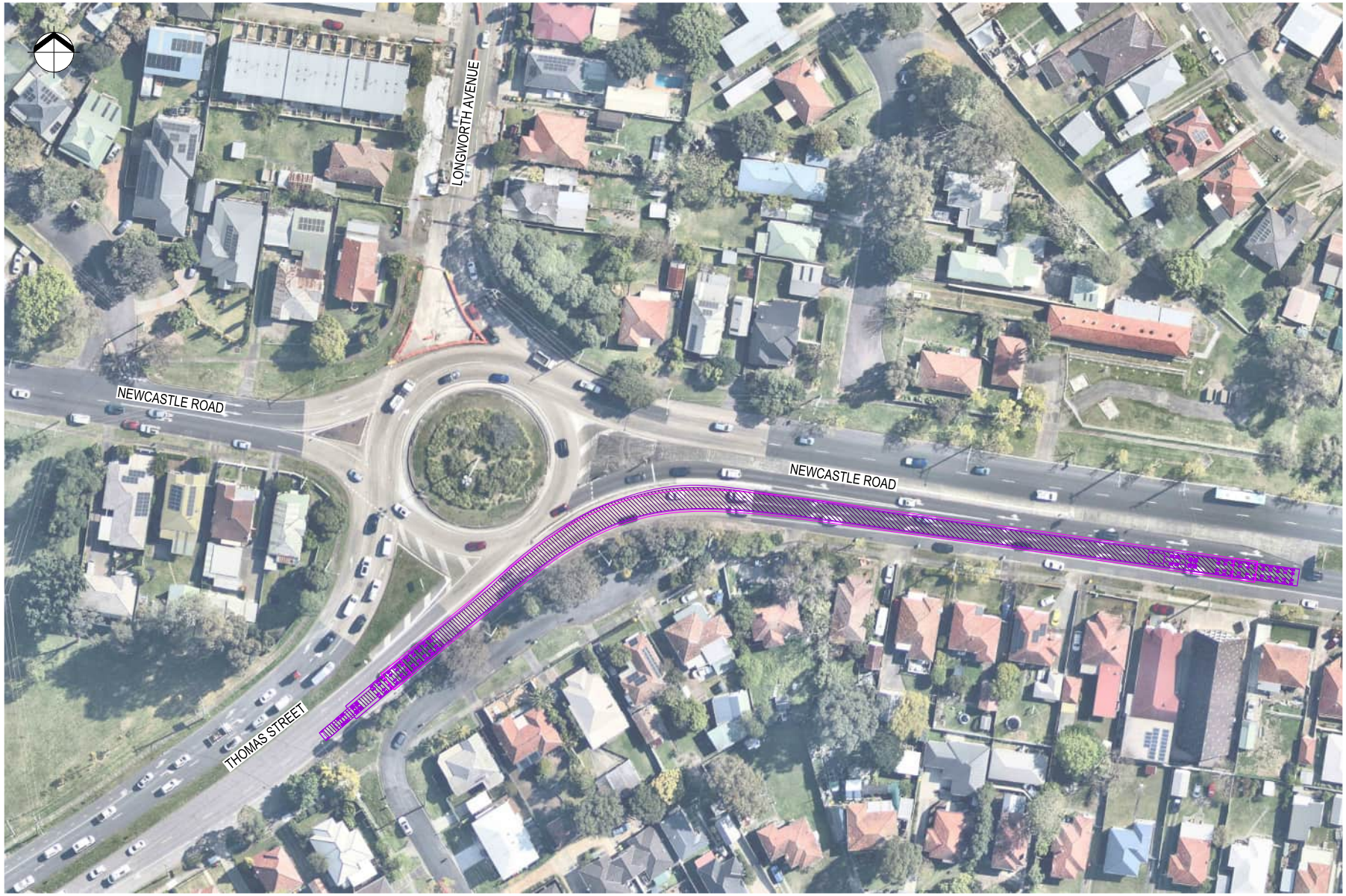
APPENDIX F

OSOM SWEPT PATHS



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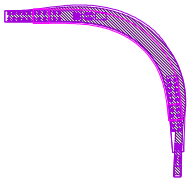
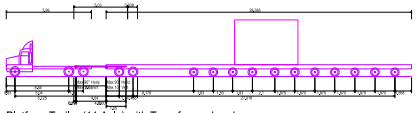
LEGEND





Platform Trailer (11 Axle) with Transformer Load

Overall Length	37.966m
Overall Width	4.200m
Overall Body Height	5.300m
Min Body Ground Clearance	0.435m
Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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Original Scale (A1) 1:500m	Design	R.ANDERSON	17.10.25	Approved For Construction*
	Drawn	C.LAWRENCE	17.10.25	
	Dsg Verifier			
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT NEWCASTLE RD AND THOMAS ST

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1201 Rev.: 0B

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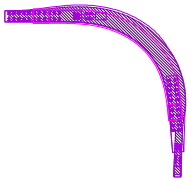

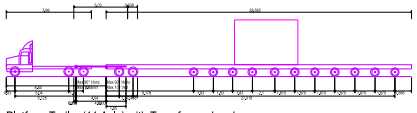

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Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 2.5 5 10 15
Full Size A1 1:250 ; Half Reduction A3 1:500
SCALE (m)

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Original Scale (A1) 1:250m	Design	R.ANDERSON	17.10.25	Approved For Construction* Date
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	Dsg Verifier			
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT PALMERS RD AND FREEMANS DR

