A2I | Albury to Illabo – Wagga Wagga Utility Work

Construction Noise and Vibration Impact Statement

Martinus Rail

1/23-27 Waratah Street, Kirrawee, NSW 2232

Prepared by:

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Revision Record

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V1.1	6 January 2025	Brandon Nguyen Khuong	Steven Luzuriaga	
V1.0	19 December 2024	Brandon Nguyen Khuong	Steven Luzuriaga	

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Martinus Rail (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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Table of Contents

Tables in Text

Figures in Text

Appendices

Acronyms and Abbreviations

AA	The Acoustics Advisor for the CSSI approved by the Planning Secretary
A2I	Albury to Illabo section of the Inland Rail project
ARTC	Australian Rail Track Corporation
AS	Australian Standard
AV:ATG	Assessing Vibration: a technical guideline (DEC, 2006)
BS	British Standard
dBA	A-weighted decibel (referenced 20 µPa)
DPHI	Department of Planning, Housing and Infrastructure
CCHMP	Construction Cultural Heritage Management Plan
CEMP	Construction Environmental Management Plan
CNVF	Inland Rail NSW Construction Noise and Vibration Framework
CNVMP	Construction Noise and Vibration Management Plan
CSSI	Critical Stage Significant Infrastructure
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change (now NSW EPA)
DIN	Deutches Institut für Normung (German Institute for Standardisation)
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
ER	The Environmental Representative(s) for CSSI approved by the Planning Secretary.
HNA	Highly Noise Affected
Hz	Hertz
ICNG	Interim Construction Noise Guideline (DECC, 2009
IR	Inland Rail
ISO	International Standards Organisation
km	Kilometres
km/h	Kilometres per hour
L_{Aeq}	Equivalent continuous noise level, providing a representation of the cumulative level of noise exposure over a defined period.
$L_{Aeq(15hour)}$	The equivalent continuous noise level for the 15-hour daytime period of 7.00 am to 10.00 pm
$L_{Aeq(9hour)}$	The equivalent continuous noise for the 9-hour daytime period of 10.00 pm to 7.00 am
$L_{Aeq(1hour)}$	The equivalent continuous noise for the busiest 1-hour period.

L_{Amax}	The maximum noise level during the measurement or assessment period. The L_{AFmax} or Fast is averaged over 0.125 of a second and the L_{ASmax} or Slow is averaged over 1-second.
m	Metres
mm	Millimetres
mm/s	Millimetres per second
m/s	Metres per second
MR	Martinus Rail
NCA	Noise Catchment Areas
NML	Noise Management Level
NSW	New South Wales
NPfI	Noise Policy for Industry
OOHW	Out of hours work
PPV	Peak Particle Velocity
RBL	Rating Background Level
TfNSW	Transport for New South Wales
VDV	Vibration Dose Value

Compliance Table

CoA	Requirement	Reference
A1	The Proponent must carry out the CSSI in accordance with the terms of this approval and generally in accordance with the: a) Inland Rail – Albury to Illabo Environmental Impact Statement (ARTC, August 2022) b) Albury to Illabo Response to Submissions (ARTC, November 2023) c) Albury to Illabo Preferred Infrastructure Report (ARTC, November 2023) d) Albury to Illabo Preferred Infrastructure Report Response to Submissions (ARTC, February 2024) e) Inland Rail – Albury to Illabo (SSI-10055) Response to request for additional information – Air Quality Assessment (letter dated 1 May 2024) f) Part 1 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024) g) Part 2 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024)	**The CNVMP**
A2	The CSSI must only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition A1 unless otherwise specified in, or required under, this approval.	**The CNVMP**
C9	The Construction Noise and Vibration Sub-plan must include, but not limited to: a) measures to reduce construction to standard ICNG hours where sensitive land uses are likely to be noise affected for more than 3 months; b) an approach to assess and manage construction fatigue from noise impacts on sensitive receivers on an ongoing basis; c) noise sensitive periods identified by the community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas and measures to ensure noise levels above the NMLs do not occur during sensitive periods in accordance with Condition E76; d) mitigation for construction traffic noise impacts from additional construction traffic and road diversions; e) the location of all heritage items, non-heritage structures and infrastructure likely to be impacted by vibration and measures to manage vibration impacts at those items and structures; and f) vibration levels at a range of distances from vibration intensive equipment such as excavators and vibratory rollers before undertaking works with the specific type and size of equipment.	**The CNVMP**
E68	A detailed land use survey must be undertaken to confirm sensitive land use(s) (including critical working areas such as operating theatres and precision laboratories) potentially exposed to construction noise and vibration, construction ground-borne noise and operational noise. The survey may be undertaken on a progressive basis but must be undertaken in any one area before the commencement of work which generates construction or operational noise, vibration or ground-borne noise in that area. The results of the survey must be included in the Noise and Vibration CEMP sub-plan required by Condition C8.	**The CNVMP, Section 3.0, Figure 1** **Figure 2**
E69	Work must be undertaken during the following hours: a) 7:00am to 6:00pm Mondays to Fridays, inclusive; b) 7:00am to 6:00pm Saturdays; and c) at no time on Sundays or public holidays.	**Section 2.2**

CoA	Requirement	Reference
E70	Except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken: a) between the hours of 8:00 am to 6:00 pm Monday to Friday; b) between the hours of 8:00 am to 1:00 pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. For the purposes of this condition, 'continuously' includes any period during which there is less than one hour between ceasing and recommencing any of the work.	**Section 2.2.1**, **Section 8.2**
E71	Notwithstanding Conditions E69 and E70, work may be undertaken outside the hours specified in the following circumstances (a, b, or c): a) Safety and Emergencies, including: i. for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or ii. where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm. On becoming aware of the need for emergency work in accordance with Condition E71(a), the AA, the ER, the Planning Secretary and the EPA must be notified of the reasons for such work. Best endeavours must be used to notify all noise and/or vibration affected residents and owners/occupiers of properties identified sensitive land use(s) of the likely impact and duration of those work. b) Work, that meets the following criteria: i. construction that causes $L_{Aeq(15\ minute)}$ noise levels: • no more than 5 dB(A) above the rating background level at any residence in accordance with the ICNG, and • no more than the 'Noise affected' NMLs specified in Table 3 of the ICNG at other sensitive land use(s); and ii. construction that causes L_{AFmax} noise levels no more than 15 dB above the rating background level at any residence during the night period as defined in the ICNG. and iii. construction that causes: • continuous or impulsive vibration values, measured at the most affected residence no more than the preferred values for human exposure to vibration, specified in Table 2.2 of *Assessing Vibration: a technical guideline* (DEC, 2006), or • intermittent vibration values measured at the most affected residence no more than the preferred values for human exposure to vibration, specified in Table 2.4 *of Assessing Vibration: a technical guideline* (DEC, 2006). c) By Approval, including: i. where different construction hours, such as those for a rail possession, are permitted under an EPL in force in respect of the CSSI; or ii. works which are not subject to an EPL that are approved under an Out-of-Hours Work Protocol as required by Condition E72; or iii. negotiated agreements with directly affected residents and sensitive land use(s).	**Section 2.3**
E72	An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of work which is outside the hours defined in Conditions E69, and that are not subject to an EPL. The Protocol must be approved by the Planning Secretary before commencement of the Out-of-Hours Work. The Protocol must be prepared in consultation with the ER, AA and EPA.	**The CNVMP, Section 2.4**

CoA	Requirement	Reference
	The Protocol must include: a) identification of low and high-risk activities and an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where: i. the ER and AA review all proposed out-of-hours activities and confirm their risk levels, ii. low risk activities can be approved by the ER in consultation with the AA, and iii. high risk activities that are approved by the Planning Secretary; b) a process for the consideration of out-of-hours work against the relevant NML and vibration criteria; c) a process for selecting and implementing mitigation measures for residual impacts in consultation with the community at each affected location, including respite periods. The measures must take into account the predicted noise levels and the likely frequency and duration of the out-of-hours works that sensitive land use(s) would be exposed to, including the number of noise awakening events; d) procedures to facilitate the coordination of out-of-hours work including those approved by an EPL or undertaken by a third party, to ensure appropriate respite is provided; and e) notification arrangements for affected receivers for approved out-of-hours work and notification to the Planning Secretary of approved low risk out-of-hours works. This condition does not apply if the requirements of Condition E71 are met.	
E73	Except as permitted by an EPL, out-of-hours work that may be regulated through the Out-of-Hours Work Protocol as per Condition E72, but is not limited to: a) Carrying out work that if carried out during standard hours would result in a high risk to construction personnel or public safety based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009: "Risk management; or b) where the relevant roads authority has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to road network performance and a road occupancy licence will not be issued; or c) where the relevant utility service operator has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to the operation and integrity of the utility network; or d) work undertaken in a rail possession for operational or safety reasons. *Note: Other out-of-hours works can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for works not subject to an EPL.*	**Section 2.3**
E74	Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration objectives: a) construction 'Noise affected' NMLs established using the Interim Construction Noise Guideline (DECC, 2009); b) vibration criteria established using *the Assessing vibration: a technical guideline* (DEC, 2006) (for human exposure); c) Australian Standard AS 2187.2 - 2006 "*Explosives - Storage and Use - Use of Explosives*"; d) BS 7385 Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2*" as they are "applicable to Australian conditions"; and e) the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures* (for structural damage).	**The CNVMP, Section 4.0**, **Section 8.0**

CoA	Requirement	Reference
	Work that exceeds the noise management levels and/or vibration criteria must be managed in accordance with the Noise and Vibration CEMP sub-plan. *Note: The ICNG identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction NML.*	
E75	Mitigation measures must be applied when the following residential ground-borne noise levels are exceeded: a) evening (6:00 pm to 10:00 pm) — internal $L_{Aeq(15\ minute)}$: 40 dB(A); and b) night (10:00 pm to 7:00 am) — internal $L_{Aeq(15\ minute)}$: 35 dB(A). The mitigation measures must be outlined in the Noise and Vibration CEMP sub-plan, including in any Out-of-Hours Work Protocol, required by Condition E72.	**Section 4.2.3**
E76	Noise generating work in the vicinity of community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas (such as exam halls, theatres, laboratories and operating theatres) resulting in noise levels above the NMLs must not be timetabled during sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.	**Section 8.0**
E77	At no time can noise generated by construction exceed the National Standard for exposure to noise in the occupational environment of an eight-hour (8hr) equivalent continuous A-weighted sound pressure level of $L_{Aeq,8h}$ of 85 dB(A) for any employee working at a location near the CSSI.	**Section 8.6**
E78	Construction Noise and Vibration Impact Statements (CNVIS) must be prepared for work that may exceed the noise management levels, vibration criteria and/or ground-borne noise levels specified in Condition E74 and Condition E75 at any residence outside construction hours identified in Condition E69, or where receivers will be highly noise affected. The CNVIS must include specific mitigation measures identified through consultation with affected sensitive land use(s) and the mitigation measures must be implemented for the duration of the works. A copy of the CNVIS must be provided to the AA and ER prior to the commencement of the associated works. The Planning Secretary may request a copy/ies of CNVIS.	**This report, Section 8.5**
E79	Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage must be notified before work that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owners and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier. These properties must be identified and considered in the Noise and Vibration CEMP Sub-plan required by Condition C8 and the Community Communication Strategy required by Condition B1.	**Section 8.0**
E80	Vibration testing must be undertaken before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic damage. In the event that the vibration testing and attended monitoring shows that the preferred values for vibration are likely to be exceeded, the construction methodology must be reviewed and, if necessary, additional mitigation measures implemented.	**Section 6.1, Section 8.0**
E81	Advice from an independent heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures. *Note: The heritage specialist is to provide advice prior to installing equipment that may impact the heritage significance or structural integrity of the heritage listed structures.*	**Section 8.0**
E83	All work undertaken for the delivery of the CSSI, including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided. This must include:	**Section 8.0, Section 8.2**

CoA	Requirement	Reference
	a) rescheduling work to provide respite to impacted noise sensitive land use(s) so that the respite is achieved; or b) the provision of alternative respite or mitigation to impacted noise sensitive land use(s); and c) the provision of documentary evidence to the AA in support of any decision made in relation to respite or mitigation. The consideration of respite must also include all other CSSI, SSI and SSD projects which may cause cumulative and/or consecutive impacts at receivers affected by the delivery of the CSSI.	
E119	The Proponent must coordinate Work with adjoining Inland Rail Projects, including any work to relocate or connect utilities, to minimise cumulative and consecutive noise and vibration impacts and maximise respite for affected sensitive land uses. Coordination and mitigation measures must be detailed in the Construction Noise and Vibration management Sub-plan required by Condition C9.	**Section 8.0, Section 8.2, Section 9.0**
E120	Before commencement of any work, a structural engineer must undertake condition surveys of all buildings, structures, utilities and the like identified in the documents listed in Condition A1 as being at risk of damage. The results of the surveys must be documented in a Condition Survey Report for each item surveyed. Copies of Condition Survey Reports must be provided to the owners of the items surveyed, and no later than one (1) month before the commencement of construction.	**Section 6.1**
E121	After completion of construction, condition surveys of all items for which condition surveys were undertaken in accordance with Condition E120 of this approval must be undertaken by a structural engineer. The results of the surveys must be documented in a Condition Survey Report for each item surveyed. Copies of Condition Survey Reports must be provided to the landowners of the items surveyed, and no later than three (3) months following the completion of construction.	**Section 6.1**
E122	Property damage caused directly or indirectly (for example from vibration or from groundwater change) by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.	**Section 6.1**

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Martinus Rail (MR) to prepare a construction noise and vibration impact statement (CNVIS) for the utility work at the Edmondson Street Bridge, Pearson Street Bridge and Cassidy Footbridge enhancement sites in Wagga Wagga, NSW. These sites form part of the Albury to Illabo (A2I) section of Inland Rail (the Project). This assessment has been prepared in accordance with the Construction Noise and Vibration Management Plan (CNVMP) for the A2I section of the Project.

This report assesses the potential construction noise and vibration impacts for the utility work associated with the Edmondson Street Bridge, Pearson Street Bridge and Cassidy Footbridge enhancement sites. An explanation of the specialist acoustic terminology used in this report is provided in **Appendix A**.

2.0 Project Description

Inland Rail is an approximate 1,600 kilometres (km) freight rail network that will connect Beveridge and Kagaru via regional Victoria, New South Wales and Queensland. The Inland Rail route would involve using approximately 1,000 km of existing track (with enhancements and upgrades where necessary) and 600 km of new track, passing through 30 local government areas. Inland Rail will accommodate double-stacked freight trains up to 1,800 metres (m) long and 6.5 m high.

The Albury to Illabo (A2I) section (the Project) forms a key component of the Inland Rail program. It is a 185 km section of existing rail corridor located in regional NSW between the towns of Albury and Illabo. Works would include track realignment, lowering and/or modification within the existing rail corridor, modification, removal or replacement of bridge structures (rail, road and/or pedestrian bridges), raising or replacing signal gantries, level-crossing modifications and other associated works. This CNVIS is associated with utility work associated with the Edmondson Street Bridge, Pearson Street Bridge and Cassidy Footbridge enhancement sites.

Relevant noise and vibration conditions from the Conditions of Approval (CoA) are detailed within the compliance table at the beginning of this document and will be complied with during the work.

2.1 Scope of this CNVIS

The focus of this CNVIS is the utility work associated with the Edmondson Street Bridge, Pearson Street Bridge and Cassidy Footbridge. Work at these sites includes:

- Establishment of temporary site facilities, including site office/shed and materials laydown areas
- Site Compound Operation
- Vegetation Clearing
- Utility Work (eg Gas, 66kV Electricity, Water) - Investigation and excavation, underbores and protection works.

Further details of work activities are outlined in **Section 5.1**. The work areas are surrounded by a combination of urban and suburban residential, commercial, industrial, educational and medical receivers. Additionally, there are several childcare centres, places of worship, hotels, libraries and public buildings at various setbacks from the main areas of work. The Project location, work areas and surrounding receivers are shown in **Figure 1** and **Figure 2**.

2.2 Hours of work

In accordance with the Construction Noise and Vibration Management Plan (CNVMP) and CoA E69 construction work must be undertaken within the approved standard construction hours:

a) 7:00am to 6:00pm Monday to Friday, inclusive;

b) 7:00am to 6:00pm Saturday and

c) At no time on Sundays or public holidays.

2.2.1 Highly Noise Intensive Work

As outlined in the CoA E70, any highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:

a) Between 08:00am – 06:00pm Monday to Friday;

b) Between 08:00am – 01:00pm Saturday; and

c) If continuously, then not exceeding (3) hours, with a maximum cessation of work of not less than one hour.

The CoA defines 'highly noise intensive works' as those identified as annoying under the Interim Construction Noise Guideline (ICNG) and include:

- Use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work;
- Grinding metal, concrete or masonry;
- Rock drilling;
- Line drilling;
- Vibratory rolling;
- Bitumen milling or profiling;
- Jackhammering, rock hammering or rock breaking;
- Impact piling; and
- Tamping (for rail projects).

2.3 Variation to hours of work

Notwithstanding CoA E69 and E70, work may be undertaken outside the hours specified in the CoA E71 circumstances (a, b, or c):

a) Safety and Emergencies

b) Work, that meets specific criteria

c) By Approval

Note: refer to **Compliance Table** for further detail.

2.4 Justification of Out of Hours Work (OOHW)

Work activities that may be required or proposed to be undertaken outside of standard working hours will be managed in accordance with the OOHW Protocol as defined in CoA E72 and E73, unless the work is regulated by an EPL.

All work on or adjacent to roads would be carried out in accordance with a relevant Traffic Control Plan (TCP), Road Occupancy Licence (ROL) and/or rail possession to facilitate safe work near live road/rail traffic. Where an ROL/rail possession cannot be obtained for the approved project hours and/or proposed works cannot be undertaken safely during these hours, some works will be required to be undertaken outside of standard hours (ie Out of Hours Work, OOHW).

As outlined in the ICNG, work undertaken on public infrastructure may need to be undertaken outside the recommended standard hours. For this project the need is based on a requirement to sustain the operational integrity of public infrastructure, as works to restore operation of the infrastructure provide benefit to the greater community (ie more than just local residents).

Further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit, required by the OOHW Protocol or EPL.

3.0 Existing Environment

The existing ambient noise environment was described in Environmental Impact Statement (EIS), Technical Paper 6 – Noise and Vibration (Non-Rail) for the Albury to Illabo project. This section provides details of the existing ambient noise environment relevant to the Wagga Wagga utilities work.

