Transport Strategy

Mates Gully Road

HumeLink West

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Document Control

Approvals

Title	HumeLink West Transport Strategy – Mates Gully Road
Endorsed by Environment Representative	Derek Low (WolfPeak Group Ltd Pty)
Approved on behalf of HLWJV by	Tim Burns
Signed	
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Version Control

Revision	Date	Description	Author	Reviewer	Approver
A	09/12/2024	Initial Draft for Review	Melanie Shelton	Ryan Robertson	Tim Burns
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06	5/11/2025	Response to ER & Stakeholder Comments	Andrew Smith	Emma Kline	Tim Burns
07	14/11/2025	Response to DPHI Comment	Andrew Smith	Emma Kline	Tim Burns

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Definitions

Term	Definition
AC03 or Tarcutta Compound	Tarcutta Accommodation Facility and Compound roadworks per Appendix 4 of Infrastructure Approval (included for information only, not required for this Transport Strategy)
AC03a	Mates Gully Road roadworks (approximately 300m of works from Tarcutta Compound to Hume Highway), subject of this Transport Strategy per Appendix 4 of Infrastructure Approval
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental Impact Statement	The Environmental Impact Statement referred to in Condition A2, submitted to the Planning Secretary seeking approval to carry out the development described in it, as revised if required by the Planning Secretary under the EP&A Act, and including any additional information provided by the Proponent in support of the application for approval of the project.
Environmental Representative	A suitably qualified and experienced person independent of HumeLink design and construction personnel employed for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance.
Heavy Vehicle	As defined under the Heavy Vehicle National Law (NSW), but excluding light and medium rigid trucks and buses no more than 8 tonnes and with no more than 2 axles.
HumeLink Approvals	HumeLink approvals include: • HumeLink Infrastructure Approval NSW SSI 36656827 • HumeLink EPBC Approval Cth EPBC 2021/9121.
Planning Approval Documentation	The NSW planning approval documents, as they relate to the HLW and as listed in MCoA A2 of the NSW Infrastructure Approval for HumeLink (SSI 36656827).

Abbreviations

Abbreviation	Expanded text
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHIMS	Aboriginal Heritage Information Management System
CCS	Community consultation strategy
CEMP	Construction Environmental Management Plan
CHL	Channelised Left Turn
CHR	Channelised Right Turn
CSSI	Critical State Significant Infrastructure
CTAMP	Construction Traffic Management Plan
Cth	Commonwealth of Australia
EIS	Environmental Impact Statement
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1989* (Cth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EWMP	Enabling Works Management Plan
GAV	General Access Vehicles
HLWJV	HumeLink West Joint Venture (UGL Limited and CPB Contractors)
HLW	The HumeLink West Stage of the HumeLink project
Minister (NSW), the	NSW Minister for Planning and Environment
MCoA	NSW Minister's Conditions of Approval (SSI-36656827)
NHVR	National Heavy Vehicle Regulator
NSW	New South Wales
OOHW	Out-of-hours work
OSOM	Over Size Over Mass
PCT	Plant Community Type
ROL	Road occupancy licence
SSI	State Significant Infrastructure
TfNSW	Transport for NSW
TTMP	Traffic and Transport Management Plan

1. Overview

1.1. Background and project description

The HumeLink project will increase the transfer capacity between southern NSW and major load centres within NSW (Sydney, Newcastle, and Wollongong), reinforce stability and reliability of the transmission network as well as facilitate transition of the network to new generation sources. This project has been deemed as Critical State Significant Infrastructure (CSSI). The staging of HumeLink project is shown in **Figure 1-1.**

Figure 1-1 Staging for HumeLink

HumeLink West (HLW) will include delivery of new 500kV double circuit transmission lines from the existing Wagga Wagga substation to the new Gugaa substation, from Gugaa substation to the Interface point via a T-Point, and then from the T-point to Maragle Substation. The scope of works will also include the diversion of approximately 2km of existing 330kV Line 051 to create the easement space for the construction of the Wagga Wagga to Gugaa transmission lines.

As part of the HLW delivery scope, the Tarcutta Accommodation Facility and Compound (AC03 or Tarcutta Compound) will be established on Mates Gully Road in Tarcutta, Wagga Wagga. The Tarcutta Compound is required to house the workforce during delivery of HLW. Roadworks relating to AC03 are included in this Transport Strategy for information only and are not part of the works required under this Transport Strategy.

1.2. Scope

The scope of this Strategy is to describe how UGL Limited and CPB Contractors Joint Venture (HLWJV) aims to address the traffic and transport needs, challenges, impacts and strategies associated with construction traffic use of Mates Gully Road to access the Tarcutta Compound. This Strategy has been prepared in accordance with the Infrastructure Approval, including MCoA B36 and Appendix 4, and specifically addresses the roadwork requirements for AC03a (refer Figure 1-2).

It is noted this Strategy also includes details of roadworks related to the Tarcutta Compound (AC03) on Mates Gully Road, this is included for context and is for information only.

Figure 1-2 Mates Gully Road work site (roadworks per this Strategy (AC03a) shown in green. Works in blue (AC03) for information only)

1.3. Interface with other planning documents

This Strategy is a component of a suite of documents, prepared as part of the implementation of the HLWJV's Environmental Management System. The Environmental Management System is described in Section 1.4 of the Construction Environmental Management Plan (CEMP).

The key documents that interface with this Strategy are outlined in Table 1-1.

Table 1-1 Key interfaces with the Transport Strategy

Plan	Reference	Interface
CEMP	Internal HLW document	• Provides details on overall HLW staging, interactions between the CEMP and aspect-specific Management Plans, and management of cumulative impacts. • Provides a framework for how the construction works will be managed. • Identifies procedures, processes and management systems that will apply to construction activities. • Provides environmental planning and controls for construction including environmental risk assessment, regulatory requirements, protection measures and sustainability requirements.
Enabling Works Management Plan (EWMP)	MCoA B64	• Describes the process for upgrading intersections.
Traffic and Transport Management Plan (TTMP)	MCoA B39	• Details the framework for the design and implementation of traffic management requirements. • Provides processes and procedures for the management of traffic on the road network during construction activities.
Health & Safety Management Plan	Internal HLW Document	• Details the framework for health and safety processes. • Provides health and safety procedures for those wastes that have potential human health risks.
Interface and Third-Party Management Plan	Internal HLW Document	• Details framework for third party interaction. • Provides procedures, processes and management systems that will apply in relation to third party management.
Community Communication Strategy	MCoA A24	• Details the framework for management of stakeholders and how to engage them. • Provides processes and procedures to guide community engagement. • Provides an assessment of sensitive receivers indicating special considerations that will impact traffic control devices.

2. Purpose and objectives

2.1. Purpose

The purpose of this Strategy is to detail the proposed upgrade works for those parts of Mates Gully Road used by HLW and to facilitate the safe interaction by construction traffic for the HLW project and the community utilising Mates Gully Road. This Strategy specifically includes the roadworks required by AC03a of Appendix 4 of the Infrastructure Approval as shown in Figure 1-2 (i.e. approximately 300m section of Mates Gully Road between Hume Highway and the Tarcutta Compound).

To minimise impacts on local roads and the interaction between the community and HLW traffic utilising Mates Gully Road, the HLWJV will restrict construction traffic to the section of the road between the Tarcutta Compound and the Hume Highway, to the east (the subject area of this Transport Strategy).

It is noted this Strategy also includes details of roadworks related to the Tarcutta Compound (AC03) on Mates Gully Road, this is included for context and is for information only.

2.2. Objectives

The key objective of this Transport Strategy is to demonstrate that the economic, social and environmental benefits of the AC03a road upgrades on Mates Gully Road will be achieved whilst minimising adverse impacts on the transportation systems and community. The other objectives of the Transport Strategy are to:

- Ensure transport systems are effectively integrated in planning and operation activities, to support the operation and usage of Mates Gully Road for access to the Tarcutta Compound.
- Demonstrate compliance with the Infrastructure Approval (SSI 36656827).
- Ensure potential transport impacts to the community and the environment are minimised during construction and operation of the Tarcutta Compound.
- Set out the overall strategy for traffic management on Mates Gully Road and impacted roads.
- Ensure the safety of the HLWJV personnel, contractors, and the public through comprehensive risk identification, assessment and mitigation.
- Demonstrate compliance with local, state and federal regulations.
- Demonstrate effective planning and optimisation of traffic flow to minimise disruption during the construction and use of the Tarcutta Compound, whilst facilitating the safe and efficient movement of people and goods.
- Ensure traffic delays are minimised and maintain journey reliability for the community and stakeholders.
- Ensure the environmental and social impacts to businesses and residents are minimised.
- Demonstrate effective community and stakeholder engagement through proactive communication and transparency with the public.

3. Compliance Framework

3.1. Legislation

Legislation and regulatory requirements relevant to this Strategy include:

- *HumeLink Infrastructure Approval NSW SSI 36656827*
- *Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)*
- *Environmental Planning and Assessment Regulation 2021*
- *Work Health and Safety Regulation (NSW)*
- *Work Health and Safety Act 2011 (NSW)*
- *The Roads Act 1993 (NSW)*
- *SafeWork NSW, Code of Practice: Construction Work.*

3.2. Guidelines and standards

The main guidelines, specifications and policy documents relevant to this Strategy include:

- NSW Heavy Vehicles Policy framework, 2018 (Transport for NSW (TfNSW))
- 2026 Road Safety Action Plan, 2022 (TfNSW)
- Austroads Guide to Temporary Traffic Management (All Parts)
- Austroads Guide to Traffic Management Part 6
- Traffic Control at Work Sites Manual v6.1 (TfNSW)
- Relevant Australian Standards.

3.3. Minister's Conditions of Approval

The MCoA relevant to this Strategy are listed in Table 3-1. A cross reference is also included to indicate where and how the conditions are addressed in this Strategy.

Table 3-1 MCoA relevant to the Transport Strategy

MCoA No.	Condition Requirements	Document Reference
Transport Strategy		
B36	Prior to commencing the relevant road upgrades referenced in Table 4-1 of Appendix 4, the Proponent must prepare a Transport Strategy for those road upgrades, in consultation with the TfNSW and relevant Council(s), to the satisfaction of the Planning Secretary, which:	This document
(a)	identifies the location and type of any necessary road upgrades (including roads, intersections and access points)	Section 6
(b)	ensures the road upgrades comply with the *Austroads Guide to Road Design* (as amended by TfNSW supplements), unless the relevant road authority agrees otherwise;	Section 6.3 Section 7.3.3 Appendix A
(c)	includes strategic concept designs prepared in accordance with *Austroads Guide to Road Design* (as amended by TfNSW supplements);	Appendix A
(d)	includes a detailed assessment of potential impacts of any necessary road upgrades (such as heritage and biodiversity impacts) and appropriate mitigation measures, including consideration of cumulative traffic impacts from approved projects	Section 7.2.8 Section 7.5
(e)	include a schedule for the commencement and completion of all necessary road upgrades;	Section 6.4
(f)	identifies whether intersections and access points would be permanent or temporary.	Section 6 AC03a works are permanent
B38	The Proponent must: (a) undertake an independent dilapidation survey: (i) assessing the existing condition of all local roads on the transport route shown in Figure 4-1 in Appendix 4 (including local road crossings) prior to Enabling Works, construction, upgrading or decommissioning works; and (ii) assessing the condition of all local roads on the transport route (including local road crossing); • within 1 month of the completion of construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant roads authority/manager; • on an annual basis during construction, or within a timeframe agreed to by the relevant roads authority/manager; (b) repair (or pay the full costs associated with repairing) any damage to local roads on the transport route (including local road crossings) as a result of development related road traffic: (i) as soon as possible after the damage is identified but within 7 days at the latest if it could endanger road safety; and (ii) within 2 months of the completion of the survey; unless the relevant roads authority agrees otherwise; (c) prepare a report in consultation with the relevant roads authority. If there is a dispute about the road maintenance works, or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution.	Section 7.3.2 Appendix C TTMP

4. Consultation

4.1. Consultation for Strategy preparation

Reflecting the requirements of MCoA B36, this Strategy has been prepared in consultation with the relevant council (Wagga Wagga City Council (WWCC)) and Transport for NSW (TfNSW). A detailed consultation report, including matters raised by stakeholders and HLWJV responses, has been prepared in accordance with MCoA A8 (Appendix F).

4.2. Ongoing consultation

Ongoing consultation will be undertaken with WWCC, TfNSW and emergency services during detailed design and throughout the construction of the road upgrades on Mates Gully Road. Regular meetings, at a frequency agreed with key stakeholders, will be undertaken to communicate upcoming changes and potential impacts in advance of the changes taking place.

Additional consultation with WWCC and TfNSW will also be triggered as a result of special event planning or as a result of significant or procedural change to this Strategy. Any minor or administrative changes will be made and endorsed by the Environmental Representative and the subsequent revised document will be issued for information.

Ongoing consultation with landowners, local residents and sensitive receivers will continue prior to and during road upgrades, including engagement on working hours negotiated agreements, noise levels and mitigation measures, and where applicable, Out-of-Hours Works (OOHW).

4.3. Endorsement and approval

In accordance with MCoA – B36, this Strategy has been developed in consultation with the relevant Council and TfNSW. Subject to endorsement by the ER, this Strategy will be submitted to the Planning Secretary for approval. The road upgrades described in this Strategy will be implemented to the satisfaction of the relevant roads authority.

5. Existing road network

The roads that will provide access to the Tarcutta Compound comprise state roads and local roads connected by a network of sealed roads. Road classifications are described in accordance with the *Roads Act 1993* (NSW) and NSW Road Classification, 2023 (TfNSW).

The classified road network that connects to the Tarcutta Compound is shown in Figure 5-1 and described in the sections that follow. This information has been sourced from the EIS (*Technical Report 16 - Revised Traffic and Traffic Impact Assessment*).

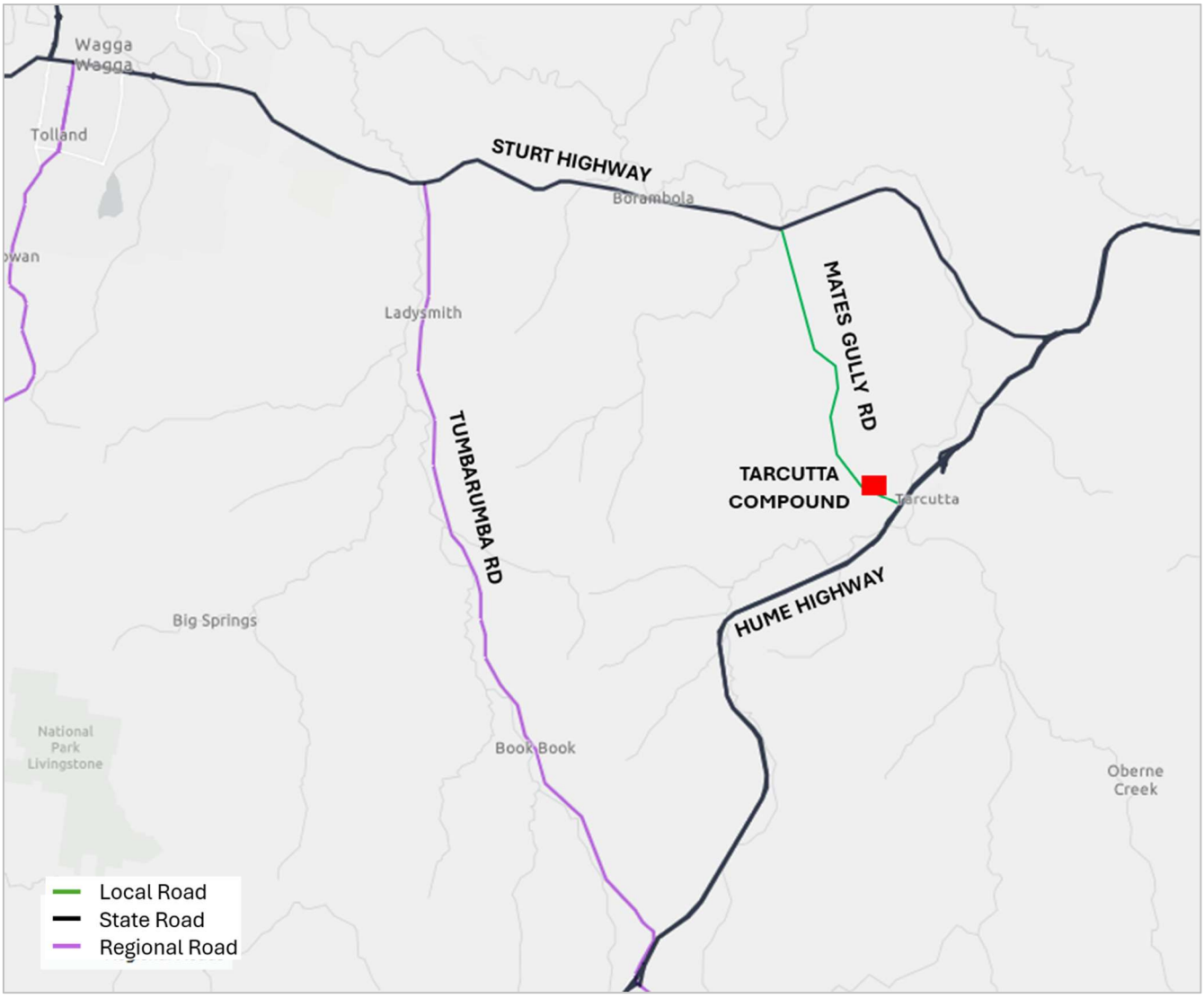


Figure 5-1 Classified Road Network

5.1. State-controlled Roads & Intersections

5.1.1. Hume Highway

The Hume Highway (M31) is one of Australia's major inter-city national highways, running for 840 kilometres between Melbourne in the southwest and Sydney in the northeast. The highway is a dual carriageway. The Hume Highway is a B-double approved road which facilitates movement of

25/26m B-doubles. The Hume Highway in this area was designed with half diamond interchanges north and south of Tarcutta to encourage through traffic to utilise the services provided in Tarcutta township.

Due to the configuration of the interchanges, all Hume Highway southbound vehicles accessing the Tarcutta Compound will be required to exit the highway north of Tarcutta and travel through the township. Similarly, any vehicles travelling from Tarcutta Compound heading north will travel through Tarcutta township. Vehicles travelling north on the Hume Highway can access the Tarcutta Compound via the northbound exit lane and left turn lane into Mates Gully Road. Vehicles leaving the Tarcutta Compound to travel south on the highway can do so via the Humula Link Road.

The speed limit on the northbound Hume Highway off-ramp road is 50 km/h. The existing peak hour volume on Hume Highway between Humula Road and Comatawa Road is 140 vehicles per lane per hour. There is provision for cyclists on Hume Highway and the northbound and southbound Hume Highway off-ramps, as evidenced by the cyclist warning signage.

Construction vehicles may use the Hume Highway / Sturt Highway connection, and the Hume Highway Access Road / Mates Gully Road intersection for access to the Tarcutta Compound. The road upgrades on Mates Gully Road will cause a slight increase in traffic volumes on Hume Highway, however the delay impact will be negligible due to the high background volumes. On this basis, the EIS determined that there are no modifications or upgrades required to the Hume Highway.

Mates Gully Road intersects with the Hume Highway via the southern Tarcutta interchange. See Appendix E for more detail on the interaction of construction traffic with the Hume Highway.

The Mates Gully Road and Hume Highway intersection is shown in Figure 5-2.

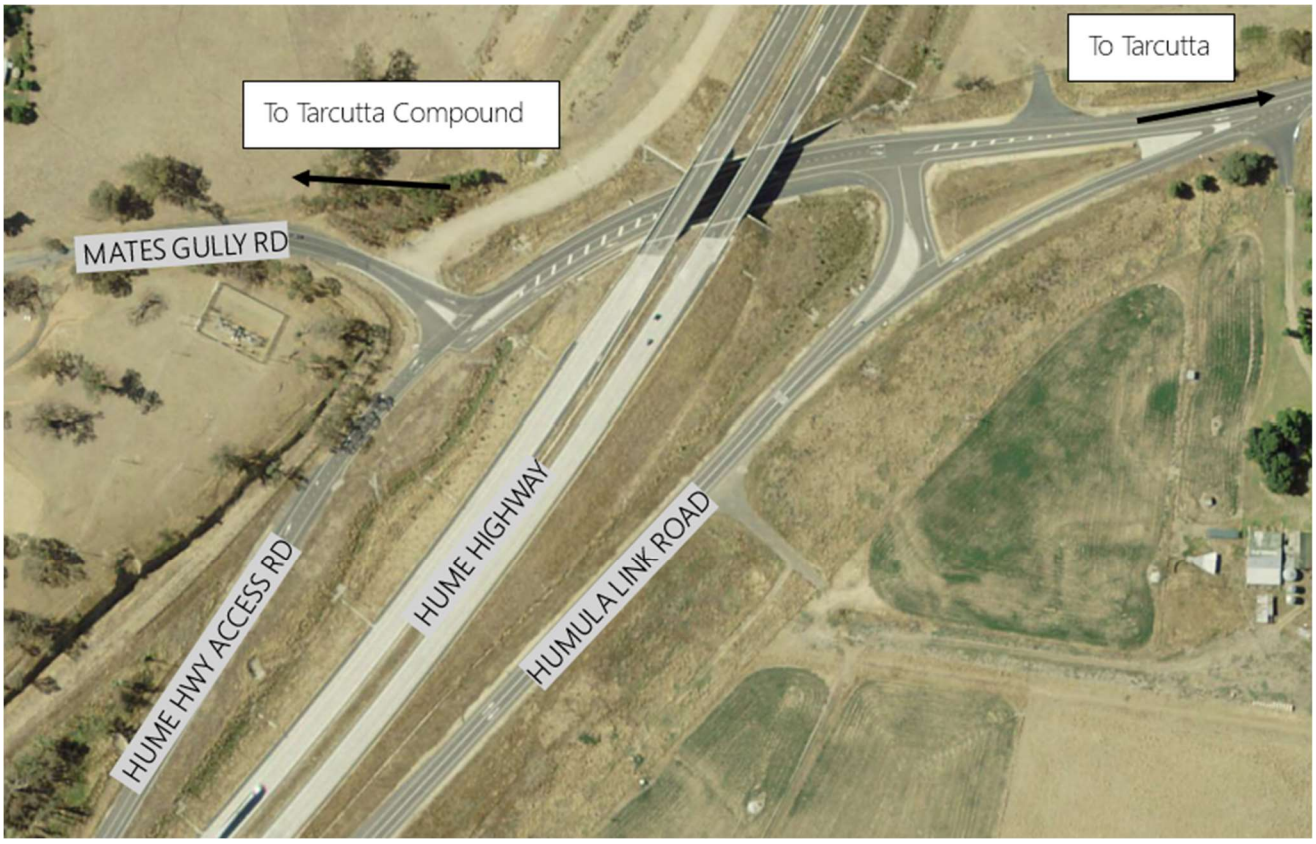


Figure 5-2 Mates Gully Road intersection with Hume Highway Access Road

5.1.2. The Sturt Highway

The Sturt Highway is a major east-west highway running through the Murray-Riverina region and forms the Sydney-Adelaide National Highway link. The intersection with Mates Gully Road provides left-turn and right-turn deceleration lanes for vehicles turning into Mates Gully Road.

The Sturt Highway is a B-double approved road which facilitates movement of 25/26m B-doubles. However, construction vehicles will be prohibited from accessing the Tarcutta Compound from Sturt Highway.

There will be no construction impact to the Sturt Highway / Mates Gully Road intersection. Appropriate signage will be installed at this intersection prohibiting HLW vehicles access onto Mates Gully Road. This restriction will also be included on the Vehicle Movement Plans (VMP).

To access the Tarcutta Compound on Mates Gully Road, HLWJV traffic on Sturt Highway will use Tumbarumba Road to connect to the Hume Highway. Vehicles exiting the Tarcutta Compound to travel to Wagga Wagga will use the Sturt Highway via the Hume highway. The EIS determined that there are no modifications or upgrades required to the Sturt Highway to support the HLW vehicle movements. More detail on the interaction of construction traffic with the Hume Highway can be found in Appendix E, and site-wide VMPs can be found in Appendix D.

5.2. Regional Roads

5.2.1. Tumbarumba Road

Tumbarumba Road is a two-lane, two-way sealed road that connects the Sturt Highway to the Hume Highway. Redirecting traffic from the Sturt Highway / Mates Gully Road intersection will result in a minor increase in vehicles on Tumbarumba Road. HLWJV construction traffic will use Tumbarumba Road from the Sturt Highway to access the Hume Highway and connect to Mates Gully Road. Construction heavy vehicles will not be permitted to utilise any other local roads from Sturt Highway to access Mates Gully Road. It is anticipated that there will be an increase of 30 heavy vehicles per hour per lane with the introduction of construction vehicles on Tumbarumba Road during peak periods.

Tumbarumba Road has a posted speed limit of 100km/hr and 50km/hr where it enters towns. The road is sealed with 3.5m lanes, 0.5m sealed shoulders (most sections) and 1.0m unsealed shoulders. The road is currently used by 25 / 26m B-doubles as an approved National Heavy Vehicle Regulator (NHVR) heavy vehicle route. The EIS determined that a modification / upgrade to Tumbarumba Road will not be required as the existing conditions cater for the additional heavy vehicles.

The Tumbarumba Road / Sturt Highway intersection will be signposted with wayfinding signage for HLWJV construction traffic. See Appendix E for more detail on the interaction of construction traffic with Tumbarumba Road.

5.3. Local Roads

5.3.1. Mates Gully Road

Mates Gully Road is a local road under the jurisdiction of WWCC. Mates Gully Road is a sealed, two-lane road that runs predominantly north-south, connecting the Hume Highway to the Sturt Highway. The road is relatively flat in the vicinity of the proposed Tarcutta Compound with an assumed grade between 0% and 2%. Mates Gully Road has a sign posted speed limit of 100 km/h, except for a 180m long 50km/h zone on the eastbound approach to the Hume Highway intersection. The existing peak hour volume on Mates Gully Road is 50 vehicles per lane per hour.

Mates Gully Road is only approved for General Access Vehicles (GAV). Where B-doubles will be required to access Mates Gully Road from the east, as part of the HumeLink West works, appropriate permits will be obtained prior to use.

Where local road occupancies are required as part of the traffic and construction staging, HLWJV will liaise with WWCC in relation to traffic management arrangements and comply with Council's advised requirements. Written approval for any proposed occupancy or closure of local roads will be obtained from WWCC.

5.3.2. Humula Link Road

Humula Link Road is a two-lane two-way sealed road that connects the Hume Highway to Mates Gully Road and Sydney Road into the township. The road is restricted to 80km/hr southbound and 50km/hr into the Tarcutta township. Humula Link Road is a local collector road that will be used by construction vehicles to access the southbound carriageway of Hume Highway and the northbound carriageway via Sydney Street.

Humula Link Road is a B-double approved road which facilitates movement of 25/26m B-doubles. There is provision for cyclists on Humula Link Road with a cyclist route provided via Tarcutta town.

5.3.3. Sydney Street

Sydney Street is the main street that runs through Tarcutta township. Sydney Street connects road users from the township to the Hume Highway. There is provision for cyclists on Sydney Street with a cyclist route provided via Tarcutta town.

Sydney Street is a B-double approved road which facilitates movement of 25/26m B-doubles. Construction vehicles will use Sydney Street through the Tarcutta township for access to the Tarcutta Compound. Wayfinding signage will be installed on Sydney Street directing construction vehicles to the Tarcutta Compound.

5.3.4. Keajura Road

Keajura is a two-lane two-way sealed local road located on the eastern and western side of the Hume Highway. HLWJV light vehicles will access Mates Gully Road from Sturt Highway via Tumbarumba Road and Keajura Road. Construction heavy vehicles will not be permitted to use Keajura Road from Tumbarumba Road. Construction signage will be erected at the Tumbarumba / Keajura intersection to advise HLW heavy vehicles that the Tarcutta Compound is not accessible from Keajura Road. This restriction will also be included on the VMPs.

Construction heavy vehicles will only be permitted to use Keajura Road via Hume Highway for access to and from construction points AP22, AP22B and AP2. This section of Keajura Road will be monitored and maintained in accordance with MCoA B38.

6. Proposed Road Upgrades

Road upgrades are required only on Mates Gully Road; no other roads have been identified as requiring upgrade under this Strategy. The road upgrade works proposed under this Strategy include:

- Mates Gully Road (AC03a) – Permanent widening of Mates Gully Road from the Tarcutta Compound access point upgrade (AC03) to the Hume Highway access road (approximately 300m of works).

The proposed construction activities associated with the above upgrades include, but are not limited to:

- Preliminary investigative and survey works
- Clearing of vegetation
- Earthworks and pavement construction (including use of site-won material)
- Drainage installation
- Temporary and permanent fence installation
- Short-term traffic management
- Mobilisation, installation and demobilisation of accommodation camp

Other road upgrade works on Mates Gully Road outside of this Strategy include:

- Tarcutta Compound Access (AC03) – new site access point and associated turning and acceleration lane. The access will be permanently retained at the request of the property owner.

6.1. Mates Gully Road

While the Infrastructure Approval (Appendix 4, Figure 4-1) identifies Mates Gully Road as an indicative access route, the following conditions require HLWJV to minimise impacts on local roads:

- MCoA B39(d)(i) – *minimise traffic safety impacts of the development and disruptions to local road users during construction, upgrading or decommissioning works*
- MCoA B39(d)(ii) – *minimise the impacts of the road and intersection upgrades of the development*.

To demonstrate compliance with the Infrastructure Approval, a review was undertaken of all heavy vehicle access routes. The outcomes of this review process, detailed in this Strategy and the VMPs (Appendix D), demonstrate that the efficient movement of vehicles may be achieved by limiting the use of Mates Gully Road to the section between the Tarcutta Compound access point and the Hume Highway access road. This access route refinement, detailed in the sections that follow, is consistent with the requirements of the Infrastructure Approval.

6.1.1. Tarcutta Compound to Hume Highway

The Mates Gully Road upgrades (AC03a) will require approximately 300m of pavement widening of the northern shoulder east of the Tarcutta Compound to achieve the minimum lane widths requirements for a two-lane two-way rural road, in accordance with *Austroads Guide to Road Design Part 3.* The pavement widening will allow two B-double vehicles to safely pass each other without encroaching on the road shoulder. The current pavement widths on Mates Gully Road (east) range from 6m to 8m with minimal or no shoulder and exhibits significant edge break.

The road upgrades will provide 3.5m lanes with 1m shoulders (0.5m sealed) which will provide safe movement of construction vehicles on this road. Suitable table drains and drainage structures will be provided along the road widening to mitigate potential erosion impacts.

6.1.2. West of Tarcutta Compound to Sturt Highway

There are no road upgrades proposed for Mates Gully Road west of the Tarcutta Compound access point as there will be no construction traffic utilising this segment of Mates Gully Road.

All HLWJV construction traffic will access the Tarcutta Compound via Hume Highway / Hume Access Road, in accordance with the approved VMP in Appendix D.

To restrict access to Mates Gully Road (west of Tarcutta Compound), the following controls will be implemented:

- Construction signage will be installed on the Sturt Highway / Mates Gully Road intersection prohibiting HLWJV traffic from turning into Mates Gully Road.
- Engineering controls in the form of a Type SF Kerb with concrete infill and Klemmfix (continuing only the acceleration lane for 60m) will be installed at the Mates Gully Road / Construction access intersection to restrict right hand turn movements from the construction access point onto Mates Gully Road West (Figure 6-22 and **Error! Reference source not found.**).
- Regulatory NO RIGHT TURN and LEFT ONLY signage will be installed inside the construction access point to ensure construction vehicles do not turn right onto Mates Gully Road
- Regulatory signage to prohibit U-turns on the state road network
- All HLWJV drivers will be issued the latest VMP (including QR codes to check currency) and instructions on how to access and egress Tarcutta Compound via the approved local and state roads only (Appendix D).
- All HLWJV construction vehicles will be equipped with In-Vehicle Monitoring Systems to monitor vehicle movements and routes. Drivers that use unapproved roads will be promptly and easily identified via number plate recognition to ensure non-recurrence of breaches.
- All HLWJV drivers will undergo induction and training on the Transport Strategy prior commencement of works. This is to ensure all drivers are aware of the approved routes.

6.1.3. Reinstatement of Access Points

The road upgrades will include a reinstatement of a rural property access points, east of the Tarcutta Compound, to meet the minimum requirements nominated in Figures 7.2 or 7.4 of the *Austroads Guide to Road Design Part 4*. The two properties to be reinstated are shown in Figure 6-1.

The property access details will be discussed and agreed with the property owner prior to construction.

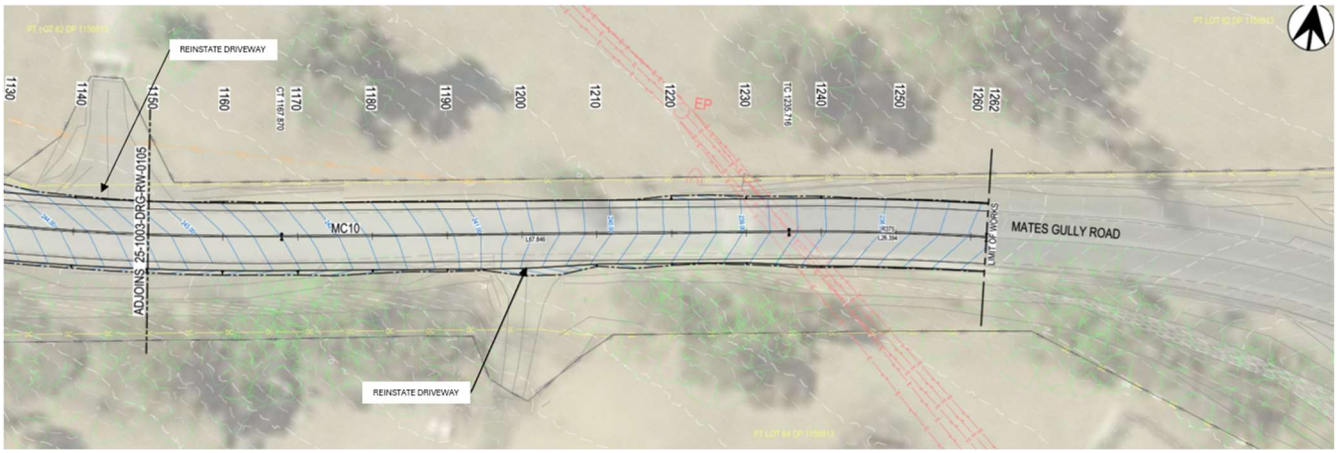


Figure 6-1 Location of Access Points to be reinstated

6.2. AC03: Tarcutta Accommodation facility and Compound

The Infrastructure Approval (Appendix 4, Table 4-1, reference AC03) specifies that a new site access is required on Mates Gully Road at the Tarcutta Compound, consisting of:

- Channelised Right Turn (CHR) – to enable vehicles traveling west on Mates Gully Road from Hume Highway to safety turn right into the Tarcutta Compound
- Channelised Left Turn (CHL) – to enable vehicles travelling east on Mates Gully Road from Sturt Highway to safety turn left into the Tarcutta Compound.

As required by MCoA B36(a), this Strategy must identify the location and type of necessary road upgrades. By minimising the use of local roads and eliminating access to the Tarcutta Compound from the Sturt Highway (Section 6.1), the CHL is no longer necessary as part of AC03. As such, any upgrades to sections of Mates Gully Road west of the Tarcutta Compound intersection are not required by the Project.