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1202 Rev.: 0B

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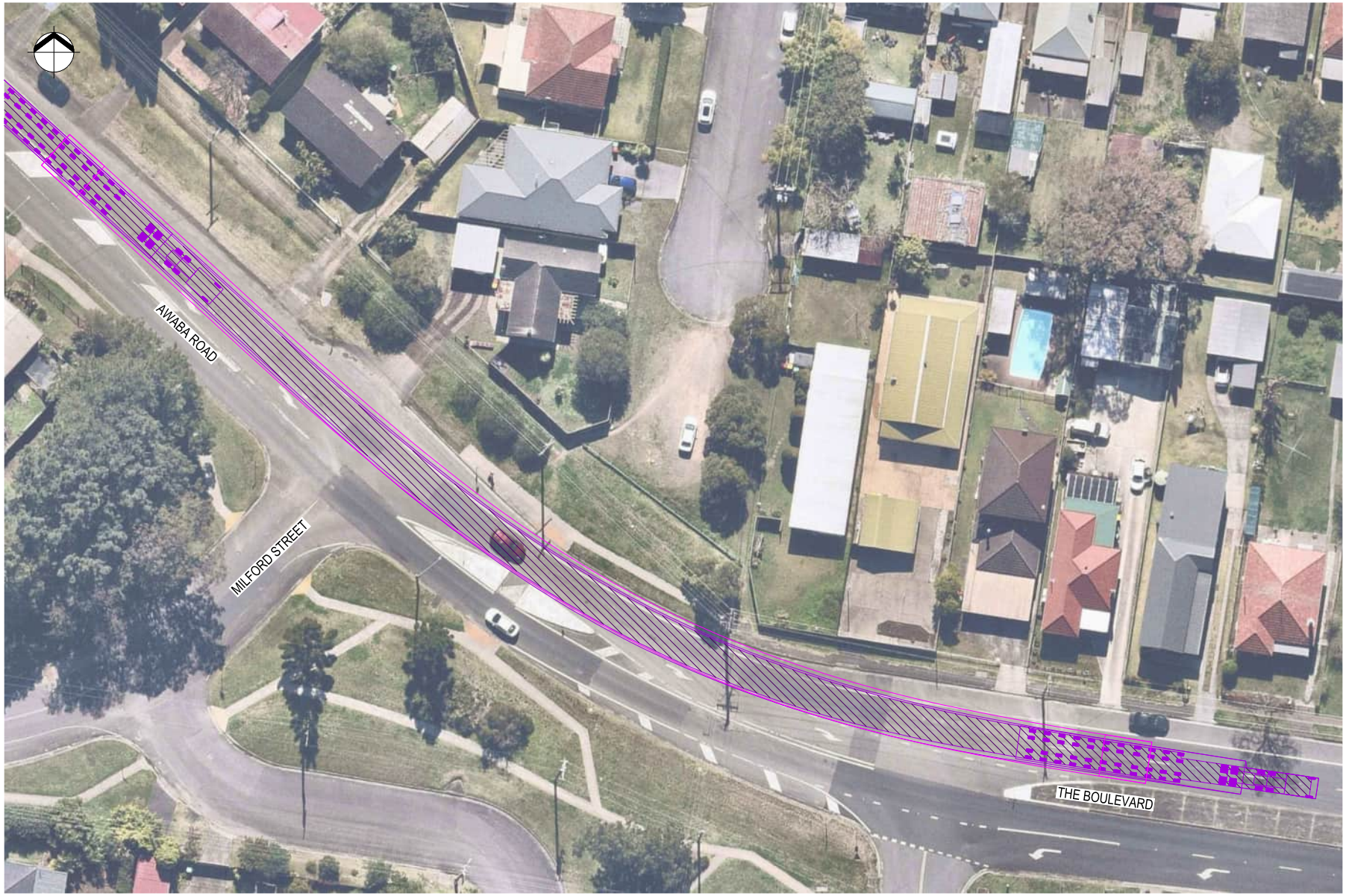

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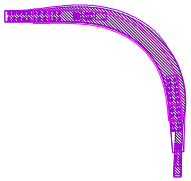

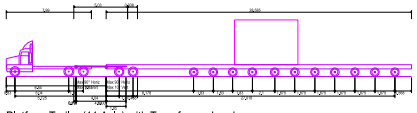

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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SCALE (m)

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Original Scale (A1) 1:250m	Design	R.ANDERSON	17.10.25	Approved For Construction*
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Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT AWABA ROAD, TORONTO