The noise catchment areas (NCAs) used are consistent with the NCAs described in the EIS and are shown in **Figure 1** and **Figure 2** with the receiver classifications and approximate noise monitoring locations. Sensitive land uses and receiver classifications within the project area were confirmed through a detailed land use survey undertaken in August 2024. Results of the land use survey have been incorporated into the receiver classifications shown in **Figure 1** and **Figure 2.**

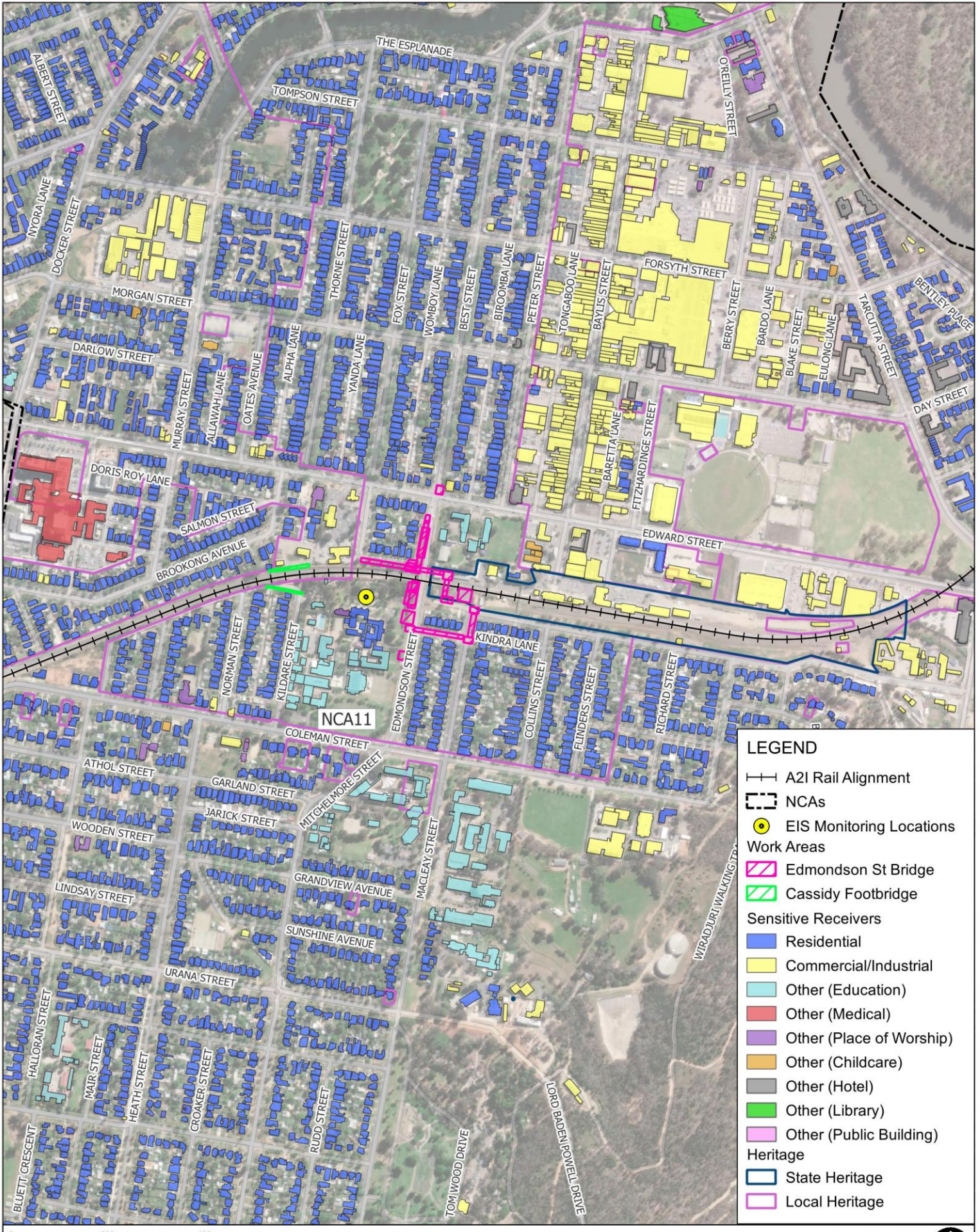
3.1 Background Noise Levels

Background noise levels have been referenced from the baseline noise survey undertaken as part of the EIS and reproduced in the CNVMP. The background noise levels relevant to the Wagga Wagga utilities work are summarised in **Table 1**.

Table 1 Background Noise Levels

Noise Monitoring Location	NCA	Rating background Level (RBL) dBA NPfI defined time periods[1]		
		Daytime period	Evening period	Night-time period
11	10	46	45	38
12	11	48	47	37

Note 1: The assessment periods are the daytime which is 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays, the evening which is 6 pm to 10 pm, and the night-time which is 10 pm to 7 am on Monday to Saturday and 10 pm to 8 am on Sunday and public holidays. See the NSW EPA Noise Policy for Industry (NPfI).



Scale: Scale: 1:10,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 18-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

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Receiver Classifications and Noise Monitoring Locations

FIGURE 1

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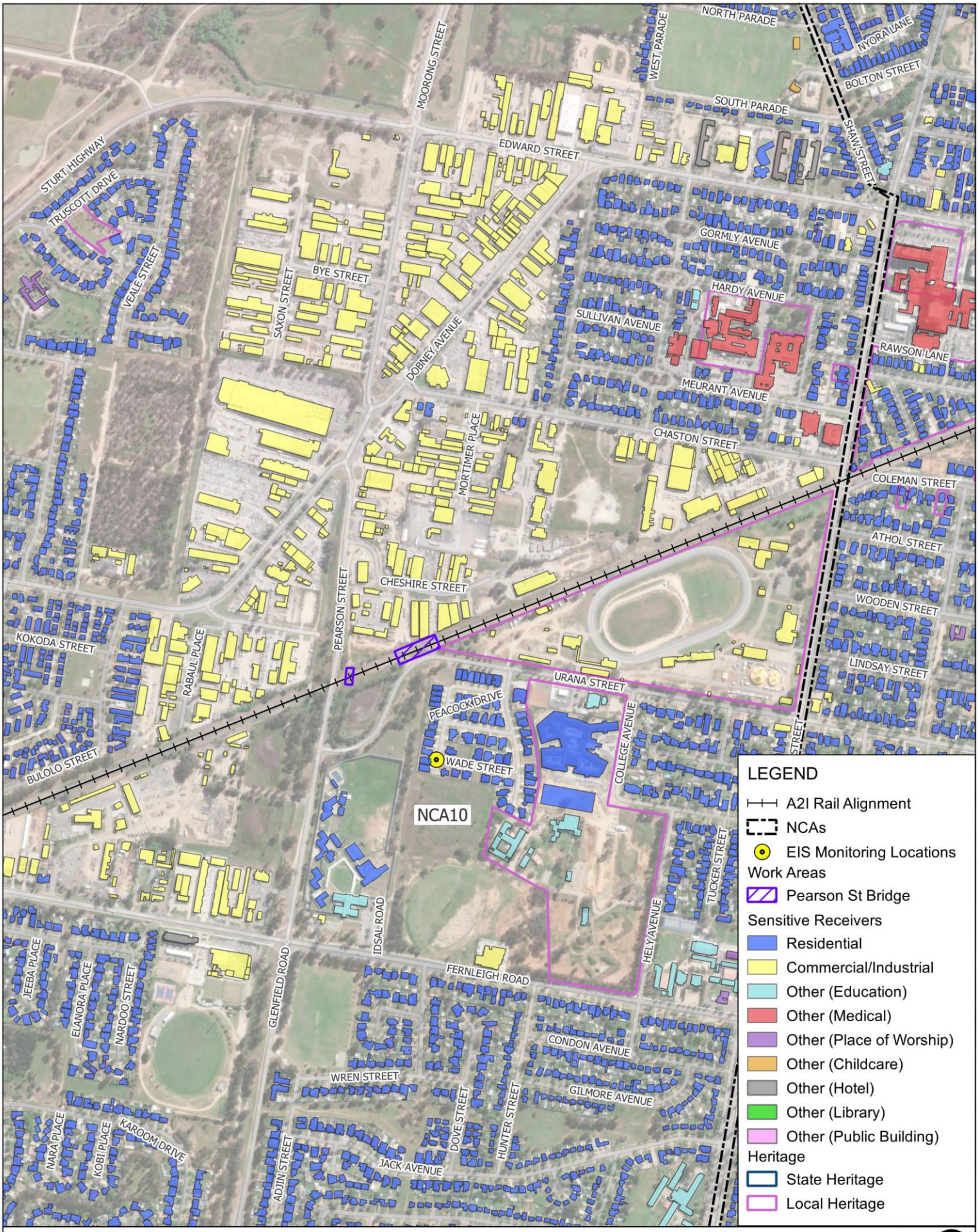

Scale: Scale: 1:10,000
Coordinate System: GDA2020 / MGA zone 55

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ESRI World Imagery

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Receiver Classifications and Noise Monitoring Locations

FIGURE 2

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\01 CAD\GIS\QGIS\SLR610031317_Wagga_Utility.qgz

4.0 Assessment Criteria

4.1 Construction Noise and Vibration Guidelines

The standards and guidelines relevant to the Project are listed in **Table 2**. These guidelines aim to protect the community and environment from excessive noise and vibration impacts during construction of projects.

Table 2 Construction Noise and Vibration Standards and Guidelines

Guideline/Policy Name	Where Guideline Used
Inland Rail NSW Construction Noise and Vibration Framework (CNVF)	Assessment and management protocols for airborne noise, ground-borne noise and vibration impacts for construction of NSW Inland Rail projects
Interim Construction Noise Guideline (ICNG) (DECC, 2009)	Assessment of airborne noise impacts on sensitive receivers
Environmental Criteria for Road Traffic Noise (ECRTN) (EPA, 1999)	Contains guidance for assessing potential sleep disturbance impacts
Road Noise Policy (RNP) (DECCW, 2011)	Assessment of construction traffic impacts
BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2, BSI, 1993	Assessment of vibration impacts (structural damage) to non-heritage sensitive structures
DIN 4150:Part 3-2016 Structural vibration – Effects of vibration on structures, Deutsches Institut für Normung, 2016	Screening assessment of vibration impacts (structural damage) to heritage sensitive structures, where the structure is found to be unsound
Assessing Vibration: a technical guideline (DEC, 2006)	Assessment of vibration impacts on sensitive receivers
AS2187.2:2006 Explosives – Storage and use Part 2: Use of explosives	Assessment of impacts from blasting activities
*Construction Noise and Vibration Guideline (Public Transport Infrastructure) (*CNVG-PTI) (Transport for NSW, 2023)	Utilised for minimum working distances for vibration intensive work.

4.2 Noise Management Levels

The noise management levels (NMLs) for residential and other sensitive receivers have been adopted from the CNVMP, as determined in the EIS. Receiver types and locations are shown **Figure 1** and **Figure 2**.

4.2.1 Residential Receivers

Project-specific NMLs for residential receivers were determined for each NCA. NMLs for other sensitive receivers are fixed values adopted from the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and outlined in the CNVMP. Residential NMLs for NCAs surrounding the utilities work sites are shown in **Table 3**.

Table 3 Residential Noise Management Levels

NCA	Noise Management Level ($L_{Aeq(15minute)}$ - dB)				Sleep disturbance Screening Level (RBL +15dB or 52 dB)	Sleep Awakening Reaction Level
	Approved Hours (RBL +10dB)	Out of Hours[1,2]				
		Daytime (RBL +5dB)	Evening (RBL +5dB)	Night-time (RBL +5dB)		
NCA10	56	51	50	43	53	65
NCA11	58	53	52	42	52	65

Note 1: Approved Construction Hours are Monday to Saturday 7 am to 6 pm, as defined in CoA E69.

Note 2: Work outside of the Approved Hours is defined as OOHW = Out of Hours Work. Daytime out of hours is Sunday and public holidays between 8 am to 6 pm. Evening is 6pm to 10pm Monday – Sunday (including public holidays). Night-time is 10pm to 7am Monday – Saturday and 10pm to 8am Sunday (including public holidays).

Highly Noise Affected

In addition to the NMLs presented above, the ICNG highly noise affected level (>75 dBA) represents the point above which there may be strong community reaction to noise and is applicable to all residential receivers during approved project hours as outlined in the CNVMP and the ICNG.

Sleep Disturbance

Where the sleep disturbance screening level (RBL + 15 dB or 52 dB, whichever is greater, see **Table 3**) is exceeded, further assessment is required to determine whether the 'awakening reaction' level of L_{Amax} 65 dBA (external) would be exceeded and the likely number of these events. The awakening reaction level is the level above which residents are likely to be awoken from sleep.

4.2.2 Other Sensitive Land Uses and Commercial Receivers

The ICNG NMLs for 'other sensitive' non-residential land uses are shown in **Table 4**.

The ICNG references *AS2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* for criteria for 'other sensitive' receivers which are not listed in the guideline. Neither the ICNG nor AS2107 provide criteria for child care centres so the Association of Australian Acoustical Consultants *Guideline for Child Care Centre Acoustic Assessment* (GCCCAA) has been referenced.

Table 4 NMLs for 'Other Sensitive' Receivers

Land Use	Noise Management Level $L_{Aeq(15minute)}$ (dB) (Applied when the property is in use)	
	Internal	External
ICNG 'Other Sensitive' Receivers		
Classrooms at schools and other educational institutions	45	55[1,5]
Hospital wards and operating theatres	45	65[2]
Places of worship	45	55[1]
Active recreation areas (characterised by sporting activities which generate noise)	-	65
Passive recreation areas (characterised by contemplative activities that generate little noise)	-	60

Land Use	Noise Management Level $L_{Aeq(15minute)}$ (dB) (Applied when the property is in use)	
	Internal	External
Commercial	-	70
Industrial	-	75
Non-ICNG 'Other Sensitive' Receivers		
Hotel – daytime & evening[3]	50	60[1,5]
Hotel – night-time[3]	35	45[1,5]
Child care centres – activity areas[4]	40	50[1,5]
Child care centres – sleeping areas[4]	35	45[1,5]
Library[3]	45	55[1]
Public Building[3]	50	60[1]
Aged Care	Considered as Residential	

Note 1: It is assumed that these receivers have windows partially open for ventilation which results in internal noise levels being around 10 dB lower than the external noise level.

Note 2: It is assumed that these receivers have fixed windows which conservatively results in internal noise levels being around 20 dB lower than the external noise level.

Note 3: Criteria taken from AS2107.

Note 4: Criteria taken from Association of Australian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment.

Note 5: Some receivers near highways or rail lines may have building façade mitigation and air-conditioning. Where evidence is provided a 20dB reduction from external to internal may be adopted.

4.2.3 Ground-borne Noise

Construction work can cause ground-borne (structure-borne or regenerated) noise impacts in nearby buildings when vibration intensive equipment is in use, such as during tunnelling or excavation work using tunnel boring machines, roadheaders or rockbreakers. Vibration can be transmitted through the ground and into nearby buildings, which can then create audible noise impacts inside the building.

Ground-borne noise NMLs are applicable where ground-borne noise levels are likely to be higher than airborne noise levels, which can occur where work is underground or where surface work is shielded by noise barriers, other structures or façade mitigation at the receiver. Ground-borne noise is generally found to generate impacts during the evening and night-time periods when ambient noise levels are often much lower, and ground-borne noise is more prominent.

The internal ground-borne noise NMLs for residential receivers are shown in **Table 5**.

Table 5 Internal ground-borne NMLs

Receiver Type	Noise Management Level ($L_{Aeq(15minute)}$ – dBA)		
	Daytime[1]	Evening[2]	Night-time[2]
Residential	n/a	40	35

Note 1: Daytime ground-borne noise NMLs are not specified in the ICNG of CoA.

Note 2: Specified in the ICNG and CoA E75.

For other sensitive receivers, the ICNG does not provide guidance in relation to acceptable ground-borne noise levels. For the purpose of this CNVIS, the internal airborne NMLs presented in **Table 4** will also be adopted for ground-borne noise.

4.3 Vibration Criteria

The effects of vibration from construction work can be divided into three categories:

- Those in which the occupants of buildings are disturbed (**human comfort**). People can sometimes perceive vibration impacts when vibration generating construction work is located close to occupied buildings. Vibration from construction work tends to be intermittent in nature and the EPA's Assessing Vibration: a technical guideline (2006) (AV:ATG) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV), as shown in **Table 6**. While the construction activities for the proposal are generally not expected to result in continuous or impulsive vibration impacts, corresponding criteria are provided in **Table 7**.
- Those where building contents may be affected (**building contents**). People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents. Exceptions to this can occur when vibration sensitive equipment, such as electron microscopes or medical imaging equipment, are in buildings near to construction work. No such equipment has been identified in the study area.
- Those where the integrity of the building may be compromised (**structural/cosmetic damage**). If vibration from construction work is sufficiently high it can cause cosmetic damage to elements of affected buildings. Industry standard cosmetic damage vibration limits are specified in British Standard BS 7385 and German Standard DIN 4150. The limits are shown in **Table 8** and **Table 9**.

Table 6 Human Comfort Vibration – Vibration Dose Values for Intermittent Vibration

Building Type	Assessment Period	Vibration Dose Value[1] ($m/s^{1.75}$)	
		Preferred	Maximum
Critical Working Areas (eg operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Note 1: The VDV accumulates vibration energy over the daytime and night-time assessment periods, and is dependent on the level of vibration as well as the duration.

Table 7 Human Comfort Vibration – Preferred and Maximum Weighted Root Mean Square Values for Continuous and Impulsive Vibration Acceleration (m/s^2) 1–80 Hz

Location	Assessment period	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration					
Residential	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
Workshops	Day or night-time	0.04	0.029	0.080	0.058
Impulsive vibration					
Residential	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 8 Cosmetic Damage – BS 7385 Transient Vibration Values for Minimal Risk of Damage

Group	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values may need to be reduced by up to 50%.

Table 9 Cosmetic Damage – DIN 4150 Guideline Values for Short-term Vibration on Structures

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 **and** are of great intrinsic value (eg heritage listed buildings)	3	3 to 8	8 to 10	8	20[1]

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.

4.3.1 Heritage Buildings or Structures

Heritage listed buildings and structures should be considered on a case-by-case basis but BS 7385 notes that buildings of historical value should not be assumed to be more sensitive to vibration, unless structurally unsound. Where a heritage building is deemed to be sensitive, the more stringent DIN 4150 Group 3 guideline values in **Table 9** can be applied.

Heritage Structures

Table 10 includes heritage structures from the State Heritage Register, Local Heritage Items and Local Environment Plan that are within 100 m of any construction work areas at Edmondson St Bridge, Cassidy Footbridge or Pearson St Bridge.