The AC03 upgrade of the Tarcutta Compound intersection will be implemented as part of the Enabling Works Management Plan (EWMP) (refer to Appendix I of the EWMP) which was approved by the Planning Secretary on 13 December 2024. As detailed in Section 4.1.3 of the EWMP, consultation will continue to be undertaken with the relevant road authority and any required approvals under Section 138 of the *Roads Act 1993* will be obtained prior to the commencement of site access works.

6.3. Mates Gully Road Design Compliance

The proposed road upgrades on Mates Gully Road are shown in Figure 6-2Figure 6-22**.** The Strategic Concept Design is presented in Appendix A**.**

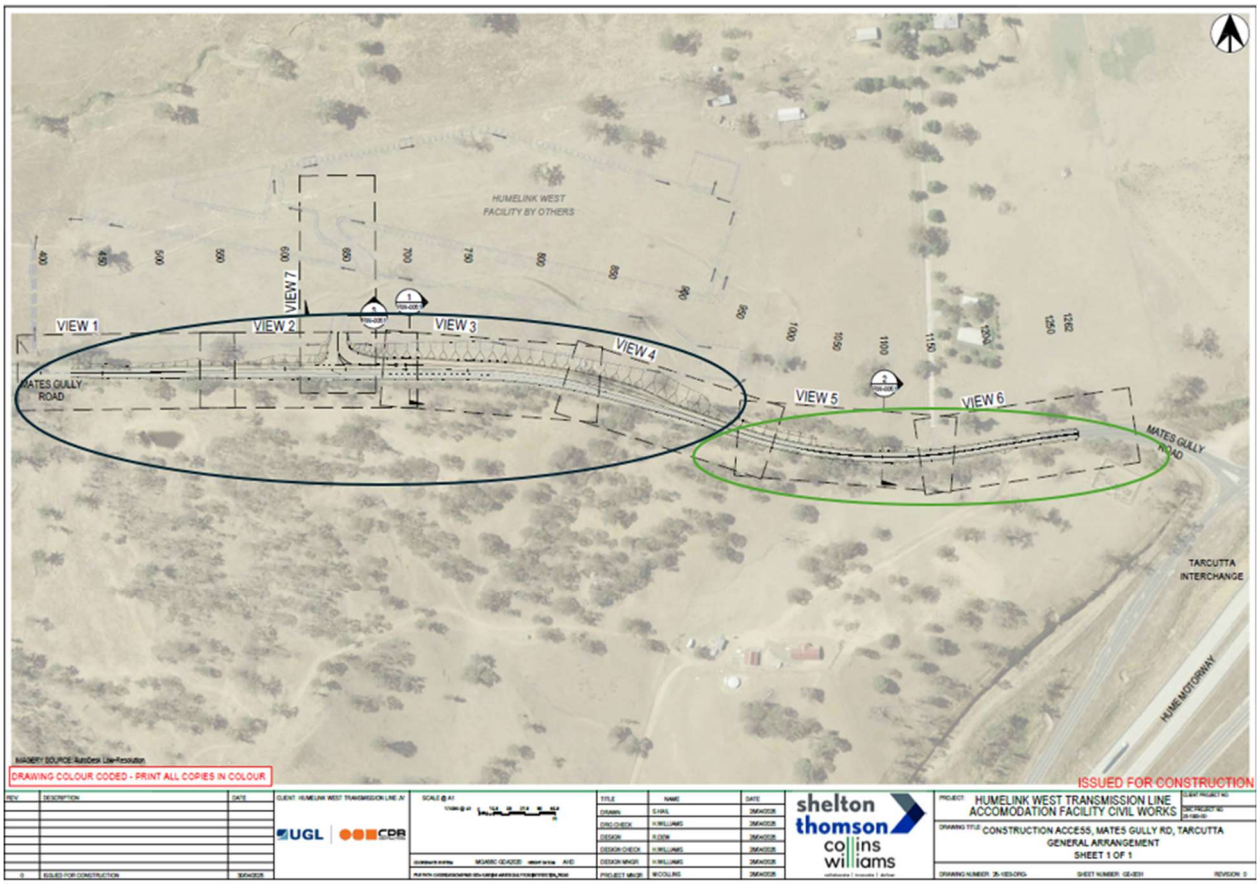


Figure 6-22 Mates Gully Road Proposed Road Upgrades – AC03a (green circle) & AC03 (black circle, information only)

The intersection and widening road upgrades have been designed in accordance with *Austroads Guide to Road Design, Austroads Guide to Traffic Management* and *TfNSW Supplements*. The design elements listed in Table 6-1 have been checked to ensure compliance has been achieved.

Table 6-1 Design Parameters Compliance

Design Parameters	Compliance achieved
Geometric design, including lane widths, shoulder widths and verge widths	✓
Sight distance checks, including Safe Intersection Sight Distance, Stopping Sight Distance / Approach Sight Distance, and Merge Sight Distance	✓
Swept paths (design vehicle and check vehicle)	✓
Horizontal and vertical geometry / alignment	✓

6.4. Duration of Works

The road upgrade works on Mates Gully Road are anticipated to take between 9 to 12 weeks to complete, subject to weather conditions. The establishment of Tarcutta Compound is expected to take 10 to 12 weeks. The road upgrade works and the establishment of Tarcutta Compound will be undertaken concurrently. Once complete, the Tarcutta Compound will be operational for 18 to 24 months. The establishment of the Tarcutta Compound may be phased based on the activities required to support construction. Road upgrade works are anticipated to commence in quarter four of 2025, and may begin after the occupation and operation of the camp has commenced.

Refer to Table 6-2 for the anticipated construction scenarios and working periods.

Table 6-2 Construction Stages

Stage	Activities	Duration
Long-term traffic management	• Implementation of long-term traffic management	1 weeks
Pre-construction activities	• Clearing and grubbing of vegetation • Short term traffic control	3 weeks
Road upgrade	• Establishment of erosion and sediment controls on Mates Gully Road • Installation of compound signage and relevant advisory and warning signage	9 to 12 weeks
Tarcutta Compound preparation works	• Clearing and preparation of land • Boundary fencing works • Erosion and sediment controls	12 weeks
Operation of Tarcutta Compound	• Use of the facilities by HLWJV construction workers	18 to 24 months
Demobilisation of Accommodation Facility & associated infrastructure	• Removal of Tarcutta Compound and delivery off-site	16 to 22 weeks

6.5. Post-Construction

Post completion of the HLW, the Tarcutta Compound will be demobilised, and the compound crossover (driveway), acceleration lane and CHR on the Mates Gully road reserve (i.e. AC03 works) will be removed.

AC03a works on Mates Gully Road would remain permanently as a 2-way, 2-lane, 8m wide sealed road on a 9m formation with 3.5m travel lanes (2-way crossfall) and 1 in 4 vegetated batters on the northern verge of the road. Reinstatement works will be undertaken to the satisfaction of the Council within six months following the completion of the HLW project within the Wagga Wagga LGA.

The upgraded private access point will be retained on completion of construction.

7. Potential impacts

7.1. Traffic Generation

7.1.1. Traffic Count Data

The estimated traffic volumes for Mates Gully Road and surrounding roads is detailed in Table 7-1.

Table 7-1 Traffic Volumes

Road Name	Pavement type	Lane counts	Estimated peak hour volume (per direction)	**Data Source**
Mates Gully Road	Sealed	2	39 vehicles per hour (vph)	WWCC
Hume Highway (between Humula Road & Comatawa Road)	Concrete	4	140 vph	*Technical Report 16 – Revised Traffic and Transport Impact Assessment* (Technical Report 16)
Humula Link Road	Sealed	2	316vph	WWCC
Tumbarumba Road	Sealed	2	47vph	WCC (2023)
Keajura Road (East of Burkinshaws Lane)	Sealed	2	2vph	WCC (2023)

7.1.2. Traffic Growth

Construction traffic volumes on Mates Gully Road are expected to increase as construction progresses. The site will have various types of construction vehicles accessing the site. During standard hours, the largest construction vehicle accessing the site will be semi-trailers/low loaders and truck & dog combinations delivering plant and equipment.

The anticipated vehicle movements across the amended traffic study area for the Tarcutta accommodation facility and batch plant are detailed in Table 7-2. The data in Table 7-2 has been sourced from the EIS (*Technical Report 16 - Revised Traffic and Traffic Impact Assessment*). During construction peak, peak hourly increase in total traffic on all roads providing access to HLW would be 60 vehicles (30 light vehicles and 30 heavy vehicles). The EIS considers this increase to be low.

Table 7-2 Tarcutta accommodation facility and compound (AC03) anticipated construction vehicle movements (vehicles per day both directions)

Vehicle movement	Typical construction		Construction peak	
	Light Vehicles	**Heavy Vehicles**	**Light Vehicles**	**Heavy Vehicles**
Daily movement vehicles per day (vpd in both directions of travel	140	225	200	440
Peak hour movement vph in both directions of travel	20	20	30	30

7.2. Construction Impacts

As detailed in the EIS, construction of the amended project would generate additional traffic on the existing road network within the amended traffic study area. Due to low existing levels of traffic on the local road network within the amended traffic study area, the additional amended project traffic during construction would result in a perceptible change. From a road capacity point of view, all roads would operate reasonably in free flow conditions. The road network in the amended traffic study area is expected to maintain performance at a Level of Service (LoS) A as per the existing conditions.

7.2.1. Cyclists

There is provision for cyclists on Hume Highway, Hume Access Road, Humula Link Road and Sydney Street through Tarcutta town. The construction of the road upgrades on Mates Gully Road will not impact cyclists on these roads. However, if cyclists are encountered on Mates Gully Road during construction of the road upgrades, traffic controllers will escort the cyclists through or around active works sites. This has been documented in the TTMP.

There are no anticipated impacts on cyclists during operation of the proposed road upgrades and during demobilisation of the Tarcutta Compound.

7.2.2. Pedestrians

There are no anticipated impacts on pedestrians during the construction of the road upgrades on Mates Gully Road. The road will be open to all road users during construction activities. Access will be maintained at all times. However, if pedestrians are encountered on Mates Gully Road during construction of the road upgrades, traffic controllers will escort the pedestrians through or around active work sites. This has been documented in the TTMP.

There are no anticipated impacts on pedestrians during operation of the proposed road upgrades and during demobilisation of the Tarcutta Compound.

7.2.3. Freight Network

Mates Gully Road is only approved for GAV. The road upgrades on Mates Gully Road will not impact the freight network. Where heavy vehicles and / or B-doubles require access to Mates Gully Road during construction of the road upgrades, traffic controllers will provide safe access past the active work sites. This has been documented in the TTMP.

There are no anticipated impacts on the heavy freight network during operation of the proposed road upgrades and demobilisation of the Tarcutta Compound. Any disruptions during an Over Size Over Mass (OSOM) movement will be appropriately planned and communicated to affected stakeholders in accordance with the Community Consultation Strategy.

7.2.4. Emergency Services

There are no anticipated impacts on Emergency Services. Where emergency services require access to Mates Gully Road during construction, HLWJV will ensure they are always given priority. If short-term traffic management is in place, works will stop to ensure safe passage of emergency services through the work site.

The road upgrade will not have an impact on emergency services once complete.

7.2.5. Private Accesses

HLWJV will endeavour to maintain access to all private properties during construction of the road upgrades. Where existing access cannot be maintained, alternative access will be provided prior to disruption of the existing access in consultation with the property owner.

7.2.6. Local Roads

Access will be maintained on Mates Gully Road during construction of the road upgrades. There are no anticipated additional impacts on other local roads due to the construction of the road upgrades.

The proposed restriction of construction traffic to the section of Mates Gully Road between the Tarcutta Compound and the Hume Highway is not expected to have an increase in local road use within the township of Tarcutta to that identified within the EIS.

7.2.7. External Stakeholders

HLWJV will ensure works are planned to minimise any delays to existing through traffic in conjunction with further consultation with WWCC and TfNSW.

7.2.8. Other Approved Projects

Neighbouring major infrastructure projects occurring within the HLW precinct and the approximate distances to Mates Gully Road include:

- HumeLink East (75km)
- Project EnergyConnect (35km)
- Inland Rail (35 km)
- Snowy 2.0 (75km)
- Victoria to NSW Interconnector West (220km)
- Maragle Substation (120km)
- Riverina Redevelopment Program (25km).

Based on the distance of the above projects to Mates Gully Road, there are no anticipated cumulative traffic impacts on the road upgrade works. From the publicly available information, none of the approved projects within the vicinity of HLW will use Mates Gully Road for access or works.

The road upgrade will not have an impact on other approved projects once complete.

7.2.9. Public Transport

School bus services in the area are provided by Busabout Wagga. The bus routes that operate in the area (the S171AM service and the S172 PM service which travels on Mates Gully Road) are shown in Figure 7-1.

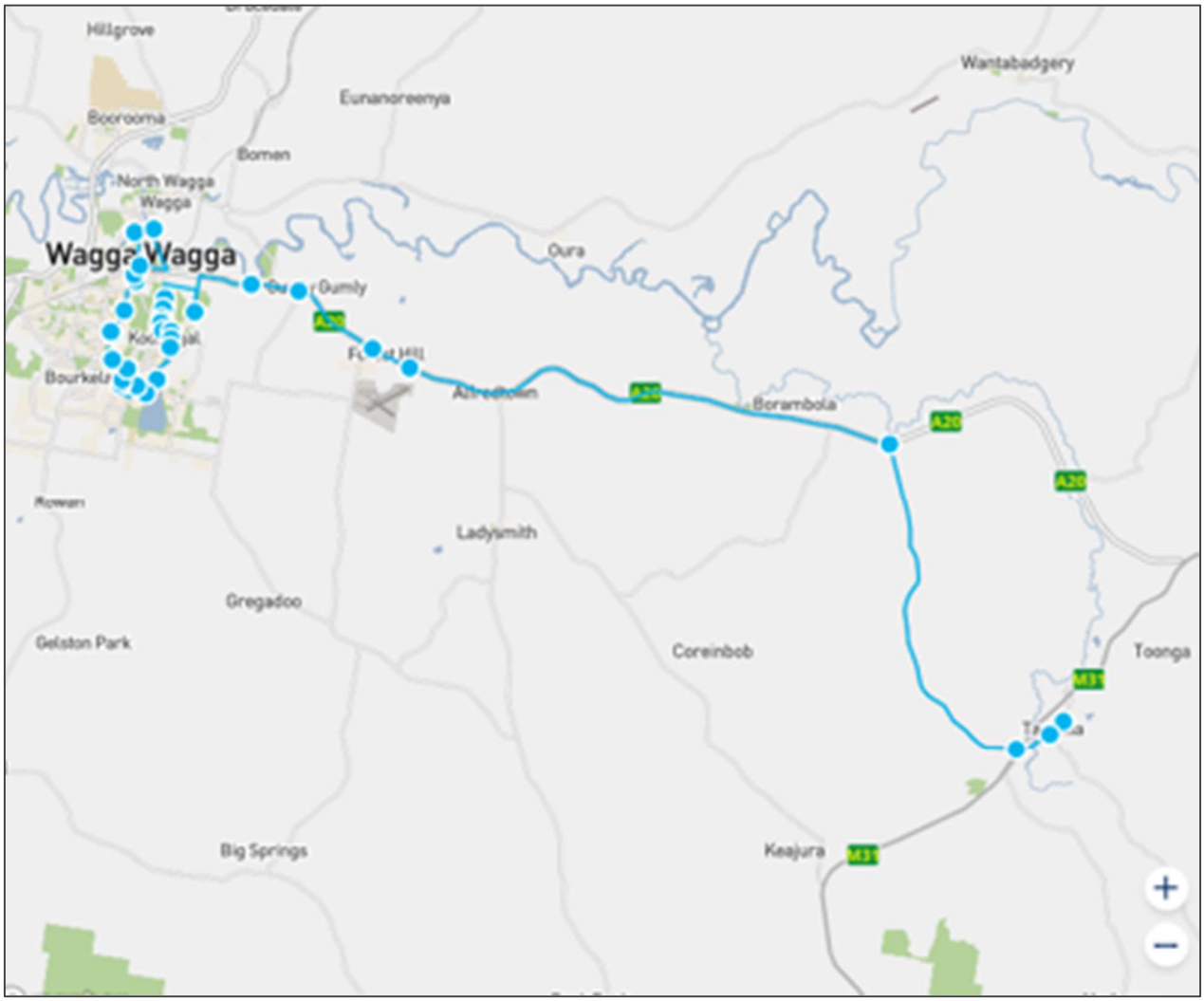


Figure 7-1 School bus route

The school bus services will not be impacted by the construction of the road upgrades on Mates Gully Road. Access will always be provided for the bus to prevent any delays. Consultation with the bus operators will be undertaken prior to commencement of works to ensure awareness of road upgrades on Mates Gully Road. Where possible, disruptive construction activities will be planned outside of bus travel times.

The road upgrade, once complete, will not have any impact on the bus service. There will be no delay or disruption to the service.

7.3. Post- road Construction Impacts

7.3.1. Local Roads and Accesses

Traffic volumes on Mates Gully Road and the Hume Highway Access Roads are expected to increase slightly during the HLW construction. The impact on these roads will be negligible without any significant increase in travel time. Delays and congestion are not expected on Mates Gully Road.

Safe and suitable access to local properties and roads will be maintained during HLW construction and there are no anticipated impacts to local properties or local roads. Any unexpected impacts due to construction and / or operation activities on Mates Gully Road will be managed by HLWJV in consultation with the property owners and WWCC.

There will be a slight increase in traffic volumes on Tumbarumba Road and Keajura Road during the use of the Tarcutta Compound. The impact on these roads will be negligible without any significant increase in travel time. Delays and congestion are not expected on these roads.

7.3.2. Road Condition

In accordance with MCoA B38 condition, HLWJV will

(i) Undertake an independent dilapidation survey:
- Assess the existing condition of all local roads (including Mates Gully Road) on the transport route shown on the VMPs (Appendix D) prior to enabling works, construction, upgrading or decommissioning works; and
- Assess the condition of all local roads on the transport route (including local road crossing); within 1 month of the completion of construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant roads authority/manager;
- On an annual basis during construction, or within a timeframe agreed to by the relevant roads authority/manager.

(ii) Repair (or pay the full costs associated with repairing) any damage to local roads on the transport route (including local road crossings) because of development related road traffic:
- As soon as possible after the damage is identified but within 7 days at the latest if it could endanger road safety; and
- Within 2 months of the completion of the survey;

Unless the relevant roads authority agrees otherwise;

(iii) Prepare a report in consultation with the relevant roads' authority.

As detailed in the TTMP, dilapidation surveys will:

- Assess the existing condition of the road infrastructure (pavement deflection and remaining life, subgrade response, measuring ride including surface, shoulders, kerbs)
- Identify and document any signs of damage, wear, or deterioration, including cracking, potholes, surface deformation, shoving and rutting
- Include georeferenced pictures of road surface and furniture including signs / poles, streetlights, barriers / guard rails / bollards, road marking, traffic islands / medians etc.
- Align with the current IPWEA Guidelines.

The construction traffic is expected to have a negligible effect on the road condition of Mates Gully Road, and the proposed road upgrades will improve the road condition between the Tarcutta Compound and the Hume Highway.

HLWJV will ensure dilapidation reports are completed on impacted roads (local and regional roads) prior commencement of construction activities. Where road degradation occurs due to construction traffic, HLWJV will ensure appropriate maintenance activities are carried out within acceptable intervention timeframes.

7.3.3. Road Safety

The proposed road upgrades will improve the safety of Mates Gully Road. The road widening of Mates Gully Road (east) will have a positive impact on the road safety of Mates Gully Road, as the upgrades will actively separate turning construction traffic from public traffic. The widened pavement, dedicated turn lanes and wide shoulders will reduce the interaction of construction traffic and public / local traffic on this segment of Mates Gully Road.

The proposed road upgrades on Mates Gully Road have been designed in accordance with *Austroads Guide to Road Design, TfNSW supplements* and WWCC requirements to ensure road user safety is achieved and maintained.

7.4. Network Performance

7.4.1. Travel Time

During construction of the road upgrades, the posted speed limit on a small segment of Mates Gully Road will be reduced to 40km/hr or 60km/hr, depending on the construction activities. The speed reductions will be intermittent and only as required. During periods of speed reductions, the travel time through the impacted section of Mates Gully Road will increase by 24 secs to a maximum of 54 seconds.

Once the road upgrades are complete, the speed limit on Mates Gully Road will not be influenced by the Project.

7.4.2. Queuing and Congestion

There is negligible queueing expected on Mates Gully Road during construction of the road upgrades. This will be due to the short-term traffic management during works. This is detailed in the TTMP and will be implemented using approved Traffic Guidance Schemes.

Due to the construction of dedicated lanes for construction vehicles to access and egress the Tarcutta Compound, the proposed road upgrades will not have any impact on the free flow of traffic on Mates Gully Road. The separation of turning traffic from through traffic will eliminate queuing and congestion on Mates Gully Road over the duration of the project.

7.4.3. Surrounding Road Network

Limiting the use of Mates Gully Road to the section between the Tarcutta Compound access point and the Hume Highway access road will result in a marginal increase in the number of vehicle movements on the Hume Highway.

As detailed in Section 5.1.1, the Hume Highway is a B-double approved road and the existing peak hour volume between Humula Road and Comatawa Road is 140 vehicles per lane per hour. The predicted construction traffic volumes (Table 7-2) would represent a marginal increase of one to two percent of typical daily traffic which would be within the tolerance limits of the highway's design and operation. In addition, construction traffic would be spread out across various times of the day, minimising the potential for performance issues during peak hours.

7.5. Environmental Impacts

An environmental assessment has been undertaken within the existing road easement to determine the potential impacts associated with the widening requirements set out in the Infrastructure Approval (Appendix 4, Item AC03a) and to demonstrate consistency with SSI-36656827 and EPBC 2021/9121.

The environmental assessment included:

- A review of the biodiversity within the road reserve which will be impacted by the works,
- A review of the following heritage databases by the Project Archaeologist:
    - Aboriginal Heritage Information Management System (AHIMS)
    - World, Commonwealth and National Heritage lists
    - State Heritage Register and Inventory
    - Local Environmental Plan heritage items
- Investigation of the site if it is determined that there is a potential for heritage impacts
- Noise assessment to determine potential impact on sensitive receivers.

The remaining environmental impacts and associated mitigation measures have been identified as part of the existing Project Approvals for HumeLink and no additional mitigation measures are required. The biodiversity assessment (Biodiversity Assessment Method (BAM) plots), construction

noise assessment and heritage assessments are detailed in Appendix B and summarised in the sections that follow.

7.5.1. Heritage

A desktop and field assessment undertaken by Navin Officer Heritage Consultants Pty Ltd compared the location of the Mates Gully Road upgrade works to previously recorded Aboriginal and non-Aboriginal sites (refer Navin Officer Heritage Report included as Appendix B). The assessment includes archaeological sensitivity mapping for subsurface Aboriginal archaeology developed for the ACHAR, and a review of the following heritage databases:

- Aboriginal Heritage Information Management System (AHIMS)
- World, Commonwealth and National Heritage lists
- State Heritage Register and Inventory
- Local Environmental Plan heritage items.

The assessment indicates there are no previously recorded sites in the project area, and no new surface Aboriginal sites were identified in the roadwork sites proposed for the Mates Gully Road works. Refer to Figures 1, 2 & 3 of the Heritage Assessment Report for the extent of the survey (Appendix B).

No salvage excavation or site collections were required for works on Mates Gully Road.

The Heritage Assessment Report concludes that there are no heritage constraints to the roadworks proceeding on Mates Gully Road and no recommended actions.

7.5.2. Biodiversity

The biodiversity assessment concludes that biodiversity impacts associated with the Mates Gully Rd Upgrade are considered minor (only totalling 0.31 ha) and do not require additional mitigation measures to those set out in the Updated Mitigation Measures (UMMs) (Appendix B). A summary of the assessment is provided in the sections that follow.

All areas of proposed road upgrades outside of the Tarcutta Compound footprint are referred to as the ‘Project Area’ in the biodiversity assessment. As shown in Figure 7-2, the Tarcutta Compound and Mates Gully Road has been included in the approved Final Layout Plan (Stage 3B(i)b, Rev 00).

Figure 7-2 Tarcutta Compound and Mates Gully Road (extract from Final Layout Plan, Stage 3B(i)b, Rev 00,)

Existing environment

The Project Area is located within the Inland Slopes IBRA Subregion of the NSW South Western Slopes Bioregion and intersects with the Adrah Hills and Ranges Mitchell Landscape unit. It intersects with four mapped 1st (Strahler) order streams, and their associated 10 m riparian buffers; however, no streams or banks were visible at time of survey.

Plant Community Types

One Plant Community Type (PCT) was identified within the Project Area, PCT 343: Mugga Ironbark – Red Box – Red Stringybark – Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta – Gundagai region, NSW South Western Slopes Bioregion. This PCT existed as one vegetation zone: PCT 343_Moderate (0.31 ha), along with exotic roadside grasses (0.15 ha). No Threatened Ecological Communities are associated with the vegetation on-site.

Species credit species

Flora

A total of three candidate threatened flora species (flora species credit species) have been identified by the BAM-Calculator as being associated with PCT 343. No species credit flora species were excluded from the assessment based on habitat constraints or geographic limitations, however one was adequately surveyed for and ruled out. The remaining two flora species are assumed present within the Project Area:

- *Ammobium craspedioides* (Yass Daisy) – Vulnerable
- *Pultenaea humilis* (Dwarf Bush-pea) – Vulnerable.

Fauna

A total of 16 candidate threatened fauna species (fauna species credit species) have been identified by the BAM-Calculator as being associated with PCT 343. Five species could not be ruled out by habitat constraints and/or geographic limitations. No targeted threatened fauna surveys were conducted as part of this assessment, therefore the following five fauna species are assumed present within the Project Area:

- Bush Stone-curlew (*Burhinus grallarius*) – Endangered
- Eastern Pygmy-possum (*Cercartetus nanus*) – Vulnerable
- Squirrel Glider (*Petaurus norfolcensis*) – Vulnerable
- Brush-tailed Phascogale (*Phascogale tapoatafa*) – Vulnerable
- Koala (*Phascolarctos cinereus*) – Endangered.

Impact summary

The Infrastructure Approval (SSI-36656827) lists clearing limits for vegetation and threatened species habitats. These limits have been separated into HumeLink West and East; those relevant to the Mates Gully Road upgrade works are summarised in table Figure 7-3.

Figure 7-3 Summary of Relevant clearing limits for vegetation and threatened species habitats

Entity	BC Act status	EPBC Act status	Mates Gully Rd upgrade impact extent	Clearing limit
Vegetation Communities				
PCT 343	-	-	0.31 ha	5.16 ha
Flora				
Ammobium craspedioides (Yass Daisy)	Vulnerable	Vulnerable	0.31 ha (assumed)	72.54 ha
Pultenaea humilis (Dwarf Bush-pea)	Vulnerable	-	0.31 ha (assumed)	16.21 ha
Fauna				
Bush Stone-curlew (*Burhinus grallarius*)	Endangered	-	0.31 ha (assumed)	14.25 ha
Eastern Pygmy-possum (*Cercartetus nanus*)	Vulnerable	-	0.31 ha (assumed)	142.04 ha
Squirrel Glider (*Petaurus*	Vulnerable	-	0.31 ha	47.41 ha

norfolcensis)			(assumed)	
Brush-tailed Phascogale (*Phascogale tapoatafa*)	Vulnerable	-	0.31 ha (assumed)	157.81 ha
Koala (*Phascolarctos cinereus*)	Endangered	Endangered	0.31 ha (assumed)	284.51 ha

The full biodiversity assessment is contained in Appendix B. The assessment concludes that following detailed design, HLW will result in reduced impacts to those prescribed in the clearing limits. As such, biodiversity impacts associated with the Mates Gully Road Upgrade are considered minor (only totalling 0.31 ha) and mitigation measures recommended for minimising the direct and indirect impacts of the works will be adequately controlled by the HLW Construction Biodiversity Management Plan (HLW-HLJV-PRW-ENM-PLN-000001). Biodiversity impacts will be monitored by monthly clearing registers as part of the Biodiversity Management Plan. The Biodiversity Management Plan includes compliance management for incidents and non-compliances which will ensure the HLW Project, including upgrades of Mates Gully Road, will not exceed the clearing limits prescribed by the Infrastructure Approval (SSI-36656827).

7.5.3. Noise

A Noise and Vibration Assessment Report was prepared to determine the noise and vibration impacts of the Mates Gully Road upgrade works (Appendix B). Noise levels were determined by modelling the noise sources (Table 7-3), receiver locations, and operating activities.

Table 7-3 Proposed construction activities and associated sound power levels

Activity/plant/equipment	Number in use				Sound power level, dB(A)		High noise impact item	Noise reduction from mitigation measures, dB(A)
	Day	Day (OOH)	Evening	Night	Leq	Lmax		
Mates Gully Road Upgrade								
Bulldozer (D8)	1	1	1	1	113	117	-	-
Excavator w bucket (40T)	1	1	1	1	107	111	-	-
Chainsaw	1	1	1	1	121	120	Yes	-
Mulcher	1	1	1	1	125	124	Yes	-
Front End Loader (23T)	1	1	1	1	103	107	-	-
Scraper (637G)	1	1	1	1	105	109	-	-
Backhoe	1	1	1	1	100	104	-	-
Padfoot roller (11t) - low vibration mode	1	1	1	1	114	113	Yes	-
Dump truck	1	1	1	1	106	111	-	-
Truck and Dog	1	1	1	1	106	110	-	-
Water cart	1	1	1	1	104	107	-	-

The noise predictions represent a worst-case scenario when construction occurs at the closest location within a specific work area and occur at night. At each receiver, noise levels will vary during the construction period based on the position of equipment within the work area, the distance to the receiver, the construction activities being undertaken and the noise levels of particular plant items and equipment. Actual noise levels will often be less than the predicted levels presented.

The three most impacted receivers have been identified as the residential properties located at 15

Mates Gully Road, 161 Mates Gully Road and 4557 Hume Highway, Tarcutta.

HLWJV intend to complete the roadworks as day works only, therefore the noted evening and night exceedances in the Noise and Vibration Assessment (Appendix B) are not applicable. The predicted unmitigated impacts for these properties are shown in Table 7-4.

The NMLs as applied to all receivers are detailed in Table 7-5.

Table 7-4 Predicted noise levels and exceedances (brackets) unmitigated for nearest residential receivers, dB(A) Leq, 15min

Resident	Day (dB(A))	Day (OOH) (dB(A))	Evening (dB(A))	Night (dB(A))
15 Mates Gully Road	70 (21)	70 (26)	NA	NA
161 Mates Gully Road	56 (7)	56 (12)	NA	NA
4557 Hume Highway	56 (7)	56 (12)	NA	NA

Overall, the level of noise generated by the widening of Mates Gully Road can be mitigated to a minor level of impact to the community by implementing the reasonable and feasible mitigation measures detailed in Section 4.3.1 of the Noise and Vibration Assessment Report (Appendix B) and the Construction Noise and Vibration Management Plan (HLW-HLJV-PRW-ENM-PLN-000008). There are no Additional Mitigation Measures predicted to be required during the road upgrade works.

Table 7-5 NMLs

NCA	Day		Day (OOH)		Evening		Night	
	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties
Residential	0 to 10	6	0 to 5	67	0 to 5	67	0 to 5	67
	> 10	0	6 to 15	6	6 to 15	6	6 to 15	6
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Place of Worship	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Hotel / Motel / Hostel	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Industrial	0 to 10	1	0 to 5	1	0 to 5	1	0 to 5	1
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Project Acquired (Non-Receiver)	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Commercial	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0

While it is not anticipated that works will occur outside standard construction hours, should works be required, the OOHW Protocol will be implemented. In accordance with the OOHW Protocol, where, after application of all reasonable and feasible mitigation measures, the $L_{Aeq(15minute)}$ airborne construction noise levels are still predicted to exceed the NMLs, additional airborne noise mitigation measures can be applied to limit the risk of annoyance from construction noise (Table 7-6).

Table 7-6 Additional airborne noise mitigation options

	Perception	dB(A) above NML	Mitigation measures
OOHW Period 1	**Noticeable**	**0-5**	**N/A**
	Clearly audible	**6-15**	**N**
	Moderately intrusive	**16-25**	**N, V, RO**
	Highly intrusive	**>25**	**N, V, R4, DR**
OOHW Period 2	**Noticeable**	**0-5**	**N**
	Clearly audible	**6-15**	**N**
	Moderately intrusive	**16-25**	**N, V, R4, DR**
	Highly intrusive	**>25**	**N, V, R3, DR**

Notes:

N = Notification, RO = Short term respite offer, R4 = Respite offered when impacts occur over four or more consecutive nights, R3 = Respite offered when impacts occur over three or more consecutive nights, DR = Duration respite.

OOHW Period 1: Mon-Fri 6pm-10pm, Sat 7am-8am and 1pm-10pm, Sun/Pub Hol 8am-6pm

OOHW Period 2: Mon-Fri 10pm-7am, Sat 10pm-8am, Sun/Pub Hol 6pm-7am

8. Mitigation Measures

To minimise the impacts of the road upgrades on Mates Gully Road, appropriate mitigation measures will be implemented. In addition, the processes detailed in the sections that follow will be implemented by HLWJV to reduce the impacts of the road upgrade.

The additional mitigation measures are detailed in Appendix C**.**

8.1. Compliant Road Design

To ensure the safety of the road upgrades, the road designs will be developed in accordance with *Austroads Guide to Road Design, TfNSW Supplements* and applicable Wagga Wagga City Council Requirements. The design parameters that were assessed for compliance during the concept design phase are detailed in Table 7-1.

In addition, an appropriately qualified and experienced team will conduct a desktop road safety audit of the road design prior implementation, ensuring that all identified risks are appropriately addressed and mitigated without transference of risk to the road user.

A Health and Safety in Design workshop will also be completed during the design of the road upgrade.

8.2. Traffic Management Plans and associated documents

HLWJV have developed a TTMP that will be implemented during construction and use of the road upgrades. The TTMP will provide the framework for the safe construction and use of the road upgrades, including supporting documents for driver compliance. The TTMP includes:

- VMPs
- Driver Code of Conduct Policy
- Short-term and long-term traffic guidance schemes that facilitate safe movement of traffic around, past and through the road upgrade
- Construction traffic risk assessments
- Wayfinding signage strategies
- Required permits for OSOM and other special vehicle movements
- Route assessments for OSOM movements.

The TTMP and associated documents have been developed in accordance with the Traffic Control at Work Sites Manual (v6.1) and relevant Austroads Guides and approved for use by the relevant authority prior to implementation.

The TTMP includes the Transport Strategy compliance requirements. As part of the onboarding requirements, all HLWJV personnel will be inducted on the Transport Strategy requirements including the use of approved routes only. All personnel will undergo training and awareness sessions to ensure there are no breaches of the TTMP and the Transport Strategy.

8.3. Community and Stakeholder Engagement

The HLWJV project team will inform the community of all major construction impacts including changed traffic conditions. The communication will be managed in accordance with the Community Communication Strategy and approved communication tools (Table 8-1). An integrated communications approach across several tools will allow the community and travelling public to make informed travel choices during the road upgrades and HLW construction.

The Community Communication Strategy will aim to ensure:

- The travelling public, emergency services, WWCC, TfNSW, adjacent landowners and businesses are provided ongoing, accurate and timely information on traffic changes in a form suitable to their needs;
- Information provided enables the travelling public to optimise their travel options, minimising delays;
- Residents, businesses and community facility managers are consulted on traffic issues that directly impact them;
- Traffic management strategies are supported by communication strategies to minimise the impact on the road and transport network;
- Management of traffic incidents is supported by effective incident management communication protocols;

Where there is an anticipated impact on residents, the HLWJV project team will ensure the impacted residents are informed and consulted prior to the impact occurring.