Discipline: CIVIL - GENERAL

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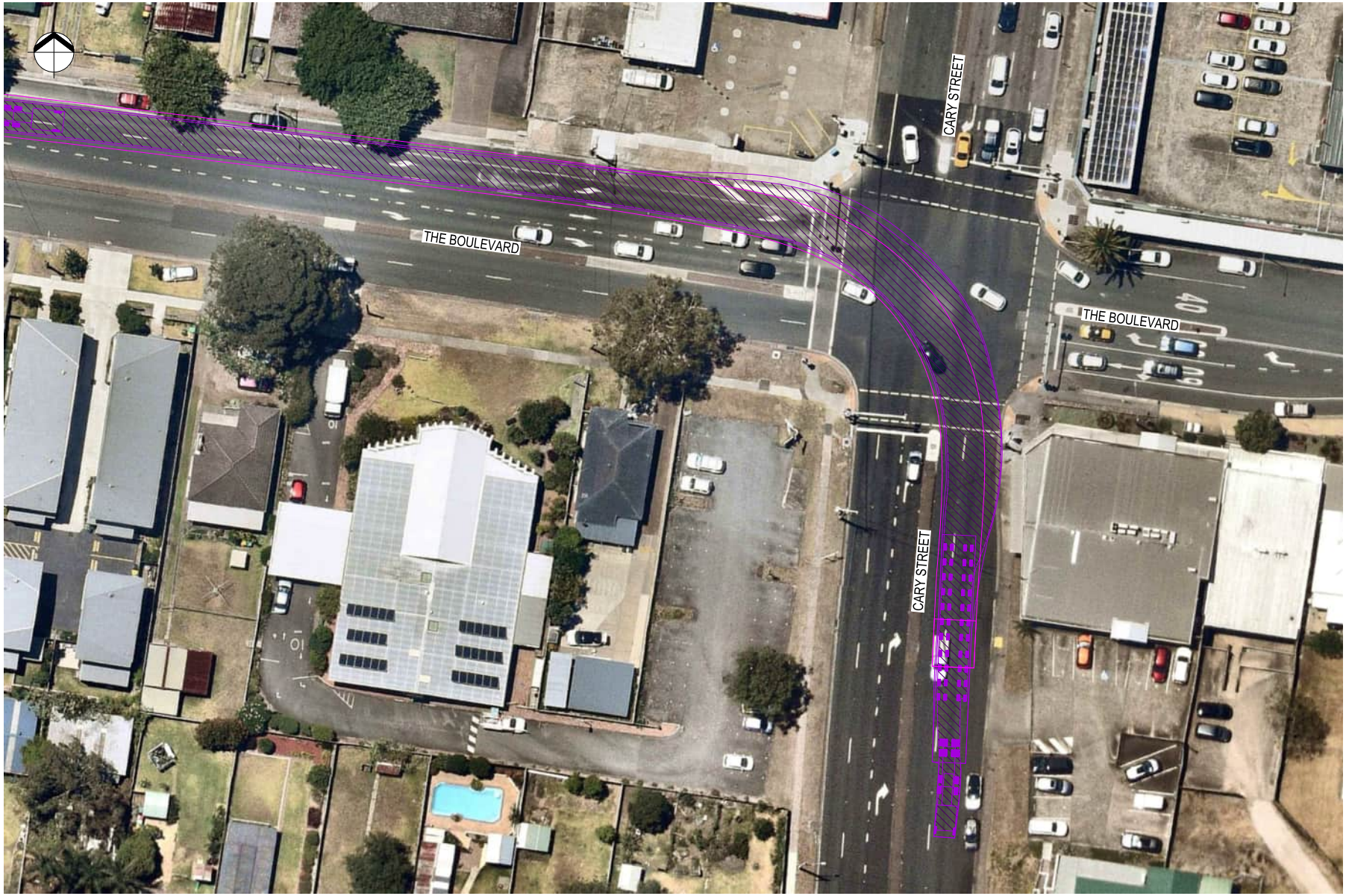

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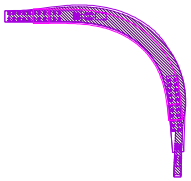

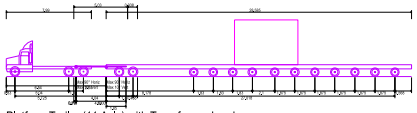

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0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

Original Scale (A1) 1:250m	Design	R.ANDERSON	17.10.25
	Drawn	C.LAWRENCE	17.10.25
	Dsg Verifier		
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT THE BOULEVARD AND CARY ST

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1204 Rev.: 0B

Document No.: 2583080-CA-ANC-1204.DWG

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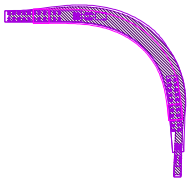

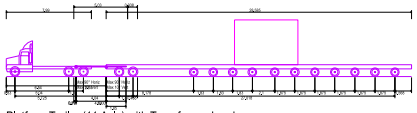

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Max Track Width	2.600m
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Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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SCALE (m)

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	Drawn	C.LAWRENCE	17.10.25
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT WANGI ROAD, TORONTO - RATHMINES

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1205 Rev. 0B

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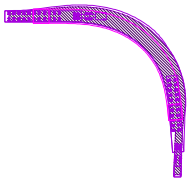

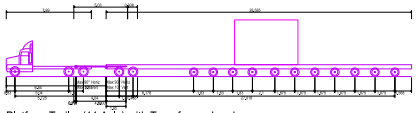

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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0 5 10 20 30
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SCALE (m)

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	Drawn	C.LAWRENCE	17.10.25
	Dsg Verifier		
Reduced Scale (A3) 1:1000m	Drg Check		
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT WANGI RD AND DORRINGTON RD

Discipline: CIVIL - GENERAL

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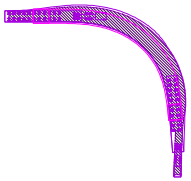
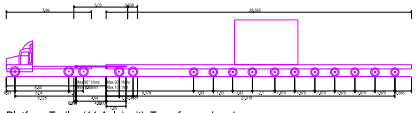
LEGEND





Platform Trailer (11 Axle) with Transformer Load

Overall Length	37.966m
Overal Width	4.200m
Overall Body Height	5.300m
Min Body Ground Clearance	0.435m
Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0A	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25
0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

Original Scale (A1) 1:100m	Design	R.ANDERSON	17.10.25
	Drawn	C.LAWRENCE	17.10.25
	Dsg Verifier		
Reduced Scale (A3) 1:200m	Drg Check		

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT WANGI ROAD, RATHMINES - MYUNA BAY (A)

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1207 Rev.: 0B

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

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CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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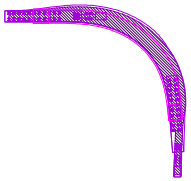
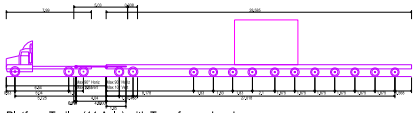
5. TRANSFORMER LOAD IS 5.92m x 5.24m x 4.2m.