Table 10 Heritage Items Nearby Construction Work Areas

Heritage Item	Listing	Nearest Work Location	Construction/Condition
Wagga Wagga Showground, Kyeamba Smith Hall and Grandstand[1]	Local Environment Plan I246	Pearson Street Bridge	The Wagga Wagga Showground includes a number of early and mid-20th century buildings, including the 'Neil Skeers' Grandstand, the 'Kyeamba Smith' Hall and several other contemporary buildings. The Wagga Wagga Showground camping grounds are adjacent to the Pearson Street Bridge works. The Grandstand and the Hall appear to be in fair condition.
Cassidy Parade and Brookong Avenue footbridge	ARTC s170 4280661	Cassidy Footbridge	This pedestrian bridge has been constructed from cast concrete with a steel pipe and wire railing fence. The pedestrian bridge appears to be in good condition
Mount Erin Convent Chapel, High School, and Grounds	Local Environment Plan I260	Edmondson Street Bridge and Cassidy Footbridge	This complex comprises of a number of buildings, many of which date to the late 19th century.
Wagga Wagga Railway Station and Yard Group	State Heritage Register 01279, ARTC s170 4280250	Edmondson Street Bridge	The Wagga Wagga Railway Station is a substantial and ornate structure, built in the Victorian Free Classical style. West of the station building is the Wagga Wagga footbridge ('Mothers Footbridge'), which was built in 1936. It is a simple steel girder bridge with a
Best Street Railway	State Heritage Register 01279, Local	Edmondson Street Bridge	

Heritage Item	Listing	Nearest Work Location	Construction/Condition
Gatehouse (former)	Environment Plan I254		steel post-and-rail safety barrier and straight lateral bracing post). The footbridge is in fair condition.
Station Master's Residence (former)	State Heritage Register 01279, Local Environment Plan I99	Edmondson Street Bridge	Immediately west of the station building is the Wagga Wagga Railway Museum. The museum is a single-storey brick building with a corrugated iron sheet clad roof. Southwest of the station building is the former Best Street gatehouse. It has a T-shaped floorplan and has been constructed from brick— English bond— with a corrugated iron roof (partially missing). The building is in poor condition, with evidence of fire damage, ongoing squatting, and general disrepair.

Note 1 The Grandstand and Hall are further than 100 m from the Pearson Street Bridge work area, although some buildings within the camping ground Wagga Wagga Showground camping ground may fall within 100 m of the work areas.

The Mount Erin Convent Chapel, Highschool and Grounds, Wagga Wagga Railway Station and Yard group, Best Street Railway Gatehouse and Station Master's Residence are within the Wagga Wagga Conservation Area. The Wagga Wagga Conservation Area also encompasses many 19th and early 20th century buildings, including the residential dwellings at 2 Kildare St and 1 Norman St nearby the Cassidy Footbridge works.

Further information on the heritage items in **Table 10** are provided in the Construction Cultural Heritage Management Plan (CCHMP). No structures nearby the work areas identified in this CNVIS are flagged as structurally unsound in the CCHMP.

Pre- and post-condition surveys of heritage structures are to be conducted in accordance with CoA E120 and E121 when relevant (ie if the heritage buildings are within the minimum working distances for heritage items for nominated vibration-intensive equipment) refer to **Section 4.3.3** and **Section 6.1**.

4.3.2 Buried Pipework and Utilities

The German Standard DIN 4150-3:1999 "Structural Vibration Part 3: Effects of vibration in structures" provides guideline values for evaluating the effect of vibration on buried pipework. The values are based on the assumption that pipes have been manufactured and laid using current technology. Additional considerations may be required at junctions. The recommended limits for short term vibration to ensure minimal risk of damage are presented numerically in **Table 11**.

Table 11 Guideline Values for Short Term Vibration on Buried Pipework

Line	Pipe Material	Guideline value at the Pipe[1,2] (PPV mm/s)
1	Steel (including welded pipes)	100
2	Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)	80
3	Masonry, plastic[3]	50

Note 1: Mounting equipment directly onto pipes may not be possible. If the vibration source is not immediately next to the pipework, measurements can be made on the ground surface to obtain an estimate. Generally, this vibration level will be greater than the level measured directly on the pipework.

Note 2: The guideline values may be reduced by 50% without further analysis when evaluating the effects of long-term vibration on buried pipework.

Note 3: Drainpipes shall be evaluated using the values given for Line 3.

4.3.3 Minimum Working Distances for Vibration Intensive Work

Minimum working distances for typical vibration intensive construction equipment have been sourced from the Transport for NSW (TfNSW) Construction Noise and Vibration Guideline (Public Transport Infrastructure) (CNVG-PTI) and are shown in **Table 12**. The minimum working distances are for both cosmetic damage (from BS 7385 and DIN 4150) and human comfort (from the NSW EPA Assessing Vibration: a technical guideline). They are calculated from empirical data which suggests that where work is further from receivers than the quoted minimum distances then impacts are not considered likely.

The minimum working distances listed in the CNVG were used to derive the minimum working distances required for cosmetic damage to industrial and heavy commercial buildings (also reinforced or framed structures). The following pseudo-power law relationship has been used in the derivations:

$$V_2 = V_1 \times \left(\frac{D_1}{D_2}\right)^B$$

where a site exponent value of B = 1.6 is adopted for the calculations, as per AS2187.2:2006

Table 12 Recommended Minimum Working Distances from Vibration Intensive Equipment

Plant Item	Rating/Description	Minimum Distance			
		Cosmetic Damage			Human Response (NSW EPA Guideline)[2]
		Residential and Light Commercial (BS 7385)	Heritage Items[1] (DIN 4150, Group 3)	Industrial and Heavy Commercial (BS 7385)	
Vibratory Roller	<50 kN (1–2 tonne)	5 m	11 m	3 m	15 m to 20 m
	<100 kN (2–4 tonne)	6 m	13 m	3 m	20 m
	<200 kN (4–6 tonne)	12 m	25 m	6 m	40 m
	<300 kN (7–13 tonne)	15 m	31 m	8 m	100 m
	>300 kN (13–18 tonne)	20 m	40 m	10 m	100 m
	>300 kN (>18 tonne)	25 m	50 m	12 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	5 m	1 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	15 m	4 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	44 m	11 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	1 to 10 m	20 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	5 m	1 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	1 m	2 m
Ballast Tamping[2]	N/A	5 m	10 m	3 m	30 m

Note 1: Minimum working distances for heritage items that have been identified as structurally unsound or otherwise particularly sensitive to vibration. These distances have been calculated based on the 2.5 mm/s PPV criteria from DIN 4150 and the cosmetic damage minimum working distances presented in the CNVG-PTI with reference to BS 7385.

Note 2: Based on SLR measurement data. The human response minimum working distance for Ballast Tamping is determined based on a residential night-time preferred VDV criterion.

The minimum working distances are indicative and will vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical buildings under typical geotechnical conditions.

4.4 Traffic on Surrounding Roads

The potential impacts from project related traffic on the surrounding public roads are assessed using the NSW EPA *Road Noise Policy* (RNP). An initial screening test is first applied to evaluate if existing road traffic noise levels are expected to increase by more than 2.0 dB. Where this is considered likely, further assessment is required using the RNP criteria shown in **Table 13**.

Table 13 RNP/NCG Criteria for Assessing Traffic on Public Roads

Road Category	Type of Project/Land Use	Assessment Criteria (dB)	
		Daytime (7 am – 10 pm)	Night-time (10 pm – 7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15hour)}$ 60 (external)	$L_{Aeq(9hour)}$ 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq(1hour)}$ 55 (external)	$L_{Aeq(1hour)}$ 50 (external)

5.0 Noise Assessment

The potential construction noise levels from the Project have been predicted using ISO 9613:2 algorithm in SoundPLAN noise modelling software. The model includes ground topography, buildings and representative noise sources from the Project.

5.1 Work Scenario

Noise modelling scenarios have been determined based on key Project noise generating stages, supplied by the Project team. A detailed description of each work scenario and the total sound power levels (L_W) are provided in **Table 14**. A summary of construction work periods and schedule required for each scenario is shown in **Table 15**, as per the working hours defined in the CNVMP. The locations of the various work scenarios are shown in **Figure 3**.

Table 14 Work Scenario Descriptions

ID	Scenario	Description	Total Lw
Edmondson Street Bridge			
W.001	Site Establishment/ Demobilisation	• Site Compound delivery and set up • Haul road construction • Laydown construction	113
W.002	Compound Operation	• Operation of the site compound • Delivery of materials/equipment	104
W.003	Vegetation clearing	• Tree clearing and trimming for works	116

ID	Scenario	Description	Total Lw
W.004	Utility Work (Gas) - investigation and excavation	• Investigation and excavation prep for gas main works	117
W.005	Utility Work (Gas) - underbores	• Underbore installations	116
W.006	Utility Work (Gas) - cutovers & make good	• Works within cutover locations	112
W.007	Utility Work (66kV) (day)	• Pole excavation & preparation	115
W.008	Utility Work (66kV) (night outage 1)	• Pole installation via crane lifts	113
W.009	Utility Work (66kV) (night outage 2)	• Overhead conductor installation • Removal of old poles	109
Cassidy Footbridge			
W.010	Utility Work (Gas) protection works	• Installation of protection slab above existing gas main	113
W.011	Utility Work (water) relocations works protection works	• Excavation and install of new watermain	117
Pearson Street Bridge			
W.012	Utility Work (gas & water) - investigation and excavation	• Investigation and excavation prep for gas and watermain main works	117
W.013	Utility Work (gas & water) - underbores	• Underbore installations	111
W.014	Utility Work (gas & water) - cutovers & make good	• Works within cutover locations	112

Table 15 Scenarios and Periods of Work

ID	Scenario	Hours of Work				Indicative Start Date	Likely Duration
		Approved Hours	Out-of-Hours Work [4]				
			Day OOH[1]	Evening[2]	Night[3]		
Edmondson Street Bridge							
W.001	Site Establishment/ Demobilisation	✓	-	-	-	Jan 2025	1 month
W.002	Compound Operation	✓	-	-	-	Jan 2025	7 months
W.003	Vegetation clearing	✓	-	-	-	Jan 2025	1 month
W.004	Utility Work (Gas) - investigation and excavation	✓	-	-	-	Feb 2025	1 month
W.005	Utility Work (Gas) - underbores	✓	-	-	-	Feb 2025	1 month
W.006	Utility Work (Gas) - cutovers & make good	✓	-	-	-	Feb 2025	1 week
W.007	Utility Work (66kV) (day)	✓	-	-	-	Mar 2025	1 month
W.008	Utility Work (66kV) (night outage 1)	✓	✓	✓	✓	Mar 2025	1 week
W.009	Utility Work (66kV) (night outage 2)	✓	✓	✓	✓	Jul 2025	1 week

ID	Scenario	Hours of Work				Indicative Start Date	Likely Duration
		Approved Hours	Out-of-Hours Work [4]				
			Day OOH[1]	Evening[2]	Night[3]		
Cassidy Footbridge							
W.010	Utility Work (Gas) protection works	✓	-	-	-	Feb 2025	2 months
W.011	Utility Work (water) relocations works protection works	✓	-	-	-	Apr 2025	3 months
Pearson Street Bridge							
W.012	Utility Work (gas & water) - investigation and excavation	✓	-	-	-	Apr 2025	1 month
W.013	Utility Work (gas & water) - underbores	✓	-	-	-	May 2025	2 months
W.014	Utility Work (gas & water) - cutovers & make good	✓	-	-	-	May 2025	2 months

Note 1: Daytime out of hours is 8 am to 6 pm on Sunday and public holidays.

Note 2: Evening is 6 pm to 10 pm Monday – Sunday (including public holidays).

Note 3: Night is 10 pm to 7 am Monday – Saturday and 10pm to 8am Sunday (including public holidays).

Note 4: Where works are expected to occur outside of the standard working hours, further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit, required by the OOHW Protocol or EPL.

Figure 3 Construction Work Locations (Edmondson Street and Cassidy Footbridge)

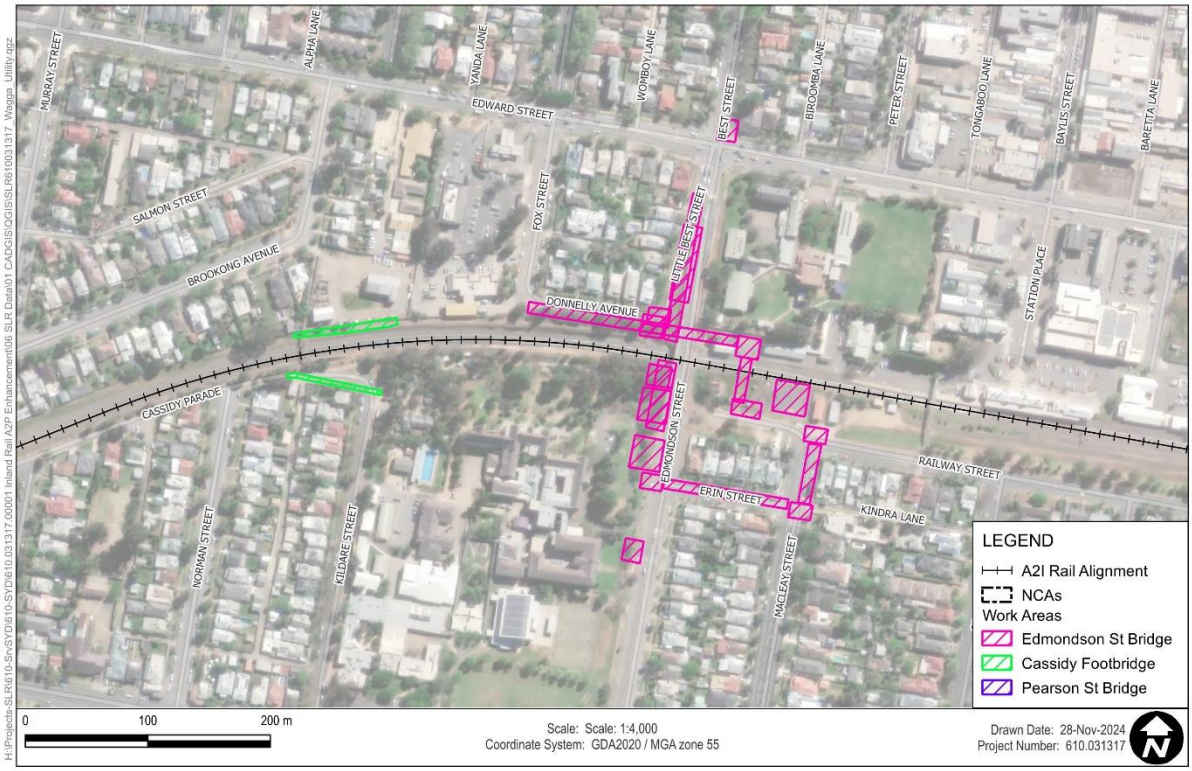
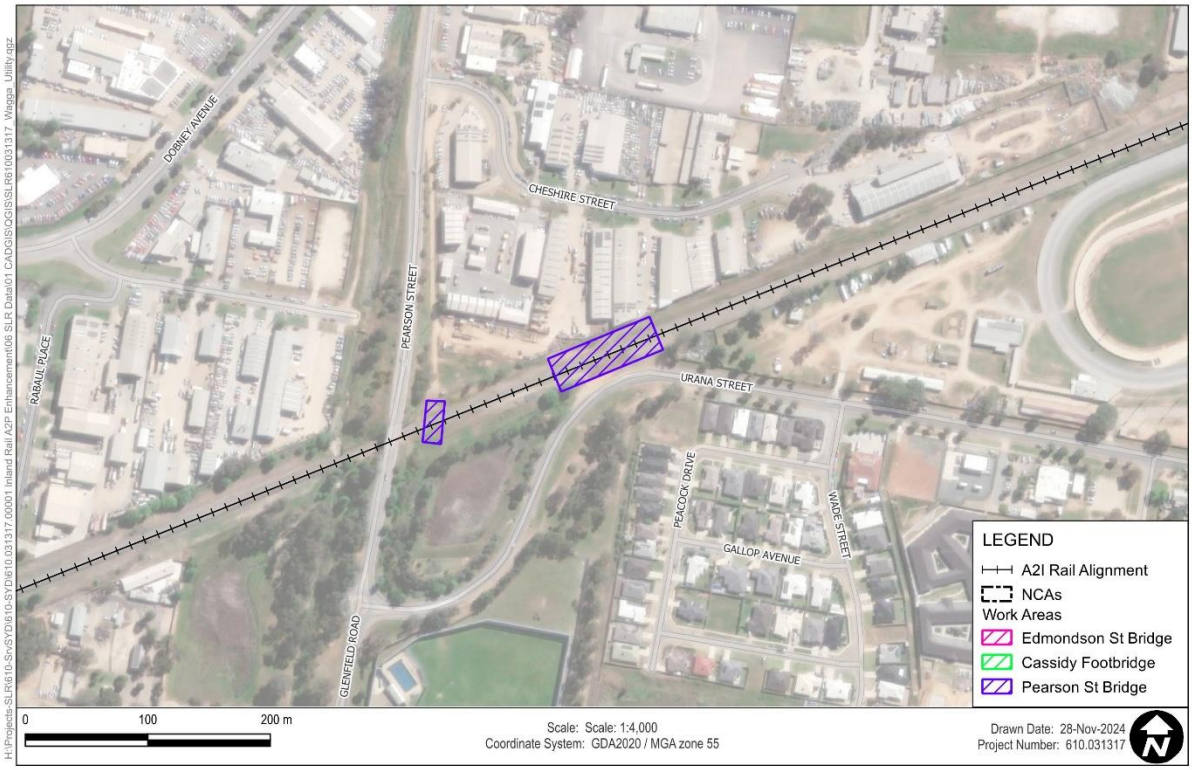


Figure 4 Construction Work Locations (Pearson Street)



5.1.1 Modelling Scenarios and Equipment

The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario, as required by the ICNG. Sound power levels (Lw) for the construction equipment used in the modelling are listed in **Appendix B**.

5.2 Predicted Noise Levels

The following overview is based on the predicted impacts at the most affected receivers and is representative of the worst-case noise levels that are likely to occur during construction.

The assessment shows the predicted 'mitigated' impacts based on the exceedance of the noise management levels, as per the categories in **Table 16**. The mitigation and management measures adopted for this CNVIS are provided in **Section 8.0**.