Table 8-1 Communication and Notification Tools

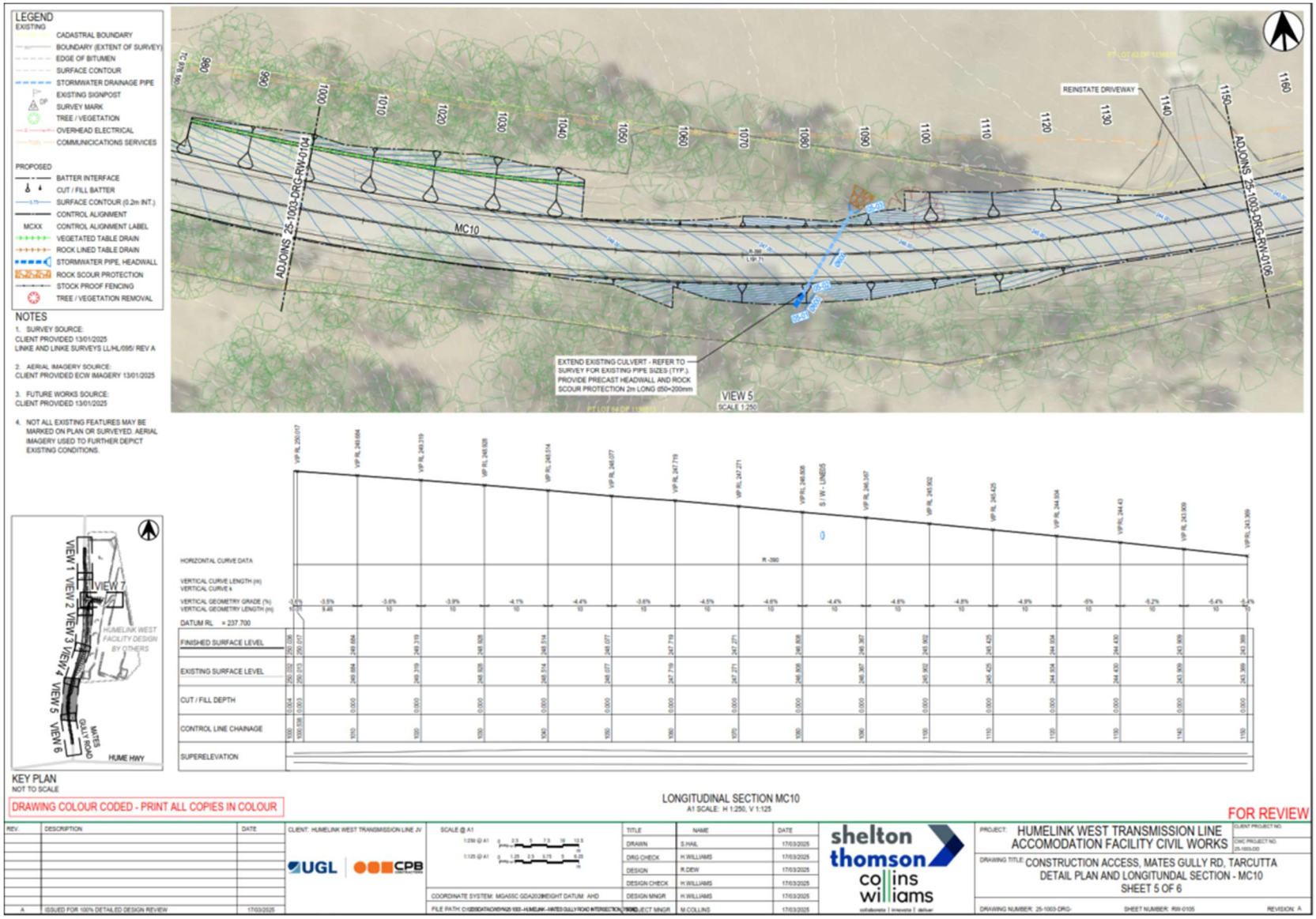
Tool	Purpose	Frequency
Portable Variable Message Signs	Electronic variable message sign provides advanced notice to road users of major traffic changes.	At least 7 days prior to change
Council Newsletter & Project Website	Information about the construction activities including information about traffic changes.	As required
Letterbox and Email Notifications	Letterbox and email notifications to inform local residents and businesses affected by changes to road network and traffic conditions.	At least 7 days prior to change
Traffic Alert Email	Communication to transport authorities, operators and emergency services to advise of traffic changes including road or lane closures and detours.	At least 7 days prior to change

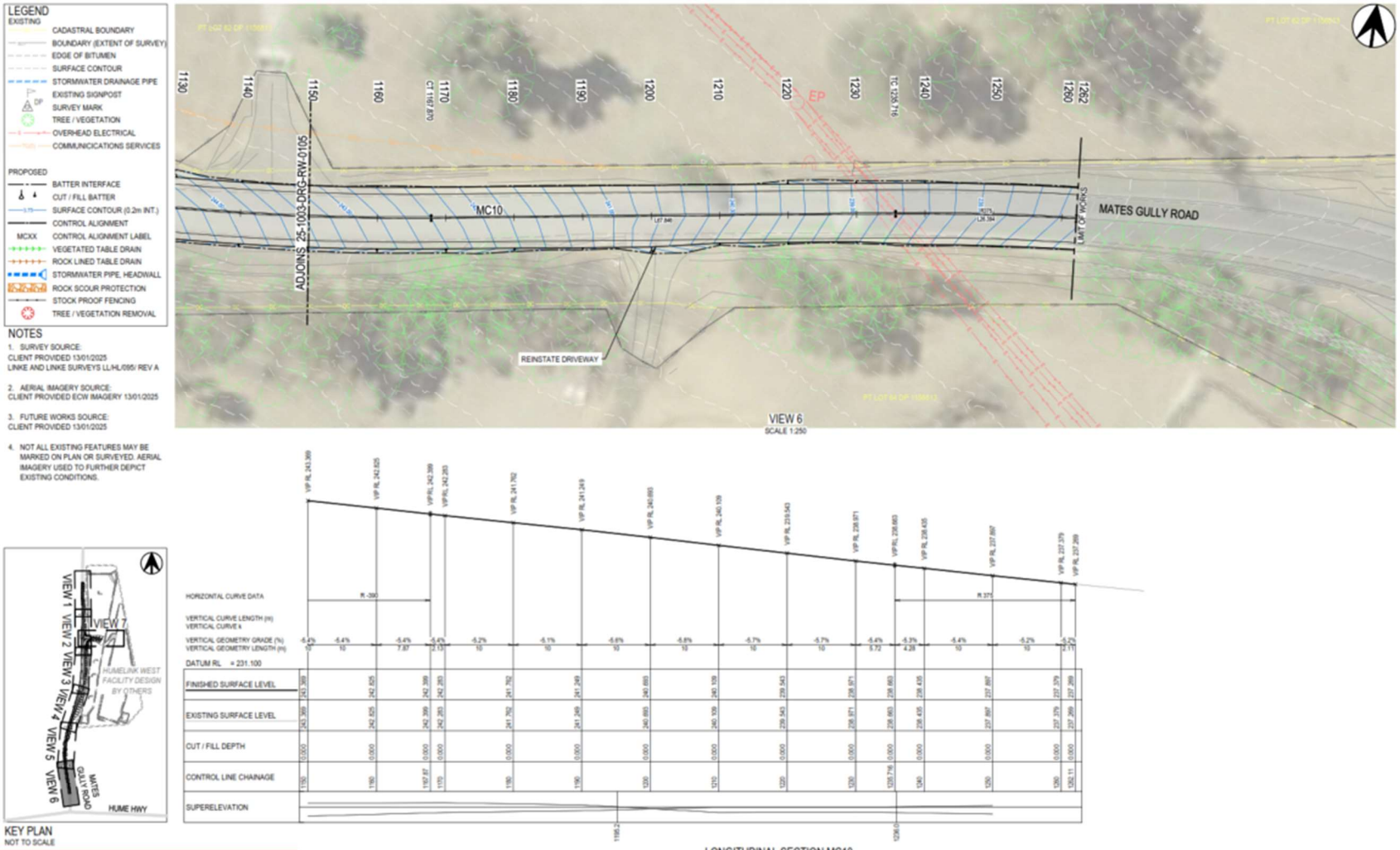
The Community Communication Strategy is available on the Project website.

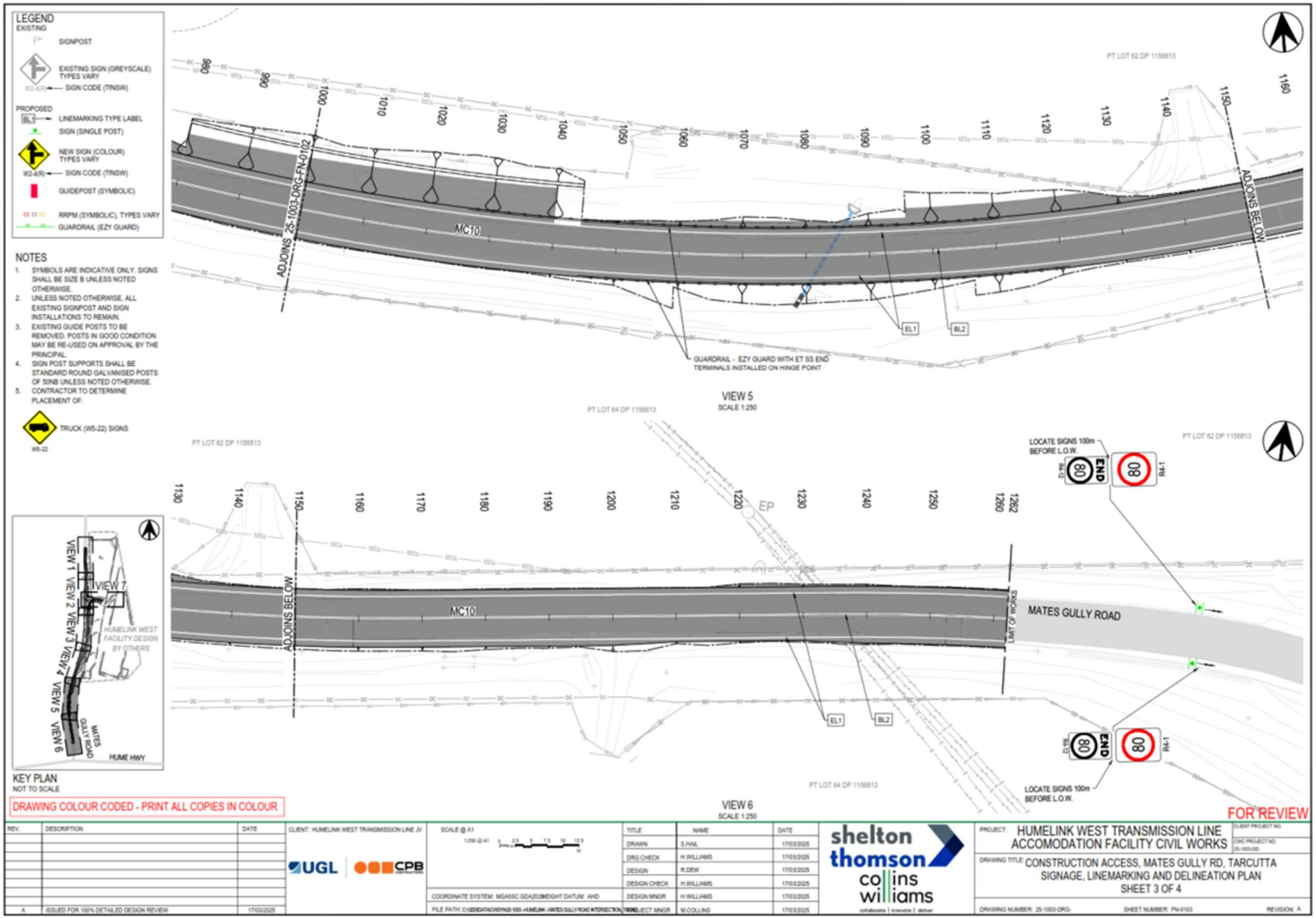
9. Monitoring and Reporting

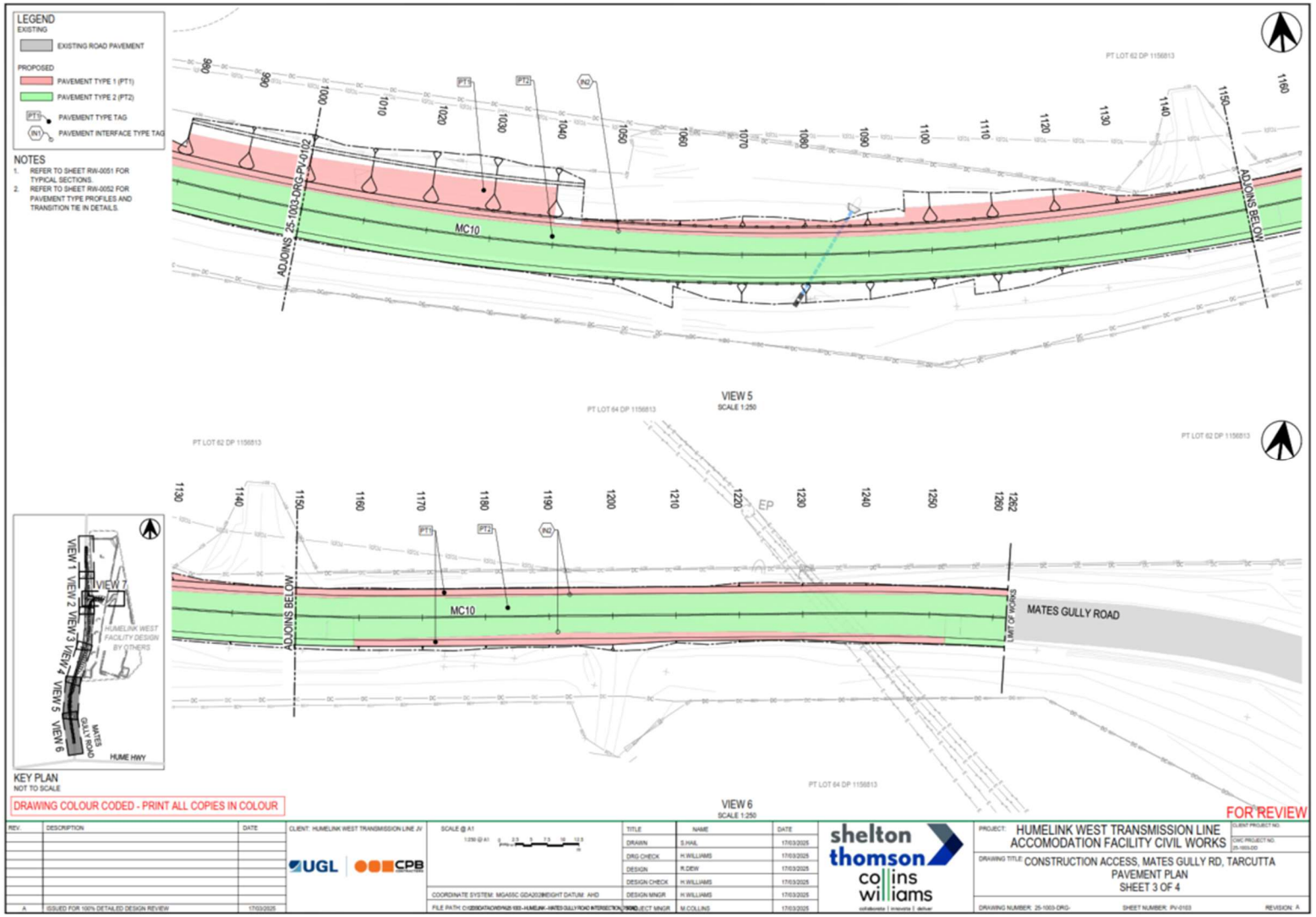
The HLWJV will undertake periodic inspections of the road condition and network performance on Mates Gully Road. Inspections and monitoring will be completed pre-construction, during construction and during use of the road upgrades (refer to Section 9.5 of the TTMP). The team will monitor construction safety, driver behaviour, road user safety, road conditions and network performance in accordance with the objectives and performance measures detailed in Section 2 of the TTMP. Outcomes will be reported in accordance with Section 9.8 of the TTMP. Where deficiencies are identified, the team will rectify appropriately through maintenance activities, continuous improvement processes and / or provisions outlined in the Safety Management System.

Appendix A Strategic Concept Design


LEGEND
EXISTING
CADASTRAL BOUNDARY
BOUNDARY (EXTENT OF SURVEY)
EDGE OF BITUMEN
SURFACE CONTOUR
STORMWATER DRAINAGE PIPE
EXISTING SIGNPOST
SURVEY MARK
TREE / VEGETATION
OVERHEAD ELECTRICAL
COMMUNICATIONS SERVICES
PROPOSED
BATTER INTERFACE
CUT / FILL BATTER
SURFACE CONTOUR (0.2m INT.)
CONTROL ALIGNMENT
MCXX CONTROL ALIGNMENT LABEL
VEGETATED TABLE DRAIN
ROCK LINED TABLE DRAIN
STORMWATER PIPE, HEADWALL
ROCK SCOUR PROTECTION
STOCK PROOF FENCING
TREE / VEGETATION REMOVAL
NOTES
1. SURVEY SOURCE:
CLIENT PROVIDED 13/01/2025
LINKE AND LINKE SURVEYS LL:HL/095/ REV A
2. AERIAL IMAGERY SOURCE:
CLIENT PROVIDED ECW IMAGERY 13/01/2025
3. FUTURE WORKS SOURCE:
CLIENT PROVIDED 13/01/2025
4. NOT ALL EXISTING FEATURES MAY BE MARKED ON PLAN OR SURVEYED. AERIAL IMAGERY USED TO FURTHER DEPICT EXISTING CONDITIONS.
ADJOINS 25-1003-DRG-RW-0104
ADJOINS 25-1003-DRG-RW-0106
MC10
REINSTATE DRIVEWAY
EXTEND EXISTING CULVERT - REFER TO SURVEY FOR EXISTING PIPE SIZES (TYP.). PROVIDE PRECAST HEADWALL AND ROCK SCOUR PROTECTION 2m LONG Ø50~200mm
VIEW 5
SCALE 1:250
VIEW 1
VIEW 2
VIEW 3
VIEW 4
VIEW 5
VIEW 6
VIEW 7
HUMELINK WEST FACILITY DESIGN BY OTHERS
MATES GULLY ROAD
HUME HWY
KEY PLAN
NOT TO SCALE
HORIZONTAL CURVE DATA
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE k
VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)
DATUM RL = 237.700
FINISHED SURFACE LEVEL
EXISTING SURFACE LEVEL
CUT / FILL DEPTH
CONTROL LINE CHAINAGE
SUPERELEVATION
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
LONGITUDINAL SECTION MC10
A1 SCALE: H 1:250, V 1:125
FOR REVIEW
REV.
DESCRIPTION
DATE
A
ISSUED FOR 100% DETAILED DESIGN REVIEW
17/03/2025
CLIENT: HUMELINK WEST TRANSMISSION LINE JV
TITLE
NAME
DATE
DRAWN
S.HAL
17/03/2025
DRG CHECK
H.WILLIAMS
17/03/2025
DESIGN
R.DEW
17/03/2025
DESIGN CHECK
H.WILLIAMS
17/03/2025
DESIGN MNGR
H.WILLIAMS
17/03/2025
PROJECT MNGR
M.COLLINS
17/03/2025
shelton thomson collins williams
PROJECT: HUMELINK WEST TRANSMISSION LINE ACCOMODATION FACILITY CIVIL WORKS
DRAWING TITLE: CONSTRUCTION ACCESS, MATES GULLY RD, TARCUTTA
DETAIL PLAN AND LONGITUDNAL SECTION - MC10
SHEET 5 OF 6
DRAWING NUMBER: 25-1003-DRG-
SHEET NUMBER: R99-0105
REVISION: A


LEGEND
EXISTING
CADASTRAL BOUNDARY
BOUNDARY (EXTENT OF SURVEY)
EDGE OF BITUMEN
SURFACE CONTOUR
STORMWATER DRAINAGE PIPE
EXISTING SIGNPOST
SURVEY MARK
TREE / VEGETATION
OVERHEAD ELECTRICAL
COMMUNICATIONS SERVICES
PROPOSED
BATTER INTERFACE
CUT / FILL BATTER
SURFACE CONTOUR (0.2m INT.)
CONTROL ALIGNMENT
MCXX CONTROL ALIGNMENT LABEL
VEGETATED TABLE DRAIN
ROCK LINED TABLE DRAIN
STORMWATER PIPE, HEADWALL
ROCK SCOUR PROTECTION
STOCK PROOF FENCING
TREE / VEGETATION REMOVAL
NOTES
1. SURVEY SOURCE:
CLIENT PROVIDED 13/01/2025
LINKE AND LINKE SURVEYS LL/HL/095/ REV A
2. AERIAL IMAGERY SOURCE:
CLIENT PROVIDED ECW IMAGERY 13/01/2025
3. FUTURE WORKS SOURCE:
CLIENT PROVIDED 13/01/2025
4. NOT ALL EXISTING FEATURES MAY BE MARKED ON PLAN OR SURVEYED. AERIAL IMAGERY USED TO FURTHER DEPICT EXISTING CONDITIONS.
1130
1140
1150
1160
1170
1180
1190
1200
1210
1220
1230
1240
1250
1260
1262
MC10
ADJOINS 25-1003-DRG-RW-0105
MATES GULLY ROAD
REINSTATE DRIVEWAY
VIEW 6
SCALE 1:250
VIEW 1
VIEW 2
VIEW 3
VIEW 4
VIEW 5
VIEW 6
VIEW 7
HUMELINK WEST FACILITY DESIGN BY OTHERS
MATES GULLY ROAD
HUME HWY
KEY PLAN
NOT TO SCALE
HORIZONTAL CURVE DATA
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE K
VERTICAL GEOMETRY GRADE (%)
VERTICAL GEOMETRY LENGTH (m)
DATUM RL = 231.100
FINISHED SURFACE LEVEL
EXISTING SURFACE LEVEL
CUT / FILL DEPTH
CONTROL LINE CHAINAGE
SUPERELEVATION
LONGITUDINAL SECTION MC10
A1 SCALE: H 1:250, V 1:125
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
FOR REVIEW
REV.
DESCRIPTION
DATE
A
ISSUED FOR 100% DETAILED DESIGN REVIEW
17/03/2025
CLIENT: HUMELINK WEST TRANSMISSION LINE JV
SCALE @ A1
TITLE
NAME
DATE
DRAWN
S.HAL
17/03/2025
DRG CHECK
H.WILLIAMS
17/03/2025
DESIGN
R.DEW
17/03/2025
DESIGN CHECK
H.WILLIAMS
17/03/2025
DESIGN MNGR
H.WILLIAMS
17/03/2025
M.COLLINS
17/03/2025
COORDINATE SYSTEM: MGA55C GDA2020HEIGHT DATUM: AHD
shelton thomson collins williams
PROJECT: HUMELINK WEST TRANSMISSION LINE ACCOMODATION FACILITY CIVIL WORKS
DRAWING TITLE: CONSTRUCTION ACCESS, MATES GULLY RD, TARCUTTA
DETAIL PLAN AND LONGITUNDAL SECTION - MC10
SHEET 6 OF 6
DRAWING NUMBER: 25-1003-DRG-
SHEET NUMBER: RW-0106
REVISION: A


LEGEND
EXISTING
SIGNPOST
EXISTING SIGN (GREYSCALE) TYPES VARY
SIGN CODE (TINSW)
PROPOSED
LINEMARKING TYPE LABEL
SIGN (SINGLE POST)
NEW SIGN (COLOUR) TYPES VARY
SIGN CODE (TINSW)
GUIDEPOST (SYMBOLIC)
RRPM (SYMBOLIC), TYPES VARY
GUARDRAIL (EZY GUARD)
NOTES
1. SYMBOLS ARE INDICATIVE ONLY. SIGNS SHALL BE SIZE B UNLESS NOTED OTHERWISE.
2. UNLESS NOTED OTHERWISE, ALL EXISTING SIGNPOST AND SIGN INSTALLATIONS TO REMAIN.
3. EXISTING GUIDE POSTS TO BE REMOVED. POSTS IN GOOD CONDITION MAY BE RE-USED ON APPROVAL BY THE PRINCIPAL.
4. SIGN POST SUPPORTS SHALL BE STANDARD ROUND GALVANISED POSTS OF 50NB UNLESS NOTED OTHERWISE.
5. CONTRACTOR TO DETERMINE PLACEMENT OF:
TRUCK (W5-22) SIGNS
W5-22
ADJOINS 25-1003-DRG-FIN-0102
MC10
ADJOINS BELOW
GUARDRAIL - EZY GUARD WITH ET 5S END TERMINALS INSTALLED ON HINGE POINT
EL1
BL2
VIEW 5
SCALE 1:250
LOCATE SIGNS 100m BEFORE L.O.W
END
80
R4-1
MATES GULLY ROAD
LIMIT OF WORKS
EP
VIEW 6
SCALE 1:250
KEY PLAN
NOT TO SCALE
VIEW 1
VIEW 2
VIEW 3
VIEW 4
VIEW 5
VIEW 6
VIEW 7
HUMELINK WEST FACILITY DESIGN BY OTHERS
HUME HWY
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
FOR REVIEW
PROJECT: HUMELINK WEST TRANSMISSION LINE ACCOMODATION FACILITY CIVIL WORKS
DRAWING TITLE: CONSTRUCTION ACCESS, MATES GULLY RD, TARCUTTA SIGNAGE, LINEMARKING AND DELINEATION PLAN SHEET 3 OF 4
shelton thomson collins williams


LEGEND
EXISTING
EXISTING ROAD PAVEMENT
PROPOSED
PAVEMENT TYPE 1 (PT1)
PAVEMENT TYPE 2 (PT2)
PAVEMENT TYPE TAG
PAVEMENT INTERFACE TYPE TAG
NOTES
1. REFER TO SHEET RW-0051 FOR TYPICAL SECTIONS.
2. REFER TO SHEET RW-0052 FOR PAVEMENT TYPE PROFILES AND TRANSITION TIE IN DETAILS.
ADJOINS 25-1003-DRG-PV-0102
MC10
ADJOINS BELOW
VIEW 5
SCALE 1:250
ADJOINS BELOW
MC10
EP
MATES GULLY ROAD
VIEW 6
SCALE 1:250
KEY PLAN
NOT TO SCALE
VIEW 1
VIEW 2
VIEW 3
VIEW 4
VIEW 5
VIEW 6
VIEW 7
HUME HWY
MATES GULLY ROAD
DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR
FOR REVIEW
HUMELINK WEST TRANSMISSION LINE ACCOMODATION FACILITY CIVIL WORKS
CONSTRUCTION ACCESS, MATES GULLY RD, TARCUTTA
PAVEMENT PLAN
SHEET 3 OF 4

Appendix B Environmental Impact Assessments

MAKING COMPLEX EASY

A TETRA TECH COMPANY

BIODIVERSITY ASSESSMENT REPORT

Mates Gully Road Widening

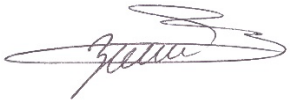
15007
F1
30 October 2025

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
D1	Draft report for review	Polina Zadorojnaya	Heather Duff	Polina Zadorojnaya	5/03/2025
F1	Final for submission	Polina Zadorojnaya	Polina Zadorojnaya	Polina Zadorojnaya	30/10/2025

Approval for issue

Polina Zadorojnaya (BAAS23014)  30 October 2025

Prepared by:

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E jeremy.slattery@ugllimited.com

Contents

Tables

Figures

Appendices

EXECUTIVE SUMMARY

Background

RPS AAP Consulting Pty Ltd (RPS) has prepared this Biodiversity Assessment Report to support the *Mates Gully Road Widening Transport Strategy* (HLWJV 2025b). As part of the HumeLink West (HLW) delivery scope, an accommodation facility and compound must be established along Mates Gully Road in Tarcutta NSW 2652 (AC03). *Mates Gully Road Widening Transport Strategy* (HLWJV 2025) has been prepared to demonstrate the integration of the requirements of Appendix 4, Item AC03 of the Infrastructure Approval with that of the upgrade requirements of AC03a and NSW Minister's Conditions of Approval (SSI-36656827) B36 of the Infrastructure Approval.

This Biodiversity Assessment Report addresses NSW Minister's Conditions of Approval (State Significant Infrastructure-36656827) B36d of the Infrastructure Approval:

> *36. Prior to commencing the relevant road upgrades referenced in Table 4-1 of Appendix 4, the Proponent must prepare a Transport Strategy for those road upgrades, in consultation with the TfNSW and relevant Council(s), to the satisfaction of the Planning Secretary, which:*
>
> > *(d) includes a detailed assessment of potential impacts of any necessary road upgrades (such as heritage and biodiversity impacts) and appropriate mitigation measures, including consideration of cumulative traffic impacts from approved projects.*

The road upgrade works proposed on Mates Gully Road include:

1. Road widening of Mates Gully Road from Tarcutta Compound to the Hume Highway access road
2. Upgrade of private rural access east of Tarcutta Compound
3. Construction of a site access intersection into Tarcutta Compound.

All areas of proposed road upgrades outside of the approved HLW footprint are referred to as the 'Project Area'.

Existing environment

The Project Area is located within the Inland Slopes IBRA Subregion of the NSW South Western Slopes Bioregion and intersects with the Adrah Hills and Ranges Mitchell Landscape unit. It intersects with four mapped 1st (Strahler) order streams, and their associated 10 m riparian buffers; however, no streams or banks were visible at time of survey.

Plant Community Types

One Plant Community Type (PCT) was identified within the Project Area, PCT 343: Mugga Ironbark – Red Box – Red Stringybark – Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta – Gundagai region, NSW South Western Slopes Bioregion. This PCT existed as one vegetation zone: PCT 343_Moderate (0.31 ha), along with exotic roadside grasses (0.15 ha). No Threatened Ecological Communities are associated with the vegetation on-site.

Species credit species

Flora

A total of three candidate threatened flora species (flora species credit species) have been identified by the BAM-Calculator as being associated with PCT 343. No species credit flora species were excluded from assessment based on habitat constraints or geographic limitations, however one was adequately surveyed for and ruled out. The remaining two flora species are assumed present within the Project Area:

- *Ammobium craspedioides* (Yass Daisy) – Vulnerable
- *Pultenaea humilis* (Dwarf Bush-pea) – Vulnerable.

Fauna

A total of 16 candidate threatened fauna species (fauna species credit species) have been identified by the BAM-Calculator as being associated with PCT 343. Five species could not be ruled out by habitat constraints and/or geographic limitations. No targeted threatened fauna surveys were conducted as part of this assessment, therefore the following five fauna species are assumed present within the Project Area:

- Bush Stone-curlew (*Burhinus grallarius*) – Endangered
- Eastern Pygmy-possum (*Cercartetus nanus*) – Vulnerable
- Squirrel Glider (*Petaurus norfolcensis*) – Vulnerable
- Brush-tailed Phascogale (*Phascogale tapoatafa*) – Vulnerable
- Koala (*Phascolarctos cinereus*) – Endangered.

Impact summary

Appendix 2 the Conditions of Approval (SSI-36656827) lists clearing limits for vegetation and threatened species habitats. These limits have been separated into HumeLink West and East; those relevant to the Mates Gully Rd upgrade works are summarised in the table below.

Entity	BC Act status	EPBC Act status	Mates Gully Rd upgrade impact extent	Clearing limit
Vegetation				
PCT 343	-	-	0.31 ha	5.16 ha
Flora				
Ammobium craspedioides (Yass Daisy)	Vulnerable	Vulnerable	0.31 ha (assumed)	72.54 ha
Pultenaea humilis (Dwarf Bush-pea)	Vulnerable	-	0.31 ha (assumed)	16.21 ha
Fauna				
Bush Stone-curlew (*Burhinus grallarius*)	Endangered	-	0.31 ha (assumed)	14.25 ha
Eastern Pygmy-possum (*Cercartetus nanus*)	Vulnerable	-	0.31 ha (assumed)	142.04 ha
Squirrel Glider (*Petaurus norfolcensis*)	Vulnerable	-	0.31 ha (assumed)	47.41 ha
Brush-tailed Phascogale (*Phascogale tapoatafa*)	Vulnerable	-	0.31 ha (assumed)	157.81 ha
Koala (*Phascolarctos cinereus*)	Endangered	Endangered	0.31 ha (assumed)	284.51 ha

It is anticipated that following detailed design, HLW will result in reduced impacts to those prescribed in the clearing limits. As such, biodiversity impacts associated with the Mates Gully Rd Upgrade are considered minor (only totalling 0.31 ha) and will be monitored by monthly clearing registers as part of the *HumeLink West Construction Biodiversity Management Plan* (HLW CBMP; HLWJV 2025a). The HLW CBMP includes compliance management for incidents and non-compliances which will ensure the HLW Project, including upgrades of Mates Gully Rd, will not exceed the clearing limits prescribed by the NSW Minister's Conditions of Approval (SSI-36656827). The CBMP also includes comprehensive management measures for minimising the direct and indirect impacts of the works.

1 INTRODUCTION

1.1 Background

As part of the HumeLink West (HLW) delivery scope, an accommodation facility and compound must be established along Mates Gully Road in Tarcutta NSW 2652 (AC03). The accommodation facility and compound is required to house the workforce during the delivery of HLW. *Mates Gully Road Widening Transport Strategy* (HLWJV 2025b) has been prepared to demonstrate the integration of the requirements of Appendix 4, Item AC03 of the Infrastructure Approval with that of the upgrade requirements of AC03a and NSW Minister's Conditions of Approval (SSI-36656827) B36 of the Infrastructure Approval.

1.2 Purpose

RPS AAP Consulting Pty Ltd (RPS) has prepared this Biodiversity Assessment Report (BAR) to support the *Mates Gully Road Widening Transport Strategy* (HLWJV 2025b) as part of HLW. Specifically, this BAR addresses NSW Minister's Conditions of Approval (State Significant Infrastructure-36656827; MCoA) B36d of the Infrastructure Approval:

> MCoA 36. *Prior to commencing the relevant road upgrades referenced in Table 4-1 of Appendix 4, the Proponent must prepare a Transport Strategy for those road upgrades, in consultation with the TfNSW and relevant Council(s), to the satisfaction of the Planning Secretary, which:*
>
> > *(d) includes a detailed assessment of potential impacts of any necessary road upgrades (such as heritage and **biodiversity impacts**) and appropriate mitigation measures, including consideration of cumulative traffic impacts from approved projects.*

1.3 Proposed road upgrades

Mates Gully Road is a local road under the jurisdiction of Wagga Wagga City Council. It is a sealed, two-lane road that runs predominantly north-south, connecting the Hume Highway to the Sturt Highway (**Figure 1-1**). The road is relatively flat in the vicinity of the proposed Tarcutta Compound with an assumed grade between 0% and 2%. Mates Gully Road has a sign-posted speed limit of 100 km/h, except for a 180 m long 50km/h zone on the eastbound approach to the Hume Highway intersection. The current pavement widths on Mates Gully Road (east of the Tarcutta Compound) ranges from 6-8 m with minimal or no shoulder and significant edge break.

The road upgrades require widening of the pavement on the northern shoulder of Mates Gully Road, east of the Tarcutta Compound, to achieve the minimum lane width requirements for a two-lane two-way rural road. The road upgrades will provide 3.5 m lanes with 1 m shoulders (0.5 m sealed) for the safe movement of construction vehicles. Suitable table drains and drainage structures will be provided along the road widening.

