Plan

Construction Noise and Vibration Management Plan – Sub Plan

P810060-EN-PL-ALL-006-08

Project Name: Mount Piper to Wallerawang Transmission Line Upgrade

Project Location: Central West region of NSW within the Lithgow City Council Local Government Area (LGA).

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Approval Date:

Next Review Date

Version Number: 0.2

Date: 08/10/2026

TG Number: ZINFRA-CWO-ENV-PLN-000015



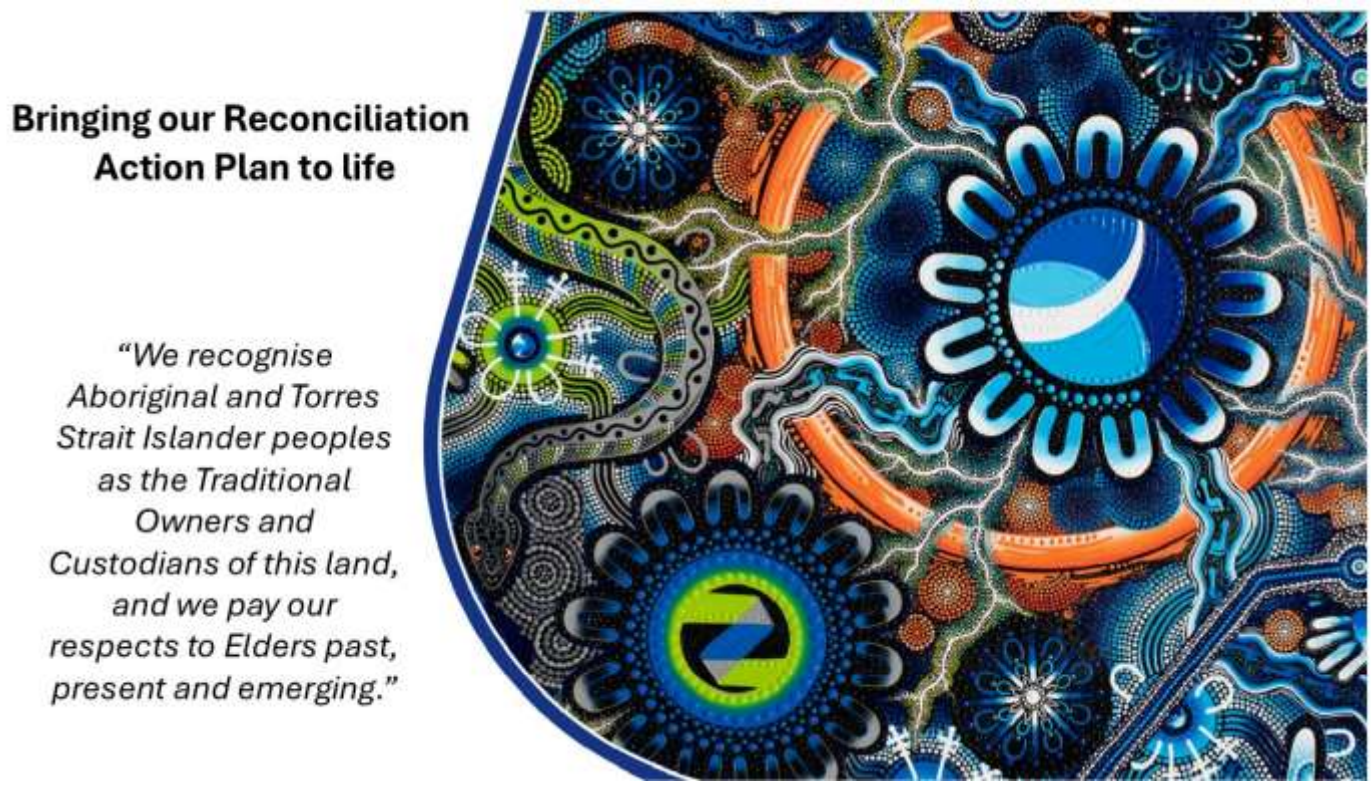
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Document Approval