Table 16 Exceedance Bands and Impact Colouring

Subjective Classification	Exceedance of Noise Management Level		Impact Colouring
	Daytime	Out of Hours	
Negligible	No exceedance	No exceedance	
Noticeable	-	1 to 5 dB	
Clearly Audible	1 to 10 dB	6 to 15 dB	
Moderately Intrusive	11 to 20 dB	16 to 25 dB	
Highly Intrusive	> 20 dB	> 25 dB	

A summary of the number of buildings where NML exceedances were predicted for the various work scenarios is shown in **Table 17**. The number of receivers above the 'highly noise affected' (HNA) level are also included in the table. Maps of the predicted worst-case noise impacts are presented in **Appendix C**.

The assessment presents the combined predicted noise impacts for each scenario. Meaning, the worst-case result at each receiver is considered from all potential work areas where each scenario is to be undertaken.

The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within individual scenarios. As outlined in **Section 5.1.1,** the assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

The exceedances shown in **Table 17** are therefore representative of a 'realistic worst-case' 15-minute period, and are unlikely to occur for extended periods of time throughout the entire construction period at any given receiver.

The indicative work durations presented in **Table 15** represent a window of time where the scenarios could occur, and does not represent the entire duration of the exceedances shown in **Table 17**.

In reality, there would frequently be periods when construction noise levels are much lower than the worst-case levels predicted as well as times when no equipment is in use and no noise impacts occur.

Table 17 Overview of NML Exceedances

ID	Scenario	Number of Receivers																	
		HNA[1]	With NML exceedance (dB)[2]																
			Approved Daytime			Out of Hours													
						Daytime OOH				Evening				Night-time				Sleep Disturbance	Sleep Awakening
			1-10	11-20	>20	1-5	6-15	16-25	>25	1-5	6-15	16-25	>25	1-5	6-15	16-25	>25	>Screening Level (NCA10 – 53 dB) (NCA11 – 52 dB)	>65 dB
Residential Receivers																			
Edmondson Street Bridge																			
W.001	Site Establishment/Demobilisation	-	26	3	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.002	Compound Operation	-	5	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.003	Vegetation clearing	**8**	52	9	6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.004	Utility Work (Gas) - investigation and excavation	**18**	60	30	11	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.005	Utility Work (Gas) - underbores	**21**	70	20	17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.006	Utility Work (Gas) - cutovers & make good	**7**	40	19	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.007	Utility Work (66kV) (day)	**6**	48	5	6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.008	Utility Work (66kV) (night outage 1)	**6**	39	7	5	41	39	7	5	44	44	8	5	242	150	44	13	175	35
W.009	Utility Work (66kV) (night outage 2)	**5**	28	7	3	25	28	7	3	34	30	5	5	113	81	30	10	117	25
Cassidy Footbridge																			
W.010	Utility Work (Gas) protection works	**-**	33	6	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.011	Utility Work (water) relocations works protection works	**5**	58	10	4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pearson Street Bridge																			
W.012	Utility Work (gas & water) - investigation and excavation	-	27	7	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.013	Utility Work (gas & water) - underbores	-	19	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.014	Utility Work (gas & water) - cutovers & make good	-	22	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ID	Scenario	Number of Receivers																	
		HNA[1]	With NML exceedance (dB)[2]																
			Approved Daytime			Out of Hours													
						Daytime OOH				Evening				Night-time				Sleep Disturbance	Sleep Awakening
			1-10	11-20	>20	1-5	6-15	16-25	>25	1-5	6-15	16-25	>25	1-5	6-15	16-25	>25	>Screening Level (NCA10 – 53 dB) (NCA11 – 52 dB)	>65 dB
Other Sensitive Receivers																			
Edmondson Street Bridge																			
W.001	Site Establishment/Demobilisation	n/a	7	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.002	Compound Operation	n/a	1	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.003	Vegetation clearing	n/a	3	5	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.004	Utility Work (Gas) - investigation and excavation	n/a	9	7	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.005	Utility Work (Gas) - underbores	n/a	12	8	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.006	Utility Work (Gas) - cutovers & make good	n/a	6	3	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.007	Utility Work (66kV) (day)	n/a	9	2	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.008	Utility Work (66kV) (night outage 1)	n/a	3	4	1	3	4	1	-	1	-	-	-	3	1	-	-	n/a	n/a
W.009	Utility Work (66kV) (night outage 2)	n/a	4	2	-	1	3	2	-	-	-	-	-	1	-	-	-	n/a	n/a
Cassidy Footbridge																			
W.010	Utility Work (Gas) protection works	n/a	17	3	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.011	Utility Work (water) relocations works protection works	n/a	17	7	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pearson Street Bridge																			
W.012	Utility Work (gas & water) - investigation and excavation	n/a	3	1	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.013	Utility Work (gas & water) - underbores	n/a	2	1	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.014	Utility Work (gas & water) - cutovers & make good	n/a	2	1	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note 1: Highly noise affected, based on ICNG definition (i.e. predicted LAeq(15minute) noise at residential receiver is greater than 75 dBA).
Note 2: Based on worst-case predicted noise levels

A summary of the predicted worst-case noise levels is shown below for each work area:

Edmondson Street Bridge

- 'Highly intrusive' noise impacts are predicted at the nearest residential receivers for *W.003* through to *W.009* during approved daytime hours. The highest noise levels and impacts would be experienced by adjacent receivers when noisy construction work is conducted nearby.
- For other sensitive receivers, 'highly intrusive' impacts are predicted for *W.003*, *W.008* and *W.0011* during approved daytime hours. A maximum of one other sensitive receivers (those closest to the works) are predicted to be affected at this level for these work scenarios. It is noted that other sensitive receivers should only be considered impacted 'when in use'.
- For work associated with *W.008* and *W.009*, 'highly intrusive' impacts are predicted at the nearest residential receivers during all assessment periods. The addresses of the residential receivers impacted by night-time works are provided in **Appendix D**.
- For work associated with *W.008* and *W.009*, generally minor impacts ('noticeable' to 'clearly audible') are predicted for other sensitive receivers during OOHW. South Wagga Public School is predicted to experience 'highly intrusive' impacts during approved daytime hours. It is noted that other sensitive receivers should only be considered impacted 'when in use'.
- For scenario *W.001*, three 'moderately intrusive' impacts are predicted at closest residential receivers to the works. No 'moderately intrusive' impacts are expected for *W.002* at residential receivers and no 'highly intrusive' impacts are expected for these work scenarios at residential and other sensitive receivers.
- Noise generating activities from the Compound Operation (*W.002*) during approved daytime hours are generally predicted to be below the NML for other sensitive receivers. However, the childcare centre at 6 Station Place is predicted to experience minor noise impacts ('clearly audible').
- Highly noise affected receivers are predicted in all scenarios except *W.001* and *W.002* (ie *W.003* to *W.009*). It is predicted that work from scenarios *W.004* and *W.005* will result in greatest number of receivers experiencing HNA levels.
- Noise levels above the screening level for sleep disturbance and sleep awakening criteria are predicted for *W.008 and W.009*. Sleep disturbance impacts would generally be caused by heavy vehicle movements and more noise intensive equipment. Where reasonable and feasible, these activities should be limited to the less sensitive periods to avoid noise impacts during more sensitive out-of-hours periods (refer to **Section 8.0**). The number of awakening events would depend on several factors, including the equipment being used, the duration of noisy work and the distance of the work to each residential receiver. Further detail around the specific OOHW, (eg duration and justification) must be identified in the OOHW permit, refer **Section 2.4**.

Cassidy Footbridge

- During approved daytime hours, 'highly intrusive' noise impacts are predicted at one residential receiver for *W.010* and four residential receivers for *W.011*. The highest noise levels and impacts would be experienced by adjacent receivers when noisy construction work is conducted nearby.
- One other sensitive receiver is predicted to experience 'highly intrusive' noise impacts during *W.011*. No 'highly intrusive' impacts are predicted for *W.010.*

- OOHW at Cassidy Footbridge are not anticipated.

Pearson Street Bridge

- No 'highly intrusive' noise impacts are predicted for residential or other sensitive receivers for all of the Pearson Street bridge work scenarios (ie *W.012*, *W.013* and *W.014*).
- OOHW at Pearson Street Bridge are not anticipated.

Review of the predictions shows that both the sleep disturbance screening level and sleep awakening reaction level are likely to be exceeded when night work occurs near residential receivers. It should be noted that sleep disturbance is only expected to occur during utility works (W.008 and W.009) and will require outages during off-peak hours between 10pm – 5am. At this stage, these works are not expected to be undertaken for more than two consecutive nights, however further detail around the specific OOHW, (eg duration and justification) will be identified in the OOHW permit.

The receivers which would potentially be affected by sleep awakening impacts are generally the same receivers where 'moderately intrusive' and 'highly intrusive' night-time impacts have been predicted (refer to **Appendix C**). These receivers may be eligible for respite offers (RO), agreements with owners (AO) or alternative accommodation (AltA), refer **Section 8.3**.

All appropriate feasible and reasonable construction noise mitigation measures will be applied to work as outlined in **Section 8.0** and **Section 8.1**.

5.3 Ground-borne Noise

Ground-borne construction noise impacts from the Project are not anticipated as vibration intensive work with the potential to generate perceptible ground-borne noise, is not included in the scope of work. Vibration intensive work for the Project will be completed outdoors meaning airborne noise levels at the nearest receivers are expected to be higher than the corresponding internal ground-borne noise levels.

Where airborne noise levels are higher than ground-borne noise levels it is not necessary to evaluate potential ground-borne noise impacts and as such, they have not been considered further for this assessment.

6.0 Vibration Assessment

Vibration intensive items of equipment that would be required during work assessed in this CNVIS include a Medium Hydraulic Hammer. These items of equipment are required during the work as shown in **Table 18**.

The potential impacts during vibration intensive work have been assessed using the Transport CNVG-PTI minimum working distances for cosmetic damage and human response shown in **Table 18**.

Table 18 Vibration Intensive Equipment

ID	Scenario	Rating/Description	Minimum Distance			
			Cosmetic Damage			Human Response (NSW EPA Guideline)
			Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	Industrial and Heavy Commercial (BS 7385)	
W.004	**Edmondson Street Bridge** Utility Work (Gas) - investigation and excavation	Small Hydraulic Hammer: 300 kg (5 to 12 t excavator)	2 m	5 m	1 m	7 m
W.011	**Cassidy Footbridge** Utility Work (water) relocations works protection works	Medium Hydraulic Hammer: 900 kg (12 to 18 t excavator)	7 m	15 m	4 m	23 m
W.012	**Pearson Street Bridge** Utility Work (gas & water) - investigation and excavation					

Vibration offset distances have been determined from the TfNSW CNVG-PTI minimum working distances for cosmetic damage and human comfort (see **Table 12** and the assessment is summarised in **Figure 5** and **Figure 6**). The offset distances are representative of the highest vibration levels that would likely be experienced by the nearest receivers when work occurs nearby.

For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels occurring over shorter time periods are allowed.

In the event that additional work is undertaken which requires the use of other items of plant identified than those identified in **Table 18**, a vibration impact assessment must be conducted prior to the commencement of work.

Figure 5 Medium Hydraulic Hammer - Minimum Working Distances (Edmondson Street and Cassidy Footbridge)

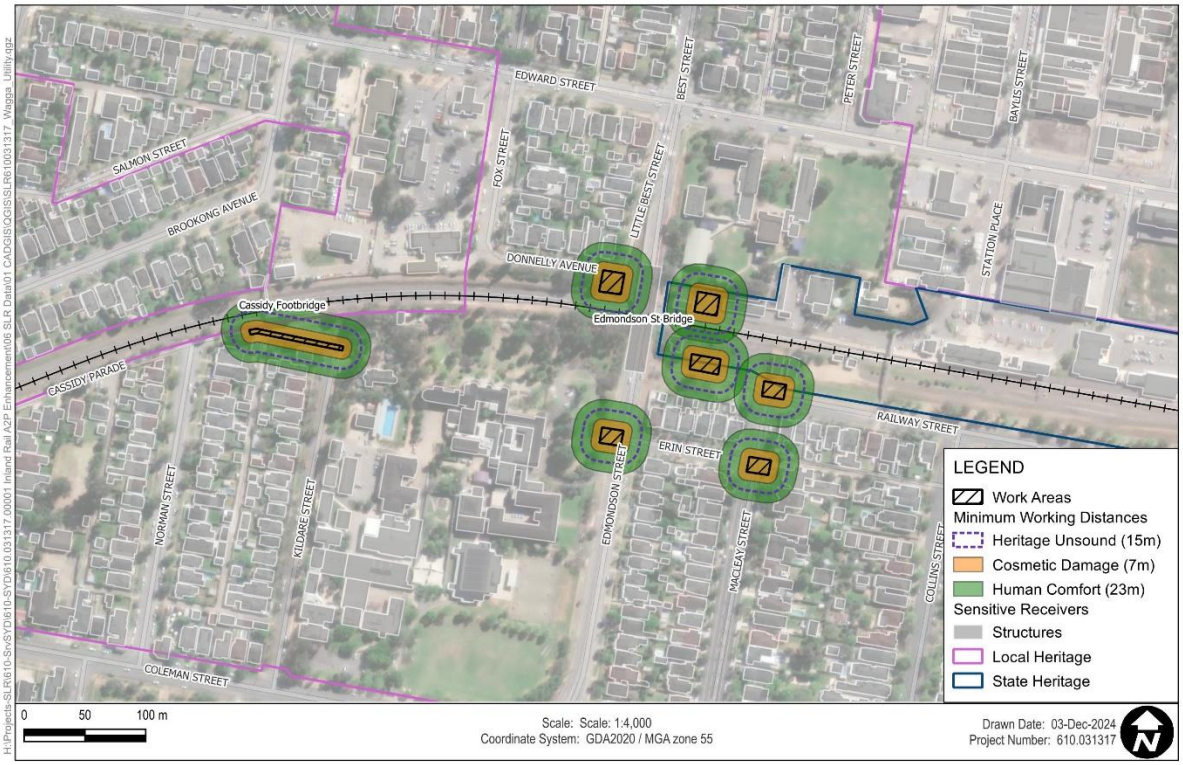


Figure 6 Medium Hydraulic Hammer - Minimum Working Distances (Pearson Street)

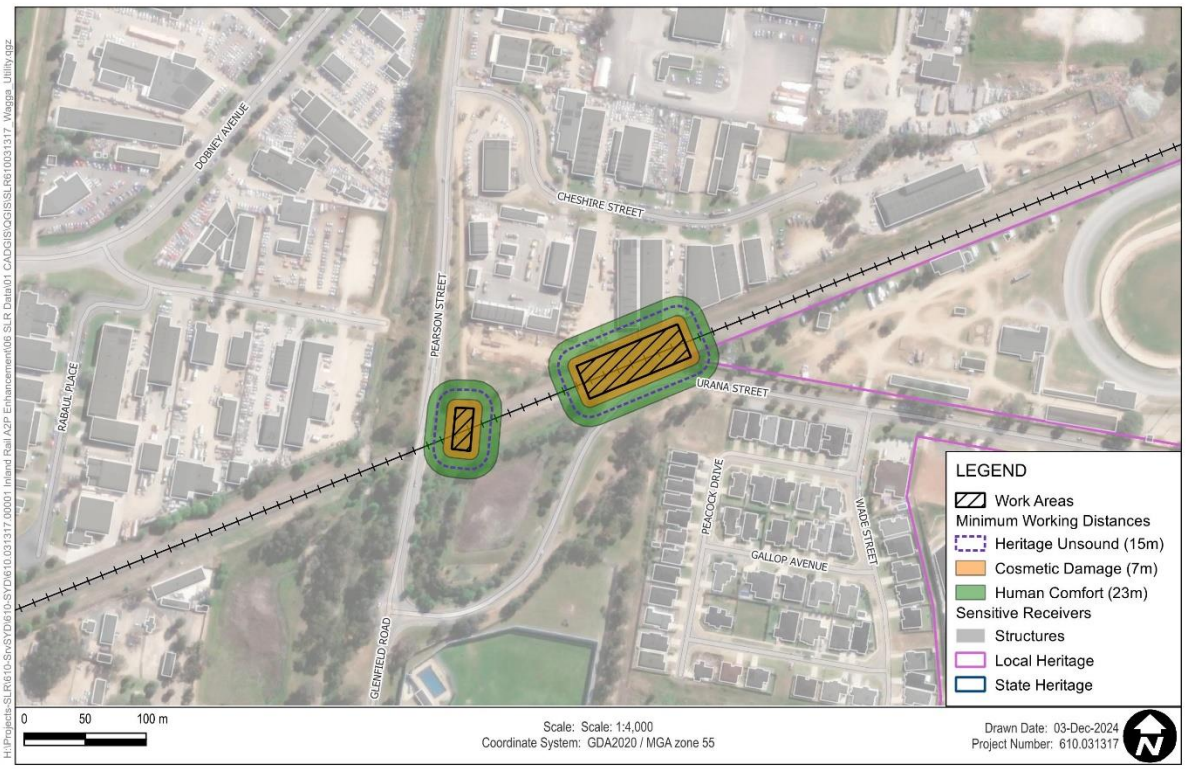


Figure 7 Small Hydraulic Hammer - Minimum Working Distances (Edmondson Street and Cassidy Footbridge)