The road upgrades will also include an upgrade of rural property access east of the Tarcutta Compound, and intersection into the Tarcutta Compound. This will involve pavement widening of the northern shoulder, an eastbound acceleration lane from the compound, and a channelised right lane entry into the compound. The additional lanes will be a minimum of 3.5 m wide to accommodate truck movements.

The road upgrade works proposed on Mates Gully Road include:

4. Road widening of Mates Gully Road from Tarcutta Compound to the Hume Highway access road
5. Upgrade of private rural access east of Tarcutta Compound
6. Construction of a site access intersection into Tarcutta Compound.

The proposed construction activities associated with the above upgrades include, but are not limited to:

- Preliminary investigative and survey works
- Clearing of vegetation
- Earthworks & pavement construction (including use of site-won material)
- Drainage installation
- Temporary and permanent fence installation

- Short-term and long-term traffic management
- Mobilisation, installation and demobilisation of accommodation with associated operational facilities.

1.3.1 Project Area

All areas of proposed road upgrades outside of the approved HLW footprint are hereafter referred to as the 'Project Area', as displayed in **Figure 1-1**. The Project Area totals approximately 0.86 ha and includes the existing road and roadside vegetation. Plans for the road upgrade are provided in **Appendix A** (UGL to provide author – missing from *Mates Gully Detailed Design_50pc 26-2-25*).

1.4 Scope

This BAR describes the ecological values of the Project Area, the desktop and field assessment methods used to investigate these values, and provides an assessment of potential biodiversity impacts as a result of the proposed road upgrade. Investigations are focused on threatened biodiversity and related matters listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), in accordance with the *Biodiversity Assessment Method 2020* (DPIE 2020; BAM).

All impacts will be relatively compared against the HumeLink Approval – specifically, the *Revised Biodiversity Development Assessment Report Revision 0*, dated 21 June 2024 (Niche Environment and Heritage [Niche] 2024).

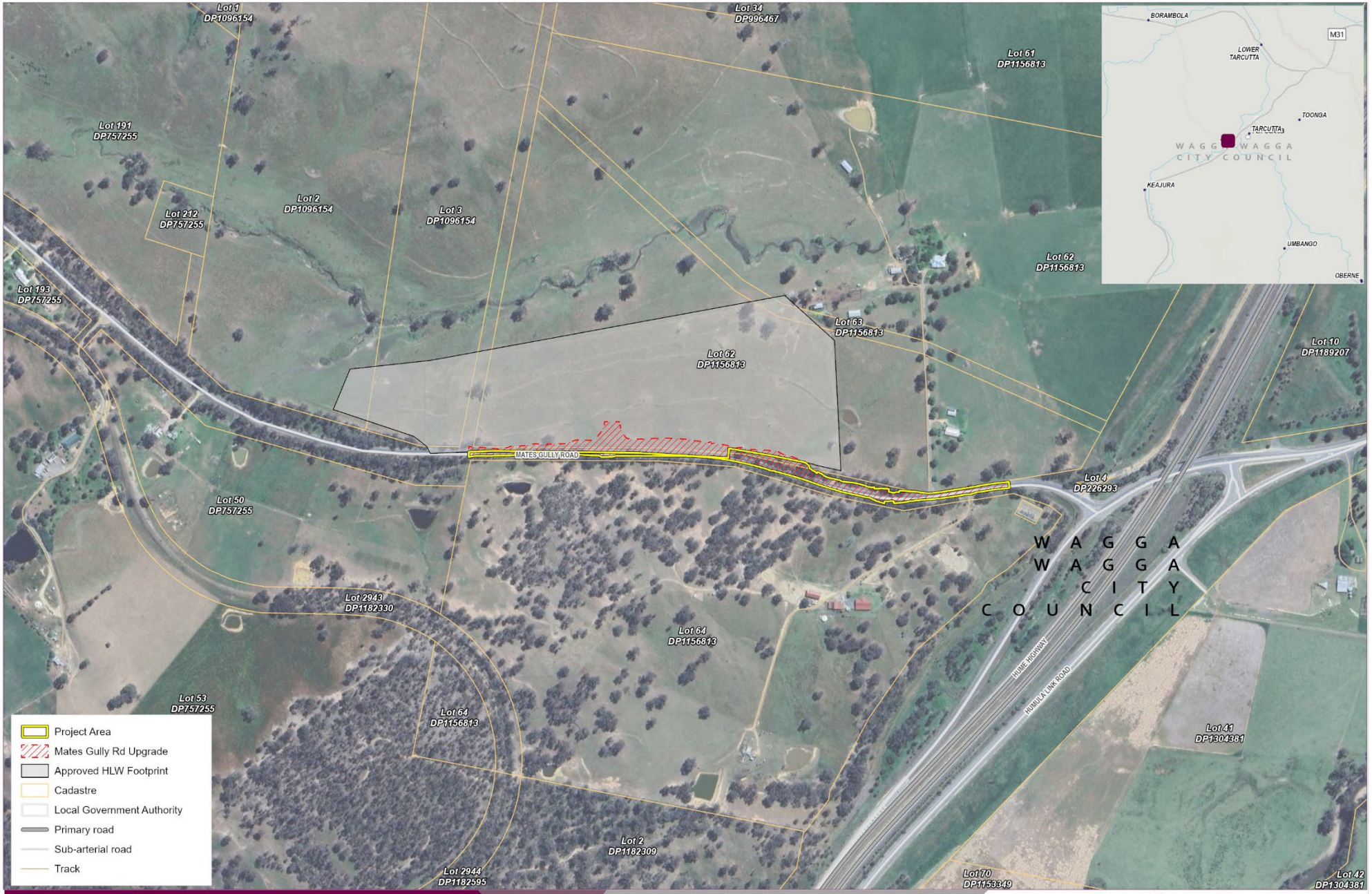

FIGURE 1-1 PROJECT AREA

1. This plan was prepared for the sole purposes of the Client for the specific Purpose of producing a photographic overlay plan. This plan is strictly limited to the Purpose and will not be used for any other application, purpose, use or matter. The plan is presented without the assumption of a duty of care to any other person other than the Client, and may not be relied on by a Third Party.
2. Without limiting paragraph 1 above, this plan may not be copied, distributed, or reproduced by any process unless this note is clearly displayed on the plan.
3. The aerial photography used in this plan has not been rectified. This image has been overlaid as a best fit on the boundaries shown and position is approximate only.

CLIENT: Transgrid/UGL/CPB
PROJ: 602-ADCOMSYD-15007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: Project Area
VERSION: A

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

0 100 200 300 400 m
SCALE 1:5,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES

1.5 Definitions

Terms and abbreviations used in this report are defined in **Table 1-1**.

Table 1-1: Definitions of terms and abbreviations

Term	Definition
AOBV	Area of Outstanding Biodiversity Value
asl	above sea level
BAM	*Biodiversity Assessment Method 2020* (DPIE 2020)
BAR	Biodiversity Assessment Report
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity and Conservation Division
BDAR	Biodiversity Development Assessment Report
BDAR rev0	*HumeLink Revised Biodiversity Development Assessment Report Revision 0*, dated 21 June 2024 (Niche Environment and Heritage 2024)
BOM	Bureau of Meteorology
BOS	Biodiversity Offset Scheme
CBMP	Construction Biodiversity Management Plan
DAWE	Department of Agriculture, Water and the Environment
DBH	Diameter at Breast Height
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DoE	Department of the Environment
DPE	NSW Department of Planning and Environment
DPIE	NSW Department of Planning Industry and Environment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
FM Act	*Fisheries Management Act 1994*
GIS	Geographic Information System
ha	hectare
HLW	The HumeLink West stage of the HumeLink project
HLWJV	HumeLink West Joint Venture – UGL Limited and CPB Contractors
HTW	High Threat Weed
IBRA	Interim Biogeographic Regionalisation for Australia
km	kilometre
LGA	Local Government Area
Locality	Land within a 5 km radius of the Project Area
m	metre
m ASL	Metres above sea level
McOA	New South Wales Minister's Conditions of Approval (State Significant Infrastructure-36656827)
MNES	Matter of National Environmental Significance
Niche	Niche Environment and Heritage
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NSW DCCEEW	New South Wales Department of Climate Change, Energy, the Environment and Water
PCT	Plant Community Type
Project Area	All areas of proposed Mates Gully Road upgrades outside of the approved HLW footprint
SVTM	New South Wales State Vegetation Type Map

Term	Definition
TEC	Threatened Ecological Community
TfNSW	Transport for New South Wales
The Project	HumeLink West
Threatened entities	State and Commonwealth listed threatened species or ecological communities
TSPD	Threatened Species Profile Database
TSSC	Threatened Species Scientific Committee
VI	Vegetation Integrity

2 METHODOLOGY

A desktop assessment was followed by field surveys to characterise the biodiversity values of the Project Area. Desktop assessments focused on determining the likely presence of State (BC Act) and Commonwealth (EPBC Act) listed threatened species and ecological communities within the Project Area. Floristic surveys and vegetation mapping were conducted in a manner to meet the requirements for an assessment prepared in accordance with the BAM.

2.1 Native vegetation, threatened ecological communities and vegetation integrity

2.1.1 Existing information

A review of existing information was carried out through interrogation of spatial resources and datasets, including the following:

- BAM Calculator candidate and ecosystem predicted species output (NSW DCCEEW 2025a)
- Flora and fauna records contained in the Biodiversity Conservation Division (BCD) BioNet Atlas (NSW DCCEEW 2025c)
- Flora and fauna records contained in the Commonwealth Protected Matters Search Tool (Cth DCCEEW 2025).

2.1.2 Mapping native vegetation extent

The NSW State Vegetation Type Map (SVTM; NSW DCCEEW 2024) was used as the basis for a preliminary analysis of vegetation extent within the Project Area. The SVTM mapping was updated at the site scale (1:1,000) following the re-interpretation of mapped vegetation boundaries using the latest-available aerial imagery (e.g., ESRI 2025) before survey stratification. Additional revisions were performed following the completion of plot-based vegetation surveys (i.e., revision of boundaries and condition classes). These survey techniques are further described in the following sections.

In accordance with the Revised BDAR (s6.3), Vegetation Condition Benchmarks V1.2 (NSW DCCEEW 2019) were input into the BAM-C to yield vegetation integrity scores.

2.1.3 Plot-based vegetation survey

Systematic plot-based floristic vegetation surveys were undertaken in accordance with BAM Subsection 4.2.1 on 8 January 2025. Sampling locations were selected to collect representational data through stratification of the Project Area. Stratification of the site was assisted by desktop investigation as carried out in **s2.1.1**. It is important to note that some plot locations fell partially outside the Project Area due to the limited area of assessable lands. However, sampling locations are representative of the current condition of the vegetation present. See **Figure 2-1** for the location of this survey method within the Project Area.

2.1.3.1 Vegetation integrity survey

Vegetation integrity survey (BAM plots) involved estimating the vegetation composition, structure, and function within a 1,000 m^2 area to determine the vegetation integrity as shown in **Plate 2-1**.

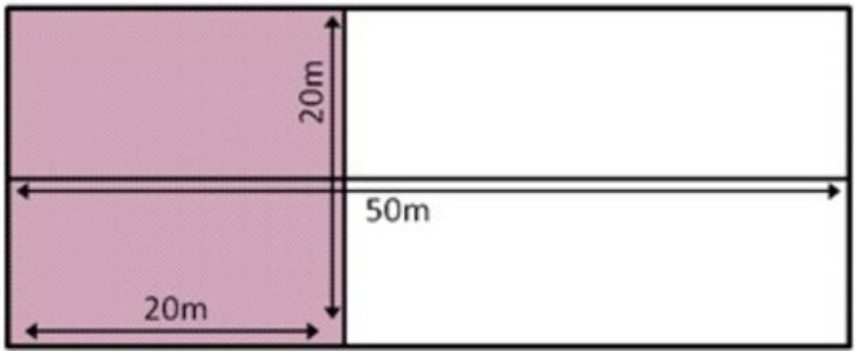

Plate 2-1: Biometric Plot

The method for measuring these attributes is detailed in the BAM and summarised in **Table 2-1**. See **Figure 2-1** for the location of this survey method within the Project Area, and **Appendix C** details the survey data recorded.

Table 2-1: BAM growth form groups and attributes

Growth form groups used to assess composition and structure	Attributes used to assess function
a) Tree	a) Number of large trees
b) Shrub	b) Tree regeneration
c) Grass and grass-like	c) Tree stem size class
d) Forb	d) Total length of fallen logs
e) Fern	e) Litter cover (1 m^2 subplots x 5)
f) Other	f) High threat weed vegetation cover
	g) Hollow-bearing trees

2.1.3.1.1 Composition and Structure

All flora species, along with cover and abundance, observed within the 400 m^2 plot were assigned to a growth form as listed in **Table 2-1**. High threat weed (HTW) species were identified.

2.1.3.1.2 Function

Vegetation structure

The structural complexity of vegetation and the age structure was quantified by counting the number of large trees (i.e., > 50 cm DBH), presence of tree canopy species regeneration and tree stem size classes (i.e., presence of trees with DBH of 5-9 cm, 10-20 cm, 20-30 cm, 30-50 cm, 50-80 cm and >80 cm). This was measured for the 1,000 m^2 plot.

Hollow-bearing trees

The number of hollow-bearing trees were counted within the 1,000 m^2 plot.

Fallen log length

The total linear length of fallen logs exceeding 10 cm in diameter were measured within the 1,000 m^2 plot.

Litter cover

The per cent cover of dead litter cover was estimated in five 1 m^2 quadrats within the 1,000 m^2 plot.

2.1.3.1.3 Replication

The minimum number of BAM plots required for a vegetation zone (i.e., sample replication) is determined by its area and reference to Table 3 of the BAM, as reproduced below in **Table 2-2**.

Table 2-2: Minimum number of plots required per vegetation zone area

Vegetation Zone area (ha)	Minimum number of plots required
<2	1 plot
>2-5	2 plots
>5-20	3 plots
>20-50	4 plots
>50-100	5 plots
>100-250	6 plots
>250-1000	7 plots
>1000	8 plots

2.1.3.1.4 Quality Control

All BAM plots were undertaken by two ecologists with experience in sampling native vegetation of the locality. Where taxonomic uncertainty existed, a specimen (i.e., leaves, buds, fruit and or flowers) was collected and later identified using relevant guides and keys (including Plant NET; National Herbarium of NSW).

Vegetation cover and abundance variables were independently and simultaneously estimated by two observers. If a disparity occurred, the observers discussed the value in question until an agreement was reached. As a further quality control measure, RPS senior staff conducted training sessions and routinely checked floristic, cover and abundance data collected within BAM plots for accuracy. All data electronically entered were also subject to quality control audits.

2.1.3.2 PCT identification

Plant Community Type (PCT) identification was based on the results obtained from an analysis of full floristic survey data. A quantitative analysis of the survey data, matching outputs to PCTs in BioNet Vegetation Classification was performed. The following resources are also used in defining PCTs:

- PCT identification tool (BioNet Vegetation Classification application; NSW DCCEEW 2025d). This involved selecting known criteria such as general location, vegetation structure and/or dominant species present to progressively shortlist and ultimately identify the likely vegetation communities present within the Project Area
- PCT Vegetation Maps (SVTM; NSW DCCEEW 2024). Vegetation maps were utilised as a preliminary indicator of the PCTs that might occur.

2.1.3.3 Vegetation mapping

Assessments of broad condition zones stratified areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score. Relatively homogenous land cover (i.e., vegetation zones) were visually delineated from available aerial imagery and preliminary vegetation mapping for investigation. Vegetation boundaries were refined, and condition classes defined to produce vegetation zones (i.e., PCT and condition state).

Vegetation zone extents were calculated using Geographic Information System (GIS) and reported. Where necessary, additional BAM plots were obtained to meet minimum requirements specified in the BAM (**Table 2-2**).

FIGURE 2-1 BAM PLOT LOCATIONS

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CLIENT: Transgrid/UGL/CPB
PROJ: 602-ADCOMSYD-15007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: BAM Plot Locations
VERSION: A

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

0 100 m
SCALE 1:2,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES

2.2 Flora

2.2.1 Habitat constraints assessment

Habitat constraints were identified during field surveys on 8 August 2024 and 8-9 January 2025 to confirm the extent and condition of landscape features and mapping of native vegetation extent. Habitat such as non-native vegetation was deemed unsuitable for some threatened species.

2.2.2 Targeted surveys for threatened flora

Parallel transects were performed on foot on 8 August 2024 and 8-9 January 2025 in accordance with the method described in *Surveying threatened plants and their habitats, NSW survey guide for the Biodiversity Assessment Method* (DPE 2020). This involved the walking of parallel lines spaced 5 m apart assuming at least 2 m visual coverage either side of the walked line as displayed in **Figure 2-2**. The method, as deployed, has the purpose of demonstrating high survey coverage for the Project Area to target flora species of interest (e.g., threatened species). Survey timing considered seasonality constraints important in detectability as listed in **Table 2-3**.

Table 2-3: Candidate flora species approved survey month (purple cells denote BAM approved survey period)

Candidate flora species	BAM Survey Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ammobium craspedioides	X							X				
Pultenaea humilis	X							X				
Senecio garlandii	X							X				

X denotes survey month

2.3 Fauna

The nature and extent of fauna habitats within the Project Area and surrounds were systematically assessed through a parallel transect survey. Site assessments for threatened and native fauna included consideration of important indicators of habitat condition and complexity, including the occurrence of microhabitats such as tree hollows, fallen logs, bushrock, caves and crevices, manmade structures, riparian areas, wetlands and water bodies. Indirect indicators of fauna use of the site, such as droppings, diggings, footprints, scratches, nests, burrow paths and runways, were recorded. In conjunction with threatened species surveys, observations for koala activity (individual, scratch marks, scats, etc.) were completed throughout the Project Area and surrounds.

Opportunistic sightings obtained while undertaking other field methods were recorded, including secondary indications (scratches, scats, diggings, tracks etc.) and direct observation of resident fauna. Observations included the evaluation of:

- Distinctive scats left by mammals
- Scratch marks made by various types of arboreal animals
- Nests made by various birds
- Feeding scars on Eucalyptus trees made by Gliders
- Whitewash, regurgitation pellets and prey remains from Owls
- Aural recognition of bird and frog calls
- Skeletal material of vertebrate fauna
- Searches beneath rocks and logs for reptiles and frogs.

2.3.1 Habitat assessment

The nature and extent of fauna habitats within the Project Area were generally assessed during the random meander and vegetative surveys. Site assessments for threatened and native fauna included consideration of important indicators of habitat condition and complexity including the occurrence of microhabitats such as tree hollows, fallen logs, bush rock, caves, and crevices, humanmade structures, riparian areas, wetlands, and water bodies. Indirect indicators of fauna use of the site such as droppings, diggings, footprints, scratches, nests, burrow paths and runways were recorded.

2.3.2 Targeted surveys for threatened fauna

No targeted surveys for threatened fauna were completed as part of this assessment.

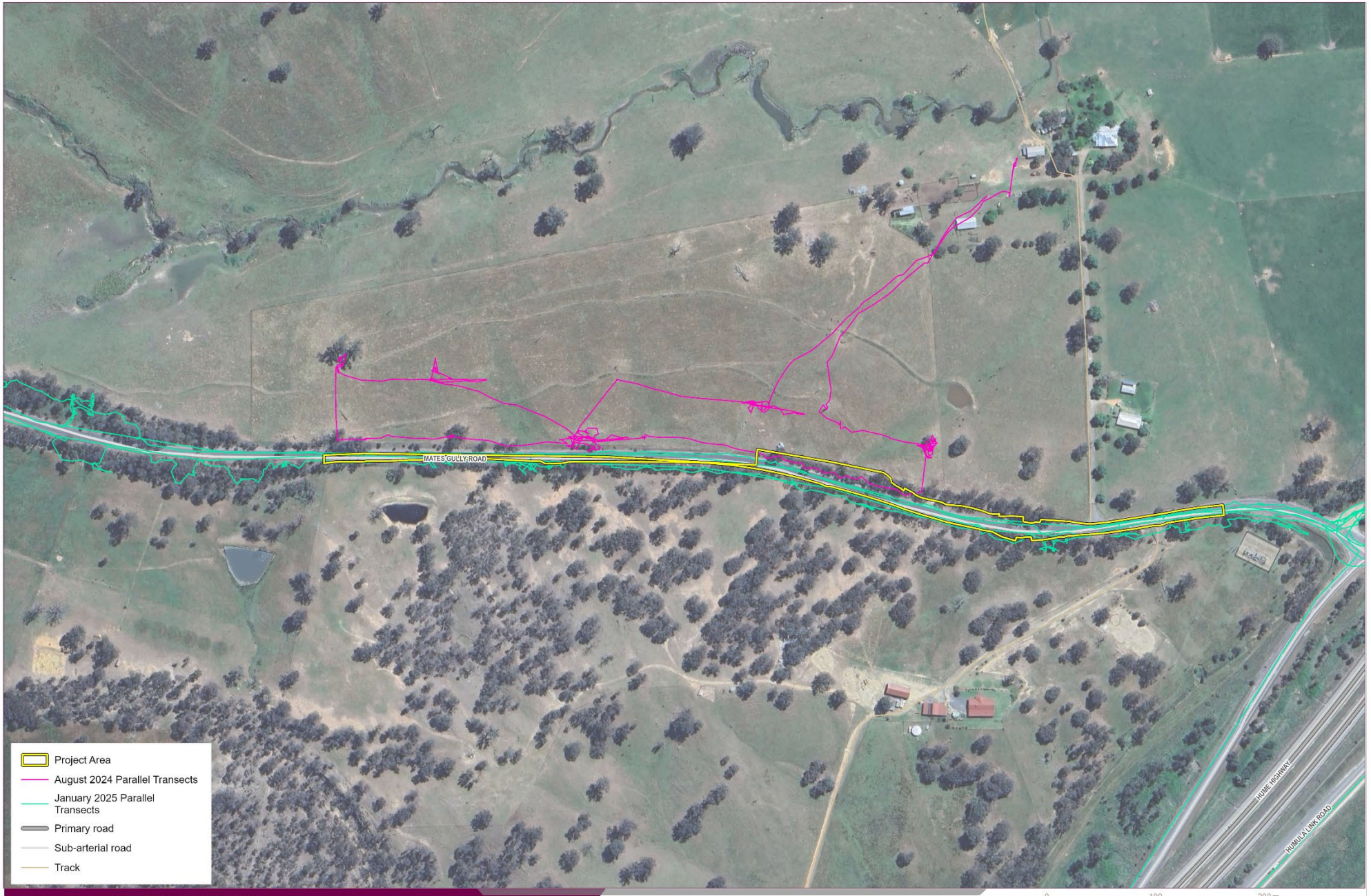

FIGURE 2-2 PARALLEL TRANSECTS

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PROJ: 602-ADCOMSYD-15007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 16/10/2025
MAP FILE: Transects
VERSION: B

0 100 200 m
SCALE 1:3,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES
Client, RPS, NSWSS, Google, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\08-BCA Figures\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

2.4 Weather conditions

Weather conditions in the lead up and during survey efforts are presented in **Table 2-4**. Temperatures leading up to the survey were average for the time of year (BOM 2025). Overall, weather conditions in the lead up to the surveys were largely supportive for the emergence of threatened flora and fauna species.

Table 2-4: Survey timing, effort and weather conditions (Wagga Wagga NSW, station #072150; BOM 2025). Bold indicates survey dates

Survey undertaken	Date	Temperature minimum (ºC)	Temperature maximum (ºC)	Rainfall (mm)
1-week lead up	2/08/2024	-1.6	15.8	0
	3/08/2024	0.1	15.6	0
	4/08/2024	1.8	15.2	0
	5/08/2024	5.9	13.9	0
	6/08/2024	2.2	15.2	0
	7/08/2024	-0.8	16.1	0
Habitat assessment & parallel transects	**8/08/2024**	**0.7**	**16.9**	**1.2**
1-week lead up	01/01/2025	14.3	35.7	0
	02/01/2025	13.8	33.7	0
	03/01/2025	17.0	34.7	0
	04/01/2025	21.6	38.4	0
	05/01/2025	22.7	37.4	0
	06/01/2025	22.8	32.5	5.8
BAM plots & parallel transects	**07/01/2025**	**17.5**	**30.6**	**1.2**
Parallel transects	**08/01/2025**	**14.9**	**29.1**	**15.8**

2.5 Limitations

2.5.1 BAM plot locations

Due to the location of the Project Area and existing land uses, it was not possible to situate the sampling sites 50 m away from disturbances (i.e., roads, fences). Additionally, given the small areas of the Project Area, some plots fell slightly outside of the disturbance footprint, however were indicative of the vegetation zones within.

2.5.2 Seasonality

Some cryptic flora species that occur in the local area are annuals and are only present in the seed bank for much of the year. Other plant species are perennial but are inconspicuous or difficult to identify unless flowering.

Similarly, some fauna species that have been recorded in the local area occur on a seasonal or migratory basis, may be absent from the locality for much for the year. Fauna behaviours may have also affected detectability; species that are easily disturbed, cryptic or nocturnal may not have been detected. It is possible that several flora and fauna species occurring in the Project Area were not detected during the current survey due to the above factors.

These potential limitations have been addressed by literature research and review, through identification of potential habitats for flora and fauna species and assessment of the potential for targeted species to occur in the Project Area based on:

- Previous records
- The type and condition of habitats present

- The land use throughout the flora plot and surrounds
- The landscape context.

The precautionary principle (assumed presence) was applied where habitat was identified, or species were predicted to utilise habitat components at some stage during their life cycle.

2.5.3 Data availability and accuracy

The collated threatened flora and fauna species records obtained from the BioNet Database for the region are known to vary in accuracy and reliability. Traditionally, this is due to the reliability of information provided for collation and/or the need to protect specific threatened species locations. For the purposes of this BAR this information has been considered to have an accuracy of ± 1 km, however for some threatened species, records may be denatured by up to 2 km.

Threatened flora and fauna records within the region were predominantly sourced from the BioNet database and an EPBC Protected Matters Search. Similar limitations are known to exist with regard to these data sources and their accuracy. Data recorded by RPS during the survey period has been gathered using Garmin 64s handheld GPS units, these devices generally provide sub-4 m accuracy.

3 ENVIRONMENTAL CONTEXT

3.1 Landscape features

3.1.1 IBRA bioregion and subregion

The Project Area is located within the Inland Slopes IBRA Subregion of the NSW South Western Slopes Bioregion (IBRA7; DCCEEW 2012) as shown in **Figure 3-1**.

3.1.2 NSW (Mitchell) landscapes

The Project Area occurs on the Adrah Hills and Ranges Mitchell Landscape unit, as shown in **Figure 3-2**. This landscape is generally described as follows (NPWS 2002):

> Rolling hills, low ranges and peaks on Ordovician quartzose greywacke, slate, phyllite and schist, general elevation of 250 to 720 m, and a local relief of 200 m. Stony, thin red and brown texture-contrast soils merge to yellow harsh texture-contrast soils on valley floors. Forest and woodland of *Eucalyptus dealbata* (Tumbledown Red Gum), *E. macrorhyncha* (Red Stringybark), *E. sideroxylon* (Red Ironbark), *E. polyanthemos* (Red Box), *E. microcarpa* (Grey Box), *E. bridgesiana* (Apple Box) and *E. caliginosa* (Broad-leaved Stringybark) on slopes, *E. melliodora* (Yellow Box), *E. albens* (White Box) and occasional *Eucalyptus blakelyi* (Blakely's Red Gum) on flats with *Themeda triandra* (Kangaroo Grass) and *Stipa aristiglumis* (Plains Grass).

3.1.3 Rivers, streams, estuaries and wetlands

The Project Area intersects with four mapped 1st (Strahler) order streams, and their associated 10 m riparian buffers, feeding into Tarcutta Creek to the north (**Figure 3-3**). However, no streams or banks were visible at time of survey. No other estuaries or wetlands occur within or nearby the Project Area.

3.1.4 Habitat connectivity

Animals move through habitats to obtain food, shelter and breeding resources in response to seasonal resource ability and habitat conditions. Large tracts of habitat are generally required for successful dispersal away from natal areas or seasonal migrations. All native vegetation within the locality contains some level of connectivity. Open woodland exists sporadically which likely facilitate the movement of many fauna species across the landscape. The Project Area, however, is situated along a road edge separated by large tracts of paddocks and roads; connectivity is likely limited to mobile species.

3.1.5 Karst, caves, crevices, cliffs, rocks or other geological features of significance

No karst, caves, crevices, cliffs, rocks or other geological features of significance occur within the Project Area or surrounds.

3.1.6 Areas of Outstanding Biodiversity Value

No Areas of Outstanding Biodiversity Value (AoBV) occur within, or in close proximity to, the Project Area.

3.1.7 Soil landscapes and geology

The Project Area has slight east-facing slope, with elevation ranging from 257 m above sea level (asl) in the west, down to 245 m in the east. It occurs on Bleached-Mottled Class Undetermined Red Kurosol – a medium, gravelly, silty, clay loamy soil type (NSW DCCEEW 2024e). No Acid Sulphate Soils or other soil hazard features are mapped as occurring within the Project Area or surrounds.

FIGURE 3-1 IBRA REGIONS AND BIOREGIONS

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CLIENT: Transgrid/UGL/CPB
PROJ: AU015077
LOCATION: Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE:IBRA
VERSION:A

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

0 100 200 m
SCALE 1:3,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES
Client, RPS, NSWSS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Maxar

FIGURE 3-2 NSW (MITCHELL) LANDSCAPES

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CLIENT: Transgrid/UGL/CPB
PROJ: AU015077
LOCATION: Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: Mitchell
VERSION: A

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

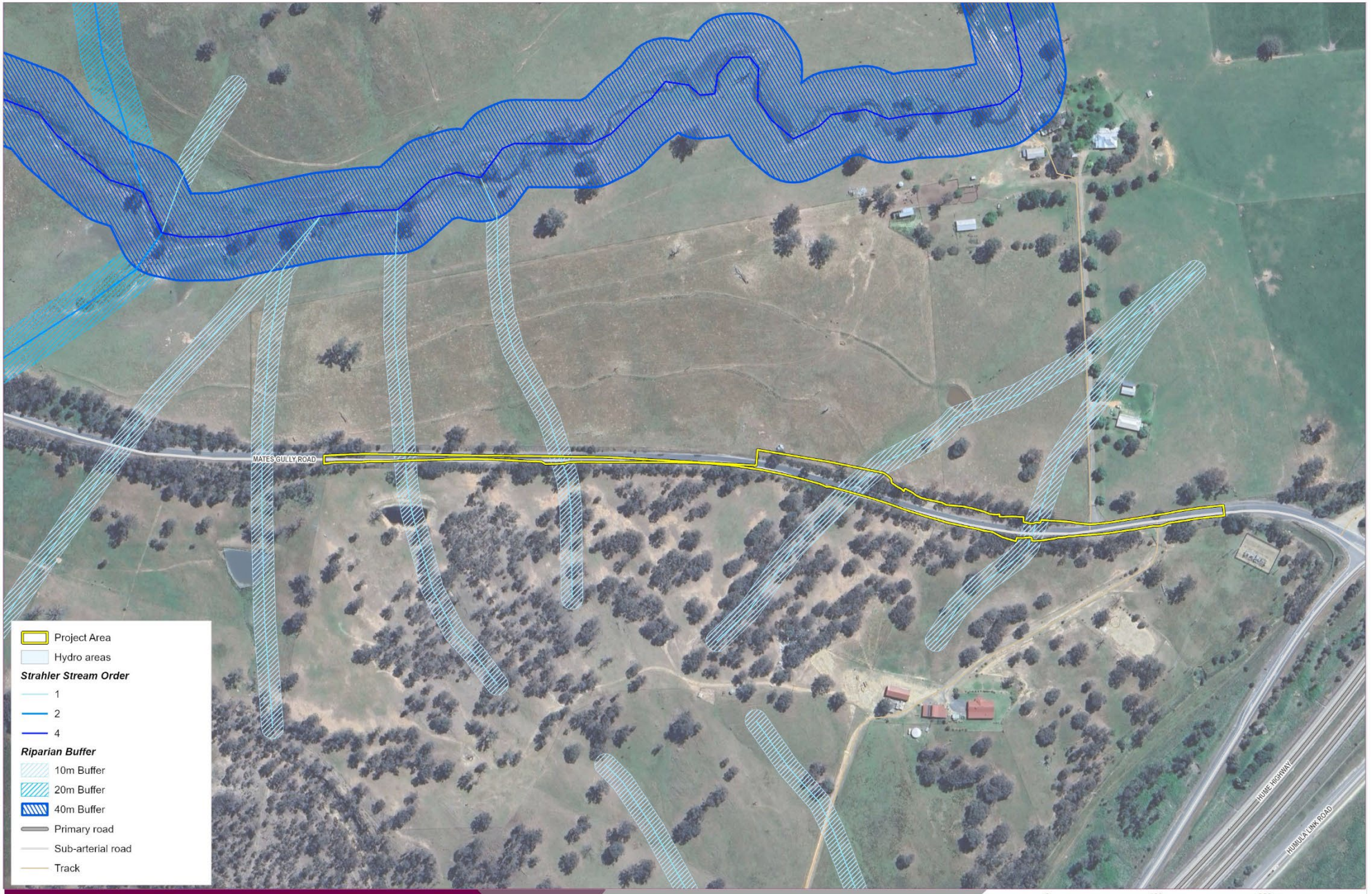

FIGURE 3-3 HYDROLOGY

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PROJ: AU015007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: Hydrology
VERSION: A

0 100 200 m
SCALE 1:3,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

4 NATIVE VEGETATION

4.1 Historically mapped communities

Two Plant Community Types (PCT) are mapped by the SVTM as occurring within the Project Area:

- PCT 268: White Box - Blakely's Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion
- PCT 343: Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion.

Data obtained during the field survey was used to confirm the presence, absence and condition of native PCTs and map their extent within the Project Area. The vegetation of the Project Area was confirmed to contain one PCTs listed above. In addition, a large proportion of the Project Area was identified as Exotic Dominant, characterised by a high proportion of exotic species.

4.2 Field-validated vegetation

Plant Community Type selection for the native vegetation located within the Project Area was undertaken using databases and information listed in **Section 2.2**. A quantitative analysis of survey data, matching outputs to PCTs in BioNet Vegetation Classification, was performed. The following selection criteria were used in the PCT filter tool to develop a PCT shortlist:

- IBRA Bioregion: NSW South Western Slopes
- IBRA Subregion: Inland Slopes
- Dominant species: *Eucalyptus blakelyi*, *E. macrorhyncha* and *E. microcarpa*.

The process delivered a selection of six PCTs that match the criteria (**Table 4-1**). The vegetation formation/class, geology and landscape position characterised by each shortlisted PCT was then compared against that of Project Area. It was found that the Project Area comprised the correct geology and contained the appropriate vegetation/landscape attributes for one candidate PCT (**Table 4-1**). The steps taken to justify the presence of the PCT are detailed in **Table 4-2**.