LEGEND





Platform Trailer (11 Axle) with Transformer Load

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Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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CONCEPT DESIGN
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No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0A	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25
0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	17.10.25
	Drawn	C.LAWRENCE	17.10.25
	Dsg Verifier		
Reduced Scale (A3) 1:1000m	Drg Check		
	* Refer to Revision 1 for Original Signature		

Approved For Construction* Date

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT WANGI ROAD, RATHMINES - MYUNA BAY (B)

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1208 Rev.: 0B

Document No.: 2583080-CA-ANC-1208.DWG

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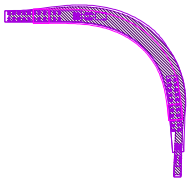
No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0A	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25
0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

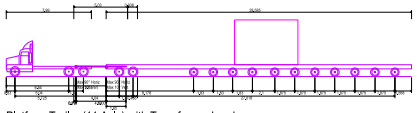
Original Scale (A1) 1:100m	Design	R.ANDERSON	17.10.25
	Drawn	C.LAWRENCE	17.10.25
	Dsg Verifier		
Reduced Scale (A3) 1:200m	Drg Check		

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

LEGEND





Platform Trailer (11 Axle) with Transformer Load

Overall Length	37.966m
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Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 10 20 40 60
Full Size A1 1:1000 ; Half Reduction A3 1:2000
SCALE (m)

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CONCEPT DESIGN
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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT WANGI ROAD, RATHMINES - MYUNA BAY (C)

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1209 Rev. 0B

Document No.: 2583080-CA-ANC-1209.DWG

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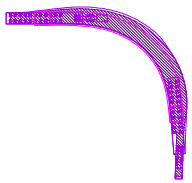
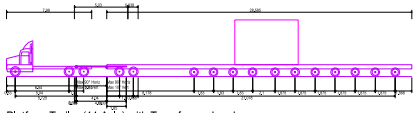
LEGEND





Platform Trailer (11 Axle) with Transformer Load

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Overall Width	4.200m
Overall Body Height	5.300m
Min Body Ground Clearance	0.435m
Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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NOT FOR CONSTRUCTION

CONCEPT DESIGN
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0A	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25
0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	17.10.25	Approved For Construction*
	Drawn	C.LAWRENCE	17.10.25	
	Dsg Verifier			
Reduced Scale (A3) 1:2000m	Drg Check			Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT ROCKY POINT RD AND CONSTRUCTION RD

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1210-1

Rev.: 0B

Document No.: 2583080-CA-ANC-1210-1.DWG

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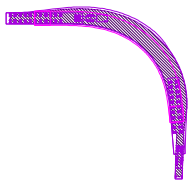
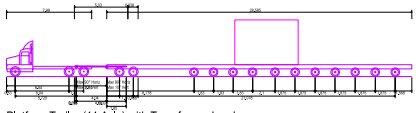
LEGEND





Platform Trailer (11 Axle) with Transformer Load

Overall Length	37.966m
Overall Width	4.200m
Overall Body Height	5.300m
Min Body Ground Clearance	0.435m
Max Track Width	2.600m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0A	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25
0	FOR INFORMATION	L.C.	B.S.	A.L.	17.10.25

Original Scale (A1) 1:1000m	Design	R.ANDERSON	17.10.25	Approved For Construction* Date
	Drawn	C.LAWRENCE	17.10.25	
	Dsg Verifier			
Reduced Scale (A3) 1:2000m	Drg Check			
	* Refer to Revision 1 for Original Signature			

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Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT ROCKY POINT RD AND CONSTRUCTION RD

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1210-2 | Rev.: 0B

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CONCEPT DESIGN
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0 10 20 40 60
Full Size A1 1:1000 : Half Reduction A3 1:2000
SCALE (m)

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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

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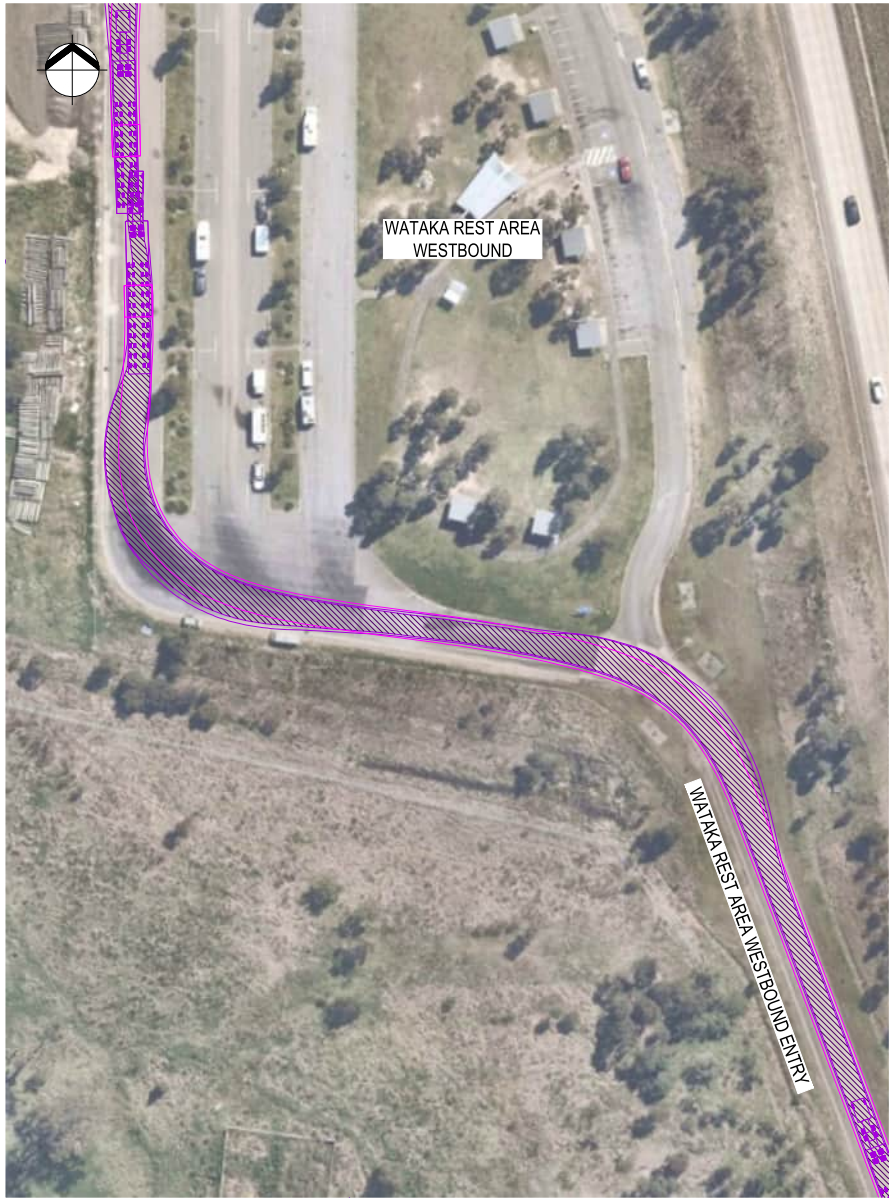
Document No.: 2583080-CA-ANC-1210-2.DWG