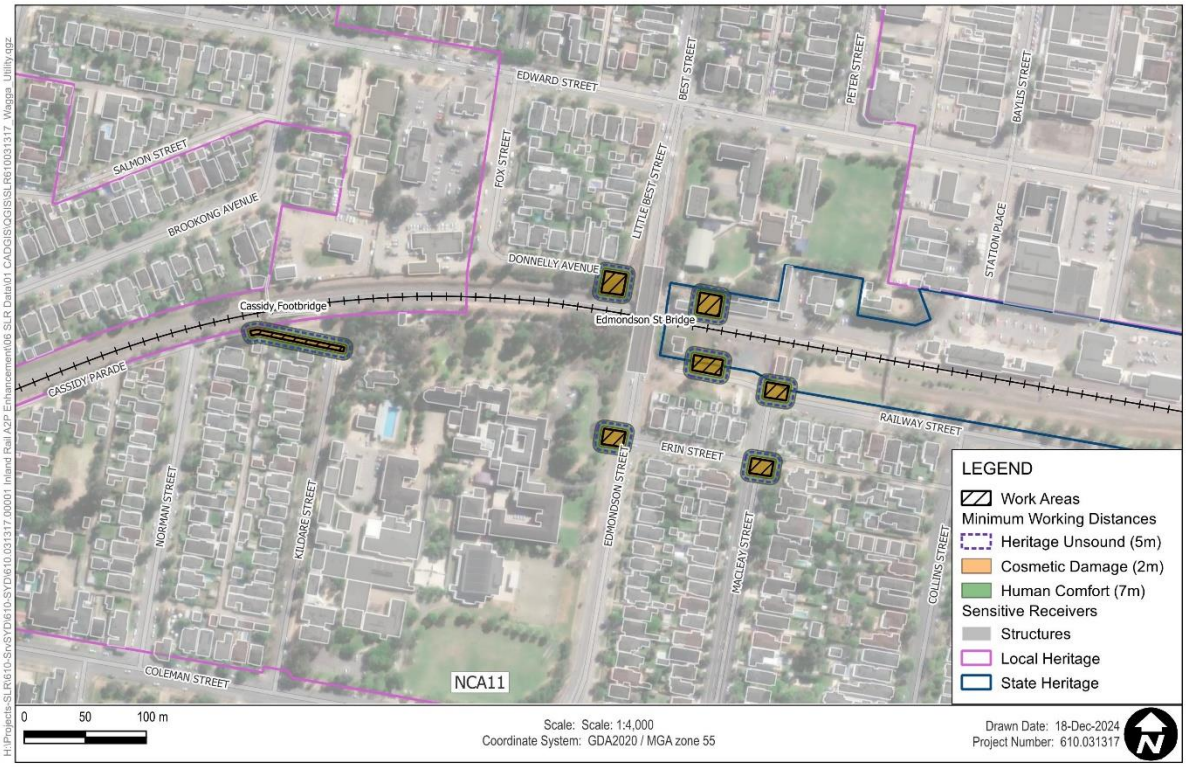
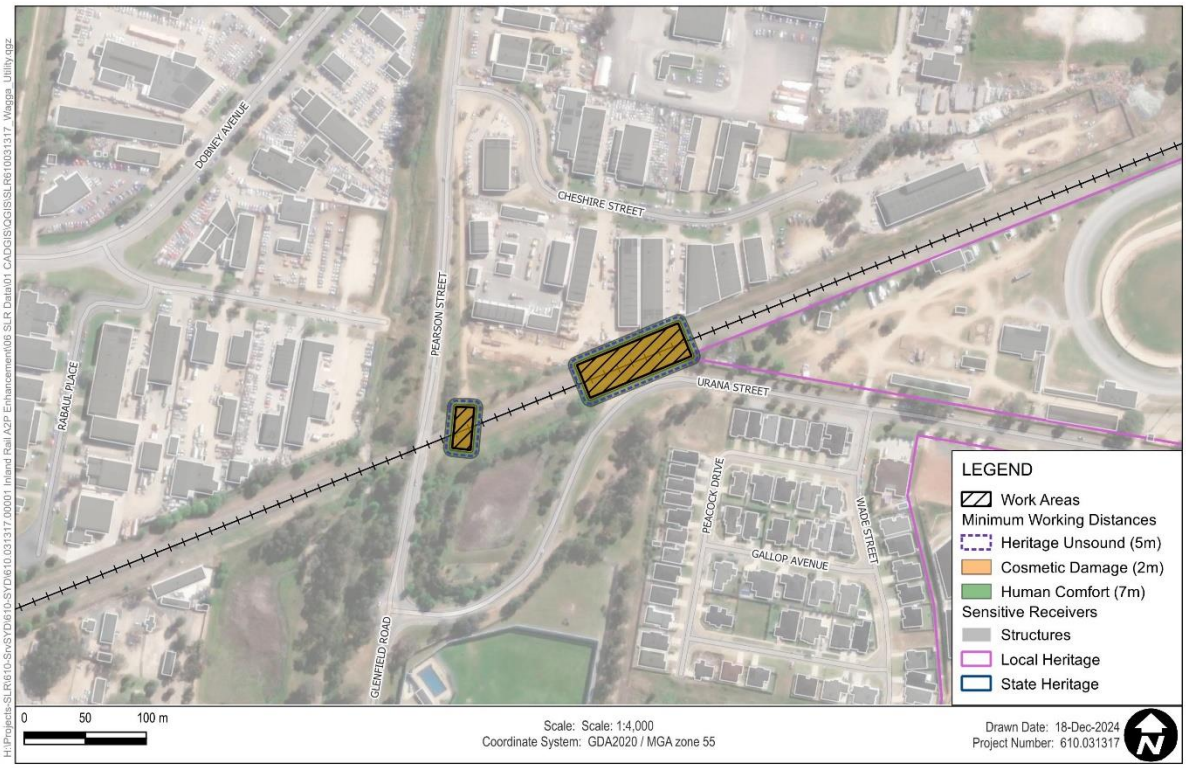


Figure 8 Small Hydraulic Hammer - Minimum Working Distances (Pearson Street)



6.1 Cosmetic Damage Assessment

Figure 5 shows that the residential building at 2 Kildare St and the garage at 1 Norman St have the potential to fall within the cosmetic damage minimum working distance for residential structures during *W.011*. **Figure 5** also shows that four sheds/structures within the Wagga Wagga Station Yard have the potential to fall within the cosmetic damage minimum working distance for residential structures during *W.004*.

Figure 6 shows that one nearby commercial building (10 Cheshire St) has the potential to fall within the cosmetic damage minimum working distance for light commercial structures during *W.012*. If the commercial building at 10 Cheshire St is classified as a Line 1-type item from BS 7385 Part 2 (reinforced or framed structure/industrial or heavy commercial structure) then the minimum working distance for cosmetic damage is 4 m. The structure at 10 Cheshire St falls within the minimum working distance of 4 m for reinforced or framed structure/industrial or heavy commercial structure.

Figure 7 and **Figure 8** depicting the minimum working distances for the small hydraulic hammer suggests that all receivers are beyond the minimum working distances for cosmetic damage. Therefore, the smaller, less vibration intensive hydraulic hammer will be prioritised where the required works can be feasibly and reasonably be completed with the smaller machinery.

Offset distances from specific vibration intensive plant to the nearest receivers and building construction should be confirmed before commencing vibration intensive work during construction.

As per CoA E120, before commencement of any work, a structural engineer must undertake condition surveys of all building, structures, utilities and the like identified in the documents CoA A1 as being at risk of damage. For this CNVIS, conditions surveys (based on the medium hydraulic hammer) are required for:

- 2 Kildare St
- 10 Cheshire St
- Garage at 1 Norman St
- Four structures within the Wagga Wagga Station Yard

After completion of construction, condition surveys of all items for which condition surveys were undertaken in accordance with CoA E120 must be undertaken by a structural engineer.

The results of the surveys must be documented in a Condition Survey Report for each item surveyed. Copies of Condition Survey Reports must be provided to the landowners of the items surveyed, and no later than one month before the commencement of construction and three months following the completion of construction.

Feasible and reasonable construction vibration mitigation measures should be applied where vibration intensive work is required within the minimum working distances. Construction vibration mitigation and management measures are discussed in **Section 8.1**.

In accordance with CoA E122, property damage caused directly or indirectly by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.

Heritage Structures

The following structures are within the Wagga Wagga Conservation Area or are heritage listed and fall within the ‘Heritage Unsound’ minimum working distance for a medium hydraulic hammer:

- 2 Kildare St
- Dwelling and garage at 1 Norman St

- Cassidy Footbridge
- 2 Donnelly Av
- 4 Donnelly Av
- 23 Macleay St
- 25 Macleay St
- Five structures within the Wagga Wagga Station Yard

As discussed in **Table 10**, Cassidy Footbridge is in good condition and the dwellings on Donnelly Ave and Macleay St are likely to be occupied and therefore not expected to be structurally unsound. For these structures, cosmetic damage due to vibration is not anticipated.

One structure within the Wagga Wagga Railway Yard falls within the heritage unsound but does not fall within the buffer area for cosmetic damage when using a medium hydraulic hammer. This structure is approximately 12 m offset from the track and already subjected to train vibration and is therefore not expected to be structurally unsound.

As per CoA E80, vibration testing must be undertaken before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic damage. Advice must be sought on methods and locations for installing equipment as per CoA E81.

If other vibration intensive activities are required within minimum working distances to heritage structures, a building condition assessment should be undertaken of the heritage item/s to assess if they are considered to be sensitive to vibration prior to vibration work commencing as per CoA E120.

Buried Pipework and Utilities

This CNVIS involves direct work on Gas, Water and Electrical utilities. This work will be undertaken in accordance with the asset owner's guidelines to ensure there are no adverse vibration impacts to the utilities. No other buried pipework or utilities have been identified in this CNVIS at risk of impact from construction vibration.

6.2 Human Comfort Assessment

Figure 5 shows that shows that 12 residential receivers have the potential to fall within the human comfort minimum working distances. **Figure 6** shows that three nearby commercial buildings have the potential to fall within the human comfort minimum working distances. Occupants of these buildings may be able to perceive vibration impacts at times when medium hydraulic hammers are in use nearby. Where impacts are perceptible, they would likely only be apparent for relatively short durations when vibration intensive equipment is in use nearby.

Similarly, **Figure 7** and **Figure 8** depicting the minimum working distances for the small hydraulic hammer suggests that all receivers (except 2 Kildare Street) are beyond the minimum working distances for human comfort. Therefore, the smaller, less vibration intensive hydraulic hammer will be prioritised where the required works can be feasibly and reasonably be completed with the smaller machinery.

Feasible and reasonable construction vibration mitigation measures should be applied where vibration intensive work is required within the minimum working distances. Construction vibration mitigation and management measures are discussed in **Section 8.1**.

7.0 Construction Traffic Assessment

The EIS identified that during the construction phase of the project, heavy vehicles would be required for materials and equipment delivery while light vehicles will transport workers to

and from the site. This additional road traffic may impact receivers along the proposed transport routes.

No additional information has been provided regarding construction road traffic, therefore a summary of the predicted daytime traffic noise levels from the EIS is shown in **Table 19**.

Table 19 Construction Traffic Assessment

Traffic Route	Road Type	Predicted Construction Traffic Noise (Both Directions) LAeq (Period)		Exceed base criterion? Day[1] (7am – 10pm)	Potential Increase > 2dB	Potential Noise Impact
		Existing	Existing + Proposed			
Wagga Wagga Precinct						
Pearson Street bridge						
Edward Street (Sturt Highway)	Arterial	58.9	59.4	No	No	No
Moorong Street (Olympic Highway)	Arterial	63.6	64	Yes	No	No
Pearson Street	Sub-arterial	58.5	58.9	No	No	No
Urana Street	Sub-arterial	54.5	55.4	No	No	No
Cheshire Street	Local	49.2	51.5	No	Yes	No
Alan Turner Depot Access Road	Local	53.4	54.6	No	No	No
Fernleigh Road	Local	61	61.3	Yes	No	No
Wagga Wagga Station/Yard, Edmondson Street bridge and Cassidy Footbridge						
Edward Street (Sturt Highway)	Arterial	60.2	61.1	Yes	No	No
Fox Street	Local	62.6	63.1	Yes	No	No
Mitchelmore Street	Sub-arterial	56.2	57.4	No	No	No
Edmondson Street	Sub-arterial	57.7	58.8	No	No	No
Norman Street	Local	62.2	62.6	Yes	No	No
Coleman Street	Sub-arterial	53.3	55.9	No	Yes	No
Cassidy Parade	Local	59.1	60.1	Yes	No	No
Erin Street	Local	51.9	55.4	Yes	Yes	Yes
Station Place	Local	49.3	53.7	No	Yes	No
Brookong Avenue	Local	57.6	59.4	Yes	No	No

Note 1: Freeway/arterial/sub-arterial roads: $L_{Aeq(15hour)}$ 60dBA(external)
Local roads: $L_{Aeq(1hour)}$ 55dBA (external)

Note 2: Freeway/arterial/sub-arterial roads: $L_{Aeq(9hour)}$ 55dBA(external)
Local roads: $L_{Aeq(1hour)}$ 50dBA (external)

The EIS found that construction traffic associated with the Wagga Wagga work stages on public roads is generally likely to comply with the road traffic noise goals. The exception is Erin Street during the daytime period, where construction traffic noise is likely exceed the base criterion by 0.4 dB. This level of exceedance is considered negligible (ie not

perceptible by the average listener). Therefore, noise impacts are unlikely to negatively affect the relevant receivers.

The EIS did not assess construction traffic during the night-time period, and no additional information has been provided regarding construction road traffic. Therefore, it is conservatively assumed that where night-time construction traffic is required, impacts would be experienced by residences along construction routes on sub-arterial and local roads within close proximity to the work sites. Night-time noise impacts are not anticipated on arterial roads.

Some sections of the Wagga Wagga utility work will require minor temporary (short-term) traffic control diversions. These will be set up and removed within the shift (eg 8am to 5pm). There are no 24/7 diversions anticipated for this CNVIS.

Mitigation and management measures to assist in minimising noise impacts from construction traffic are shown in **Section 8.0**.

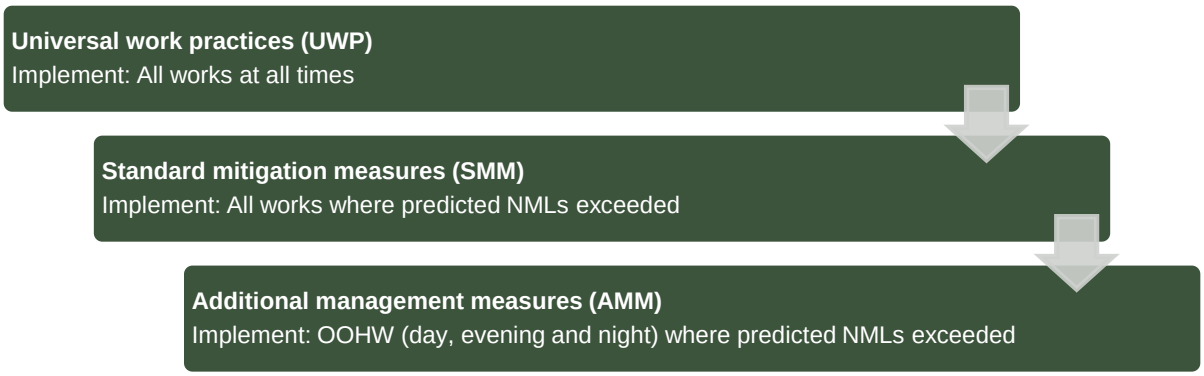
8.0 Mitigation and Management Measures

Noise from the Project may be apparent at the nearest receivers at certain times during construction. The Project should apply all feasible and reasonable mitigation measures to minimise the impacts.

In accordance with CoA E74, works that exceed the noise management levels and/or vibration criteria must be managed in accordance with the CNVMP.

The Inland Rail NSW Construction Noise and Vibration Framework (CNVF) has been adopted as a guideline for this project and outlines a hierarchy of work practices and mitigation measures to minimise the impact of construction noise and vibration on the community. This hierarchy is shown in **Figure 9**.

Figure 9 Hierarchy of Work Practices and Mitigation Measures



The universal work practices (UWP) and standard mitigation measures (SMM) for the overall A2I project are outlined in the CNVMP. All mitigation and management measures outlined in the CNVMP will be adopted in accordance with CoA E74. Site specific mitigation measures are also outlined below in **Section 8.1**. These measures have been incorporated into the noise modelling assessment to provide mitigated results. Additional Management Measures (AMM) are outlined in **Section 8.3**.

8.1 Site Specific Mitigation Measures

Table 20 outlines the mitigation and management measures that will be adopted to minimise potential noise and vibration impacts associated with this CNVIS at surrounding sensitive

receivers. These measures have been considered in noise modelling based on the total scenario sound power levels, refer **Appendix B**.

Table 20 Site Specific Mitigation Measures

Measure	Reference / Notes
Project Planning	
Use quieter and less vibration emitting construction methods where feasible and reasonable.	Best practice
Works will be completed during the approved daytime construction hours where possible, as outlined in **Section 2.2.** Some unavoidable OOHW will be required due to road and rail traffic management restrictions, as outlined in **Section 2.3**.	Best practice CoA E69 CoA E71
For gas utility works (W.005), coordination between Martinus Rail and the local council has been undertaken to revise investigation and excavation methodology to minimise construction noise exposure and reduce the duration of construction to residents along Erin Street and MacLeay Street.	Best practice
Where OOHW is required, an OOHW Permit will be prepared, as required by the OOHW Protocol or EPL. Further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit.	Best practice CoA E71 CoA E72 CoA E73
Scheduling	
Highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken: a) Between 08:00am – 06:00pm Monday to Friday; b) Between 08:00am – 01:00pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. Refer **Section 8.2**.	Best practice CoA E70
Noise generating work in the vicinity of community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas (such as exam halls, theatres, laboratories and operating theatres) resulting in noise levels above the NMLs will not be timetabled during sensitive periods, unless other reasonable arrangements with the affected institutions can be made at no cost to the affected institution. Refer to Community Consultation in **Section 8.5**.	Best practice CoA E76
All work undertaken for the delivery of the project including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided.	Best practice, CoA E83
Site Layout	
Compounds and worksites have been designed to promote one-way traffic and minimise the need for vehicle reversing.	Best practice
Construction activities must be planned to minimise vehicle movements around the Site.	
Work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.	
Equipment that is noisy will be started away from sensitive receivers	

Measure	Reference / Notes
Training	
Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Best practice
The induction protocols must include awareness of noise generating activities and mitigation measures and techniques that should be implemented.	
Training must be conducted for appropriate community behaviours when access/egress the Site.	
Plant and Equipment Source Mitigation	
All plant and equipment must be maintained in a proper and efficient condition, operated in a proper and efficient manner, and feature standard noise reduction measures where applicable.	Best practice CNVF
Plant and equipment must be selected with options to minimise noise such as covers, mufflers, shrouds and other noise suppression equipment. Low noise emission plant and equipment must be selected where available.	
Tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).	
Stationary noise sources will be sited behind structures (or temporary screens) that act as barriers, or at the greatest distance from the noise-sensitive area (where practicable). Equipment will be oriented so that noise emissions are directed away from any sensitive areas.	
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.	
Noise monitoring spot checks of equipment will be completed to ensure individual items are operating as expected	
Dropping materials from a height will be avoided.	
Loading and unloading will be carried out as far as possible from noise sensitive areas.	
Alternative construction methods have been considered for activities including vegetation clearing (eg electric / hydraulic chainsaws). Alternative methods will be considered for hydraulic hammers (eg smaller sized equipment, refer **Section 6.0**). Use of these methods will depend on the specific circumstances and therefore the worst-case scenario is included for the purpose of this CNVIS.	Best practice
Construction Traffic	
Construction traffic routes to site will be limited to major roads where possible.	Best practice
Trucks will not queue outside residential properties.	
Truck drivers will be instructed to avoid compression braking as far as practicable.	
Delivery vehicles should be fitted with straps rather than chains for unloading, wherever possible.	
Truck movements will be kept to a minimum (ie trucks are fully loaded on each trip).	
Screening	
Install purpose-built screening or enclosures around long-term fixed plant that has the potential to impact nearby receivers	Best practice CNVF
The layout of the site will take advantage of existing screening from local topography, where possible. Site huts, maintenance sheds and/or containers will be positioned between noisy equipment and the affected receivers.	