Table 4-1: Output from PCT Filter Tool and subsequent shortlisting. Purple cells indicate candidate PCTs

PCT ID	PCT Name	Assessment against vegetation formation/class, geology and landscape position	No. of matches	Species		
				E. blakelyi	*E. macrorhyncha*	*E. microcarpa*
272	White Box - Black Cypress Pine - red gum +/- Mugga Ironbark shrubby woodland in hills of the NSW central western slopes	No. The landscape of the Project Area is inconsistent with the description of this PCT – gullies or on hillslopes on the central western slopes of NSW mainly in the northern part of the NSW South-western Slopes Bioregion.	3	x	x	x
342	Mugga Ironbark - mixed box woodland on hills in the Cowra - Boorowa - Young region of the NSW South Western Slopes Bioregion	No. The landscape of the Project Area is inconsistent with the description of this PCT – hillcrests and upper hillslopes in hill landform patterns in the upper slopes sub-region of the NSW South-western Slopes Bioregion in the Cowra - Boorowa - Young regions	3	x	x	x
343	Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion	Yes. The landscape of the Project Area is consistent with the description of this PCT – hillcrests, footslopes, hillslopes and flats.	3	x	x	x
403	Dapper Mugga Ironbark - Western Grey Box - Blakely's Red Gum - Black Cypress Pine grass shrub hill woodland (southern Brigalow Belt South Bioregion)	No. The landscape of the Project Area is inconsistent with the description of this PCT – hillcrests and hillslopes in low hills and hills landscape patterns in the southern-most part of the Brigalow Belt South	3	x	x	x

PCT ID	PCT Name	Assessment against vegetation formation/class, geology and landscape position	No. of matches	Species		
				E. blakelyi	*E. macrorhyncha*	*E. microcarpa*
		Bioregion, mainly east of Mendooran including in Dapper Nature Reserve, restricted in extent.				
464	Red Stringybark - Kurrajong - mixed eucalypt grassy open forest of the Coonabarabran - Gulgong region in the Brigalow Belt South and NSW SWS Bioregion	No. The landscape of the Project Area is inconsistent with the description of this PCT – hillcrests and hillslopes in hill and low hill landscape patterns in the Coonabarabran - Garawilla region in the Brigalow Belt South Bioregion and in the Gulgong region in the NSW South Western Slopes Bioregion.	3	x	x	x
468	Narrow-leaved Ironbark - Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	No. The landscape of the Project Area is inconsistent with the description of this PCT – hillslopes, hill crests and footslopes in low hill landforms mainly in the Goonoo forest and reserves north of Dubbo in the far south-western part of the Brigalow Belt South Bioregion.	3	x	x	x

Table 4-2: Justification of PCT selection

Candidate PCT	Scientific description (DCCEEW – NSW 2024d)	Justification
PCT 343: Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion	Tall to mid-high woodland to open forest dominated by *Eucalyptus sideroxylon* (Mugga Ironbark), *Eucalyptus polyanthemos* (Red Box) and *Eucalyptus macrorhyncha* (Red Stringybark) with *Eucalyptus microcarpa* (Western Grey Box). Other trees may include *Eucalyptus albens* (White Box) and *Eucalyptus blakelyi* (Blakely's Red Gum). The shrub layer is very sparse and includes *Daviesia leptophylla, Acacia pycnantha*, *Cassinia laevis, Dillwynia sericea, Acacia genistifolia, Cassinia arcuata, Einadia hastata, Acacia paradoxa*, *Leucopogon rufus, Grevillea lanigera, Melichrus urceolatus, Hibbertia obtusifolia* and *Pultenaea foliolosa*. The ground cover is sparse to mid-dense but may be dense after rain. It is dominated by tussock grass species such as *Austrodanthonia eriantha, Austrodanthonia fulva, Poa sieberiana, Austrostipa scabra* subsp. *falcata*, *Austrostipa mollis* and *Dichelachne crinita*. The mat-rushes *Lomandra filiformis* subsp. *coriacea* and *Lomandra multiflora* are often present along with the sedge *Carex appressa* in moister depressions. Forb species include *Stypandra glauca, Opercularia hispida, Geranium solanderi* var. *solanderi, Hydrocotyle laxiflora, Xerochrysum viscosa, Gonocarpus tetragynus, Wahlenbergia stricta* subsp. *stricta*, *Thysanotus patersonii, Goodenia hederacea* subsp. *hederacea, Dichopogon strictus, Daucus glochidiatus* s. lat. and *Chrysocephalum apiculatum*. Weeds may be abundant. Occurs on clay soils derived from metamorphic rocks in the Tarcutta region and in the Brothers Mountain region between Nangus and Gundagai in the southern part of the NSW South-western Slopes Bioregion. Mainly cleared with remnants degraded by grazing. A threatened plant community with the best remaining patches along roadsides and in travelling stock reserves.	This PCT has been selected as the best fit PCT as it contains the dominant species *Eucalyptus blakelyi, E. macrorhyncha and E. microcarpa.* Given the disturbed nature of the road-side vegetation, no other representative native species are present to assist with PCT selection.

4.3 Final PCT and vegetation zone selection

Vegetation within the Project Area has been assessed as aligning with the BioNet Vegetation Classification PCT 343. One vegetation zone was identified, consisting of the same condition class/vegetation type:

- Vegetation Zone 1: PCT 343_Moderate.

This vegetation zone is detailed in **Table 4-3** and displayed in **Figure 4-1**. Additional areas of exotic vegetation occurred where native canopy and shrub layers have been cleared, totalling approximately 0.15 ha.

Table 4-3: Vegetation zones identified within the Project Area

PCT 343: Mugga Ironbark – Red Box – Red Stringybark – Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta – Gundagai region, NSW South Western Slopes Bioregion	
Vegetation Zone 1: PCT 343_Moderate	
	
Vegetation Formation	Grassy Woodlands
Vegetation Class	Western Slopes Grassy Woodlands
Percent cleared estimate	88%
Extent within Project Area	0.31 ha
No. plots required	1
No. plots completed	2
Plot ID	MGR 1 & MGR 2 (**Appendix C**)
Description of vegetation	The vegetation within this zone contained low-moderate native diversity. The open canopy was dominated by *Eucalyptus blakelyi* (Blakely's Red Gum), with lesser occurrences of *E.*

PCT 343: Mugga Ironbark – Red Box – Red Stringybark – Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta – Gundagai region, NSW South Western Slopes Bioregion	
	macrorhyncha (Red Stringybark) and *E. microcarpa* (Grey Box). The shrub layer was largely absent, limited to sparse *Acacia genistifolia* (Spreading Wattle) and the High Threat Weed (HTW), *Rubus fruticosus* sp. agg. (Blackberry). The grassy ground layer was dominated by exotic species, primarily *Phalaris aquatica* (Phalaris), *Arrhenatherum elatius* (Oatgrass) and *Bromus sterilis* (Sterile Brome). Native grasses and forbs recorded in the plots were limited to minor occurrences of *Cynodon dactylon* (Couch), *Lomandra filiformis* (Wattle Mat-rush) and *Dianella longifolia* (Blue Flax-Lily). Other HTW species recorded included *Paspalum scrobiculatum* (Scrobic), *Senecio madagascariensis* (Fireweed) and *Hypericum perforatum* (St. Johns Wort).
Structure of vegetation	Moderate canopy cover was recorded within the BAM plots, with native trees totalling 20-69% cover. Shrub cover was low, totalling 0-10%. Native groundcovers were very low, including 2-5% grasses, 0.1% forbs, 0% ferns and 0% other. High Threat Exotic cover totalled 2-10.1%. A moderate cover of leaf litter (36-78%) was recorded. Minor fallen logs were identified, totalling 4 m. The BAM plots contained a moderate diversity of tree stem sizes, with 2 large trees present (>50 Diameter at Breast Height [DBH]), small-medium trees (5-49m DBH) and regenerating stems present. One hollow bearing tree was recorded in BAM plot MGR 2 (DBH >80 cm).
Threatened Ecological Community (TEC) status	N/A

4.4 Threatened Ecological Communities

Plant Community Type 343 is not associated with any TECs.

4.5 Vegetation integrity

In accordance with the Revised BDAR (s6.3), Vegetation Condition Benchmarks V1.2 (NSW DCCEEW 2019) were input into the BAM-C to yield vegetation integrity scores. The vegetation integrity score for PCT 343_Moderate is presented below:

- Composition condition score = 13.6
- Structure condition score = 70.3
- Function condition score = 79.6
- Hollow-bearing trees = present

Vegetation Integrity (VI) score = 42.4

FIGURE 4-1 VEGETATION ZONES

1. This plan was prepared for the sole purposes of the Client for the specific Purpose of producing a photographic overlay plan. This plan is strictly limited to the Purpose and will not be used for any other application, purpose, use or matter. The plan is presented without the assumption of a duty of care to any other person other than the Client, and may not be relied on by a Third Party.

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3. The aerial photography used in this plan has not been rectified. This image has been overlaid as a best fit on the boundaries shown and position is approximate only.

CLIENT: Transgrid/UGL/CPB
PROJ: 602-ADCOMSYD-15007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: Vegetation
VERSION: A

0 50 100 150 m
SCALE 1:2,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES
Client, RPS, NSWSS, Google, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

5 HABITAT SUITABILITY FOR THREATENED SPECIES

5.1 Ecosystem credit species

Predicted threatened species generate 'ecosystem credits' and are known as 'ecosystem credit species'. Ecosystem credit species are threatened species whose occurrence can generally be predicted by vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. Twenty-three ecosystem credit species have been identified by the BAM-C as being associated with PCT 343 present within the Project Area (**Table 3-4**). No ecosystem credit species were excluded from assessment based on habitat constraints or geographic limitations.

Table 5-1: Predicted ecosystem credit species

Ecosystem credit species	Common name	BC Act status	EPBC Act status	Biodiversity Credit Class	Source	Species retained?
Anthochaera phrygia	Regent Honeyeater	CE	CE	Duel	BAM-C	Yes
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Ecosystem	BAM-C	Yes
Callocephalon fimbriatum	Gang-gang Cockatoo	V	E	Duel	BAM-C	Yes
Calyptorhynchus lathami lathami	South-Eastern Glossy-Black Cockatoo	V	E	Duel	BAM-C	Yes
Chthonicola sagittata	Speckled Warbler	V	-	Ecosystem	BAM-C	Yes
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	-	Ecosystem	BAM-C	Yes
Daphoenositta chrysoptera	Varied Sittella	V	-	Ecosystem	BAM-C	Yes
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Ecosystem	BAM-C	Yes
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Ecosystem	BAM-C	Yes
Glossopsitta pusilla	Little Lorikeet	V	-	Ecosystem	BAM-C	Yes
Grantiella picta	Painted Honeyeater	V	V	Ecosystem	BAM-C	Yes
Haliaeetus leucogaster	White-bellied Sea Eagle	V	MAR	Duel	BAM-C	Yes
Hieraaetus morphnoides	Little Eagle	V	-	Duel	BAM-C	Yes
Hirundapus caudacutus	White-throated Needletail	-	V	Ecosystem	BAM-C	Yes
Lathamus discolor	Swift Parrot	E	CE,MAR	Duel	BAM-C	Yes
Leipoa ocellata	Malleefowl	E	V	Ecosystem	BAM-C	Yes
Melanodryas cucullata cucullata	South-eastern Hooded Robin	V	-	Ecosystem	BAM-C	Yes
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	Ecosystem	BAM-C	Yes

Ecosystem credit species	Common name	BC Act status	EPBC Act status	Biodiversity Credit Class	Source	Species retained?
Neophema pulchella	Turquoise Parrot	V	-	Ecosystem	BAM-C	Yes
Petroica boodang	Scarlet Robin	V	-	Ecosystem	BAM-C	Yes
Petroica phoenicea	Flame Robin	V	MAR	Ecosystem	BAM-C	Yes
Polytelis swainsonii	Superb Parrot	V	V	Duel	BAM-C	Yes
Stagonopleura guttata	Diamond Firetail	V	-	Ecosystem	BAM-C	Yes

V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory, MAR = Marine, - = Not Listed.

5.2 Species credit species

Candidate threatened species generate 'species credits' and are known as 'species credit species'. Species credit species are threatened species for which vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence or components of their habitat.

5.2.1 Flora

The BAM regards all threatened flora species as 'species credit' species. A total of three candidate threatened flora species (flora species credit species) have been identified by the BAM-C as being associated with PCT 343 present within the Project Area (**Table 4-3**) No species credit flora species were excluded from assessment based on habitat constraints or geographic limitations.

Table 5-2: Candidate threatened flora species

Scientific name	Common name	BC Act status	EPBC Act status	Species retained?	SAll candidate species
Ammobium craspedioides	Yass Daisy	V	V	**Yes** – the Project Area occurs south of Cowra	Yes
Pultenaea humilis	Dwarf Bush-pea	V	-	**Yes**	No
Senecio garlandii	Woolly Ragwort	E	E	**Yes**	No

V = Vulnerable, E = Endangered, - = Not Listed.

5.2.2 Fauna

A total of 16 candidate threatened fauna species (fauna species credit species) have been identified by the BAM-C as being associated with PCT 343 present within the Project Area (**Table 5-5**). A total of 5 species could not be ruled out by habitat constraints and/or geographic limitations.

Table 5-3: Candidate threatened fauna species

Scientific name	Common name	BC Act status	EPBC Act status	Species retained?	SAII candidate species
Anthochaera phrygia	Regent Honeyeater (Breeding)	CE	CE	No – Project Area does not occur on Important Habitat Map for this species	Yes
Burhinus grallarius	Bush-stone Curlew	E	-	**Yes** – Project Area contains fallen/standing dead timber including logs	No
Callocephalon fimbriatum	Gang-gang Cockatoo (Breeding)	V	-	No – Project Area does not contain hollows >7 cm diameter (as required for this species)	No
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo (Breeding)	V	-	No – Project Area does not contain hollows >15 cm diameter (as required for this species)	No
Cercartetus nanus	Eastern Pygmy-possum	V	-	**Yes** – no habitat constraints or geographic limitations for this species	No
Haliaeetus leucogaster	White-bellied Sea-Eagle (Breeding)	V	-	No – Project Area does not occur within 1 km of a river, lake, large dam or creeks, wetlands and coastlines	No
Hieraaetus morphnoides	Little Eagle (Breeding)	V	-	No – Project Area does not contain nests	No
Lathamus discolor	Swift Parrot (Breeding)	E	CE	No – Project Area does not occur on Important Habitat Map for this species	Yes
Litoria booroolongensis	Booroolong Frog	E	E	No - The species requires permanent, or near permanent river environment with rocky structures (bedrock or cobble). Suitable breeding habitat consists of rocky structures in shallow water along the riparian zone, and non-breeding habitat is any habitat within the riparian zone (within 50 m of the high-water mark). No such habitats occur within the Project Area	No
Myotis macropus	Southern Myotis	V	-	No – Project Area does not contain waterbodies with permanent pools/stretches 3m or wider, including rivers, large creeks, billabongs, lagoons, estuaries, dams and other waterbodies, on or within 200 m	No
Ninox connivens	Barking Owl	V	-	No – Project Area does not contain hollows >20 cm diameter (as required for this species)	No
Petaurus norfolcensis	Squirrel Glider	V	-	**Yes** – no habitat constraints or geographic limitations for this species	No
Petaurus norfolcensis - endangered population	Squirrel Glider in the Wagga Wagga Local Government Area	EP	-	**Yes** – Project Area occurs in the Wagga Wagga Local Government Area	No
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	**Yes** – no habitat constraints or geographic limitations for this species	No
Phascolarctos cinereus	Koala	E	E	**Yes** – Project Area contains koala use trees	No
Polytelis swainsonii	Superb Parrot (Breeding)	V	V	No – Project Area does not contain hollows >5 cm diameter (as required for this species)	No

V = Vulnerable, E = Endangered, EP = Endangered Population, CE = Critically Endangered, - = Not Listed.

5.3 Survey results

5.3.1 Threatened species surveys

Targeted threatened species surveys as part of this assessment (**s2.2**) were limited to parallel flora transects in January 2025. Only one species credit species was adequately surveyed and ruled out from occurrence within the Project Area: *Senecio garlandii* (Woolly Ragwort; approved survey period of all-year-round).

No other threatened flora or fauna were incidentally identified within the Project Area. All flora and fauna species recorded within the Project Area are listed in **Appendix B**.

5.3.2 Potential fauna habitat

Potential habitat for threatened species identified during the field survey is presented in **Table 5-1**.

Table 5-4: Fauna habitat identified within the Project Area

Habitat	Occurrence within the Project Area
Hollows	One hollow-bearing tree (small hollow) was identified within the Project Area (**Figure 5-1**). This may provide suitable nesting/breeding habitat for small birds and microbats.
Nests	Absent.
Flowering shrubs	Present. Flowering shrubs may provide suitable foraging habitat for a variety of native fauna.
Flowering/seed bearing trees	Eucalypts identified within the Project Area bear flowers and seeds at various times of year. Flowering/seed bearing trees may provide suitable foraging habitat for a variety of native fauna.
Fruit bearing shrubs/trees	Absent.
Lerp infested trees	Eucalypts were identified within the Project Area which may be infested by lerp. Lerp may provide suitable foraging habitat for birds such as the Little Lorikeet.
Sandstone rocky outcrops, including rock crevices/ caves and cliffs	Absent.
Wetland areas and waterbodies	Absent.
Hollow logs	Present. Hollow logs may provide suitable habitat for reptiles and small mammals.
Mistletoe	Absent.
Termite mounds	Absent.
Coarse woody debris	Present. Course woody debris may be utilised by insects and invertebrates.
Culverts, bridges, mine shafts, or abandoned structures	Absent.
Sap and gum sources	Eucalypts were identified within the Project Area which likely produce sap and gum. Sap and gum may be utilised as foraging resources by native mammals.
Dense shrubbery	Present. Dense shrubbery such as Blackberry may provide suitable nesting habitat for a variety of species.
Litter of bark, leaves and logs	Present. Leaf litter may be utilised by insects and invertebrates.
Decorticating bark	Present. Decorticating bark may be utilised as microbat roosts.
Estuarine, beach, mudflats, and rocky foreshores	Absent.

FIGURE 5-1 FAUNA HABITAT

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CLIENT: Transgrid/UGL/CPB
PROJ: 602-ADCOMSYD-15007
LOCATION: MGR Wagga Wagga, NSW

TECHNICIAN: NATALIE.WOOD
DATE EXPORTED: 5/03/2025
MAP FILE: Fauna Habitat
VERSION: A

0 50 100 150 200 250 m
SCALE 1:3,000
A4 SIZE / Projection: GDA2020 MGA Zone 55

DATA SOURCES
Client, RPS, NSW/02, Google, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

PROJECT PATH: C:\Users\natalie.wood\OneDrive - Tetra Tech, Inc\HumeLink West JV - RPS_AAP Geospatial Intelligence Services\03_Projects\AU15007_HLW_MatesGullyRd_CA_Figures.aprx

6 PRESCRIBED IMPACTS

Prescribed additional biodiversity impacts (prescribed impacts) are the impacts on biodiversity values which are not related to, or are in addition to, native vegetation clearing and habitat loss (per Section 6 of the BAM). Such prescribed impacts (including direct and indirect impacts) are impacts:

a. On the habitat of threatened entities including:
   i. Karst, caves, crevices, cliffs, rocks and other geological features of significance
   ii. Human-made structures
   iii. Non-native vegetation
b. On areas connecting threatened species habitat, such as movement corridors
c. That affect water quality, water bodies and hydrological processes that sustain threatened entities (including from subsidence or upsidence from underground mining)
d. On threatened and protected animals from turbine strikes from a wind farm
e. On threatened species or fauna that are part of a TEC from vehicle strikes.

Potential prescribed biodiversity impacts on habitat for threatened species or ecological communities are described in **Table 6-1** below.

Table 6-1: Prescribed impacts identified

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐Yes / ☒No	N/A – There are no karsts, caves, crevices, cliffs, rocks and other features of geological significance within the Project Area.	N/A
Human-made structures	☐Yes / ☒No	N/A – There are no human-made structures within the Project Area.	N/A
Non-native vegetation	☐Yes / ☒No	Exotic vegetation was limited to common environmental weeds and pasture grasses. No threatened species predicted to occur within the Project Area are believed to be reliant on this exotic vegetation.	N/A
Habitat connectivity	☐Yes / ☒No	The Project Area exists along an existing fragment roadside. The proposed works are not expected to impact upon habitat connectivity.	N/A
Waterbodies, water quality and hydrological processes	☐Yes / ☒No	N/A – 1st order streams are mapped as occurring however none were identified.	N/A
Wind turbine strikes (wind farm development only)	☐Yes / ☒No	N/A – No windfarms are associated with the proposed works.	N/A
Vehicle strikes	☐Yes / ☒No	The proposed works include widening of the existing road, as such additional impacts associated with vehicle strikes are unlikely and limited to the construction period of the project.	N/A

7 IMPACT ASSESSMENT

7.1 Direct impacts

Direct impacts associated with the proposed Mates Gully Rd upgrades are summarised in **Table 7-1**.

Table 7-1: Summary of direct impacts

Direct impact	BC Act status	EPBC Act status	SAII Entity?	Project phase	Extent
PCT 343	N/A	N/A	No	Construction	0.31 ha of PCT 343_Moderate VI loss of -42.4
Clearing of assumed habitat for *Ammobium craspedioides* (Yass Daisy)*	Vulnerable	Vulnerable	Yes	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for *Pultenaea humilis* (Dwarf Bush-pea)*	Vulnerable	N/A	No	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for Bush-stone Curlew*	Endangered	N/A	No	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for Eastern Pygmy-possum*	Vulnerable	N/A	No	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for Squirrel Glider*	Vulnerable	N/A	No	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for Brush-tailed Phascogale*	Vulnerable	N/A	No	Construction	0.31 ha of PCT 343_Moderate
Clearing of assumed habitat for Koala*	Endangered	Endangered	No	Construction	0.31 ha of PCT 343_Moderate

* Indicates assumes present species credit species

7.2 Indirect impacts

Residual indirect impacts likely to occur on native vegetation, threatened entities and their habitats beyond the Project Area are summarised in **Table 7-2**, as per Section 8.2 of the BAM.

Table 7-2: Summary of residual indirect impacts

Indirect impact	Nature, extent and duration	Potentially impacted entities	Project phase	Consequence
(a) inadvertent impacts on adjacent habitat or vegetation	Vegetation and habitat directly adjacent to the Project Area has the potential to experience ongoing indirect impacts as a result of the works. The works may increase surface run-off and weed occurrence into the adjacent habitat. Potential impacts will be controlled through the HumeLink West Construction Biodiversity Management Plan (HLW CBMP; HLWVJ 2025a).	PCT 343 assumed present flora species: • Yass Daisy • Dwarf Bush-pea. Assumed present fauna species: • Bush-stone Curlew • Eastern Pygmy-possum • Squirrel Glider • Brush-tailed Phascogale • Koala.	Construction	While changes to vegetation condition may have a localised impact to threatened entities, this is not expected to impact on their bioregional persistence.
(b) reduced viability of adjacent habitat due to edge effects	The following main factors and processes that operate at a disturbed edge of an ecological community include: • Microclimate (e.g., localised changes in temperature, wind, light, humidity) • Hydrology • Altered fire frequency and intensity • Invasion by exotic plant and animal species • Alteration of soil conditions (e.g., increased sedimentation and nutrient availability) • Alteration of vegetation structure (e.g., tree death and increased shrub densities). Edge effects are expected to be limited to the immediate area surrounding the Project Area. However, surrounding vegetation exists in a disturbed state (i.e., roadside vegetation and exotic dominant pasture) therefore edge effects are unlikely to be exasperated from their current state. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).		Construction	While edge effects may have a localised impact to threatened species and their habitats, this is not expected to impact on their bioregional persistence, considering the large habitat connectivity within the surrounding areas.
(c) reduced viability of adjacent habitat due to noise, dust or light spill	An increase in noise is to be expected during construction. As the Project Area is located in a rural area, this may have an impact on any species roosting adjacent to the site during the		Construction	While construction may have a localised impact to the threatened species, this is not expected to

Indirect impact	Nature, extent and duration	Potentially impacted entities	Project phase	Consequence
	day that are not adapted to such noises. It is not expected that construction would occur throughout the night, and as such would not impact nocturnal species that may utilise adjacent habitats. Construction may increase dust in adjacent habitats. Dust can impact on a plant's ability to photosynthesise and may increase plant mortality in the adjacent vegetation. It is however not expected that this would have such an impact to decrease the viability of adjacent habitat and will be managed through the HLW CBMP (HLWVJ 2025a).			impact on their bioregional persistence.
(d) transport of weeds and pathogens from the site to adjacent vegetation	As previously discussed, construction works may lead to an increase in weed infiltration into adjacent habitat due to enhanced edge effects. It is however not expected that weeds will be transported via human or vehicular traffic into surrounding areas during construction. Potential impacts relating to biosecurity will be controlled through the HLW CBMP (HLWVJ 2025a).		Construction	While weeds and pathogens may have a localised impact to threatened species, this is not expected to impact on their bioregional persistence.
(e) increased risk of starvation, exposure and loss of shade or shelter	It is highly unlikely that any threatened fauna would be exposed to increased risks from starvation, exposure, and loss of shade and shelter as a result of the works. No habitat is to be removed beyond the Project Area, and disturbances from noise during construction are unlikely to impact species post-construction. It is unlikely that impacts will be significant as such habitats will continue to provide foraging and breeding resources for fauna. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).	N/A	N/A	N/A
(f) loss of breeding habitats	Potential indirect impacts to breeding habitat include increased light, noise and dust from construction. There is potential for disturbance to breeding habitats directly adjacent to the Project Area. However, noise impacts will already be expected through the construction of the connecting accommodation facility. It is considered unlikely that the proposed development will result in a loss of these	Threatened fauna species listed above.	Construction	Any impacts to threatened species adjacent to the Project Area is expected to be localised and will not have an overall impact on the bioregional persistence of threatened species.

Indirect impact	Nature, extent and duration	Potentially impacted entities	Project phase	Consequence
	breeding habitats. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).			
(g) trampling of threatened flora species	No threatened flora species have been identified directly adjacent to the Project Area. Any potential indirect impacts such as trampling will be managed through strict fencing and no-go-zones per the HLW CBMP (HLWVJ 2025a).	N/A	N/A	N/A
(h) inhibition of nitrogen fixation and increased soil salinity	This issue is not likely to affect the vegetation surrounding the Project Area.	N/A	N/A	N/A
(i) fertiliser drift	This issue is not likely to affect the vegetation surrounding the Project Area.	N/A	N/A	N/A
(j) rubbish dumping	There is the possibility that rubbish dumping (including littering) in adjacent vegetation will increase during construction. The dumping/littering of food resources may provide a food source for fauna, including threatened species. However, this may also encourage invasive species into such habitats. This impact will be mitigated by strict protocols in the HLW CBMP (HLWVJ 2025a).	Threatened fauna species listed above.	N/A	N/A
(k) wood collection	This issue is not likely to affect the vegetation surrounding the Project Area during and post-construction, particularly as these areas will be fenced off.	N/A	N/A	N/A
(l) bush rock removal and disturbance	This issue is not likely to affect the vegetation surrounding the Project Area. No bush rock was observed within or adjacent to the Project Area.	N/A	N/A	N/A
(m) increase in predatory species populations	Predatory species, such as foxes and cats, already inhabit areas within and surrounding the Subject Land. There is the possibility that other indirect impacts, such as an increase in rubbish dumping, may encourage predatory species into the area. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).	Threatened fauna species listed above.	Construction	An increase in predatory species adjacent to the Project Area may have widespread ramifications for any locally occurring threatened species. However, the works are unlikely to contribute significantly to the occurrence of predatory species.
(n) increase in pest animal populations	There is potential that pest animal populations already inhabit areas within and surrounding the Project Area. There is the possibility that other indirect impacts, such as an increase in rubbish dumping, may encourage an increase in pest		Construction	An increase in pest species adjacent to the Project Area may have widespread ramifications for any locally occurring threatened species. However, the works are unlikely to

Indirect impact	Nature, extent and duration	Potentially impacted entities	Project phase	Consequence
	animal populations. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).			contribute significantly to the occurrence of predatory species.
(o) increased risk of fire	It is not expected that the works will alter the bushfire risk of vegetation surrounding the Project Area.	N/A	N/A	N/A
(p) disturbance to specialist breeding and foraging habitat, e.g., beach nesting for shorebirds.	Hollow bearing trees were identified within the areas surrounding the Project Area. However, clearing will be limited to the Project Area, therefore all other specialist habitats will be retained. Any potential impacts will be managed through the HLW CBMP (HLWVJ 2025a).	Threatened fauna species listed above.	Construction	Any impacts to specialist habitat adjacent to the Project Area is expected to be localised and will not have an overall impact on the bioregional persistence of threatened species.

7.3 Prescribed impacts

No additional prescribed impacts are associated with the works.

7.4 Mitigating residual impacts – management measures and implementation

Mitigation measures recommended for minimising the direct and indirect impacts of the works will be adequately controlled by the *HumeLink West Construction Biodiversity Management Plan* (HLWJV 2025a).

8 IMPACT SUMMARY

The NSW Minister's Conditions of Approval (SSI-36656827) for the HumeLink Project states the following:

> *B25. Unless otherwise agreed with the Planning Secretary, the Proponent must:*
>
> *(a) ensure that the vegetation and habitat clearing limits specified in Table 2-1, Table 2-2 and Table 2-3 of Appendix 2 are not exceeded.*

Appendix 2 the Conditions of Approval (SSI-36656827) lists clearing limits for vegetation and threatened species habitats. These limits have been separated into HumeLink West and East; those relevant to the Mates Gully Rd upgrade works are summarised in **Table 8-1** below.

It is anticipated that following detailed design, HLW will result in reduced impacts to those prescribed in the clearing limits. As such, biodiversity impacts associated with the Mates Gully Rd Upgrade are considered minor (only totalling 0.31 ha) and will be monitored by monthly clearing registers as part of the HLW CBMP (HLJV 2025). The HLW CBMP includes compliance management for incidents and non-compliances which will ensure the HLW Project, including upgrades of Mates Gully Rd, will not exceed the clearing limits prescribed by the NSW Minister's Conditions of Approval (SSI-36656827). The CBMP also includes comprehensive management measures for minimising the direct and indirect impacts of the works.

Table 8-1: Biodiversity impact summary and HLW clearing limits

Entity	BC Act status	EPBC Act status	Mates Gully Rd upgrade impact extent	Clearing limit
Vegetation				
PCT 343	-	-	0.31 ha	5.16 ha
Flora				
Ammobium craspedioides (Yass Daisy)	Vulnerable	Vulnerable	0.31 ha (assumed)	72.54 ha
Pultenaea humilis (Dwarf Bush-pea)	Vulnerable	-	0.31 ha (assumed)	16.21 ha
Fauna				
Bush Stone-curlew (*Burhinus grallarius*)	Endangered	-	0.31 ha (assumed)	14.25 ha
Eastern Pygmy-possum (*Cercartetus nanus*)	Vulnerable	-	0.31 ha (assumed)	142.04 ha
Squirrel Glider (*Petaurus norfolcensis*)	Vulnerable	-	0.31 ha (assumed)	47.41 ha
Brush-tailed Phascogale (*Phascogale tapoatafa*)	Vulnerable	-	0.31 ha (assumed)	157.81 ha
Koala (*Phascolarctos cinereus*)	Endangered	Endangered	0.31 ha (assumed)	284.51 ha

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Appendix A
Detailed Design

Appendix B
Species lists

Apx Table 1: Flora recorded within the Project Area

Family	Scientific Name	Common Name	BC Act	EPBC Act	Exotic
Alliaceae	*Agapanthus africanus*	Lily of the Nile			YES
Alliaceae	*Agapanthus africanus*	Lily of the Nile			YES
Asphodelaceae	*Dianella longifolia*	Blueberry Lily			
Asteraceae	*Baccharis spp.*				YES
Asteraceae	*Cassinia quinquefaria*				
Asteraceae	*Cirsium vulgare*	Spear Thistle			YES
Asteraceae	*Lactuca serriola*	Prickly Lettuce			YES
Asteraceae	*Leontodon saxatilis*				YES
Asteraceae	*Onopordum acanthium* subsp. *acanthium*	Scotch Thistle			YES
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed			
Asteraceae	*Senecio madagascariensis*	Fireweed			YES
Campanulaceae	*Wahlenbergia stricta* subsp. *stricta*	Tall Bluebell			
Caryophyllaceae	*Stellaria media*	Common Chickweed			YES
Caryophyllaceae	*Stellaria media*	Common Chickweed			YES
Clusiaceae	*Hypericum perforatum*	St. Johns Wort			YES
Colchicaceae	*Burchardia umbellata*	Milkmaids			
Cyperaceae	*Carex appressa*	Tall Sedge			
Cyperaceae	*Carex breviculmis*				
Fabaceae (Faboideae)	*Glycine clandestina*	Twining glycine			
Fabaceae (Faboideae)	*Trifolium arvense*	Haresfoot Clover			YES
Fabaceae (Faboideae)	*Trifolium campestre*	Hop Clover			YES
Fabaceae (Mimosoideae)	*Acacia buxifolia*	Box-leaved Wattle			
Fabaceae (Mimosoideae)	*Acacia genistifolia*	Early Wattle			
Fabaceae (Mimosoideae)	*Acacia paradoxa*	Kangaroo Thorn			
Gentianaceae	*Centaurium erythraea*	Common Centaury			YES
Geraniaceae	*Geranium spp.*				
Juncaceae	*Juncus australis*	Rush			
Lomandraceae	*Lomandra filiformis*	Wattle Matt-rush			
Loranthaceae	*Amyema miquelii*	Box Mistletoe			
Loranthaceae	*Amyema miquelii*	Box Mistletoe			
Myrtaceae	*Callistemon citrinus*	Crimson Bottlebrush			
Myrtaceae	*Eucalyptus albens*	White Box			
Myrtaceae	*Eucalyptus blakelyi*	Blakely's Red Gum			
Myrtaceae	*Eucalyptus camaldulensis*	River Red Gum			
Myrtaceae	*Eucalyptus macrorhyncha*	Red Stringybark			
Myrtaceae	*Eucalyptus microcarpa*	Western Grey Box			

Family	Scientific Name	Common Name	BC Act	EPBC Act	Exotic
Myrtaceae	*Eucalyptus sideroxylon*	Mugga Ironbark			
Myrtaceae	*Kunzea ambigua*	Tick Bush			
Myrtaceae	*Leptospermum continentale*	Prickly Teatree			
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark			
Oleaceae	*Fraxinus angustifolia* subsp. *angustifolia*	Desert Ash			YES
Oleaceae	*Ligustrum lucidum*	Large-leaved Privet			YES
Plantaginaceae	*Plantago lanceolata*	Lamb's Tongues			YES
Poaceae	*Anthoxanthum odoratum*	Sweet Vernal Grass			YES
Poaceae	*Anthoxanthum odoratum*	Sweet Vernal Grass			YES
Poaceae	*Arrhenatherum elatius*	Oatgrass			YES
Poaceae	*Briza maxima*	Quaking Grass			YES
Poaceae	*Briza minor*	Shivery Grass			YES
Poaceae	*Bromus hordeaceus*	Soft Brome			YES
Poaceae	*Bromus sterilis*	Sterile Brome			YES
Poaceae	*Chloris truncata*	Windmill Grass			
Poaceae	*Cynodon dactylon*	Common Couch			
Poaceae	*Dactylis glomerata*	Cocksfoot			YES
Poaceae	*Echinopogon ovatus*	Forest Hedgehog Grass			
Poaceae	*Elymus repens*	English Couch			YES
Poaceae	*Lolium perenne*	Perennial Ryegrass			YES
Poaceae	*Microlaena stipoides*	Weeping Grass			
Poaceae	*Panicum capillare*	Witchgrass			YES
Poaceae	*Paspalum scrobiculatum*	Scrobic			YES
Poaceae	*Phalaris aquatica*	Phalaris			YES
Poaceae	*Poa annua*	Winter Grass			YES
Poaceae	*Setaria pumila*	Pale Pigeon Grass			YES
Polygonaceae	*Rumex obtusifolius*	Broadleaf Dock			YES
Rosaceae	*Prunus cerasifera*	Cherry Plum			YES
Rosaceae	*Prunus domestica* var. *domestica*				YES
Rosaceae	*Rosa canina*	Dog Rose			YES
Rosaceae	*Rubus fruticosus* sp. agg.	Blackberry complex			YES
Solanaceae	*Solanum nigrum*	Black-berry Nightshade			YES
Verbenaceae	*Verbena bonariensis*	Purpletop			YES