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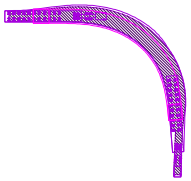
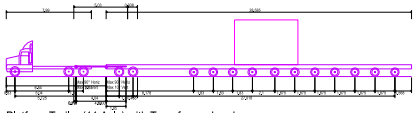
LEGEND





Platform Trailer (11 Axle) with Transformer Load

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Lock-to-lock time	6.00s
Curb to Curb Turning Radius	14.020m

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

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CONCEPT DESIGN
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No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	18.12.25	Approved For Construction*
	Drawn	C.LAWRENCE	18.12.25	
	Dsg Verifier			
Reduced Scale (A3) 1:1000m	Drg Check			Date
	* Refer to Revision 1 for Original Signature			

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Client:
ENERGY CORPORATION OF NSW

Project:
HUNTER TRANSMISSION PROJECT (HTP1)

Title:
OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT
REST AREA - WATTAKA

Discipline
CIVIL - GENERAL

Drawing No.
2583080-CA-ANC-1211

Rev.
0B

Document No. 2583080-CA-ANC-1211.DWG

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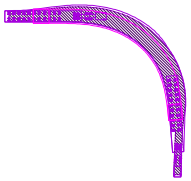
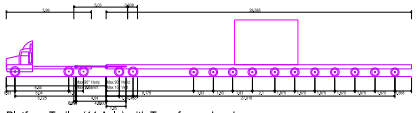
LEGEND





Platform Trailer (11 Axle) with Transformer Load

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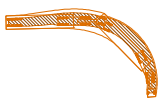

Dolly Rear Steer 21.5m Load 0.3m wide Overhang

Overall Length	31.480m
Overall Width	4.300m
Overall Body Height	2.677m
Min Body Ground Clearance	0.443m
Max Track Width	2.591m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	45.00°

0 5 10 20 30
Full Size A1 1:500 ; Half Reduction A3 1:1000
SCALE (m)

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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CONCEPT DESIGN
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No.	Revision	By	Chk	Appd	Date
0B	FOR INFORMATION	L.C.	B.S.	A.L.	16.01.26
0	FOR INFORMATION	L.C.	B.S.	A.L.	22.12.25

Original Scale (A1) 1:500m	Design	R.ANDERSON	18.12.25	Approved For Construction*
	Drawn	C.LAWRENCE	18.12.25	
	Dsg Verifier			
Reduced Scale (A3) 1:1000m	Drg Check			Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: OVER SIZE OVER MASS (OSOM) INTERSECTION ASSESSMENT
PALMERS ROAD EXIT, FREEMANS WATERHOLE