Measure	Reference / Notes
Implementation of temporary noise barriers for highly intensive noise activities, such as saw cutting or rock breaking.	
Community Consultation	
Regular communications on the activities and progress of the proposal shall be provided to the community (eg via newsletter, email and/or website).	Best practice CNVF
A telephone, email and web-based community information service shall be established to allow the community to obtain additional information on construction activities, provide feedback or make a complaint.	Best practice CNVF
Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage (and/or human comfort) must be notified before work that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owners and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier.	Best practice CoA E79
Personalised communication and respite offers will be provided to all receivers that are predicted to be highly noise affected (HNA).	Best practice
Notification will be provided to all impacted residences along construction traffic routes (including temporary diversions).	Best practice
Where complaints are received, work practices will be reviewed and feasible and reasonable practices applied to minimise any further impacts.	Best practice
Monitoring	
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.	Best practice CNVF CoA E80 CoA E81
Noise and vibration monitoring will be undertaken in accordance with the CNVMP and Monitoring Program.	
Advice from a heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures.	
See **Section 8.7** for details of monitoring requirements.	
Vibration	
Where vibration generating works are required within the minimum working distances and considered likely to exceed the criteria: • Different construction methods with lower source vibration levels (ie alternative equipment) will be investigated and implemented, where feasible (refer **Table 12**). • Attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels of the item. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant cosmetic damage criteria. Note: Small hydraulic hammers will be prioritised to reduce vibration impacts to surrounding receivers.	Best practice CoA E80
Vibration intensive works required within the minimum working distance at the same receiver must only be undertaken: a) Between 08:00am – 06:00pm Monday to Friday; b) Between 08:00am – 01:00pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. Refer to **Section 8.2**.	Best practice CoA E70

Measure	Reference / Notes
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred. Heritage status of all structures that fall within the unsound heritage minimum working distance for the nominated vibration-intensive equipment should be confirmed prior to the commencement of works. This CNVIS should be updated prior to the commencement of works to include the location of vibration-sensitive heritage items that fall within the minimum working distance for unsound heritage structures.	Best practice CoA E120 CoA E121 CoA C9
Property damage caused directly or indirectly (for example from vibration or from groundwater change) by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.	Best practice CoA E122

8.2 Respite

In accordance with CoA E70, except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:

a) Between 08:00am – 06:00pm Monday to Friday;

b) Between 08:00am – 01:00pm Saturday; and

c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour.

For the purposes of this condition, 'continuously' includes any period during which there is less than one hour between ceasing and recommencing any of the work.

In accordance with CoA E72 and E83, the procedure outlined in the OOHW Protocol must be implemented to coordinate OOHW (including those approved by an EPL or undertaken by a third party), to ensure appropriate respite is provided. This coordination must include:

a) rescheduling work to provide respite to impacted noise sensitive land use(s) so that the respite is achieved; or

b) the provision of alternative respite or mitigation to impacted noise sensitive land use(s); and

c) the provision of documentary evidence to the AA in support of any decision made in relation to respite or mitigation.

The consideration of respite must also include all other CSSI, SSI and SSD projects which may cause cumulative and/or consecutive impacts at receivers affected by the delivery of the CSSI.

Highly noise intensive works (as defined in **Section 2.2.1**) are required in various work scenarios. As outlined above, highly noise intensive work that results in an exceedance of the applicable NML is restricted to the hours shown above and must have respite periods as defined above.

CoA E70 applies to the following work scenarios where highly noise intensive works are proposed and the NML is predicted to be exceeded:

Edmondson Street Bridge

- W.003 – Vegetation clearing

- W.004 – Utility Work (Gas) - investigation and excavation
- W.005 – Utility Work (Gas) – underbores
- W.007 – Utility Work (66kV) (day)
- W.009 – Utility Work (66kV) (night outage 2)

Cassidy Footbridge

- W.011 – Utility Work (water) relocations works protection works

Pearson Street Bridge

- W.012 Utility Work (gas & water) - investigation and excavation

In accordance with CoA E71, W.009 requires approval through the OOHW Protocol or and EPL to occur outside the hours listed above from CoA E70.

Respite offers are also required as part of the additional mitigation measured outlined in **Section 8.3**.

8.3 Additional Mitigation and Management Measures for Out of Hours Work

Where the 'mitigated' construction noise levels remain above the NMLs, the Additional Mitigation Measures Matrix (AMMM) adapted from in the CNVF and CNVMP is to be implemented. The approach, guided by the AMMM, is primarily aimed at pro-active engagement with affected sensitive receptors rather than additional noise reducing mitigation. OOHW has been divided into three periods (Day, Evening and Night) as adapted from the CNVF around the approved project hours (CoA E69).

Additional mitigation measures described in the CNVF and CNVMP are listed in **Table 21**. The additional mitigation measures for airborne noise are shown in **Table 22**. The additional mitigation measures for construction vibration are shown in **Table 23**.

Table 21 Additional Mitigation Measures

Mitigation/Management Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: As outlined in the CNVF, Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.

Note 2: As outlined in the CNVF, Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.

Note 3: As outlined in the CNVF, RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Table 22 Airborne Noise – Additional Mitigation Measures Matrix

Time Period		Exceedance of NML	Perception	Duration	Communication Category/ Management Measure
OOHW Daytime Period	Sunday 8am – 6pm (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
		>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period	Monday – Sunday 6pm – 10pm (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
		>25	Highly intrusive	Any	CO1, CO2
				>2 consecutive rest periods[1]	CO1, CO2, RO
OOHW Night Period	Monday – Saturday 10pm – 7am Sunday 10pm – 8am (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
				>2 consecutive sleep periods[1]	CO1, CO2, RO,AO
		>25	Highly intrusive	Any	CO1, CO2, RO
				>2 consecutive sleep periods[1]	CO1, CO2, RO, AO, AltA

Note 1: Where the duration exceeds 2 consecutive rest/sleep periods, the corresponding additional mitigation measures will be provided for all periods where construction exceedances are expected to occur.

Table 23 Vibration – Additional Mitigation Measures Matrix

Time Period		Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value
OOHW Daytime Period	Sunday 8am – 6pm (including public holidays)	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period	Monday – Sunday 6pm – 10pm (including public holidays)	Any	CO1, CO2	CO1, CO2, RO

Time Period		Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value
OOHW Night Period	Monday – Saturday 10pm – 7am Sunday 10pm – 8am (including public holidays)	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

8.3.1 Receivers Eligible for Additional Mitigation Measures - Noise

The receivers eligible for additional mitigation and management measures due to construction noise from the project work are presented in **Appendix C** and **Appendix D**. Where work occurs for greater than two consecutive evening or nights, receivers may be eligible for respite offers (RO), agreements with owners (AO) or alternative accommodation (AltA) depending on the exceedance level and works period as detailed in **Table 22**.

As outlined in **Section 5.2**, 'highly intrusive' impacts at nearest residential receivers and some other sensitive receivers are predicted for most work scenarios due to the proximity to the work. The addresses of the 'highly intrusive' impacted receivers are provided in **Appendix D**.

Both work scenarios that are scheduled for OOHW for Edmondson Street Bridge, ie, *W.008* and *W.009*, are predicted to create highly intrusive noise levels at residential receivers. Should these works occur for more than two consecutive sleep periods in a row, additional mitigation measures as outlined in as in **Table 22** must be provided to affected sensitive receivers. Where possible, work would be scheduled to avoid impacting the same receivers for more than two consecutive sleep periods. Receivers that would be impacted for more than two consecutive sleep periods must be identified in the OOHW permit.

8.3.2 Receivers Eligible for Additional Mitigation Measures - Vibration

Figure 5 identifies 12 receivers with the potential to fall within the minimum working distances for Human Comfort. It is noted that one of these 12 receivers (2 Kildare St) has the potential to fall within the cosmetic damage minimum working distance for residential structures.

Figure 6 identifies three nearby commercial buildings have the potential to fall within the human comfort minimum working distances. It is noted that one of these receivers (10 Cheshire St) has the potential to fall within the cosmetic damage minimum working distance for residential structures.

As defined in **Section 2.2.1** and **Section 8.2** activities involving high noise generating equipment, such as rock hammering or rock breaking, are limited to specific daytime construction hours only. Respite periods of 1 hour after every 3 hours of high noise/vibration generating work are also required.

Construction vibration mitigation and management measures are discussed in **Section 8.0**. No additional mitigation (from **Table 23**) for vibration activities is required, given the impacts will be limited to approved daytime hours only.

Any proposed works outside of the approved daytime hours will need to be assessed as part of the OOHW permit preparation discussed in **Section 2.4**.

8.4 Community Notification

As detailed in the standard management measures outlined in the CNVF.

- A telephone, email and web-based community information service will be established to allow the community to obtain additional information on construction activities, provide feedback or make a complaint.
- Regular communications on the activities and progress of the proposal shall be provided to the community (e.g. via newsletter, email and/or website).

8.5 Consultation with Affected Receivers

In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided below.

8.5.1 Consultation approach

This section discusses the consultation approach that has been undertaken for the purposes of the work subject to this CNVIS. It is noted that consultation with affected sensitive land users on what specific mitigation measures they may require is considered to be an ongoing and live process and as such, measures that are personal to individual affected sensitive land user(s) will not be regularly documented in this CNVIS. Consultation records will be made available to the AA upon request.

The purpose of this consultation is to identify receivers who have specific circumstances that need further consideration during construction – for example, households who have children undertaking exams (HSC or similar), households who have vulnerable persons with disabilities or medical conditions, shift workers, etc.

The consultation approach utilised by Martinus Rail is in accordance with the Community Communications Strategy (CCS). The approach involved directly contacting the affected sensitive land user identified by this CNVIS through one or more of the following methods:

- Surveys distributed by email and paper notifications
- Door-knocks with a ‘Sorry we missed you’ card for those who were not at home
- Notifications
- Phone calls
- Emails
- Community briefings / group meetings.

Affected sensitive land users contacted by Martinus Rail have been made aware of the anticipated duration and nature of construction works that may affect them, as well as mitigation measures that will be implemented in accordance with the CEMP and CNVMP. Contact information for Martinus Rail’s Community Team have been provided to assist with ongoing consultation during construction.

Depending on individual needs and circumstances, specific mitigation measures offered by Martinus Rail could include but are not limited to:

- Offers of individually agreed respite to highly noise affected sensitive land users (standard construction hours)
- Consultation on timetabling of highly noise intensive works to avoid sensitive periods
- Offers of attended noise monitoring at the premises to confirm actual levels of impact
- Offers of temporary alternative accommodation or work space
- Individual briefings.

Specific mitigation measures identified in consultation with individual affected sensitive land users will be implemented during works subject to this CNVIS. Further mitigation measures may be identified by the affected community as construction progresses and these will be assessed where reasonable and feasible and on a case by-case basis.

8.5.2 Consultation for this CNVIS

The project website includes the following key information:

- Latest approvals
- All management plans, including the CNVMP and the Construction Environmental Management Plan (CEMP), which provide information on the relevant environmental management measures
- Notifications, including three-month lookaheads, monthly updates and specific OOHW notifications
- Contact mechanisms, including requests for feedback and/or complaints on individual circumstances.

As part of the project's program of regular notifications, the following notifications have included information on the OOHW requirements subject to this CNVIS:

- Project-wide monthly notifications distributed to over 25,000 properties
- Work specific notifications
- Three-month lookahead notifications distributed to over 25,000 properties
- Regular email with details of upcoming work or changes.

All notifications include the following:

- Link to project website
- 24/7 phone number and email address for enquiries, complaints or comments
- Requests for the community to provide feedback on their individual needs and circumstances.

Prior to commencement of works subject to this CNVIS, targeted consultation occurred with a total of approximately 7,127 residential properties across the entire project alignment, approximately 3,081 of which were in the Wagga Wagga precinct. These properties received targeted letterbox drops, emails and newspaper adverts from the Community Team and feedback was sought across (3) three weeks, from 7 August to 28 August 2024.

The team requested feedback from the affected community on their individual needs during this targeted consultation.

8.5.3 Consultation outcomes

Feedback received during this consultation was primarily related to the existing operational train line and the disturbance the trains cause.

In Wagga Wagga, no additional management measures relating to construction noise were identified during this consultation (as required by CoA E78); however, the following general sentiments were noted from respondents:

- Limit noise generating work outside of standard construction hours as much as possible
- Limit noise generating work on the weekends as much as possible

- Construction works should be completed as soon as possible.

The CNVIS documents the need to limit noise generating work as much as possible and this will be achieved through the implementation of existing mitigation measures listed in this CNVIS.

Nevertheless, regular consultation with the community will continue throughout construction in accordance with the Community Communications Strategy and the Community Action Plan prepared for the relevant activities. A list of key stakeholders relevant to this CNVIS are included in, see **Table 24** below.

Table 24 Key Stakeholders for this CNVIS

Precinct Area	Receiver Type	Level of Engagement	Distance from Work Site (m)
Wagga Wagga Precinct			
Wagga Wagga City Council	Council	Consult	Various
Wagga Wagga Base Hospital	Health	Consult	350
Calvary Riverina Hospital (private)	Health	Consult	800
Pearson Street bridge			
Wagga Show Campground and Wagga & District Greyhound Club	Active Recreation	Consult	10
Peacock Drive, Bulolo Street, Gallop Avenue and Wade Street	Residential	Consult	Various
Edmondson Street Bridge and Cassidy Parade Bridge			
Kildare Catholic College	Educational / Residential	Consult	30
South Wagga Public School	Educational	Consult	5
Edmonson, Erin and Macleay Streets	Residential	Consult	Various
Kildare, Norman, Little Best, Best Streets and Cassidy Parade	Residential	Consult	Various
The Penthouse	Residential	Consult	Various
Erin Earth - 1 Kildare Street, Wagga Wagga	Educational	Consult	20

8.6 Occupational Noise Exposure

In accordance with CoA E77, worksites will be managed to ensure that noise generated by construction will not exceed the National Standard for exposure to noise in the occupational environment of an eight-hour equivalent continuous A-weighted sound pressure level of $L_{Aeq,8h}$ of 85 dBA for any employee working at a location near the project.

It is not anticipated that an exceedance will occur at any point during the project, however occupational exposure to noise will primarily be managed under the Work Health and Safety Management Plan.

8.7 Monitoring

Noise and vibration monitoring will be undertaken in accordance with the CNVMP (including monitoring program) and the CNVF.

CoA E81 requires that advice from an independent heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures prior to the installation of the equipment.

8.7.1 Construction Noise Monitoring

Construction noise monitoring will be carried out at the commencement of activities to confirm that actual noise levels are consistent with the predictions presented in this CNVIS, and that the management measures that have been implemented are effective or as per the CNVMP.

Monitoring locations will be focused to the most impacted receivers identified in **Appendix C**. Indicative locations are identified in **Table 25**, however, these will be subject to provision of safe access and the specific location of work being undertaken at the time of monitoring.

Noise monitoring will, where practicable, be in a position with unobstructed views of general site activities, whilst shielded as much as possible from non-construction site noise (e.g. road traffic, rail noise and other surrounding noise). The preferred measurement height is 1.2-1.5m above the ground. In accordance with *Australian Standard AS1055:2018*, outdoor noise monitoring is to be undertaken at least 3.5m from any reflecting structure other than the ground.

Noise monitoring will be carried out on or near the property boundary at the locations representative of the nominated receivers in **Table 25** (i.e. in publicly accessible areas near the nominated receivers, if it is safe to do so). Noise monitoring results will be assessed against the noise management levels (NMLs) and predicted exceedance category identified in **Appendix C**.

The results will be documented with discussion about the details of work underway at the time and mitigation in place. Noise monitoring results will be recorded on the MR Noise Monitoring Form in Procore. Noise monitoring data will be made available to the AA and ER for information, upon request.

8.7.2 Construction Vibration monitoring

Attended or unattended vibration monitoring will be undertaken as required. Monitoring locations may vary as work progresses and will be determined on a case-by-case basis or in response to complaints. The focus of monitoring will be at risk buildings, structures and sensitive receivers as identified in **Section 6.0**. If other vibration intensive activities are required, an assessment of their potential impact is required as per the CNVMP.

Indicative locations are identified in **Table 25**, however, these will be subject to provision of safe access and the specific location of work being undertaken at the time of monitoring. Vibration monitoring data will be made available to the AA and ER for information, upon request.

Table 25 Indicative Monitoring Locations

Location	Type	Monitoring	Timing
Noise Monitoring			
Edmondson Street Bridge • 6 Little Best St, Wagga Wagga • 96 Railway St, Turvey Park • Kildare Catholic College **Cassidy Footbridge** • 2 Kildare St, Turvey Park **Pearson Street Bridge** • 8B Peacock Dr, Turvey Park	Activities based noise monitoring	• Confirming that actual noise levels are consistent with predicted noise impacts and that the effectiveness of actions and mitigation measures implemented are satisfactory • In response to a noise related complaint(s) (determined on a case-by-case basis) • Following implementation of mitigation measures or noise attenuation because of exceedance of predicted noise levels	At the commencement of the activities being undertaken
	Out of Hours Work	Attended monitoring as required by the Out of Hours Work (OOHW) plan to validate noise levels are consistent with predicted noise impacts and that the effectiveness of actions and mitigation measures implemented are satisfactory	At the commencement of the range of OOHW activities being undertaken.
	Plant / Equipment Checks	Spot checks would be carried out as required on a case-by-case basis, such as • In response to a specific noise related complaint and • During noise verification monitoring when it is possible to isolate the noise from one piece of plant or equipment.	case-by-case basis
Vibration Monitoring			
Edmondson Street Bridge • 2 Donnelly Ave, Wagga Wagga • 96 Railway St, Turvey Park • 23 MacLeay St, Turvey Park **Cassidy Footbridge** • 2 Kildare St, Turvey Park • 1 Norman St, Turvey Park **Pearson Street Bridge** • 10 Cheshire St, Wagga Wagga	Activities based vibration monitoring	• Confirming that vibration levels are below criteria and that the effectiveness of actions and mitigation measures implemented are satisfactory • In response to a vibration related complaint(s) (determined on a case-by-case basis)	Throughout vibration generating activities being undertaken within minimum working distances to nearby receivers.