Apx Table 2: Fauna recorded within the Project Area

Common name	Scientific name	BC Act	EPBC Act	Exotic	Observation Type
Australian Magpie	*Gymnorhina tibicen*	-	-		OW
Brushtail possum	*Trichosurus vulpecula*	-	-		O
Crested pigeon	*Ocyphaps lophotes*	-	-		O
Galah	*Eolophus roseicapilla*	-	-		OW
Gray fantail	*Rhipidura albiscapa*	-	-		OW
Hare	*Lepus europaeus*	-	-	Yes	W
Laughing Kookaburra	*Dacelo novaeguineae*	-	-		W
Pied Currawong	*Strepera graculina*	-	-		OW
Piping shrike	*Cracticus tibicen*	-	-		W
Red rumped parrot	*Psephotus haematonotus*	-	-		OW
Red wattlebird	*Anthochaera carunculata*	-	-		O
Silvereye	*Zosterops lateralis*	-	-		O
Sulphur crested cockatoo	*Cacatua galerita*	-	-		OW
Superb fairywren	*Malurus cyaneus*	-	-		OW
Swamp wallaby	*Wallabia bicolor*	-	-		R
Willy wagtail	*Rhipidura leucophrys*	-	-		OW

O = observed; W = heard; R = roadkill

Appendix C
BAM plot data

Apx Table 3: BAM plot data

BAM Field Survey Form – BAM Plot MGR 1					
Date	08/01/2025	**Plot ID**	MGR 1	**Photo #**	1
Zone	55H	**Plot Dimensions**	10x100 m	**Easting**	565290
Datum	GDA 94	**Bearing**	270	**Northing**	6095580
PCT/Vegetation Zone		PCT 343_Moderate			

Growth Form	Scientific Name	Cover	Abundance
Forb (FG)	*Pseudognaphalium luteoalbum*	0.1	50
Grass & grasslike (GG)	*Cynodon dactylon*	5	500
HTE	*Paspalum scrobiculatum*	5	500
HTE	*Senecio madagascariensis*	2	50
HTE	*Rubus fruticosus* sp. agg.	3	20
HTE	*Hypericum perforatum*	0.1	50
Tree (TG)	*Eucalyptus blakelyi*	20	10
Exotic	*Plantago lanceolata*	0.1	50
Exotic	*Arrhenatherum elatius*	10	800
Exotic	*Phalaris aquatica*	50	5000
Exotic	*Lolium perenne*	5	500
Exotic	*Dactylis glomerata*	5	200
Exotic	*Stellaria media*	1	250
Exotic	*Poa annua*	1	100
Exotic	*Trifolium arvense*	0.1	100

BAM Field Survey Form – BAM Plot MGR 1			
Exotic	*Centaurium erythraea*	0.1	40

DBH	Tree Stems	# Hollow Bearing Trees
80+ cm	0	0
50-79 cm	0	0
30-49 cm	6	0
20-29 cm	5	0
10-19 cm	10	0
5-9 cm	2	0
<5 cm	1	0

Length of Logs (m)	0

BAM Attribute (1x1 m)	Litter Cover (%)
1 (5 m)	100
2 (15 m)	70
3 (25 m)	55
4 (35 m)	65
5 (45 m)	100
Average	78

Growth Form	Composition Data	Structure Data
Tree	1	20
Shrub	0	0
Grass	1	5
Forb	1	0.1
Fern	0	0
Other	0	0
High Threat Exotics	4	10.1

BAM Field Survey Form – BAM Plot MGR 2					
Date	08/01/2025	**Plot ID**	MGR 2	**Photo #**	1
Zone	55H	**Plot Dimensions**	10x100 m	**Easting**	565514
Datum	GDA 94	**Bearing**	270	**Northing**	6095577
PCT/Vegetation Zone		PCT 343_Moderate			

Growth Form	Scientific Name	Cover	Abundance
Forb (FG)	*Dianella longifolia*	0.1	10
Grass & grasslike (GG)	*Cynodon dactylon*	1	100
Grass & grasslike (GG)	*Lomandra filiformis*	1	20
HTE	*Paspalum scrobiculatum*	1	100
HTE	*Senecio madagascariensis*	1	80
Shrub (SG)	*Acacia genistifolia*	10	50
Tree (TG)	*Eucalyptus macrorhyncha*	5	10
Tree (TG)	*Eucalyptus blakelyi*	60	20
Tree (TG)	*Eucalyptus microcarpa*	2	5
Tree (TG)	*Eucalyptus albens*	2	5
Exotic	*Arrhenatherum elatius*	10	500
Exotic	*Bromus sterilis*	15	700
Exotic	*Lolium perenne*	1	50
Exotic	*Poa annua*	0.1	50
Exotic	*Briza maxima*	1	50
Exotic	*Stellaria media*	0.5	50
Exotic	*Dactylis glomerata*	5	50
Exotic	*Setaria pumila*	2	200
Exotic	*Phalaris aquatica*	1	50
Exotic	*Lactuca serriola*	0.1	5

BAM Field Survey Form – BAM Plot MGR 2		
DBH	**Tree Stems**	**# Hollow Bearing Trees**
80+ cm	1	1
50-79 cm	1	0
30-49 cm	5	0
20-29 cm	10	0
10-19 cm	15	0
5-9 cm	30	0
<5 cm	30	0
Length of Logs (m)	4	
BAM Attribute (1x1 m)	**Litter Cover (%)**	
1 (5 m)	60	
2 (15 m)	60	
3 (25 m)	0	
4 (35 m)	30	
5 (45 m)	30	
Average	36	
Growth Form	**Composition Data**	**Structure Data**
Tree	4	69
Shrub	1	10
Grass	2	2
Forb	1	0.1
Fern	0	0
Other	0	0
High Threat Exotics	2	2

HUMELINK WEST

BY RENZO TONIN & ASSOCIATES

05 March 2025

2025-03-05_TN422_TN422_219_965965322.docx

Humelink West
Joshua Cosier
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From: Renzo Tonin and Associates via Gatewave
Calculation scenario: **Mates Gully Road Upgrades TfNSW plant list** (Gatewave ID TN422_219)

Humelink West - Noise and Vibration Assessment Report

1 Introduction

The Renzo Tonin and Associates web-based construction assessment tool (Gatewave) has been used to prepare this noise and vibration assessment report for Humelink West Project.

The overall noise and vibration impacts from the Humelink West Project works and associated mitigation measures have been addressed in Chapter 15 Noise and Vibration and Technical Report 9 Noise and Vibration Impact Assessment of the EIS and Chapter 15 and Technical Paper 09 Noise and Vibration Impact Assessment Addendum of the AR.

Gatewave allows specific work areas and activities to be assessed and managed in accordance with the project's Construction Noise and Vibration Management Plan (HLW-HLJV-PRW-ENM-PLN-000008), the project's Out of Hours Work Protocol (HLE-AGJ-ENV-ALE-PRD-0000-00001), and the EPA's Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009).

2 Assessment methodology

2.1 Construction noise

Results for the assessment of airborne noise were determined using a distance-based equation aligning with calculations obtained from ISO9613-2:2024 over mixed ground with no obstacles.

A summary of the noise calculation parameters is detailed in Table 1.

Table 1: Summary of noise modelling parameters

Parameters	Inputs
Calculation method	Equation aligning with ISO 9613-2:2024
Location of noise sources above the local ground	1.5m
Height of receivers	1.5m above ground level to represent 1.5m above ground floor level Additional 3m height for every additional floor assessed (i.e. 4.5m above ground for first floor, 7.5m for second floor etc.)
Sound Power Levels (L_w) of plant and equipment	All Lw data obtained from Renzo Tonin and Associates database Detailed in Section 3
Construction activities	Detailed in Section 3
Ground absorption	1
Noise barriers and screening	Flat ground with no barriers/screens or other shielding (2D)

2.2 Construction vibration

If there are any vibration intensive plant and equipment, the recommended minimum working distances (MWD) are presented in Table 5 and the buildings/structures potentially within these MWDs are identified in APPENDIX C.

3 Construction activities, work areas and NCAs

3.1 Construction activities

3.1.1 Plant and equipment use

A summary of the plant and equipment operating during each assessment time period is presented in Table 2. Note that Table 2 identifies if a plant/equipment item is used for part or all of the assessment period on a given day, and does not necessarily denote if the plant/equipment are operating concurrently (refer APPENDIX A for details on which plant/equipment are operating together).

Table 2: Proposed construction activities and associated sound power levels

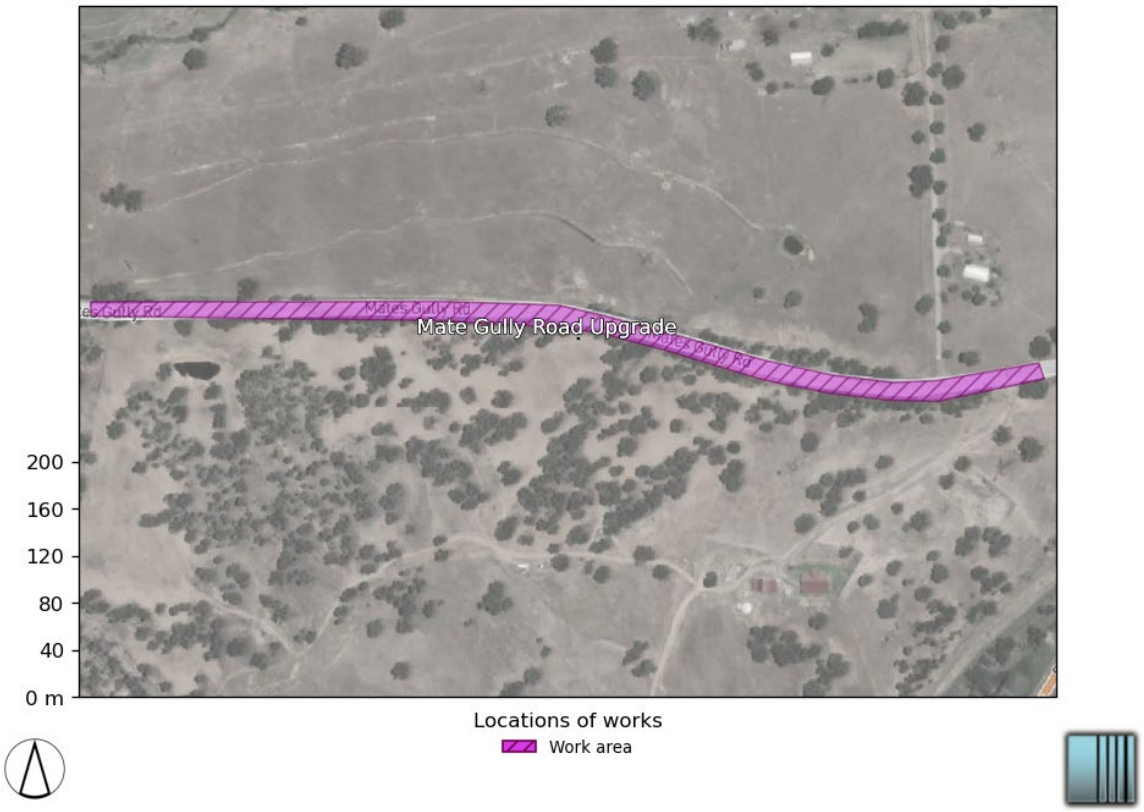
Activity/plant/equipment	Number in use				Sound power level, dB(A)		High impact item	Noise reduction from mitigation measures, dB(A)
	Day	Day (OOH)	Evening	Night	Leq	Lmax		
Mate Gully Road Upgrade								
Bulldozer (D8)	1	1	1	1	113	117	-	-
Excavator w bucket (40T)	1	1	1	1	107	111	-	-
Chainsaw	1	1	1	1	121	120	**Yes**	-
Mulcher	1	1	1	1	125	124	**Yes**	-
Front End Loader (23T)	1	1	1	1	103	107	-	-
Scraper (637G)	1	1	1	1	105	109	-	-
Backhoe	1	1	1	1	100	104	-	-
Padfoot roller (11t) - low vibration mode	1	1	1	1	114	113	**Yes**	-
Dump truck	1	1	1	1	106	111	-	-
Truck and Dog	1	1	1	1	106	110	-	-
Water cart	1	1	1	1	104	107	-	-

Notes:

1) Refer APPENDIX A for plant/equipment timings and to identify which items operate concurrently.
2) Equipment marked in **orange** are not verified by Renzo Tonin and Associates

The locations of the construction activities are presented in Figure 1.

Figure 1 – Construction work areas



4 Construction noise and vibration impacts

4.1 Predicted noise levels

4.1.1 Construction $L_{Aeq,15min}$ assessment

Noise levels were determined by modelling the noise sources, receiver locations, and operating activities, based on the information presented in Table 2.

The noise predictions presented in this report represent a realistic worst-case scenario when construction occurs at the closest location within a specific work area. At each receiver, noise levels will vary during the construction period based on the position of equipment within the work area, the distance to the receiver, the construction activities being undertaken and the noise levels of particular plant items and equipment. Actual noise levels will often be less than the predicted levels presented.

A summary of the results is presented in Table 3. NMLs and predictions for the three worst-affected receivers for each works area are provided in Table 7. Detailed noise results including additional mitigation measures are provided in APPENDIX B and presented visually in noise maps in APPENDIX C.

Table 3: Summary of receivers above relevant NMLs

NCA	Day		Day (OOH)		Evening		Night	
	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties
-	0 to 10	6	0 to 5	67	0 to 5	67	0 to 5	67
	> 10	0	6 to 15	6	6 to 15	6	6 to 15	6
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Place of Worship	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Hotel/Motel/Hostel	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Industrial	0 to 10	1	0 to 5	1	0 to 5	1	0 to 5	1
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Project Acquired (Non-Receiver)	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0
Commercial	0 to 10	0	0 to 5	0	0 to 5	0	0 to 5	0
	> 10	0	6 to 15	0	6 to 15	0	6 to 15	0

NCA	Day		Day (OOH)		Evening		Night	
	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties	dB(A) above NML	No. of properties
	Over 75 dB(A)	0	16 to 25	0	16 to 25	0	16 to 25	0
			> 25	0	> 25	0	> 25	0

4.1.2 Sleep disturbance

The ICNG recommends that where construction works are planned to extend over more than two consecutive nights, maximum noise levels and the extent and frequency of maximum noise level events above the RBL should be considered. Table 4 summarises the number of receivers potentially above the screening and the 'awakening reaction' levels for sleep disturbance.

Table 4: Sleep disturbance summary

NCA	No of receivers	
	Above screening level (i.e. RBL + 15) Below 'awakening reaction' of 65 dB(A) L_{Amax} (external)	Above 'awakening reaction' of 65 dB(A) L_{Amax} (external)
-	2	1

Notes:

External awakening reaction level of 65 dB(A) L_{Amax} is equivalent to an internal level of 55 dB(A) L_{Amax} assuming an open window

4.2 Predicted vibration levels

The recommended MWDs for cosmetic damage and human annoyance are presented in Table 5.

Table 5: Generic minimum working distances for cosmetic damage and human annoyance

Plant item	Reference	Minimum working distance, m			
		Cosmetic damage (screening criteria)		Human comfort (screening limit)	
		Heritage buildings	Non-heritage	Residential[1]	Non-residential[2]
Bulldozer (D8)	CAT D8(T) Specsheet	5	5	10	5
Padfoot roller (11t) - low vibration mode	RTA DATABASE	20	10	60	35

Notes:

1. Screening limit for residences, night time
2. Screening limit for offices, schools, educational institutions and places of worship (day or night)

The building/structures potentially within MWDs during the proposed works are identified in APPENDIX C.

4.3 Mitigation measures

4.3.1 Specific reasonable and feasible mitigation measures

Reference	Mitigation measure
EWNV01	Any out-of-hours works will be undertaken in accordance with the out-of-hours works protocol in Appendix F of the EWMP.

Reference	Mitigation measure
EWNV02	All reasonable and feasible steps to minimise noise impacts (including traffic noise) to sensitive receivers from enabling works. Where enabling works are likely to result in exceedances of noise management levels (NMLs) at sensitive receivers, mitigation and management measures will be implemented where practicable and appropriate. This will include (but is not limited to) the following measures: • select quieter plant and equipment and use alternative construction methods to minimise noise levels • plan and schedule concurrent noisy activities to minimise the number of items of noisy plant operating at one time and cumulative noise levels • install screens or use barriers to mitigate noise from stationary noise sources • maximise the offset distance between noisy plant and sensitive receivers • orient noisy plant and equipment away from sensitive receivers • use noise source controls, such as residential class mufflers, to reduce noise from all regularly used plant including cranes, excavators and trucks • use non-tonal reversing alarms in place of traditional beeper reversing alarms during out-of-hours where noise impacts are predicted • turn off machinery when not in use • confirm equipment is maintained in accordance with manufacture's requirements to minimise generation of excessive noise • operate machinery in a manner which reduces occurrence of maximum noise level events, such as excavator bucket impacts, material drop heights, steel on steel impacts and dragging materials across hard surfaces • provide awareness training regarding noise mitigation measures to be implemented as part of regular toolbox meetings • notify and consult with potentially noise affected receivers about upcoming noisy activities • confirm that noise affected receivers outside standard construction hours and highly noise affected sensitive receivers are managed with consideration to the Construction Noise and Vibration Guideline (Transport for NSW, 2023) (CNVG) additional mitigation measures such as notifications, verification, and respite where appropriate • implementation of at property treatments will be considered for long term impacts where required.
EWNV03	All construction vehicle movements will adhere to the following measures: • out-of-hours vehicle movements will be minimised where possible • construction delivery vehicles will be fitted with straps rather than chains for unloading, wherever possible • use of engine compression brakes will be avoided at night and in residential areas • site access points and roads/flight paths will be located as far as possible away from sensitive receivers • traffic flow, parking and loading/unloading areas will be planned to minimise reversing movements • construction inductions will include driver behaviour requirements to minimise vehicle noise emissions.
EWNV04	Where required, mitigation measures will be implemented with the aim of achieving the road traffic noise assessment criteria for land uses from *NSW Road Noise Policy* (DECCW, 2011).

Reference	Mitigation measure
EWNV05	If vibration intensive work is required during works and is within the recommended minimum working distances and is considered likely to exceed the cosmetic damage criteria: • different construction methods with lower source vibration levels will be investigated and implemented, where feasible • vibration monitoring will be undertaken at the start of work to determine actual vibration levels at the receiver • work will be ceased if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.
EWNV06	If noise and vibration monitoring indicates exceedances, then additional mitigation and control measures will be identified and implemented where practical and reasonable.
EWNV07	Noise generating works would be in accordance with the Interim Construction Noise Guideline (DECC, 2009): • 7:00am – 6:00pm Monday to Friday • 8:00am – 1:00pm Saturdays No work on Sundays or Public Holidays. Also refer to the Environmental Guidance Note – Construction Noise (Appendix G), for standard measures to implement.

4.3.2 Additional noise mitigation measures

In accordance with the Out of Hours Work Protocol, where, after application of all reasonable and feasible mitigation measures, the $L_{Aeq(15minute)}$ airborne construction noise levels are still predicted to exceed the NMLs, additional airborne noise mitigation measures can be applied to limit the risk of annoyance from construction noise.

Table 6 presents a summary of the additional noise mitigation measures applicable for construction activities where, after application of all reasonable and feasible mitigation options, construction noise levels still exceed the NMLs.

Table 6: Additional airborne noise mitigation measures

	Perception	dB(A) above NML	Mitigation measures
OOHW Period 1	Noticeable	0-5	N/A
	Clearly audible	6-15	N
	Moderately intrusive	16-25	N, V, RO
	Highly intrusive	>25	N, V, R4, DR
OOHW Period 2	Noticeable	0-5	N
	Clearly audible	6-15	N

	Perception	dB(A) above NML	Mitigation measures
	Moderately intrusive	16-25	N, V, R4, DR
	Highly intrusive	>25	N, V, R3, DR

Notes:

N = Notification, RO = Short term respite offer, R4 = Respite offered when impacts occur over four or more consecutive nights, R3 = Respite offered when impacts occur over three or more consecutive nights, DR = Duration respite.

1. OOHW Period 1: Mon-Fri 6pm-10pm, Sat 7am-8am and 1pm-10pm, Sun/Pub Hol 8am-6pm
2. OOHW Period 2: Mon-Fri 10pm-7am, Sat 10pm-8am, Sun/Pub Hol 6pm-7am

4.3.3 Noise monitoring plan

Attended noise monitoring is to be undertaken to verify that noise levels resulting from works are in accordance with the levels predicted in this noise and vibration assessment report, subject to obtaining the property owner/occupier's consent to access the property (where required). Noise monitoring should be carried out on or near the property boundary at a location representative of the worst affected location (i.e. in publicly accessible areas on or near the nominated receivers, typically at ground level).

Table 7 identifies potential monitoring locations in each NCA, which are the three worst noise-affected receivers for each NCA from the works.

Note: Gatewave tries to find the most affected receivers in each NCA (up to 3 locations) purely based on the numerical results. These locations will be reviewed for suitability based on safety, accessibility, will provide valid data, etc. If not suitable, alternative suitable locations will be selected for verification monitoring.

If monitoring levels exceed predicted levels, continual improvement and corrective action measures will be implemented, (e.g. investigate cause, review work or activity, scheduling, etc).

Table 7: Nominated verification monitoring locations

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night
15, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	70	70	70	70	69
161, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	56	56	56	56	56
4557, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	56	56	56	56	56

4.3.4 Vibration monitoring

It is noted that the generic MWDs in Table 5 are taken from a database of vibration levels measured at various sites or obtained from other sources (e.g. BS5228-2:2009). They are not specific to these works as final vibration levels are dependent on many factors including the actual plant used, its operation and the intervening geology between the activity and the receiver.

Site specific MWDs for vibration significant plant items must be measured on site where plant and equipment are likely to operate close to or within the generic MWDs for both cosmetic damage and human annoyance. These site specific MWDs will then be included in Gatewave.

If works are likely to be within the generic or site specific MWDs, attended vibration monitoring is to be undertaken to verify that vibration levels comply with the vibration objectives described in the CNVMP.

Additional monitoring for human annoyance from vibration would be carried out proactively and in response to vibration complaints.

Important disclaimer

* This document has been partly automatically generated by Gatewave ™, software for prediction, assessment and management of noise and vibration, developed by Renzo Tonin and Associates.

* This document is uncontrolled. Please contact Renzo Tonin and Associates if you suspect there are any errors in this report.

* Results in this report are based on the assumptions described in Section 0 and inputs presented in Section 3. Noise and vibration monitoring data will be collected to ensure Gatewave is verified and adjusted, if required.

* Renzo Tonin and Associates cannot be held liable for the misuse of the software Gatewave ™, including any errors that may be contained within the software.

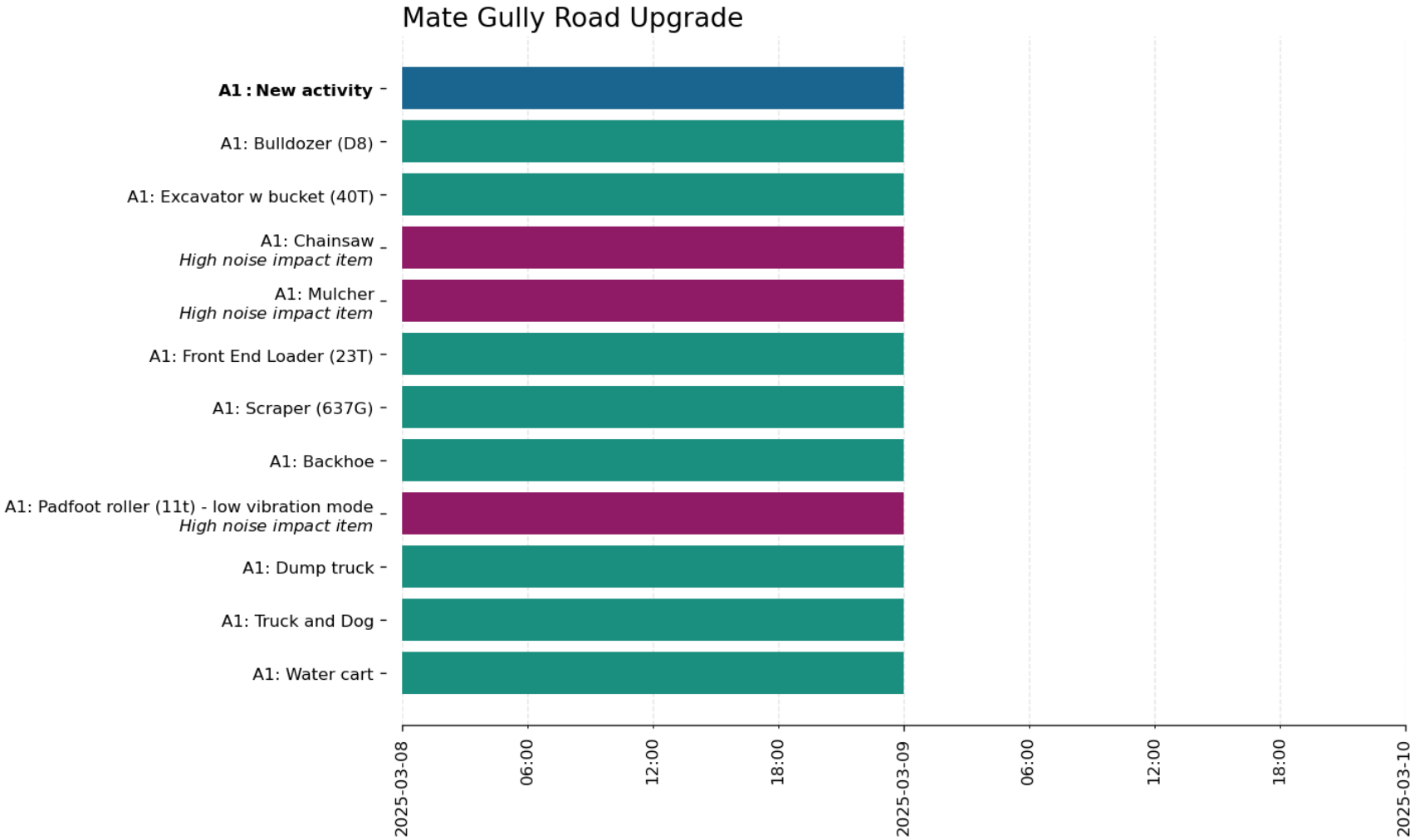
APPENDIX A Summary of works

A.1 Plant and equipment

Table 8: Plant and equipment schedule for work area: Mate Gully Road Upgrade

Equipment	Penalty, dB(A)	Quantity	Intensity	Reduction, dB	Sound power level, dB(A)		Start time	End time
					$L_{eq,15min}$	L_{max}		
New activity								
Bulldozer (D8)	-	1	100%	0	113	117	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Excavator w bucket (40T)	-	1	100%	0	107	111	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Chainsaw	5	1	100%	0	121	120	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Mulcher	5	1	100%	0	125	124	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Front End Loader (23T)	-	1	100%	0	103	107	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Scraper (637G)	-	1	100%	0	105	109	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Backhoe	-	1	100%	0	100	104	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Padfoot roller (11t) - low vibration mode	5	1	100%	0	114	113	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Dump truck	-	1	100%	0	106	111	2025-03-08 00:00:00	2025-03-08 12:00:00

Equipment	Penalty, dB(A)	Quantity	Intensity	Reduction, dB	Sound power level, dB(A)		Start time	End time
					$L_{eq,15min}$	L_{max}		
							2025-03-08 12:00:00	2025-03-09 00:00:00
Truck and Dog	-	1	100%	0	106	110	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00
Water cart	-	1	100%	0	104	107	2025-03-08 00:00:00	2025-03-08 12:00:00
							2025-03-08 12:00:00	2025-03-09 00:00:00


Mate Gully Road Upgrade
A1 : New activity
A1: Bulldozer (D8)
A1: Excavator w bucket (40T)
A1: Chainsaw
High noise impact item
A1: Mulcher
High noise impact item
A1: Front End Loader (23T)
A1: Scraper (637G)
A1: Backhoe
A1: Padfoot roller (11t) - low vibration mode
High noise impact item
A1: Dump truck
A1: Truck and Dog
A1: Water cart
2025-03-08
06:00
12:00
18:00
2025-03-09
06:00
12:00
18:00
2025-03-10

APPENDIX B Detailed construction noise results

Table 9: Construction noise results

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (COH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (COH)	Evening	Night	Night	Day	Day (COH)	Evening	Night
17, MATES GULLY ROAD, TARCUTTA NSW 2652	Industrial	75	75	75	75	None	None	77	77	77	77	76	-	-	-	N
28, MATES GULLY ROAD, TARCUTTA NSW 2652	Project Acquired (Non-Receiver)	999	999	999	999	None	None	75	75	75	75	74	-	-	-	-
15, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	70	70	70	70	69	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
28, MATES GULLY ROAD, TARCUTTA NSW 2652	Project Acquired (Non-Receiver)	999	999	999	999	None	None	62	62	62	62	61	-	-	-	-
143, MATES GULLY ROAD, TARCUTTA NSW 2652	Project Acquired (Non-Receiver)	999	999	999	999	None	None	60	60	60	60	59	-	-	-	-
161, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	56	56	56	56	56	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
4557, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	56	56	56	56	56	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
161, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	54	54	54	54	53	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
4514 Hume Hwy, Tarcutta Nsw 2652	Residential	49	44	44	44	55	65	52	52	52	52	51	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
2429, HUMULA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	52	52	52	52	51	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
175, MATES GULLY ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	50	50	50	50	49	-	N, R1, DR	N, R1, DR	N, R1, R2, DR
4529 HUME HIGHWAY, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	50	50	50	50	49	-	-	-	-
2429, HUMULA ROAD, TARCUTTA NSW 2652	Industrial	75	75	75	75	None	None	50	50	50	50	49	-	-	-	-
4504 HUME HIGHWAY, TARCUTTA, NSW	Hotel/Motel/Hostel	60	60	60	60	None	None	50	50	50	50	49	-	-	-	-
32 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	49	49	49	49	48	-	-	-	-
None	Commercial	70	70	70	70	None	None	49	49	49	49	48	-	-	-	-
4 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	49	49	49	49	48	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
6 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	49	49	49	49	48	-	-	-	-
None	Non-receiver	999	999	999	999	None	None	49	49	49	49	48	-	-	-	-
None	Non-receiver	999	999	999	999	None	None	49	49	49	49	48	-	-	-	-
None	Non-receiver	999	999	999	999	None	None	49	49	49	49	48	-	-	-	-
6 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	49	49	49	49	48	-	-	-	N
6 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	49	49	49	49	48	-	-	-	N
2421, HUMULA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	48	48	48	48	48	-	-	-	N
28 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
28 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
8 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
10 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
12 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
26 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
30 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
12 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
28 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
None	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
1 CENTENARY AVENUE, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
14 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
14 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
1 CENTENARY AVENUE, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
16 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
18 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
26 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
5 HAY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
1 CENTENARY AVENUE, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
1 CENTENARY AVENUE, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
16 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
18 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	47	-	-	-	-
18 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	48	48	48	48	47	-	-	-	N
24 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	48	48	48	48	47	-	-	-	-
20 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	48	48	48	48	46	-	-	-	-
20 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	47	47	47	47	46	-	-	-	-
22 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	47	47	47	47	46	-	-	-	-
22A SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
31 GRESHAM STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	47	47	47	47	46	-	-	-	N
57 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
22 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
1 HAY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	47	47	47	47	46	-	-	-	N
20 CENTENARY AVENUE, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	47	47	47	47	46	-	-	-	-
55 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
24 CENTENARY AVENUE, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	47	47	47	47	46	-	-	-	-
51-53 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
None	Residential	49	44	44	44	55	65	47	47	47	47	46	-	-	-	N
2 BENT STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
20 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	47	47	47	47	46	-	-	-	N
20 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	47	47	47	47	46	-	-	-	N

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
51-53 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
51-53 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
51-53 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
None	Non-receiver	999	999	999	999	None	None	47	47	47	47	46	-	-	-	-
24 CENTENARY AVENUE, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	47	47	47	47	46	-	-	-	-
47-49 SYDNEY STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
2 BENT STREET, TARCUTTA, NSW	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
None	Commercial	70	70	70	70	None	None	47	47	47	47	46	-	-	-	-
5 BENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	46	-	-	-	N
7 BENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	46	-	-	-	N
45 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
7 BENT STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
1 BENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
41 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
41 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
41 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
26 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
26 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
3 BENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
34 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
39 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
39 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
4 COLLEGE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
45 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
26 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
3 BENT STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
39 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
4 COLLEGE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
41 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
34 ARGENT STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
4 COLLEGE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
41 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
32 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
32 ARGENT STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
37 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
39 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	45	-	-	-	-
39 SYDNEY STREET, TARCUTTA, NSW	Place of Worship	55	55	55	55	None	None	46	46	46	46	45	-	-	-	-
30 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
37 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
4812, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
23 GRESHAM STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
30 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
42 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	45	-	-	-	N
30 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	44	-	-	-	N
31 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	44	-	-	-	N
37 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	46	46	46	46	44	-	-	-	N

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
37 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	46	46	46	46	44	-	-	-	-
33 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
40 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	45	45	45	45	44	-	-	-	-
28 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
34 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
35 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	45	45	45	45	44	-	-	-	-
40 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
23 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	45	45	45	45	44	-	-	-	-
31 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
34 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
35 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
4 YOUNG STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	45	45	45	45	44	-	-	-	-
23 GRESHAM STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
27 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
31 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
35 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	45	45	45	45	44	-	-	-	-
36-38 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
36 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
36-38 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
4 YOUNG STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
23 GRESHAM STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
24 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
29 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
33 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
34 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
23 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	45	45	45	45	44	-	-	-	-
24 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
31 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
32 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	45	45	45	45	44	-	-	-	-
49 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
49 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	45	45	45	45	44	-	-	-	N
27 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	44	-	-	-	N
31 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	44	-	-	-	-
32 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	44	-	-	-	N
19 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
19 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
29 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
29 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
29 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
30 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
15 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
20 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
25 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
25 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
26 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
26 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
27 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
28 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
59 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
59 CENTENARY AVENUE, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
22-24 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
23 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
23 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
25 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
25 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
26 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
26 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
26 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
15 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
15 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
20 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
22-24 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
22-24 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
22-24 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
23 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
23 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
11 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
20 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
20 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
21 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
21 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
21 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
23 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
11 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
18 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
5, COMATAWA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
16 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
18 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
19 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
19 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
16 ARGENT STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
16 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
16 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
17 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-
17 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
17 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	43	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
17 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	44	44	44	44	43	-	-	-	-
14 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	42	-	-	-	-
9A MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	42	-	-	-	-
9A MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	44	44	44	44	42	-	-	-	-
14 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
15 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
15 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
15 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
8 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
8 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
9A MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
15 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	43	43	43	43	42	-	-	-	-
15 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
35 SPRING STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
9 GRESHAM STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
12 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
13 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
13 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
15 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	43	43	43	43	42	-	-	-	-
9 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
9 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
11 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
12 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
13 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
13 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
4838, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
6 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
1-13 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
10 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
10 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
6 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
8 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
1-13 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
11 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
9 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
1-13 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
4 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
7 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
7 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
8 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
8 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
8 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
9 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
None	Commercial	70	70	70	70	None	None	43	43	43	43	42	-	-	-	-
4 MYRTLE STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
6 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-