	Position Title	Name	Date
Approved	Project Director	Karl Littlemore	08/10/2026

Document History

Revision	Date	Author	Description of Changes
A	20/11/2025	Cassio Carpegiane Costa	Issued Draft Template
B	10/03/2026	Cassio Carpegiane Costa	Issued For Review
C	15/04/2026	Ruijie Zhang	Revised based on TG's comments
D	15/05/2026	Karl Littlemore / Hayley Pottenger	Updated in response to Transgrid comments
E	14/07/2026	Rahul Dorairaj	Updated following external stakeholder consultation
F	20/08/2026	Rahul Dorairaj	Updated following Environmental Representative review and comments
0	03/09/2026	Rahul Dorairaj	Issued for construction
0.1	25/09/2026	Rahul Dorairaj	Updated following DPHI comments
0.2	08/10/2026	Rahul Dorairaj	Updated following DPHI comments



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Compliance Tables

Revised Environmental Mitigation Measures (REMMs)

Table 1 - Revised Environmental Mitigation Measures

ID	Environmental Measure	Applicable Section	How it is Addressed
NV1	A Construction Noise and Vibration Management Plan (CNVMP) will be developed in consultation with NSW EPA and implemented as part of the CEMP. The CNVMP will generally follow the approach outlined in the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and include:	This Plan	This CNVMP has been prepared in consultation with NSW EPA and forms part of the Project CEMP. It adopts the ICNG approach and establishes the framework for the assessment, management, mitigation, monitoring and reporting of construction noise and vibration impacts.
	• identification of sensitive receivers, including sensitive, threatened fauna and their nearby habitats in consultation with a qualified ecologist, and historic heritage items and structures (i.e. Wallerawang Rail Bridges over Coxs River (SHR #01064), the St John the Evangelist (SHR #01702, LEP#I112), and Braemai (LEP #I193)) and underground utilities including the Fish River Water Supply Scheme	Section 6.5	Section 6.5 identifies vibration-sensitive receivers and potential impacts to heritage structures, including the Wallerawang Rail Bridge, sensitive/threatened fauna and buried utilities including the Fish River Water Supply Scheme, and establishes the applicable management approach.
	• an updated construction noise and vibration assessment based on final construction staging, compound locations and details, selected equipment types and proposed Out-of-Hours Works (OOHW) periods	Appendix A	Appendix A provides the updated project-specific construction noise assessment for each tower location, based on selected plant, work locations and working periods, including OOHW periods. Construction compound impacts (CS02) are assessed in Section 6 and will be confirmed through a CNVIS under Section 7.3. Vibration impacts have been assessed using the minimum working distances in Section 5.8 and are addressed in Section 6.5
	• all potentially high noise and vibration generating activities associated with the construction of the project	Section 6	Section 6 assesses the principal noise and vibration generating construction scenarios, including access works, vegetation clearing, earthworks, piling, structure erection and transmission line stringing, during both standard and out-of-hours periods.
	• standard and additional mitigation measures to manage identified impacts as required in accordance with the CNVG Construction Noise and Vibration Guideline (Roads), including safe working distances when working near heritage structures to avoid vibration damage and measures to protect underground utilities including the Fish River Water Supply Scheme	Section 6.5	Section 6.5 identifies minimum vibration working distances and specific controls for sensitive structures, heritage items and buried infrastructure, including monitoring near the Wallerawang Rail Bridge and consultation with utility asset owners. Additional vibration controls are provided in Sections 6.8 and 10.
	• a monitoring program to assess performance against relevant noise and vibration criteria	Section 8	Section 8 establishes the noise and vibration monitoring program, including compliance, heritage, complaint-based, utility and OOHW monitoring,