9.0 Cumulative Impacts

Cumulative construction noise impacts can occur where multiple work activities are being completed near to a particular receiver at the same time. There is potential for cumulative construction impacts from multiple construction activities being completed in different areas of the project (ie Edmondson Street Bridge, and Cassidy Footbridge enhancement sites).

Since the construction scenarios required for various stages of the project would generally require similar items of equipment, concurrent construction work being completed near to a particular area could theoretically increase the worst-case noise levels in this report by around 3 dB (ie a logarithmic adding of two sources of noise at the same level).

The likelihood of worst-case noise levels being generated by two different work activities at the same time is, however, considered low and rather than increase construction noise levels, the impact of concurrent work would generally be a limited to a potential increase in the duration, and annoyance, of noise impacts on the affected receivers.

In practice, construction noise levels in any one location would vary and would be frequently much lower than the worst-case scenario assessed due to construction staging moving work around within the study area and, in many cases, only a few items of equipment being used at any one time.

Martinus Rail will take feasible and reasonable steps to consult and coordinate with other construction projects when they become aware of them and if they have the potential to impact the same receivers concurrently, to minimise cumulative impacts of noise and vibration and maximise respite for affected sensitive receivers (in accordance with CoA E72 and E83).

Appendix A Acoustic Terminology

A2I | Albury to Illabo – Wagga Wagga Utility Work

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

6 January 2025

Doc No:
6-0052-210-EEC-W0-AS-0001_A

1. Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that 'noise' often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is 2×10^{-5} Pa.

2. 'A' Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People's hearing is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as 'linear', and the units are expressed as dB(lin) or dB.

3. Sound Power Level

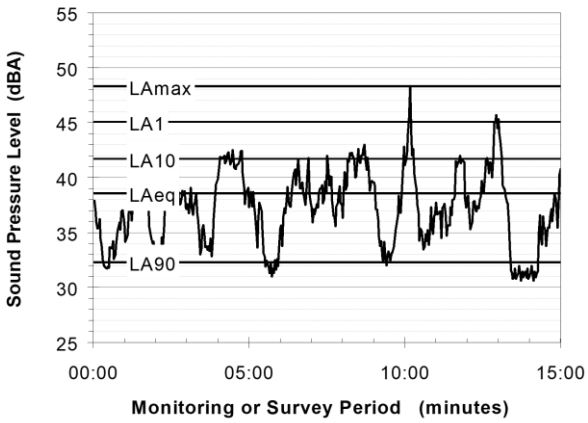
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

The relationship between Sound Power and Sound Pressure is similar to the effect of an electric radiator, which is characterised by a power rating but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

4. Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

- L_{A1} The noise level exceeded for 1% of the 15 minute interval.
- L_{A10} The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.
- L_{A90} The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.
- L_{Aeq} The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.
- L_{Amax} The A-weighted maximum sound pressure level of an event measured with a sound level meter.

5. Frequency Analysis

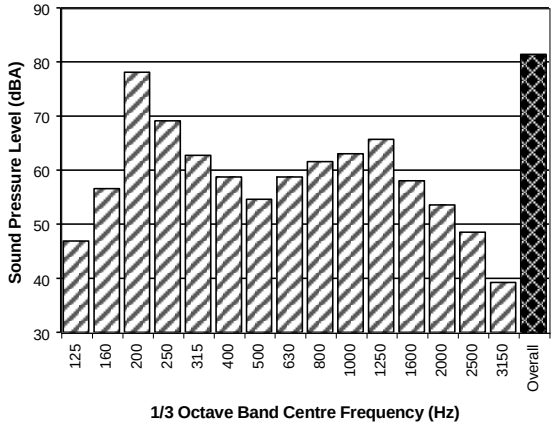
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (three bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

7. Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements (ie vertical, longitudinal and transverse).

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level V, expressed in mm/s can be converted to decibels by the formula 20 log (V/Vo), where Vo is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

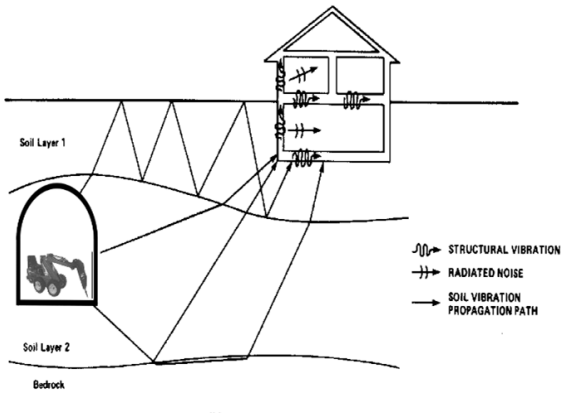
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

9. Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents an example of the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise.

Appendix B Modelling Scenarios and Equipment

A2I | Albury to Illabo – Wagga Wagga Utility Work

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

6 January 2025

Doc No:
6-0052-210-EEC-W0-AS-0001_A

Equipment		Total Lw (dBA)	Articulated Dump Truck	Backhoe (with auger)	Chainsaw[1]	Cherry picker	Concrete agitator truck	Crane (mobile)	Crane Franna	Dynamic Track Stabiliser	Elevated Work Platform	Excavator - Tracked (20 tonne)	Excavator - Tracked (3-5 tonne)	Excavator 10-15T + Hammer[1]	Front End Loader	Grader	Hand tools (electric)	Light Vehicle	Plate Compactor	Saw – Concrete[1]	Tracked Hydraulic Drilling Rig[1]	Truck - Medium Rigid	Truck - road truck	Truck - Vacuum (NDD)	Tub Grinder/Mulcher[1]	Watercart	Welding Equipment
Sound Power Level (Lw)[2]			109	106	105	105	109	104	98	113	97	105	90	118	113	109	102	95	104	118	114	103	108	109	116	105	110
Estimated utilisation (%)			25%	100%	50%	30%	100%	30%	30%	50%	25%	50%	50%	30%	50%	50%	75%	25%	100%	25%	100%	25%	25%	100%	100%	75%	100%
ID	**Construction Scenario**																										
Edmondson Street Bridge																											
W.001	Site Establishment / Demobilisation	**113**	1						1						1	1		2								1	
W.002	Compound Operation	**104**							1									2								1	
W.003	Vegetation clearing	**116**			2						2											1			1		
W.004	Utility Work (Gas) - investigation and excavation	**117**	1						1					1				2	1	1		1		1			
W.005	Utility Work (Gas) - underbores	**116**	1	1									3					2			1	1		1			
W.006	Utility Work (Gas) - cutovers & make good	**112**							1				1				1	2	1			1					1
W.007	Utility Work (66kV) (day)	**115**							1			1							1	1		1		1			
W.008	Utility Work (66kV) (night outage 1)	**113**					1	2	2									3					1	1			
W.009	Utility Work (66kV) (night outage 2)	**109**			1	5		1			5							3									
Cassidy Footbridge																											
W.010	Utility Work (Gas) protection works	**113**					1		1				1					1	1			1		1			
W.011	Utility Work (water) relocations works protection works	**117**	1											1				1	1	1		1		1			
Pearson Street Bridge																											
W.012	Utility Work (gas & water) - investigation and excavation	**117**	1											1				1	1	1		1		1			
W.013	Utility Work (gas & water) - underbores	**111**		1									1					2				1		1			
W.014	Utility Work (gas & water) - cutovers & make good	**112**							1				1				1	1	1			1					1

Note 1: Equipment classed as 'annoying' in the ICNG and requires a 5 dB correction.

Note 2: Sound power level data is taken from the DEFRA Noise Database, AS2436 and TfNSW Construction Noise and Vibration Guideline.

Appendix C Noise Impact Maps

A2I | Albury to Illabo – Wagga Wagga Utility Work

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

6 January 2025

Doc No:
6-0052-210-EEC-W0-AS-0001_A

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.001 Edmondson Street Bridge - Site Establishment/ Demobilisation - Approved Daytime Hours

APPENDIX C-1

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.002 Edmondson Street Bridge - Compound Operation - Approved Daytime Hours

APPENDIX C-2

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.003 Edmondson Street Bridge - Vegetation clearing - Approved Daytime Hours

APPENDIX C-3

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.004 Edmondson Street Bridge - Utility Work (Gas) - investigation and excavation - Approved Daytime Hours

APPENDIX C-4

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.005 Edmondson Street Bridge - Utility Work (Gas) - underbores - Approved Daytime Hours

APPENDIX C-5

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.006 Edmondson Street Bridge - Utility Work (Gas) - cutovers & make good - Approved Daytime Hours

APPENDIX C-6

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.007 Edmondson Street Bridge - Utility Work (66kV) (day) - Approved Daytime Hours

APPENDIX C-7

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.008 Edmondson Street Bridge - Utility Work (66kV) (night outage 1) - Approved Daytime Hours

APPENDIX C-8

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.008 Edmondson Street Bridge - Utility Work (66kV) (night outage 1) - Out of Hours Daytime

APPENDIX C-9

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

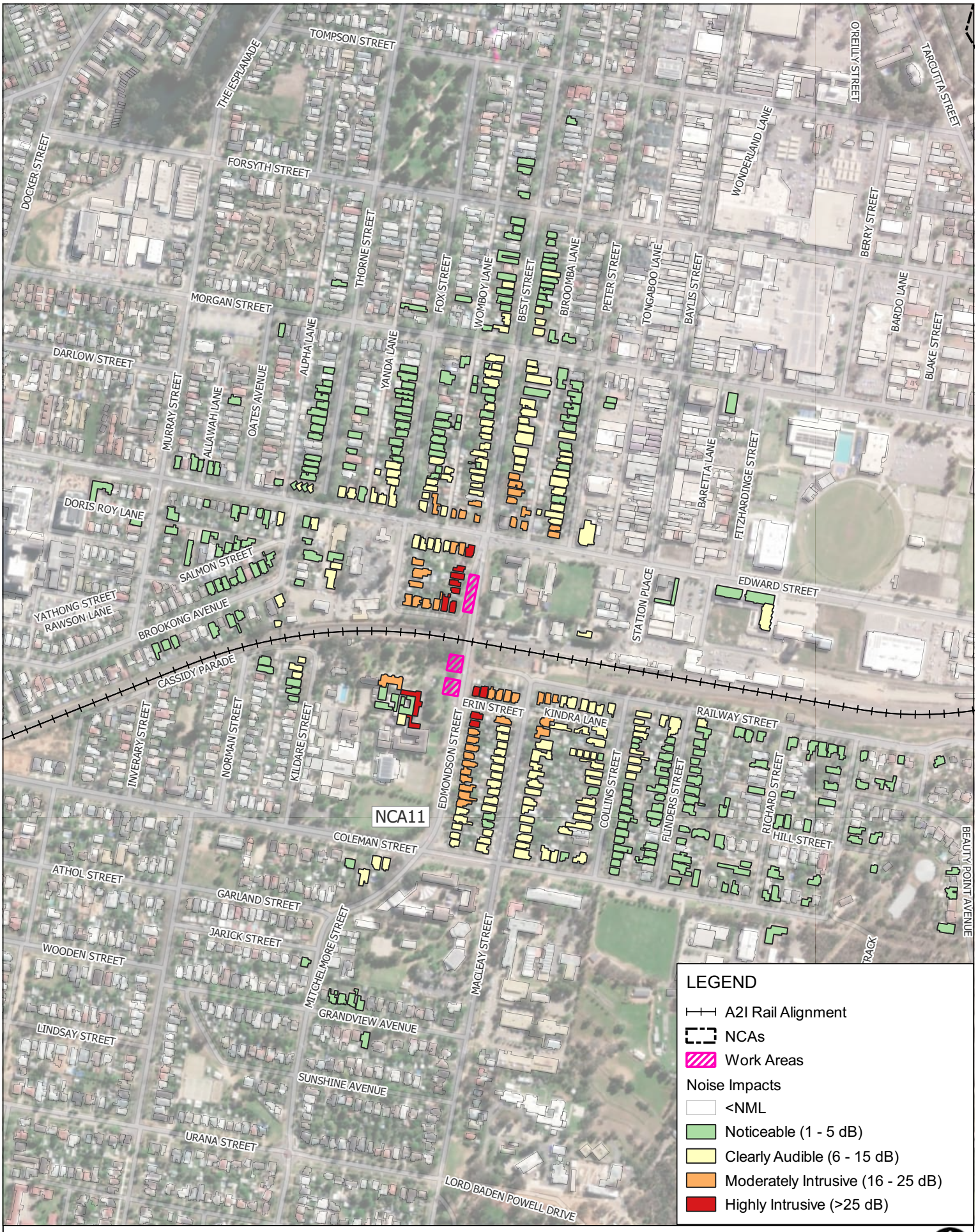
Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.008 Edmondson Street Bridge - Utility Work (66kV) (night outage 1) - Out of Hours Evening

APPENDIX C-10

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz



Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.008 Edmondson Street Bridge - Utility Work (66kV) (night outage 1) - Out of Hours Night-time

APPENDIX C-11

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.009 Edmondson Street Bridge - Utility Work (66kV) (night outage 2) - Approved Daytime Hours

APPENDIX C-12

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.009 Edmondson Street Bridge - Utility Work (66kV) (night outage 2) - Out of Hours Daytime

APPENDIX C-13

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.009 Edmondson Street Bridge - Utility Work (66kV) (night outage 2) - Out of Hours Evening

APPENDIX C-14

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.009 Edmondson Street Bridge - Utility Work (66kV) (night outage 2) - Out of Hours Night-time

APPENDIX C-15

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.010 Cassidy Street Footbridge - Utility Work (Gas) protection works - Approved Daytime Hours

APPENDIX C-16

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.011 Cassidy Street Footbridge - Utility Work (water) relocations works protection works - Approved Daytime Hours

APPENDIX C-17

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

LEGEND

- A2I Rail Alignment
- NCAs
- Work Areas

Noise Impacts

- <NML
- Clearly Audible (1 - 10 dB)
- Moderately Intrusive (11 - 20 dB)

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.012 Pearson Street Bridge - Utility Work (gas & water) - investigation and excavation - Approved Daytime Hours

APPENDIX C-18

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

LEGEND

- A2I Rail Alignment
- NCAs
- Work Areas

Noise Impacts

- <NML
- Clearly Audible (1 - 10 dB)
- Moderately Intrusive (11 - 20 dB)

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.013 Pearson Street Bridge - Utility Work (gas & water) - underbores - Approved Daytime Hours

APPENDIX C-19

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

LEGEND

- A2I Rail Alignment
- NCAs
- Work Areas

Noise Impacts

- <NML
- Clearly Audible (1 - 10 dB)
- Moderately Intrusive (11 - 20 dB)

0 250 500 m

Scale: Scale: 1:8,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 19-Dec-2024
Project Number: 610.031317

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

W.014 Pearson Street Bridge - Utility Work (gas & water) - cutovers & make good - Approved Daytime Hours

APPENDIX C-20

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNVIS\03 A2I Utilities\01 Wagga\03 Analysis\SLR610031317_Wagga_Utility.qgz

Appendix D Receivers Triggering Additional Mitigation

A2I | Albury to Illabo – Wagga Wagga Utility Work

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

6 January 2025

Doc No:
6-0052-210-EEC-W0-AS-0001_A

W.008 - Utility Work (66kV) (night outage 1)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
212509	9 GRANDVIEW AV, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
212780	16 GRANDVIEW AV, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
212806	20 GRANDVIEW AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
212810	18 GRANDVIEW AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
212824	22 GRANDVIEW AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213044	2 JARICK ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213233	4 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213265	24 BEAUTY POINT AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213414	3 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213467	9 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213496	18 BEAUTY POINT AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213519	2/11 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213533	15 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213539	17 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213609	14 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213610	61 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213627	46 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
213634	2/19A COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213673	13 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213683	63 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213694	14 BEAUTY POINT AV, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213696	22 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213701	57 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213718	4 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213735	42 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
213743	20 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213746	48 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213758	61 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213768	44 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
213777	56 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
213794	55 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213800	60 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
213810	23 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
213811	21 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
213821	59 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213828	29 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
213831	51-53 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
213841	54 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213884	34 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
213885	57 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213909	52 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213918	49 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
213930	33 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
213961	53 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213966	28 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213968	55 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213970	32 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
213986	13 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213994	47 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214000	5 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214007	31 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
214027	1/49 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214029	30 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214035	53 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214047	47 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214060	11 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214062	45 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214075	29 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
214092	54 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214102	51 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214106	11 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214111	28 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214132	46 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214135	17 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214146	15 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214154	27 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
214156	43 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214172	49 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214173	52 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214176	26 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214200	44 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214233	25 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
214241	25 HILL ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214254	50 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214255	47 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214258	41 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214261	43 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214264	24 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214281	42 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214307	23 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
214320	39 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214324	48 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214327	10 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214329	45 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214338	22 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214348	41 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214361	40 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214373	21 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
214395	9 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214399	43 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214407	37 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214410	20 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214417	44 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214427	37-39 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214429	10 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214439	38 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214443	19 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
214459	41 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214479	6 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214482	18 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214487	35 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214488	3 BURWOOD ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214493	3 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214504	5 BURWOOD ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214509	36 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214512	42 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214515	35 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214519	17 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
214549	16 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214551	39 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214557	33 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214567	40 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214577	15 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
214603	2 YOUNG ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214604	33 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214612	14 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214617	37 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214631	31 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214634	38 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214645	13 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	61	CO1	CO1	CO1, CO2, (RO,AO)*
214656	4 RICHARD ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214678	31 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214686	38 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214688	12 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214689	35 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214690	42 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1