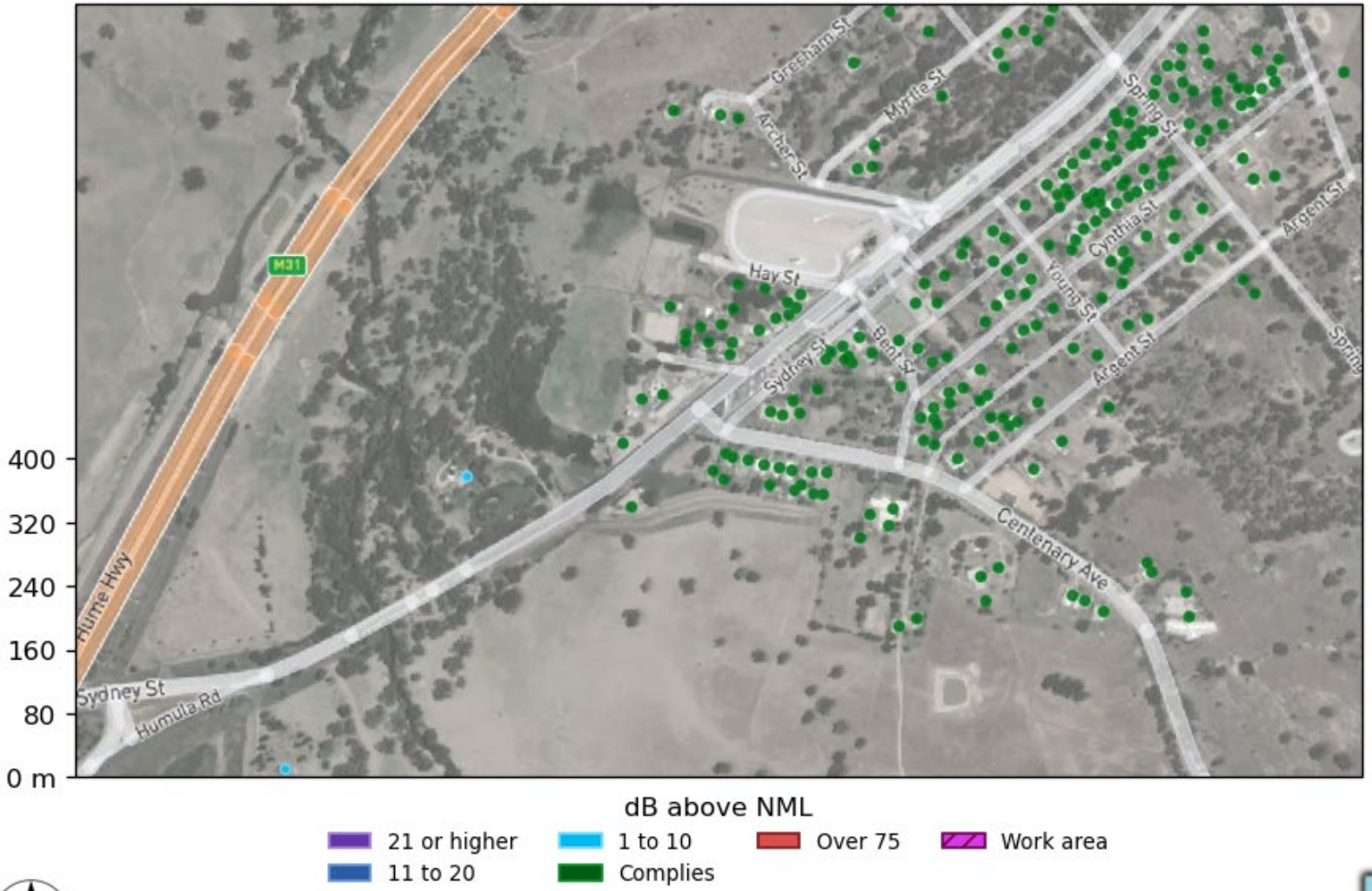
Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
8 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
2 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	43	43	43	43	42	-	-	-	-
6 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	43	43	43	43	42	-	-	-	-
2-4 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	42	42	42	42	42	-	-	-	-
2-4 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	42	-	-	-	-
2-4 CYNTHIA STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	42	-	-	-	-
3 MYRTLE STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	42	42	42	42	42	-	-	-	-
2-4 CYNTHIA STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	42	42	42	42	41	-	-	-	-
5 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	41	-	-	-	-
86 SPRING STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1 SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	41	-	-	-	-
1 SYDNEY STREET, TARCUTTA, NSW	Non-receiver	999	999	999	999	None	None	42	42	42	42	41	-	-	-	-
11 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
11 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
75 SPRING STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
11 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
11 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
75 SPRING STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
None	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-

Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
1 ARGENT STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
2 ARGENT STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	41	-	-	-	-
None	Industrial	75	75	75	75	None	None	42	42	42	42	41	-	-	-	-
1A SYDNEY STREET, TARCUTTA, NSW	Residential	49	44	44	44	55	65	42	42	42	42	41	-	-	-	-
1A SYDNEY STREET, TARCUTTA, NSW	Hotel/Motel/Hostel	60	60	60	60	None	None	42	42	42	42	41	-	-	-	-
1A SYDNEY STREET, TARCUTTA, NSW	Hotel/Motel/Hostel	60	60	60	60	None	None	42	42	42	42	41	-	-	-	-
1A SYDNEY STREET, TARCUTTA, NSW	Hotel/Motel/Hostel	60	60	60	60	None	None	42	42	42	42	41	-	-	-	-
4348, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	42	42	42	42	41	-	-	-	-
4381 HUME HIGHWAY, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
4381 HUME HIGHWAY, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
4377 HUME HIGHWAY, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
4377 HUME HIGHWAY, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	41	41	41	41	40	-	-	-	-
15 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	40	-	-	-	-
33 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	39	-	-	-	-
21 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	39	-	-	-	-
21 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	39	-	-	-	-
21 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	39	-	-	-	-

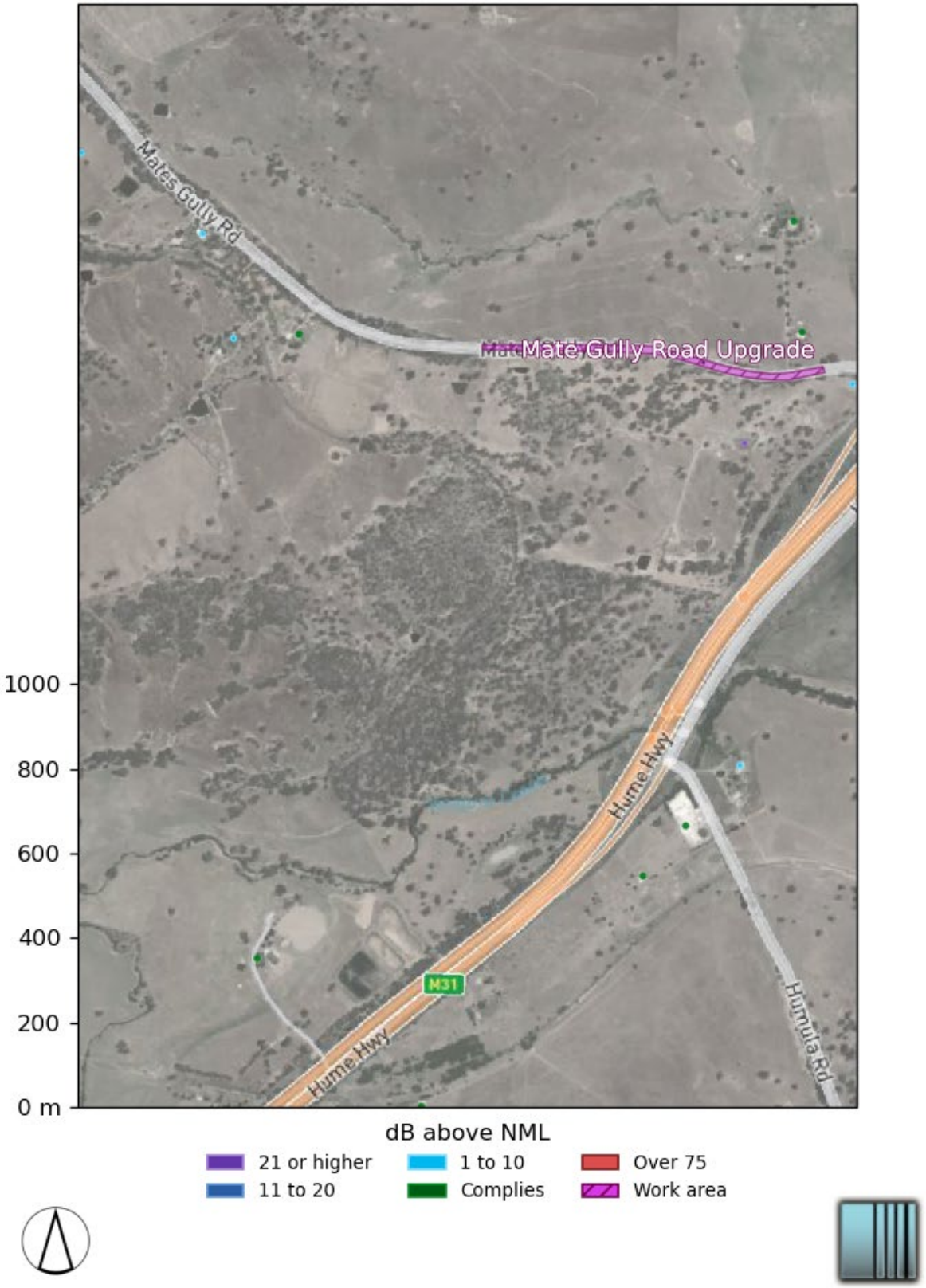
Receiver		Noise management levels (NMLs), dB(A)				Sleep disturbance goals, dB(A)		Predicted noise levels, dB(A) Leq,15min				Predicted noise levels, dB(A) Lmax	Additional mitigation			
Address	Land use	NML Day	NML Day (OOH)	NML Evening	NML Night	Lmax (screening)	Lmax (limit)	Day	Day (OOH)	Evening	Night	Night	Day	Day (OOH)	Evening	Night
33 BARDWELL STREET, TARCUTTA, NSW	Industrial	75	75	75	75	None	None	40	40	40	40	39	-	-	-	-
2359, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	39	39	39	39	38	-	-	-	-
4944, HUME HIGHWAY, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	39	39	39	39	38	-	-	-	-
20, COMATAWA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	38	38	38	38	37	-	-	-	-
2225, HUMULA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	38	38	38	38	37	-	-	-	-
56, SPRINGFIELD LANE, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	36	36	36	36	36	-	-	-	-
25, BLYTHES ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	35	35	35	35	34	-	-	-	-
70, SPRINGFIELD LANE, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	34	34	34	34	33	-	-	-	-
156, COMATAWA ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	34	34	34	34	33	-	-	-	-
56, BLYTHES ROAD, TARCUTTA NSW 2652	Residential	49	44	44	44	55	65	33	33	33	33	32	-	-	-	-
256 Comatawa Rd, Tarcutta 2652	Residential	49	44	44	44	55	65	31	31	31	31	30	-	-	-	-

APPENDIX C Noise level above nominated target

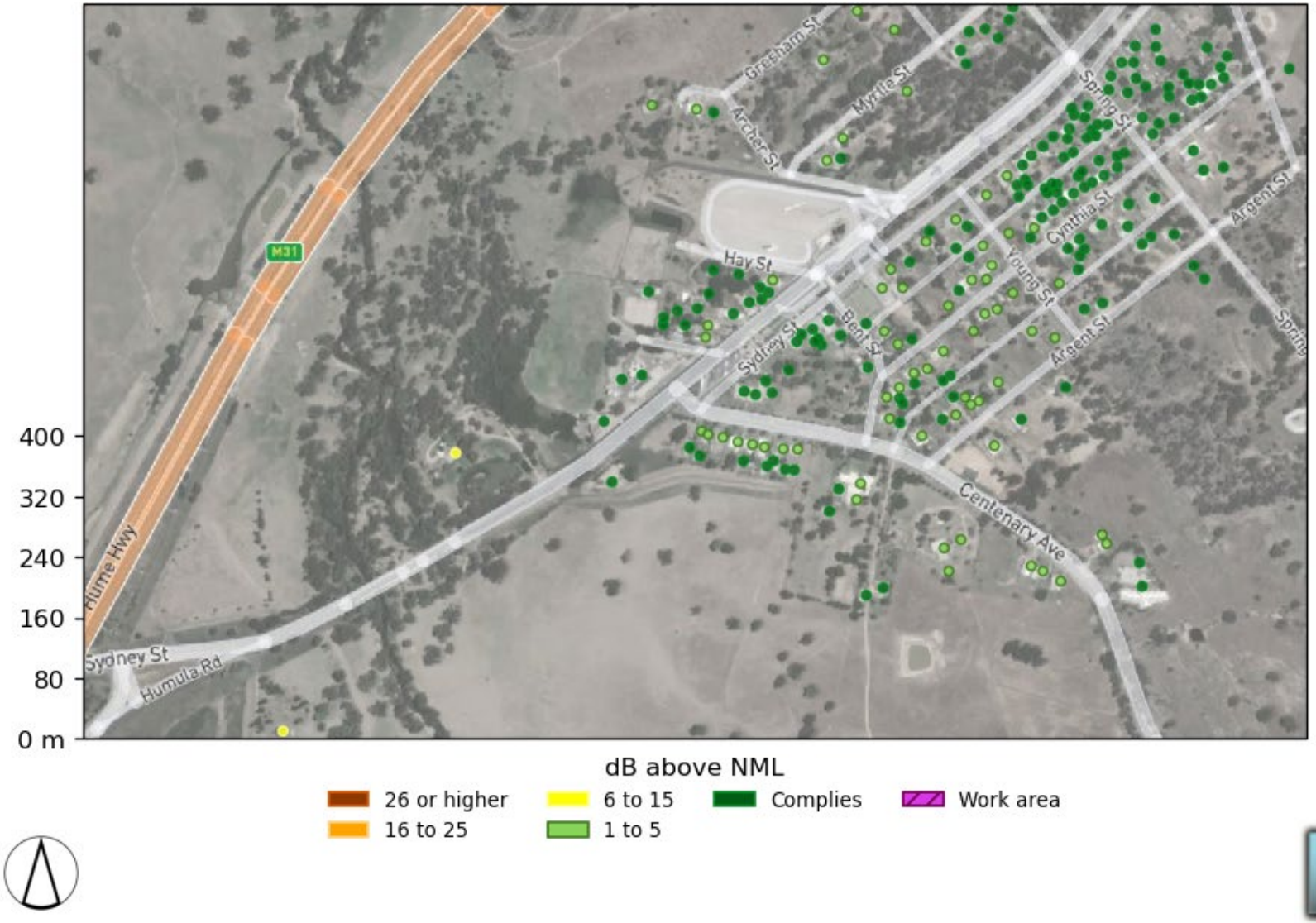
Noise level above NML Day (area 1 of 2)



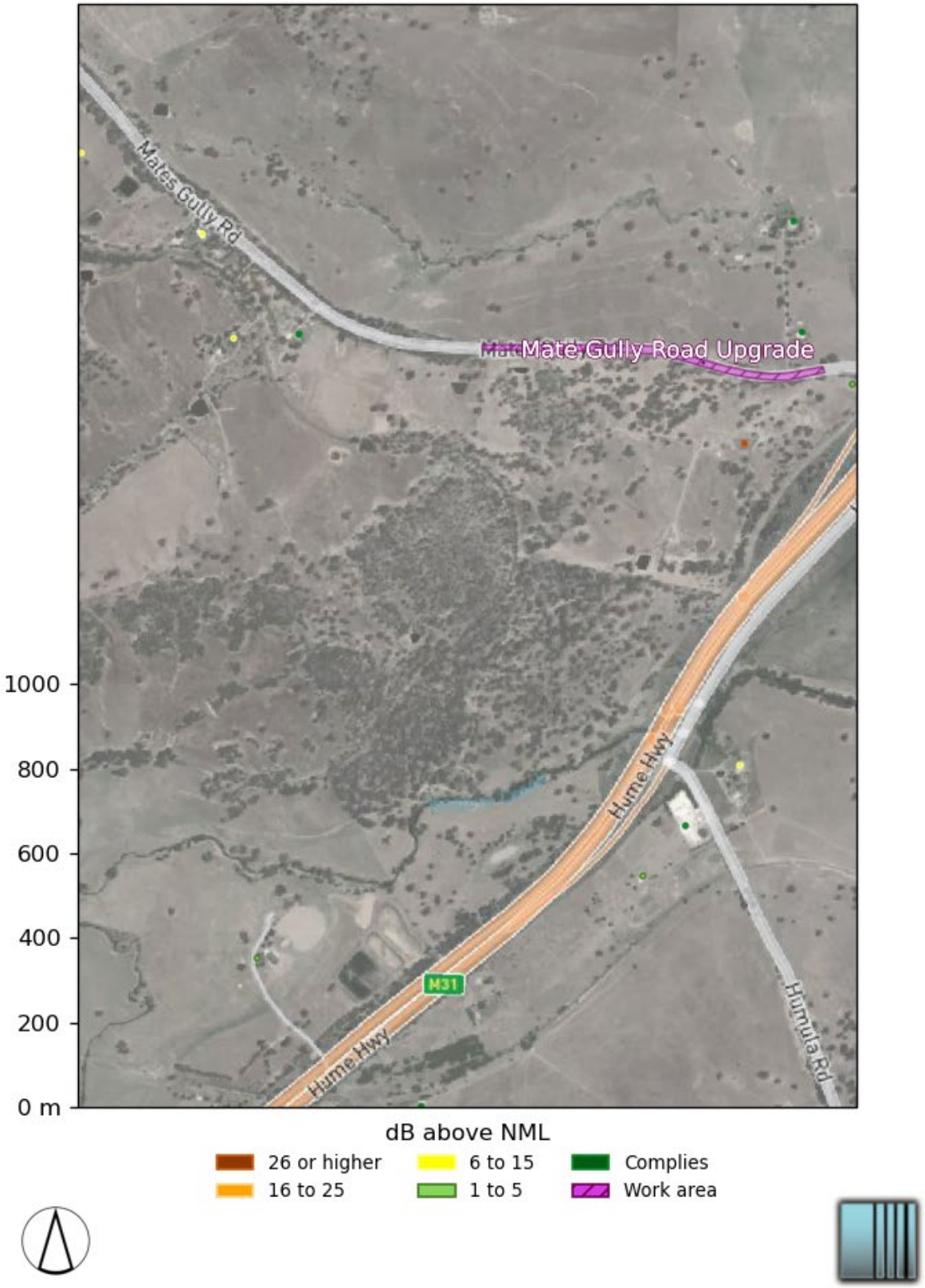
Noise level above NML Day (area 2 of 2)



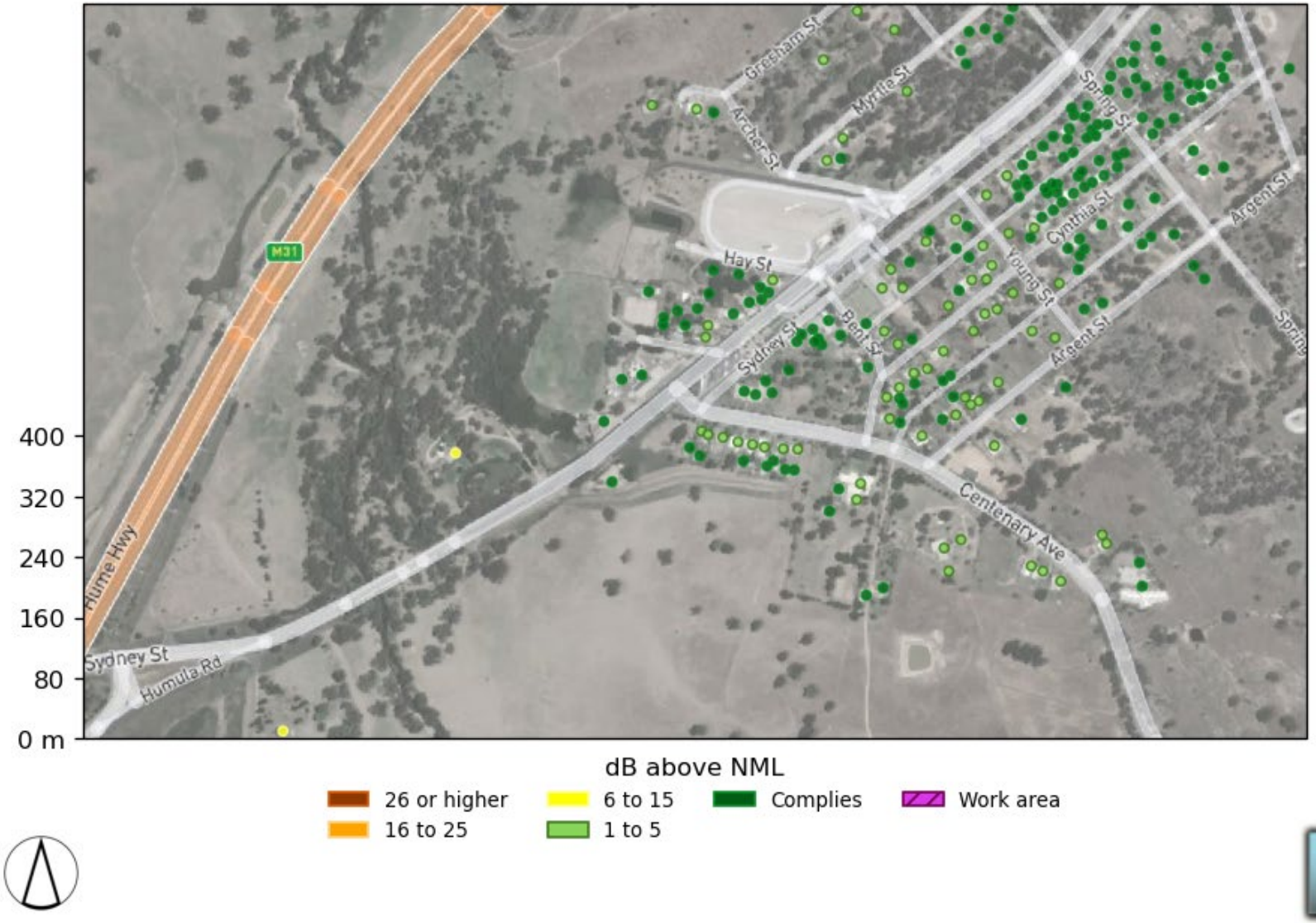
Noise level above NML Day (OOH) (area 1 of 2)



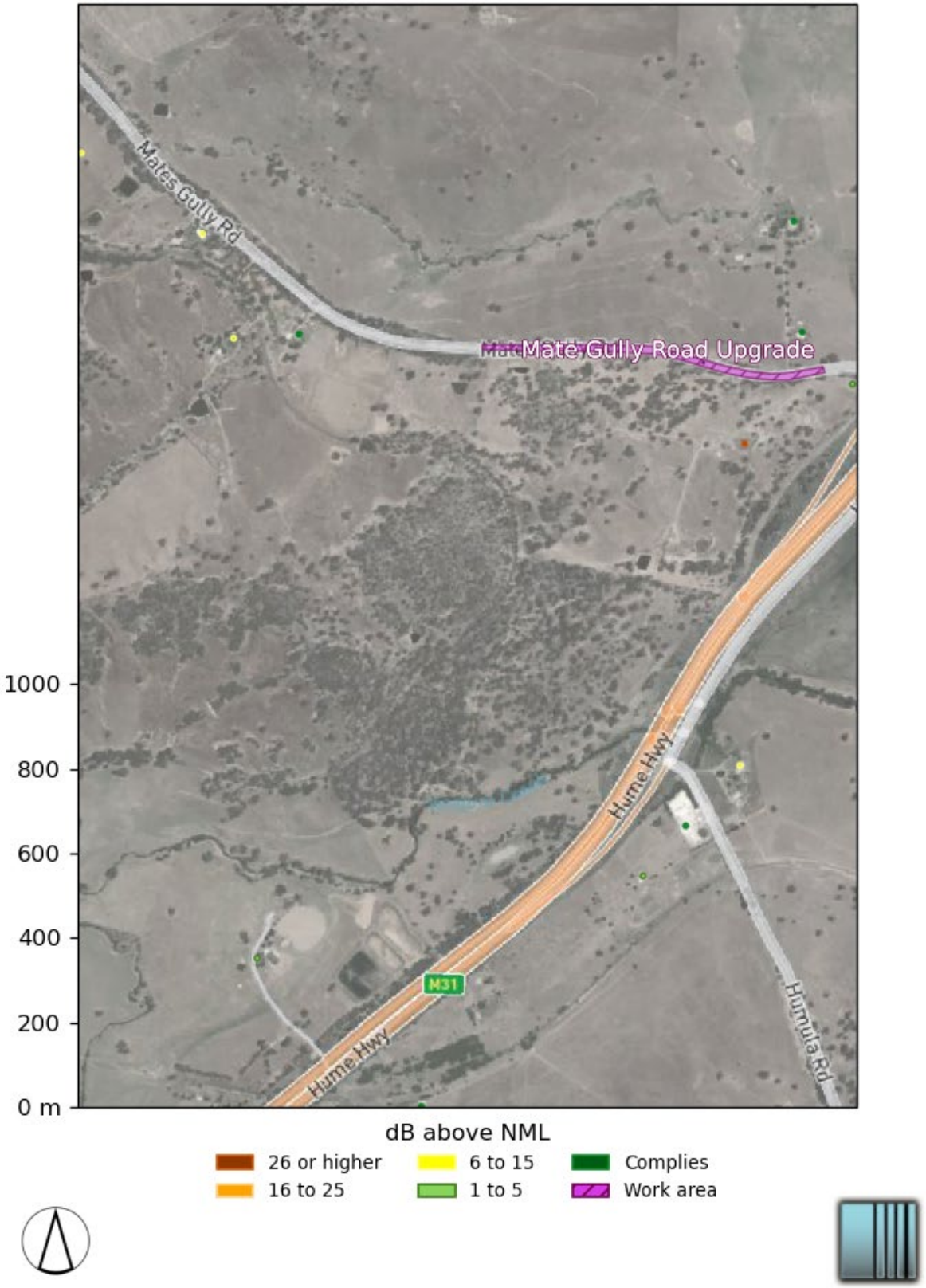
Noise level above NML Day (OOH) (area 2 of 2)



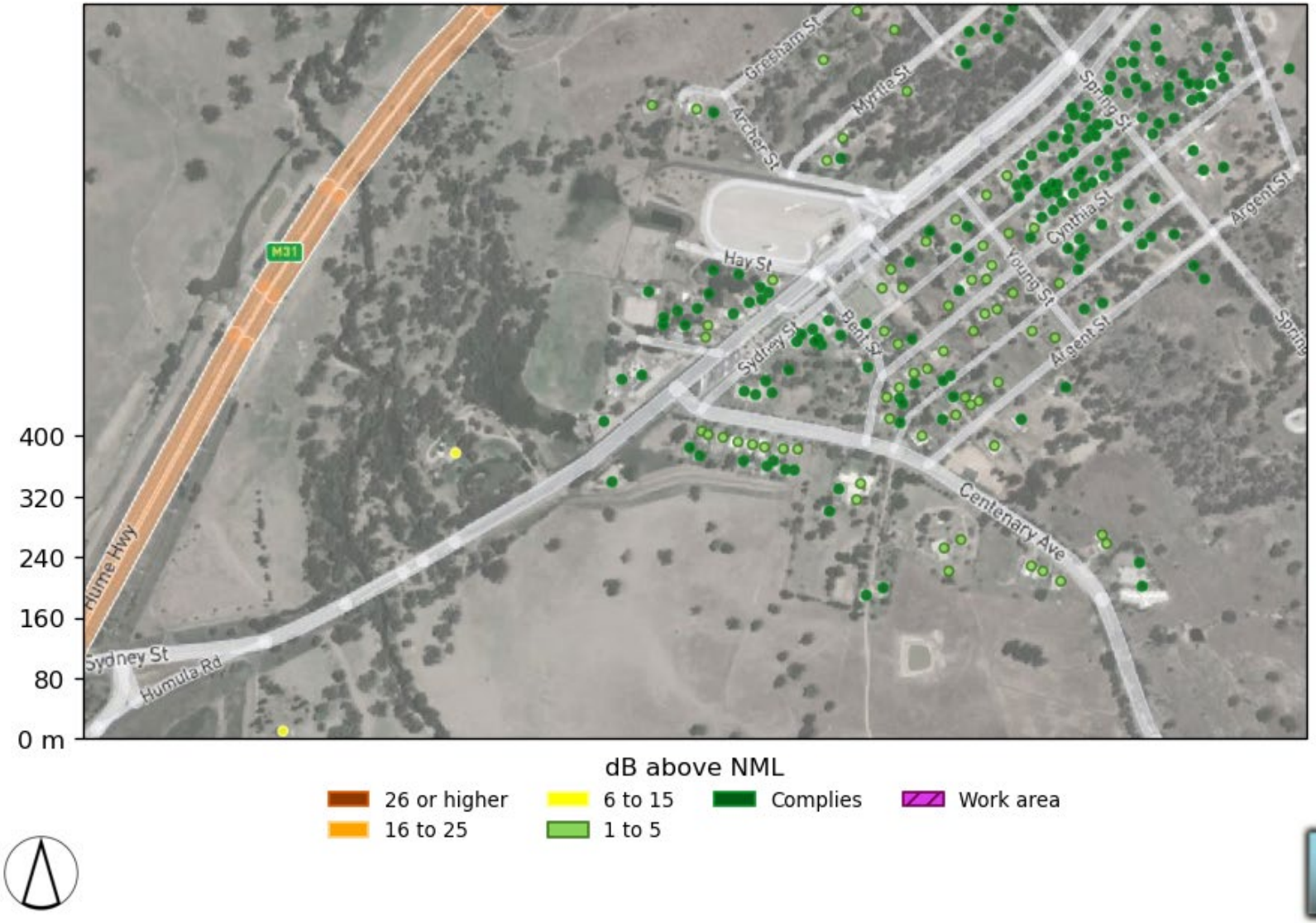
Noise level above NML Evening (area 1 of 2)



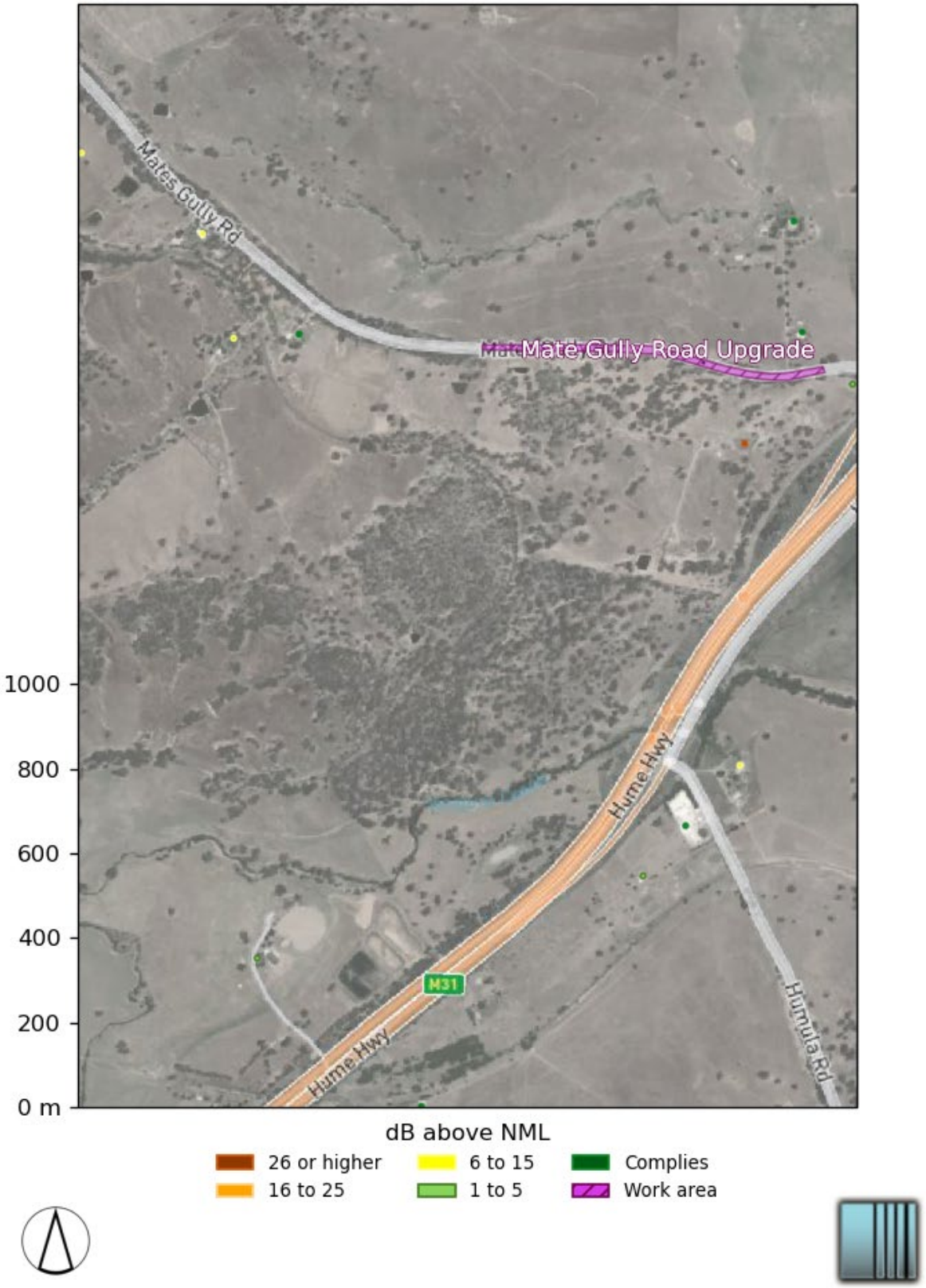
Noise level above NML Evening (area 2 of 2)



Noise level above NML Night (area 1 of 2)



Noise level above NML Night (area 2 of 2)



Appendix C Road Upgrade Additional Mitigation Measures

Impacts	Mitigation Measures	Timing
Road safety – design	• Road upgrades on Mates Gully Road will be designed in accordance with *Austroads Guide to Road Design*, associated TfNSW supplements and WWCC standard requirements • Desktop Road Safety Audit will be undertaken on all stages of the road upgrade design • HSiD workshops will be conducted through the life cycle of the road upgrade design	Concept Design & Detailed Design
General Construction Impacts	• Appropriate risk assessment of construction activities and application of appropriate controls during road upgrade works • Traffic controls will be aligned with Traffic Control at Work Sites – Technical Manual Version 6.1 (TfNSW, 2022). • Traffic controls to be confirmed in consultation with WWCC • The TTMP will be implemented appropriately	Pre-construction Road upgrade construction HLW construction
Road safety – driver related	• A Code of Conduct applicable to all construction workers will be developed and implemented which will define acceptable driver behaviour. • VMPs will be implemented to ensure safe access and egress from approved access points. VMPs will include site rules and drive behaviour requirements • Relevant work health and safety documents to be developed prior works • Appropriate wayfinding signage to be installed on access roads on approach to Tarcutta Compound to combat unsafe driver behaviour if lost	Pre-construction Road upgrade construction HLW construction
Impact during OSOM movements	• Prior to commencement of transportation activities, the validity of the previously undertaken haulage route studies will be confirmed in consideration of final haulage route conditions and applicable route restrictions for the period during which transportation of such components is planned. • Any relevant permits and approvals will be sought from National Heavy Vehicle Regulator, the relevant road and rail authorities, NSW police, and utility owners and providers	Pre-construction HLW construction

Impacts	Mitigation Measures	Timing
Temporary lane/road closure	• Road closures will be undertaken with the approval of WWCC and under the relevant road occupancy licence to be obtained prior to construction • Where feasible, road closures will be planned outside of the traffic peak to minimise the impact on the road network • Appropriate and sufficient notification to stakeholders and the community regarding road / temporary lane closures • Use of Variable Message Signs to advise road users of upcoming temporary lane / road closures	Pre-construction Road upgrade construction HLW construction
Road maintenance	• Prior to construction, dilapidation surveys will be carried out for Mates Gully Road on the section to be used during construction. The survey will assess the current condition of the road surface and will be documented in a road condition report, with a copy to be provided to WWCC • Road condition assessments will be undertaken during and following construction to assess the damage to roads accessed by project-related traffic. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with WWCC. • Continuous monitoring of road / pavement performance during HLW construction with expedited intervention where required	Pre-construction Road upgrade construction HLW construction
Community and stakeholder consultation	• Community and stakeholder communication strategies will be established and implemented to notify the affected communities, visitors, emergency services and relevant road and rail authorities in advance of any disruptions to traffic on Mates Gully Road • Anticipated delays, disruptions to property access and changes to travel routes will be proactively identified and relayed to affected parties. • The strategies will be developed including details on communication channels, frequency of communication and response measures in relaying information to the community and stakeholders.	Detailed Design Road upgrade construction

Impacts	Mitigation Measures	Timing
Noise	• Attended noise monitoring to verify that noise levels resulting from works are in accordance with the levels predicted • If monitoring levels exceed predicted levels, continual improvement and corrective action measures will be implemented. Where required, the appropriate noise mitigation measures identified in While it is not anticipated that works will occur outside standard construction hours, should works be required, the OOHW Protocol will be implemented. In accordance with the OOHW Protocol, where, after application of all reasonable and feasible mitigation measures, the $LAeq_{(15minute)}$ airborne construction noise levels are still predicted to exceed the NMLs, additional airborne noise mitigation measures can be applied to limit the risk of annoyance from construction noise (Table 7-6). • Table 7-6 will be implemented.	Road upgrade construction

HumeLink - West

Mates Gully Road

Final Report

Navin Officer Heritage Consultants Pty Ltd *November 2025*

1 Background

Navin Officer Heritage Consultants (NOHC) have been engaged by the HumeLink West Joint Venture to complete the post approval heritage works for the HumeLink West project. This report includes an assessment of the upgrade to Mates Gully Road for the Transport Strategy Mates Gully Road.