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-1212 Rev.: 0B

Document No.: 2583080-CA-ANC-1212.DWG

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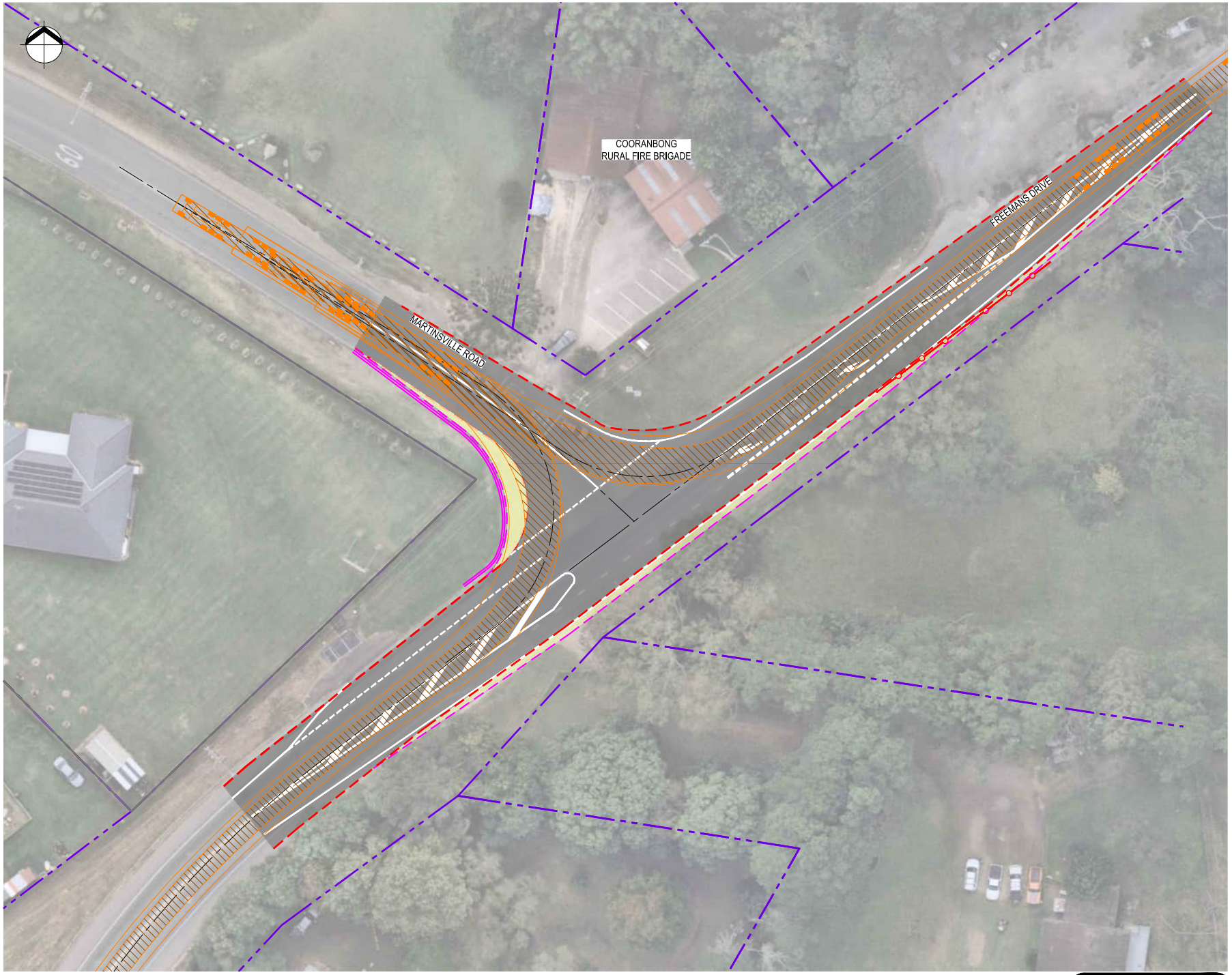

NOTE:

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- PROPOSED KERB
- PROPOSED EDGE OF BITUMEN
- PROPOSED LINEMARKING
- PAVEMENT AREA REQUIRING
- SWEPT PATH -DOLLY 21.5m LOAD, 0.3m OVERHANG TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	R.A.	B.S.		

Original Scale (A1) 1:250m	Design		Approved For Construction*
	Drawn		
Reduced Scale (A3) 1:500m	Dsg Verifier		
	Drg Check		Date
	* Refer to Revision 1 for Original Signature		

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT FREEMANS DR AND MARTINSVILLE RD OVER SIZE OVER MASS (OSOM)

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-SK0601 Rev.: A

Document No.: 2583080-CA-ANC-SK0601.DWG

0 2.5 5 10 15
Full Size A1 1:250 : Half Reduction A3 1:500
SCALE (m)

CONCEPT DESIGN
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COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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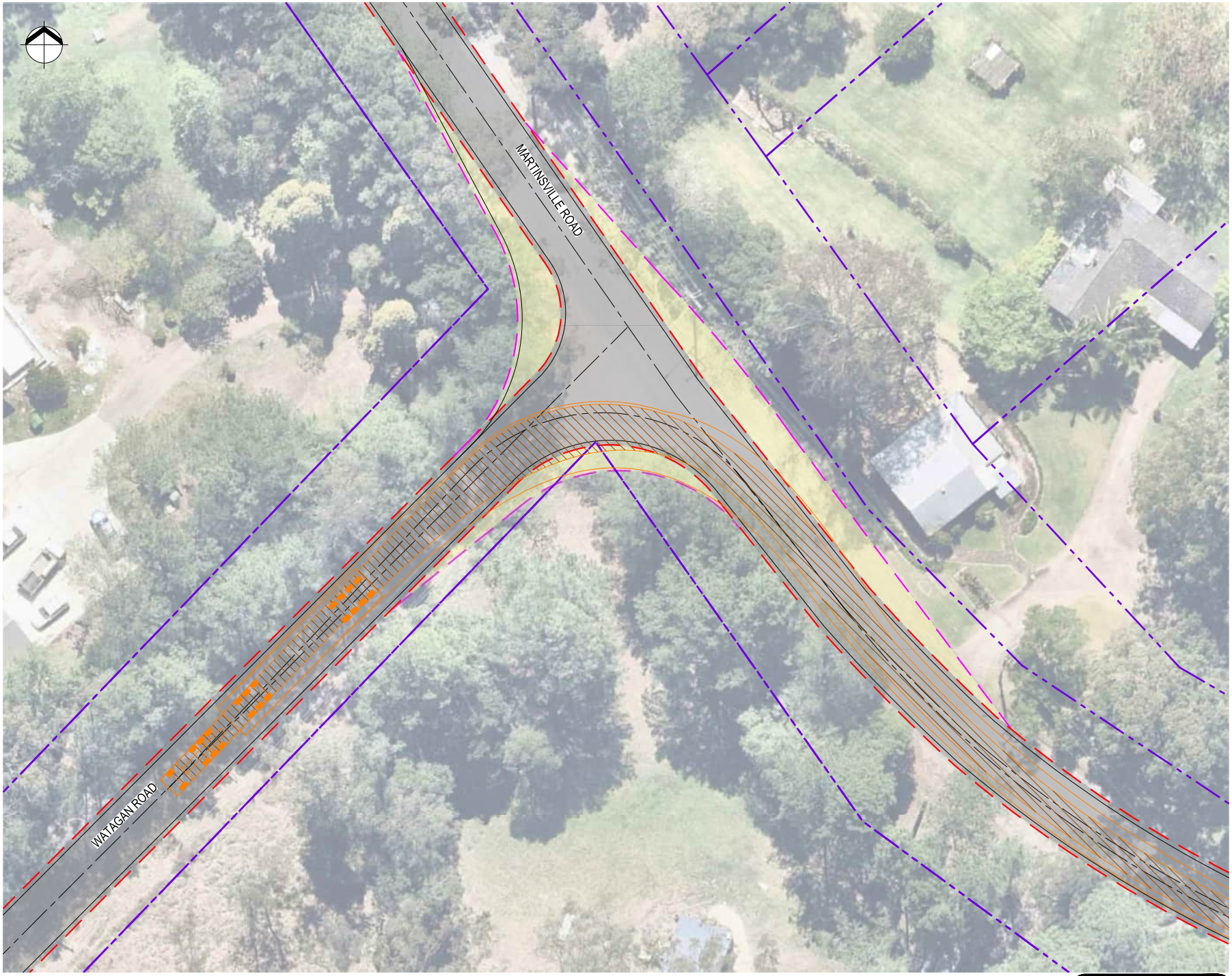