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W.008 - Utility Work (66kV) (night outage 1)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
214714	30 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214717	11 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	62	CO1	CO1	CO1, CO2, (RO,AO)*
214720	29 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214727	3/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214730	50 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214736	52 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214747	10 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214748	29 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214754	31 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214768	56 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214778	9 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
214781	54 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214782	28 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214789	58 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214791	33 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214793	8 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214794	27 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
214826	27 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214829	32 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214831	62 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214847	7 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
214850	29 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214853	26 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214865	6 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214873	66 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214874	68 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214880	27 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214901	25 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
214904	5 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*
214911	72 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214915	23 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214920	30 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214921	1 KINDRA LANE, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
214926	4 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	55	CO1	CO1	CO1
214934	25 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214939	23 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
214959	3 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	69	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
214961	74 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214975	21 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
214981	23 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
214984	23 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214990	2 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	65	CO1	CO1	CO1, CO2, (RO,AO)*
215001	76 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
215023	1 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	71	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215032	3/21 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
215072	82 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215077	80 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
215078	84 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215108	86 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
215126	88 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215132	90 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215147	12 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
215151	94 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
215160	92 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
215161	96 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
215163	1 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
215180	3 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	65	CO1	CO1	CO1, CO2, (RO,AO)*
215190	5 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*
215201	7 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
215216	9 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	73	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215217	10 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
215219	11 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	75	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215283	8 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
215326	6 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
215356	3 NORMAN ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
215365	4 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	51	-	-	CO1
215403	1 NORMAN ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
215412	2 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
215460	48 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
215491	46 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215499	44 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215551	14 STATION PL, WAGGA WAGGA NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215570	36 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215618	32 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
215654	30 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215689	6-10 STATION PL, WAGGA WAGGA NSW 2650	45	45	-	-	57	CO1	-	-
215708	2 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	82	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215717	BUILDING 3 UNIT 105 1 FLINDERS ST, WAGGA WA(	58	53	52	42	45	-	-	CO1
215724	4 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	75	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215725	6 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
215731	8 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
215746	12 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	61	CO1	CO1	CO1, CO2, (RO,AO)*
215748	104 EDWARD ST, WAGGA WAGGA NSW 2650	60	60	60	45	48	-	-	CO1
215749	22 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
215750	10 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
215760	2-4 STATION PL, WAGGA WAGGA NSW 2650	45	45	-	-	49	CO1	-	-
215794	1 FLINDERS ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
215799	2 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	83	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215807	23 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
215809	104 EDWARD ST, WAGGA WAGGA NSW 2650	60	60	60	45	48	-	-	CO1
215820	21 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
215835	1 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
215836	19 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
215843	17 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
215846	4 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	83	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215849	18 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
215874	188 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
215888	15 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215892	6 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	86	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215908	3 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
215924	11 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215925	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	66	CO1	-	-
215933	8 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	82	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215942	9 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
215956	188 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
215984	5 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
216006	7 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216024	12 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216026	188 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216053	6 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216060	156 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	73	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
216073	3/12 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216085	158 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
216088	4 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216094	160 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*
216099	162 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216103	164 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216107	168 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216115	2A SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216117	166 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216122	2 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216127	8 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216128	170 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216165	8 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216181	2 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216186	127 EDWARD ST, WAGGA WAGGA NSW 2650	60	60	60	45	51	-	-	CO1

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W.008 - Utility Work (66kV) (night outage 1)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
216200	21 MURRAY ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216226	4 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216245	131A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
216256	196 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216264	22 MURRAY ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216272	198 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216281	133 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
216284	6 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216292	202 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216294	206 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216298	153 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
216306	23 MURRAY ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216315	8 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
216323	157 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216327	208 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216333	161 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
216342	214 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216346	131A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216357	212 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216360	163 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216378	10 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216391	1/173 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
216400	222 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216401	WOMBOY 5/165 EDWARD ST, WAGGA WAGGA NSV	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
216404	8 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
216433	9 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216434	177 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216437	12 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216448	175 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216464	179 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216471	181 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216472	173 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216480	189 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216485	12 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216486	191 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216487	11A BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216498	14 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216520	7 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216521	2/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216540	14 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216547	13 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216558	9 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216561	20 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216564	10 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216585	16 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	55	CO1	CO1	CO1
216587	4/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216589	8 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216603	17 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
216605	2/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216624	12 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216626	22 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216642	12 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216643	18 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	57	CO1	CO1	CO1
216649	4/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216651	10 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216655	215-217 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216657	1/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216662	215A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216668	19 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216676	11 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216678	24 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216680	219 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216683	14 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216694	12 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216697	221 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216700	20 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216710	225 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216721	13 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216726	21 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	57	CO1	CO1	CO1
216729	26 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216733	16 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216743	14 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216774	15 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216775	28 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216781	24 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216795	15 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216798	23 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	55	CO1	CO1	CO1
216799	20 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216839	17 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216846	26 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	55	CO1	CO1	CO1
216848	30 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216874	26 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216892	21 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216924	20 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216926	28 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216932	19 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216934	32 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216952	28 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216966	23 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216985	30 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216991	22 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216994	29 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
217012	34 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217019	30 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217027	25 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217038	32 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
217048	24 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217052	31 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
217063	27 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217067	36 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217068	32 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217090	27 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217101	34 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217114	26 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217115	33 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
217118	40 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217125	25 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217129	34 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217154	36 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
217161	37 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217163	28 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217174	36 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217181	35 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
217184	70 MORGAN ST, WAGGA WAGGA NSW 2650	60	60	60	45	46	-	-	CO1
217190	26 OATES AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217199	39 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217209	40 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217223	38A FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217225	30 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217244	42 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217256	41 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217261	38B FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217271	42 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217279	32 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217306	42 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217311	40 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1

DISCLAIMER: Address data within this document is based on external sources.
SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

W.008 - Utility Work (66kV) (night outage 1)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
217314	46 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217323	34 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217341	44 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
217357	44 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217362	41 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
217382	42 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217383	102 MORGAN ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217392	2/39 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217406	46 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
217424	38 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217432	43 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
217434	44 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217445	1/48 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
217460	120 MORGAN ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217462	45 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217499	50 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217600	113 MORGAN ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217620	115 MORGAN ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217641	49 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
217650	158 MORGAN ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217660	54 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217680	51 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217743	55 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217755	60 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217759	56 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217777	57 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217792	62 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217797	3/53 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217808	59 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217831	64 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
217833	61 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217859	63 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217863	66 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217866	58 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217882	65 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217899	68 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217915	67 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
217942	69 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217966	2/74 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217971	73 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217992	75 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
218047	79 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
218074	78 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
218081	81 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
218105	80 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
218138	82 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
218238	84 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
218341	90 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
218375	92 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
218548	109 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
1108363	244-248 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
1108530	10 SALMON ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
1108649	24-26 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
1108869	ERIN EARTH 1 KILDARE ST, TURVEY PARK NSW 26	55	55	-	-	67	CO1	-	-
1108960	58 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
1108976	27 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
1108990	8 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	57	CO1	CO1	CO1
1109034	2/56 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
1109117	32-34 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
1110631	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	76	CO1, CO2	-	-
1110632	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	69	CO1	-	-
1110655	ERIN EARTH 1 KILDARE ST, TURVEY PARK NSW 26	55	55	55	-	59	CO1	CO1	-
1111560	4/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
1111561	4/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
1111562	4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
1111563	209A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
1111585	5/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
1111586	6/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
1111587	6/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
1111588	36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
1111589	BUILDING 1 UNIT 102 1 FLINDERS ST, WAGGA WA0	58	53	52	42	48	-	-	CO1
1111673	2/48 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
1111674	54 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
1111748	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
1111750	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
1111751	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111752	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	73	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
1111753	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111754	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111755	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
1111757	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
1111758	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	68	CO1	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
1111767	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	57	CO1	-	-

DISCLAIMER: Address data within this document is based on external sources.
SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

W.009 - Utility Work (66kV) (night outage 2)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
213627	46 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
213735	42 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
213746	48 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
213768	44 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
213800	60 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
213804	52 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
213810	23 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213811	21 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213814	54 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213818	50 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
213828	29 COLEMAN ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
213831	51-53 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213884	34 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
213918	49 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
213930	33 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
213970	32 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
213994	47 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214007	31 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
214029	30 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214062	45 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214075	29 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214092	54 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214111	28 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214154	27 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	55	CO1	CO1	CO1
214156	43 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214173	52 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214233	25 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
214254	50 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
214258	41 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214264	24 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214307	23 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	57	CO1	CO1	CO1
214320	39 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214324	48 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214338	22 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214373	21 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
214407	37 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214410	20 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214417	44 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214443	19 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	58	CO1	CO1	CO1, CO2, (RO,AO)*
214459	41 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214482	18 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214487	35 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214512	42 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214519	17 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
214549	16 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214551	39 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214557	33 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214567	40 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214577	15 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	64	CO1	CO1	CO1, CO2, (RO,AO)*
214608	ERIN EARTH 1 KILDARE ST, TURVEY PARK NSW 265	55	55	-	-	57	CO1	-	-
214612	14 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214617	37 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214631	31 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214634	38 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214645	13 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
214688	12 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214689	35 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214717	11 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*
214720	29 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214727	3/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214747	10 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214754	31 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214778	9 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
214791	33 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214793	8 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
214794	27 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
214829	32 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
214847	7 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
214865	6 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
214874	68 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214880	27 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214901	25 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
214904	5 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
214911	72 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
214920	30 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
214921	1 KINDRA LANE, TURVEY PARK NSW 2650	58	53	52	42	49	-	-	CO1
214926	4 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
214934	25 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214939	23 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
214959	3 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*
214961	74 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
214975	21 FLINDERS ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
214981	23 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	55	CO1	CO1	CO1
214984	23 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
214990	2 MACLEAY ST, TURVEY PARK NSW 2650	58	53	52	42	61	CO1	CO1	CO1, CO2, (RO,AO)*
215001	76 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
215023	1 EDMONDSON ST, TURVEY PARK NSW 2650	58	53	52	42	67	CO1	CO1	CO1, CO2, (RO,AO)*
215032	3/21 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	48	-	-	CO1
215072	82 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
215077	80 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	50	-	-	CO1
215078	84 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
215108	86 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	52	-	-	CO1
215126	88 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
215132	90 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	53	-	CO1	CO1
215151	94 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	55	CO1	CO1	CO1
215160	92 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	54	CO1	CO1	CO1
215161	96 RAILWAY ST, TURVEY PARK NSW 2650	58	53	52	42	56	CO1	CO1	CO1
215163	1 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
215180	3 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	61	CO1	CO1	CO1, CO2, (RO,AO)*
215190	5 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	62	CO1	CO1	CO1, CO2, (RO,AO)*
215201	7 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
215216	9 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	69	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215219	11 ERIN ST, TURVEY PARK NSW 2650	58	53	52	42	71	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215326	6 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
215356	3 NORMAN ST, TURVEY PARK NSW 2650	58	53	52	42	43	-	-	CO1
215365	4 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	47	-	-	CO1
215412	2 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	44	-	-	CO1
215551	14 STATION PL, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
215689	6-10 STATION PL, WAGGA WAGGA NSW 2650	45	45	-	-	53	CO1	-	-
215708	2 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	78	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215724	4 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	71	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
215725	6 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
215731	8 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
215746	12 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	57	CO1	CO1	CO1
215749	22 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
215750	10 DONNELLY AV, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
215799	2 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	79	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215835	1 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
215846	4 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	79	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215849	18 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
215874	188 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
215892	6 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	82	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215908	3 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
215925	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	62	CO1	-	-
215933	8 LITTLE BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	78	CO1, CO2	CO1, CO2, (RO)*	CO1, CO2, RO, (AO, AltA)*
215956	188 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1

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SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

W.009 - Utility Work (66kV) (night outage 2)

SLR ID	ADDRESS	NML Daytime	NML Daytime OOH	NML Evening	NML Night-time	Predicted Level LAeq(15min)	Additional Mitigation Daytime OOH	Additional Mitigation Evening *(>2 consecutive rest periods)	Additional Mitigation Night *(>2 consecutive sleep periods)
215984	5 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216060	156 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	69	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
216085	158 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
216094	160 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	62	CO1	CO1	CO1, CO2, (RO,AO)*
216099	162 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216103	164 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216107	168 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216117	166 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216128	170 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216181	2 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216186	127 EDWARD ST, WAGGA WAGGA NSW 2650	60	60	60	45	47	-	-	CO1
216226	4 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216245	131A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216256	196 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216281	133 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216284	6 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216292	202 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216298	153 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	60	CO1	CO1	CO1, CO2, (RO,AO)*
216315	8 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216323	157 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	55	CO1	CO1	CO1
216333	161 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216346	131A EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216360	163 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216378	10 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216391	1/173 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
216401	WOMBOY 5/165 EDWARD ST, WAGGA WAGGA NSW	58	53	52	42	54	CO1	CO1	CO1
216404	8 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	59	CO1	CO1	CO1, CO2, (RO,AO)*
216433	9 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216434	177 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216437	12 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216448	175 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216464	179 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216472	173 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216480	189 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216485	12 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216486	191 EDWARD ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216487	11A BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	55	CO1	CO1	CO1
216498	14 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216520	7 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216521	2/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216540	14 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216547	13 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	56	CO1	CO1	CO1
216558	9 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216561	20 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216564	10 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216585	16 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216587	4/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216589	8 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216603	17 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	54	CO1	CO1	CO1
216624	12 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216626	22 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216642	12 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216643	18 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216649	4/11 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216668	19 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216678	24 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216683	14 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216700	20 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
216721	13 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
216726	21 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
216729	26 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216733	16 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216775	28 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
216781	24 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	47	-	-	CO1
216798	23 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216846	26 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	51	-	-	CO1
216874	26 FOX ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
216926	28 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
216934	32 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
216985	30 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
216994	29 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217038	32 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217052	31 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217101	34 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217115	33 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	50	-	-	CO1
217154	36 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
217181	35 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	49	-	-	CO1
217271	42 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217306	42 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217341	44 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217362	41 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	48	-	-	CO1
217406	46 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217432	43 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217445	1/48 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	46	-	-	CO1
217462	45 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217499	50 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217641	49 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
217680	51 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217743	55 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217777	57 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217808	59 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217831	64 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
217863	66 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	45	-	-	CO1
217915	67 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
1108649	24-26 BROOKONG AV, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
1108869	ERIN EARTH 1 KILDARE ST, TURVEY PARK NSW 265	55	55	-	-	71	CO1, CO2	-	-
1108960	58 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
1108976	27 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	52	-	-	CO1
1108990	8 PETER ST, WAGGA WAGGA NSW 2650	58	53	52	42	53	-	CO1	CO1
1109034	2/56 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1110631	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	72	CO1, CO2	-	-
1110632	140 EDWARD ST, WAGGA WAGGA NSW 2650	55	55	-	-	65	CO1	-	-
1111560	4/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
1111561	4/4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
1111562	4-6 THORNE ST, WAGGA WAGGA NSW 2650	58	53	52	42	43	-	-	CO1
1111585	5/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111586	6/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111587	6/36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	46	-	-	CO1
1111588	36 COLLINS ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
1111589	BUILDING 1 UNIT 102 1 FLINDERS ST, WAGGA WAG	58	53	52	42	44	-	-	CO1
1111674	54 BEST ST, WAGGA WAGGA NSW 2650	58	53	52	42	44	-	-	CO1
1111748	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	63	CO1	CO1	CO1, CO2, (RO,AO)*
1111752	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	69	CO1, CO2	CO1, CO2	CO1, CO2, RO, (AO, AltA)*
1111757	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	45	-	-	CO1
1111758	1 KILDARE ST, TURVEY PARK NSW 2650	58	53	52	42	66	CO1	CO1	CO1, CO2, (RO,AO)*

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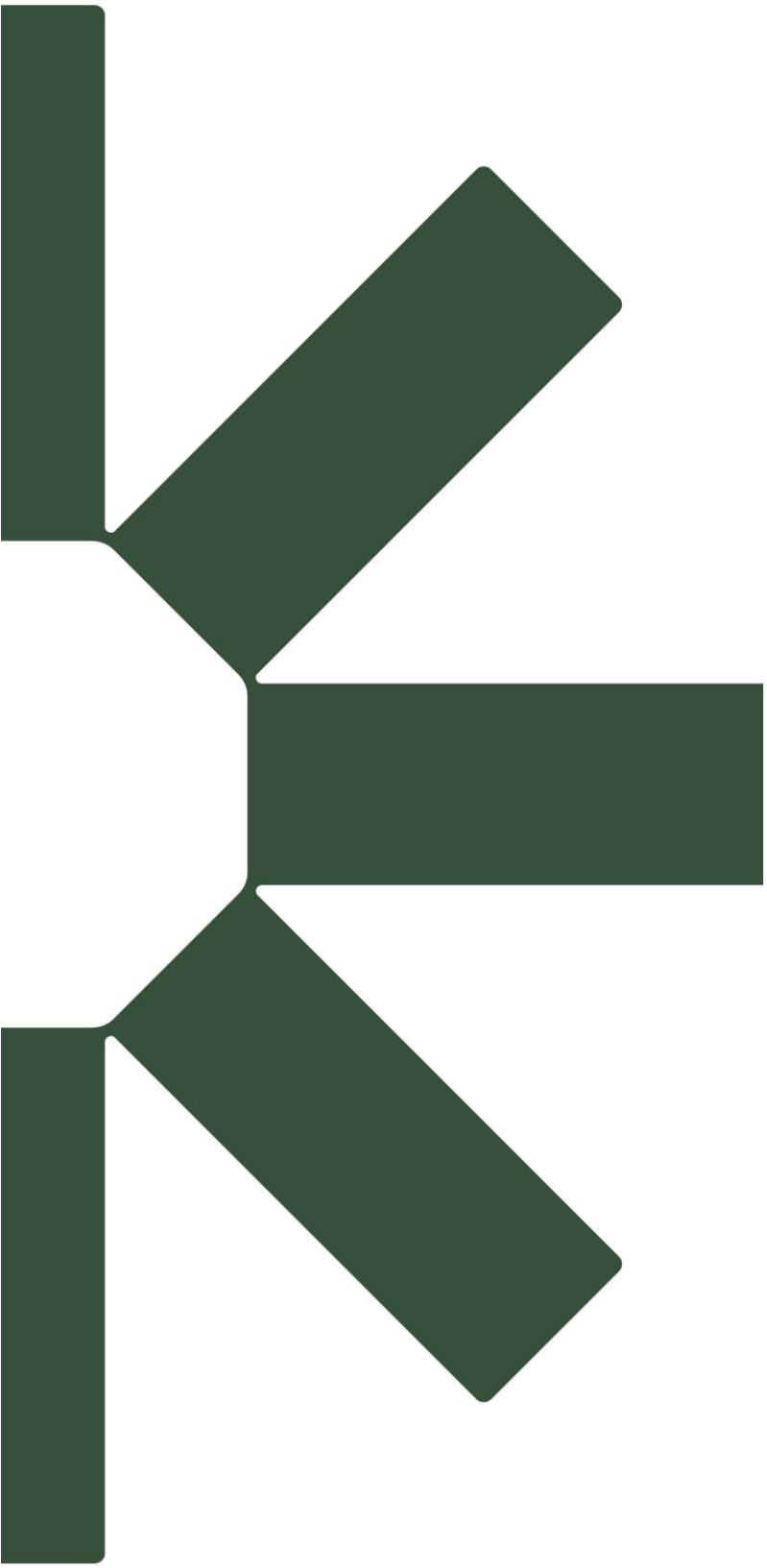

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