2 Desktop assessment

A desktop assessment has been completed. The desktop assessment included comparing the location of the upgrade to the location of previously recorded Aboriginal and non-Aboriginal sites and assessing the locations using the archaeological sensitivity mapping for subsurface Aboriginal archaeology developed for the ACHAR. The results of the desktop assessment are outlined below.

- a review of heritage databases:
    - Aboriginal Heritage Information Management System (AHIMS)
    - World, Commonwealth and National Heritage lists
    - State Heritage Register and Inventory
    - Local Environmental Plan heritage items
- Investigation of the site if it is determined that there is a potential for heritage impacts

There are no previously recorded sites in the project area.

The sensitivity mapping indicates that Mates Gully Road is disturbed, and Tarcutta North has been identified by the subsurface archaeological sensitivity model as having areas of high and moderate subsurface archaeological sensitivity, including the access point from Mates Gully Road, see Figures 1 & 2. Mates Gully Road was not identified as requiring field assessment. Tarcutta North was identified as requiring field assessment.

Figure 1 Location of Tarcutta North and Mates Gully Road upgrade works

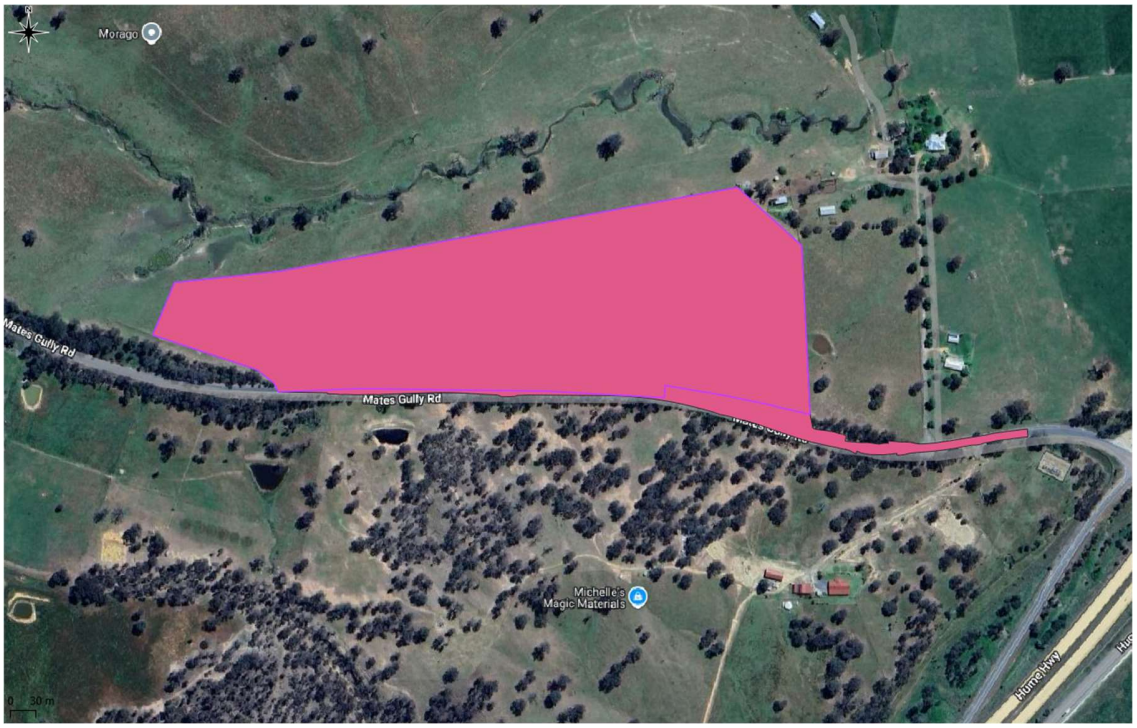
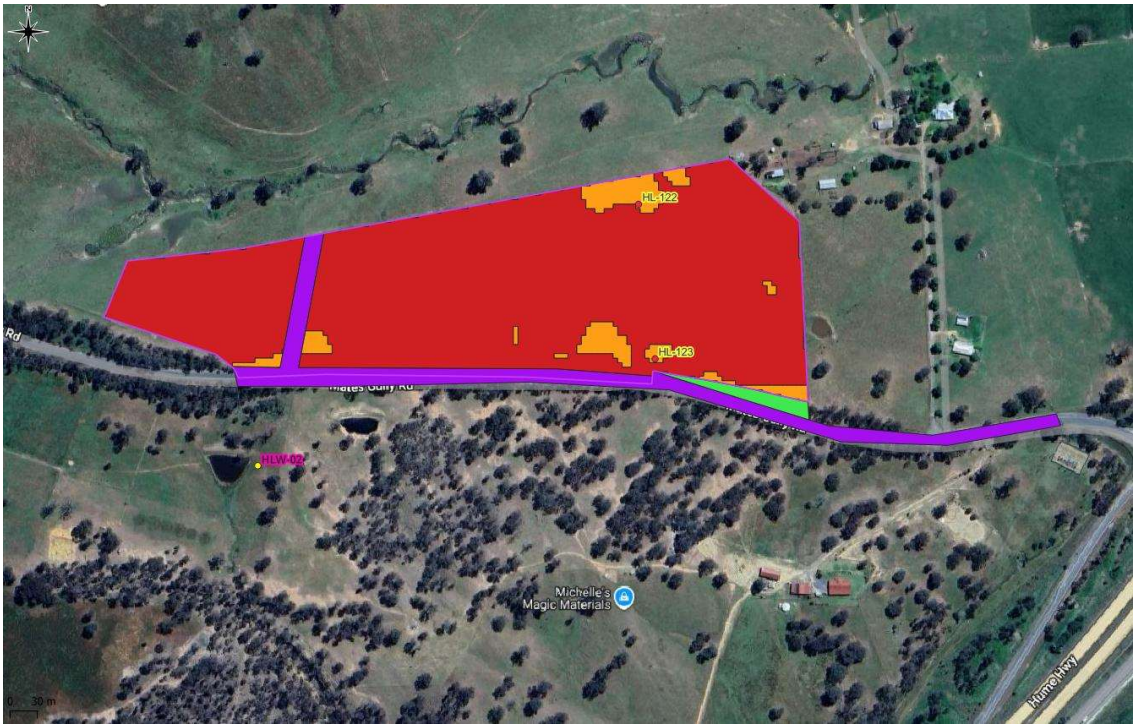


Figure 2 Archaeological Sensitivity including Mates Gully Road and Tarcutta North



3 Field assessment

The field assessment of Tarcutta North, including the Mates Gully Road access point was undertaken on 15th August by archaeologist Jasmine Fenyvesi and Wagga LALC representatives Darryl Charles and Darcy Lyons.

No new surface Aboriginal sites were identified. Five new PADs (HLW PAD01 to HLW PAD05) were identified in the study area at Tarcutta North. All of the PADs are located on low spur lines that lead to Tarcutta Creek. The soil is a brown loam with some gravel including quartz. The exposure incidence was 10 per cent with 40 per cent visibility. The PADs measure:

- HLW PAD01: 115 x 81 m
- HLW PAD02: 140 x 80 m
- HLW PAD03: 125 x 41 m
- HLW PAD04: 116 x 40 m
- HLW PAD05: 96 x 42 m

There is moderate potential for archaeological features/objects to be present in a subsurface context within these PADs.

Subsequently Navin Officer Heritage Consultants (NOHC) archaeologists Jasmine Fenyvesi, Ben Sybert, Christian Keyes, Lachlan Sharp, and Kiara Jodlowski-Tan, and archaeologist Murray Holland conducted the test excavation program from the 14th to the 18th of October and the 28th to the 31st of October, with the assistance of RAP representatives

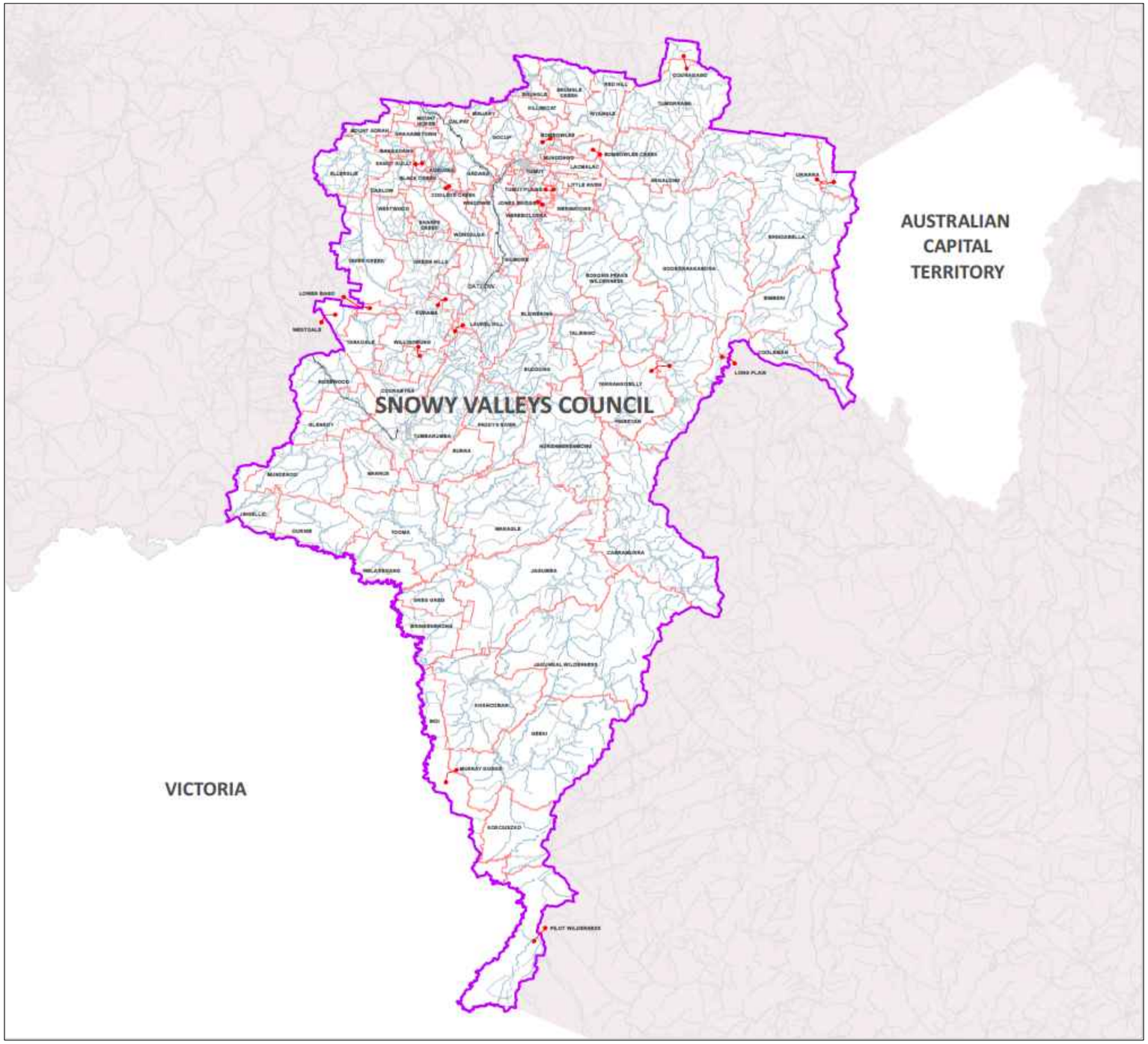
Salvage excavation and site collection of sites HL-122 and HL-123 have also now been completed and no further heritage constraints remain.

These sites will not be impacted by the Mates Gully Road works.

4 Recommendations

There are no heritage constraints to the works proceeding on Mates Gully Road.

Appendix D Vehicle Movement Plan



LEGEND

- HLW TRANSMISSION LINE
- ROUTE TO WATER SUPPLY
- LIGHT VEHICLE ROUTE
- LIGHT & HEAVY VEHICLE ROUTE
- B-DOUBLE OR HEAVY VEHICLES NOT PERMITTED DURING WINTER 1 JUNE - 31 AUGUST
- NATIONAL PARKS WILDLIFE SERVICES
- B-DOUBLES NOT ALLOWED
- PRIVATE PINE PLANTATION ROAD
- FCNSW ROAD
- WATER SUPPLY POINT
- ACCESS POINT

HumeLink West

UGL | CPB CONTRACTORS

Approved by:

PWZTMP # TCT0034050

NOT DRAWN TO SCALE

This Traffic Guidance Scheme is drawn to meet AS 1742.3 & TfNSW Traffic Control at Worksites manual V6.1 and should be implemented accordingly by a RMS qualified person, Drafter takes no responsibility for Implementation. This plan can only be altered by an accredited person with changes dated and signed, they then become responsible for whole TGS design.

Rev	Author	Card Number	Date	Signature
1.0	Abu Baker Babiker	TCT1056812	26-06-2024	A. Babiker
2.0	Abu Baker Babiker	TCT1056812	04-09-2024	A. Babiker
3.0	Abu Baker Babiker	TCT1056812	28-10-2024	A. Babiker
4.0	Abu Baker Babiker	TCT1056812	12-01-2025	A. Babiker
4.1	Abu Baker Babiker	TCT1056812	22-01-2025	A. Babiker
4.2	Abu Baker Babiker	TCT1056812	23-01-2025	A. Babiker

N
W E
S

HLW_VMP-SVC_TGS001 - V4.2

1 Sheet

VEHICLE MOVEMENT PLAN

SNOWY VALLEYS COUNCIL ZONE

HLW_VMP-SVC_TGS001 - V4.2

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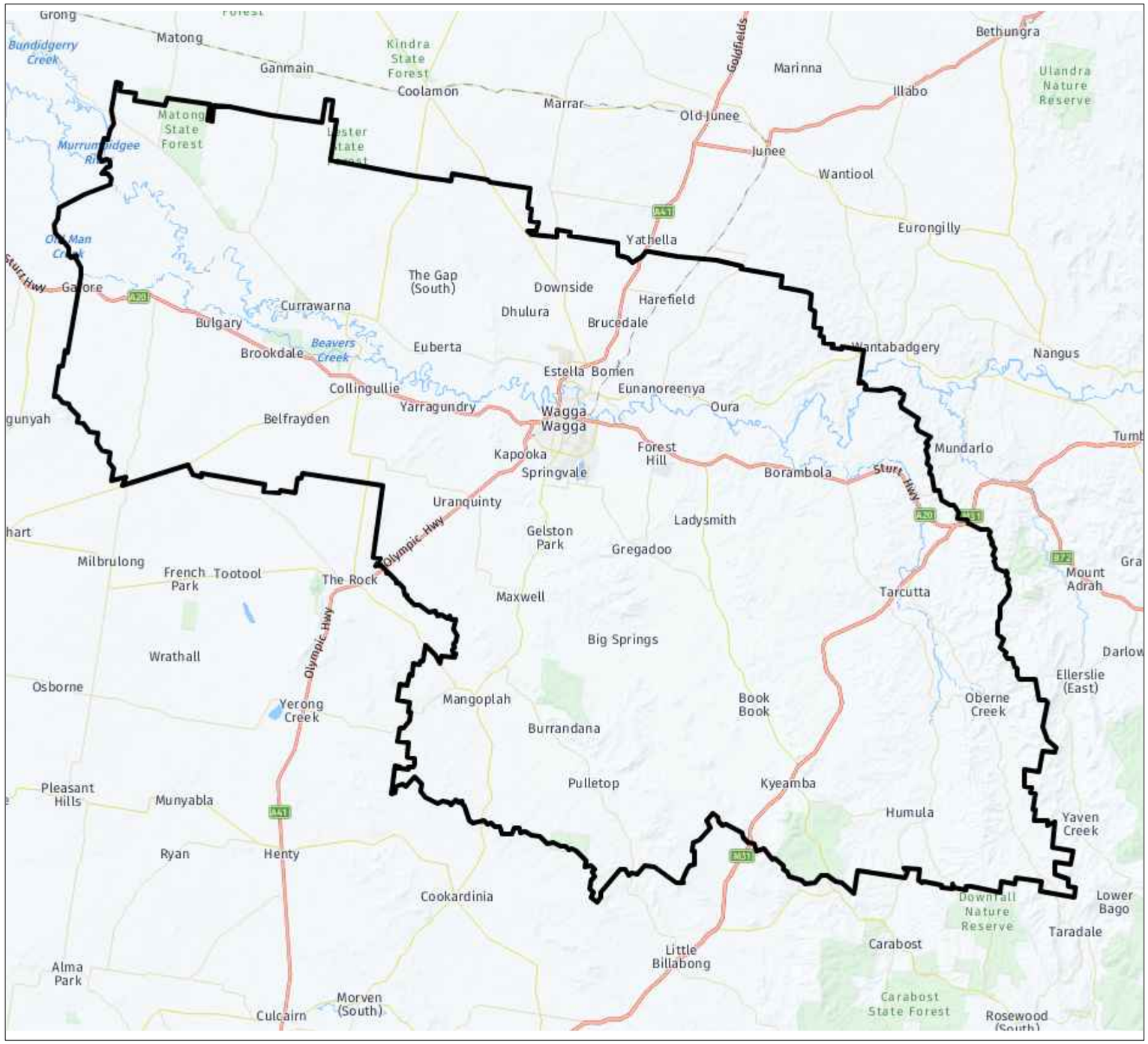
S

LEGEND

- HLW TRANSMISSION LINE
- ROUTE TO WATER SUPPLY
- LIGHT VEHICLE ROUTE
- LIGHT & HEAVY VEHICLE ROUTE
- B-DOUBLE OR HEAVY VEHICLES NOT PERMITTED DURING WINTER 1 JUNE - 31 AUGUST
- NATIONAL PARKS WILDLIFE SERVICES
- B-DOUBLES NOT ALLOWED
- PRIVATE PINE PLANTATION ROAD
- FCNSW ROAD
- WATER SUPPLY POINT
- ACCESS POINT

BAILLEY BRIDGE NO OSOM LOADS
ELLERSLIE RD LAYDOWN
LOWER BAGO LAYDOWN & BATCHPLANT
KUNAMA COMPOUND
MEMORIAL AVE COMPOUND
SNUBBA RD LAYDOWN
QUARRY
Water Supply Point
Maragle Substation
ELLIOTT WAY & TOOMA RD B-DOUBLE OR HEAVY VEHICLES NOT PERMITTED DURING WINTER 1 JUNE - 31 AUGUST



LEGEND

- HLW TRANSMISSION LINE
- ROUTE TO WATER SUPPLY
- LIGHT VEHICLE ROUTE
- LIGHT & HEAVY VEHICLE ROUTE
- WATER SUPPLY POINT
- ACCESS POINT

HumeLink West

UGL | CPB CONTRACTORS

Approved by:

PWZTMP # TCT0008474

NOT DRAWN TO SCALE

This Traffic Guidance Scheme is drawn to meet AS 1742.3 & TfNSW Traffic Control at Worksites manual V6.1 and should be implemented accordingly by a RMS qualified person, Drafter takes no responsibility for Implementation. This plan can only be altered by an accredited person with changes dated and signed, they then become responsible for whole TGS design.

REV	AUTHOR	CARD NUMBER	DATE	SIGNATURE
1.0	Abu Baker Babiker	TCT1056812	26-06-2024	A. Babiker
2.0	Abu Baker Babiker	TCT1056812	04-09-2024	A. Babiker
3.0	Abu Baker Babiker	TCT1056812	04-09-2024	A. Babiker
4.0	Abu Baker Babiker	TCT1056812	12-01-2025	A. Babiker
4.1	Abu Baker Babiker	TCT1056812	22-01-2025	A. Babiker
4.2	Abu Baker Babiker	TCT1056812	23-01-2025	A. Babiker
5.0	**Abu Baker Babiker**	**TCT1056812**	**20-02-2025**	**A. Babiker**

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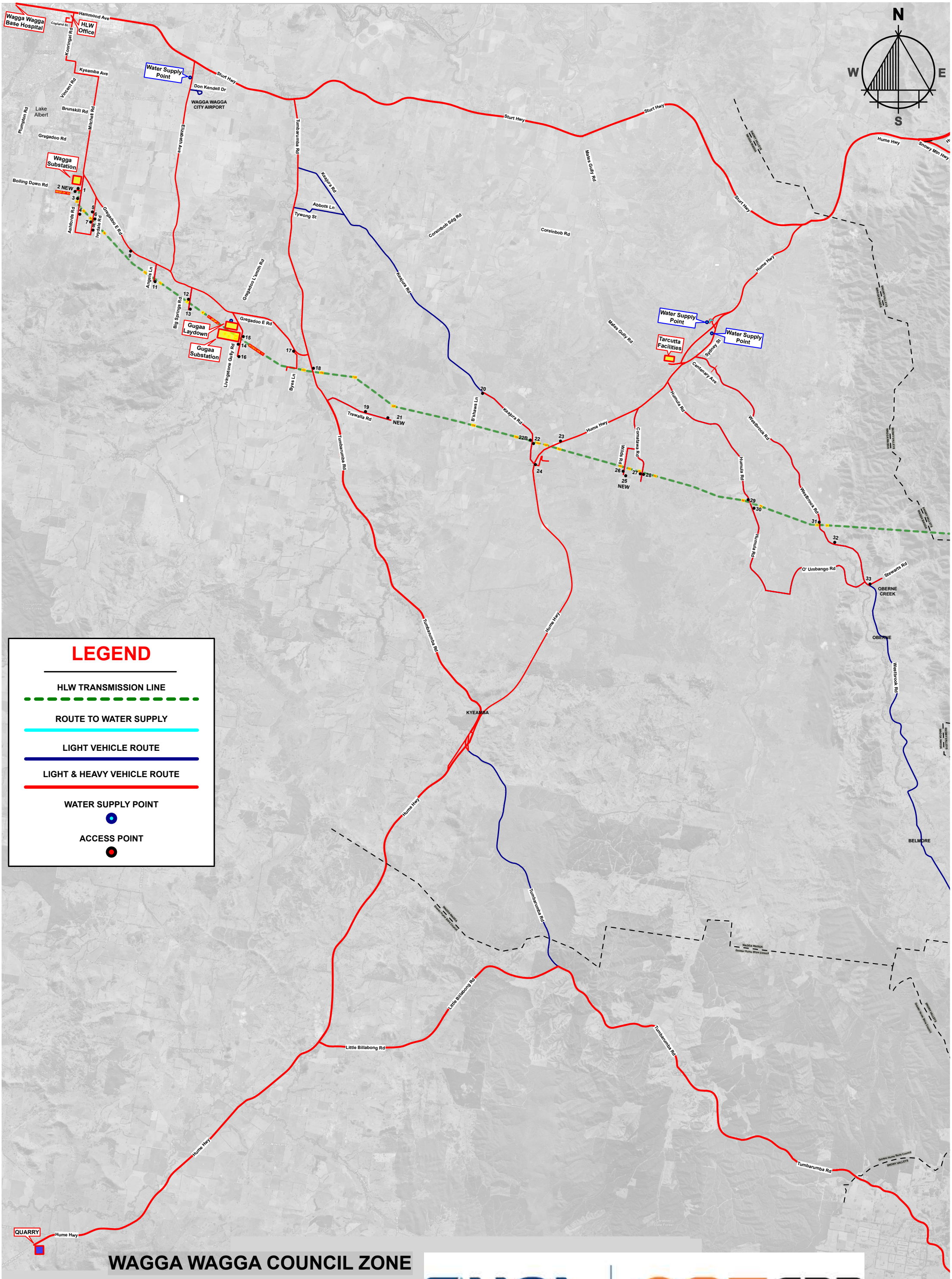
HLW_VMP-WWCC_TGS001 - V5

1 Sheet



WAGGA WAGGA COUNCIL ZONE

HLW_VMP-WWCC_TGS001 - V5

VEHICLE MOVEMENT PLAN

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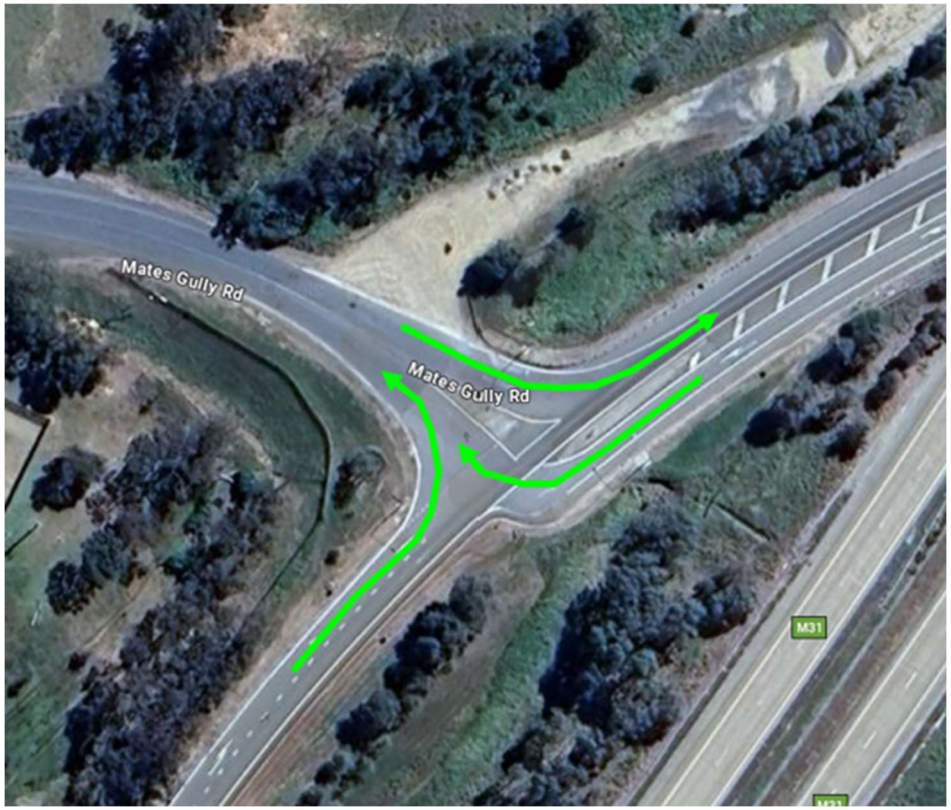
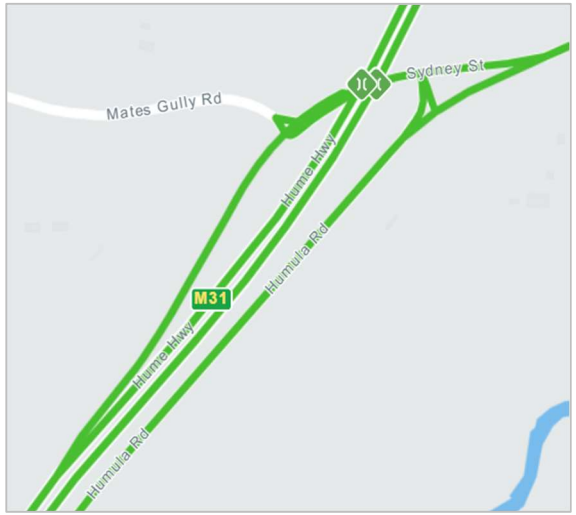
Appendix E State Road Interfaces

Classified Road Map



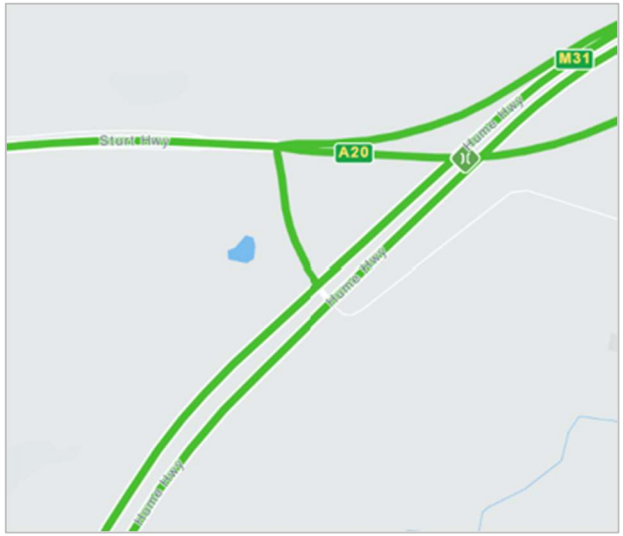


B-double route Map

Mates Gully Road intersects with the Hume Highway via the southern Tarcutta interchange. The Tarcutta Compound on Mates Gully Road will cause a slight increase in traffic volumes on Hume Highway, however the delay impact will be negligible due to the high background volumes.

No modification / upgrade to this intersection will be required as the existing conditions cater for the additional construction vehicle volumes.

Classified Road Map



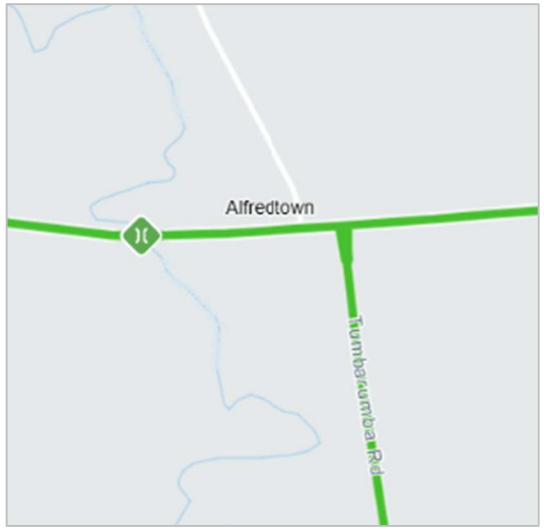
B-double route Map

Hume Highway / Sturt Highway

The intersection of the Hume Highway and Sturt Highway is a B-double route and provides a 180m left-turn lane from the Hume Highway. Construction vehicles will utilise this intersection when exiting the compound on Mates Gully Road and travelling to Wagga Wagga. This route minimises the use of local roads for construction vehicles.

As detailed in the *EIS Technical Report 16 - Revised Traffic and Traffic Impact Assessment,* no modification / upgrade to this intersection will be required as the existing conditions cater for the additional construction vehicle volumes**.**

Classified Road Map



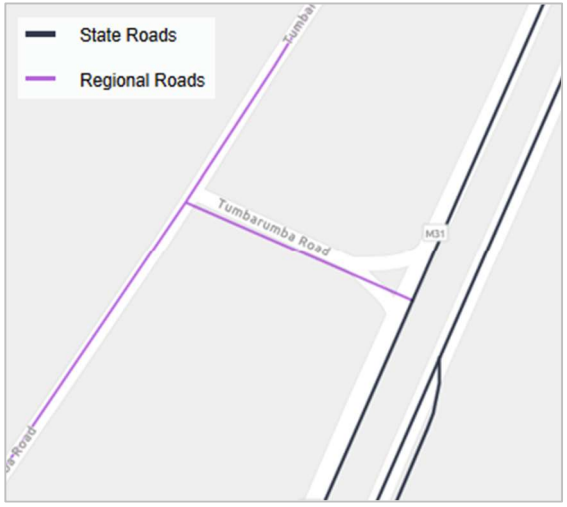
B-double route Map

Sturt Highway / Tumbarumba Road Intersection

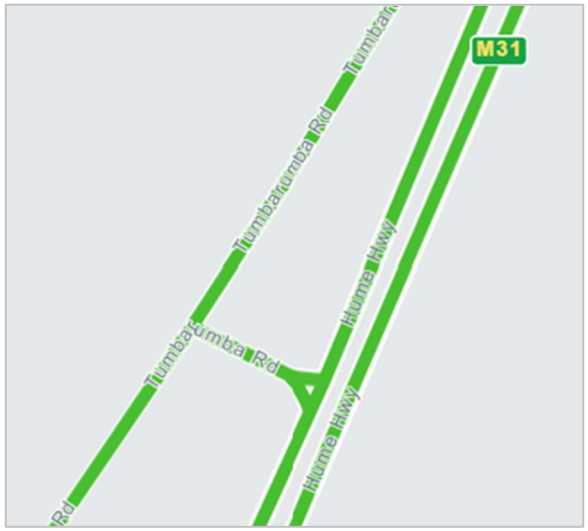
HLWJV construction traffic will use Tumbarumba Road from the Sturt Highway to access the Hume Highway and connect to Mates Gully Road. The intersection provides a 120m long right-turn lane into Tumbarumba Road and caters for 25/26m B-doubles.

As detailed in the *EIS Technical Report 16 - Revised Traffic and Traffic Impact Assessment,* no modification / upgrade to Tumbarumba Road will be required as the existing conditions cater for the additional heavy vehicles.

Classified Road Map



B-double route Map



Hume Highway / Tumbarumba Road Intersection

HLWJV construction traffic will use Tumbarumba Road from the Sturt Highway to access the Hume Highway and connect to Mates Gully Road. The intersection provides for left-in/left-out traffic and is a gazetted B-double route.

As detailed in the *EIS Technical Report 16 - Revised Traffic and Traffic Impact Assessment,* no modification / upgrade to Tumbarumba Road will be required as the existing conditions cater for the additional heavy vehicles.

Appendix F Transport Strategy Consultation Report