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LEGEND

- CADASTRE (INDICATIVE ONLY)
- EXISTING ROAD CENTRELINE
- PROPOSED KERB
- PROPOSED EDGE OF BITUMEN
- PROPOSED LINEMARKING
- PAVEMENT AREA REQUIRING
- SWEPT PATH -DOLLY 21.5m LOAD, 0.3m OVERHANG TURN SPEED 15km/h

No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	R.A.	B.S.		

Original Scale (A1) 1:200m	Design		Approved For Construction*
	Drawn		
Reduced Scale (A3) 1:400m	Dsg Verifier		
	Drg Check		Date

* Refer to Revision 1 for Original Signature

Beca

Client: ENERGY CORPORATION OF NSW

Project: HUNTER TRANSMISSION PROJECT (HTP1)

Title: INTERSECTION ASSESSMENT MARTINSVILLE RD AND WATAGAN RD OVERALL LAYOUT

Discipline: CIVIL - GENERAL

Drawing No.: 2583080-CA-ANC-0602 | Rev.: A

0 2 4 8 12
Full Size A1 1:200 ; Half Reduction A3 1:400
SCALE (m)

CONCEPT DESIGN
NOT FOR CONSTRUCTION

COORDINATE SYSTEM : GDA2020 / MGA ZONE 56

DO NOT SCALE FOR SET OUT DIMENSIONS

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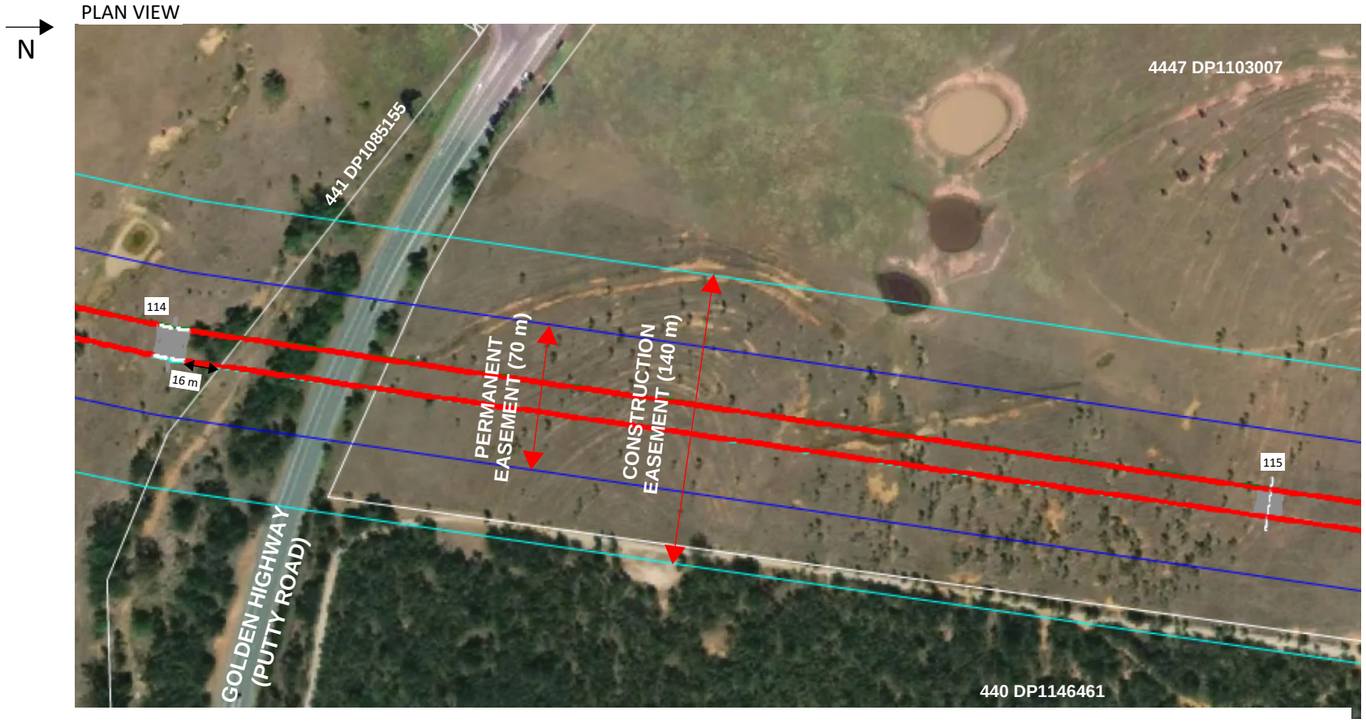
APPENDIX G

STRATEGIC DESIGN FOR STRINGING LOCATION

Hunter Transmission Project - HTP1 500 kV
Assessment of the road crossing, between Tower 114-115

PLAN VIEW

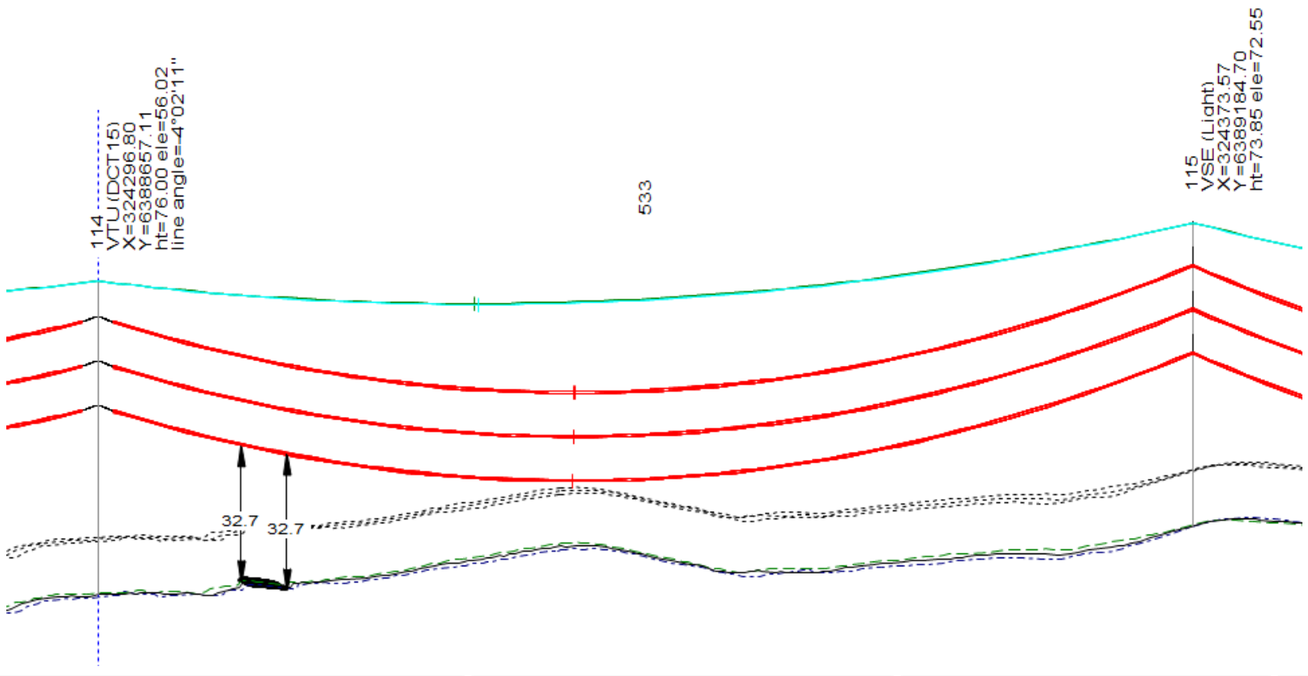


Note
1. Coordinate System based on EPSG 7856: GDA2020 / MGA Zone 56
2. Conductors displayed in maximum operating temperature 120°C

Table 1. Design Information

Design Parameter	Design Value
MINIMUM VERTICAL CLEARANCE FROM THE CONDUCTORS AT MAX SAG CONDITION TO THE ROAD	32.7 m
ANGLE OF CROSSING BETWEEN CONDUCTORS AND ROAD	75 deg
DISTANCE FROM EDGE OF ROAD BOUNDARY TO THE TOWER (NEAREST FOOTING)	16 m

PROFILE VIEW



Legend

PLAN VIEW
- SACM Property Boundary
- 70 m Permanent Easement
- 140 m Construction Easement
- HTP1 500 kV Conductors

PROFILE VIEW
- HTP1 500 kV CONDUCTOR
- OPGW
- EARTHWIRE
- GROUND CENTRELINE
- GROUND CLEARANCE LINES (13.5 m OFFSET)
- LEFT HAND SIDE PROFILE (7.5 m WIDTH)
- RIGHT HAND SIDE PROFILE (7.5 m WIDTH)

PDF ONLY
NO DWG FILE

No.	Revision	By	Chk	Appd	Date
1	FOR INFORMATION ONLY	KK	BE	BE	11/24

Original Scale (A3)

Design	K.KABIGTING	11/24
Drawn	K.KABIGTING	11/24
Dsg Verifier	B.EVANS	11/24
Drg Check	B.EVANS	11/24

* Refer to Revision 1 for Original Signature

Client: ENERGYCO NSW GOVERNMENT

Project: HUNTER TRANSMISSION PROJECT

Title: HTP1 - 500 kV TOWER 114-115 GOLDEN HIGHWAY (PUTTY ROAD) CROSSING

Discipline: TRANSMISSION LINE

Drawing No.: 2583080-DRG-400-TL-0008

Rev.: 1

DO NOT SCALE FOR SET OUT DIMENSIONS

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