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ID	Environmental Measure	Applicable Section	How it is Addressed
			environmental inspections, responsibilities, records and the response process where predicted or applicable criteria are exceeded.
	• arrangements for consultation with affected neighbours and sensitive receivers where exceedances are predicted of NMLs, including notification and complaint handling procedures.	Section 3 Section 7.1 Section 8.7 Community Consultation Strategy Out of Hours Works Protocol	A Communication Consultation Strategy (CCS) is defined and details the proactive notification and consultation with noise-affected receivers, including notifications where exceedances are predicted and specific requirements for OOHW. Complaints will be recorded, investigated and responded to in accordance with the CCS and complaints handling process defined.
	• details of the process and actions to be taken in the event of non-compliance with noise and vibration criteria.	Section 8.6	Section 8.6 establishes the process for identifying, reporting and addressing noise and vibration non-compliances, including regulatory notification requirements, corrective actions and additional monitoring where required.
NV2	As part of development of the detailed design and construction methodology, all reasonable and feasible mitigation measures will be considered, confirmed and implemented, in line with the ICNG, to minimise construction noise impacts and to avoid exceedances of the applicable noise management levels at adjacent sensitive receivers, where practicable. Measures that may achieve this outcome may include, but not be limited to, the following:	Section 7.6.1 Section 10 Table 26	Section 10 incorporates project-specific reasonable and feasible noise controls into construction requirements, including source, pathway, equipment, separation and operational controls to minimise impacts at sensitive receivers.
	• Portable temporary noise screens will be erected adjacent to stationary or long-term static noise sources, or noise generating items, where reasonable and feasible.	Section 7.6.1 Section 10 Table 26	Measure N1 requires portable temporary noise screens adjacent to stationary or long-term noise sources where reasonable and feasible.
	• Spotters, “smart” reversing alarms, or broadband reversing alarms will be used in place of traditional tonal beeper reversing alarms, particularly on equipment where reversing alarms are frequently in use such as rollers, loaders or compactors.	Section 7.6.1 Section 10 Table 26	Measure N2 requires spotters, smart reversing alarms or broadband alarms to be used in place of traditional tonal reversing alarms, particularly for frequently reversing equipment.
	• Noise source controls, such as the use of residential class mufflers, will be used reduce noise from all plant including cranes, excavators and trucks.	Section 7.6.1 Section 10 Table 26	Measure N3 requires source controls, including residential-class mufflers, to reduce noise emissions from construction plant such as cranes, excavators and trucks.
	• The offset distance between noisy plant items and sensitive receivers will be maximised, where reasonable and feasible.	Section 7.6.1 Section 10 Table 26	Measures N4 and N39 require separation between noisy plant and sensitive receivers to be maximised where reasonable and feasible.

ID	Environmental Measure	Applicable Section	How it is Addressed
	• Machinery will be operated in a manner which reduces maximum noise level events such as shaking excavator buckets, dropping materials into trucks from a, height or steel on steel contact.	Section 7.6.1 Section 10 Table 26	Measures N5, N30 and N32 require machinery, equipment and materials to be operated and handled to minimise impulsive and maximum noise events such as metal-on-metal contact and dropping materials.
	• Construction plant and equipment will be turned off when not in use.	Section 7.6.1 Section 10 Table 26	Measures N6 and N30 require construction plant and equipment to be switched off when not in use and unnecessary idling to be avoided.
NV3	Opportunities to reduce exceedances of the applicable construction noise management levels through the implementation of administrative controls will be examined, confirmed and implemented where reasonable and feasible in line with the Interim Construction Noise Guideline ICNG (DECC,2009). Controls to be considered will include but not be limited to the following:	Section 10	Section 10 establishes administrative and work-practice controls including training, equipment selection, scheduling, maintenance and verification of OOHW noise predictions to minimise noise impacts.
	• Environmental awareness training and inductions for site personnel will include noise mitigation techniques/measures to be implemented when on site and accessing the site.	Section 10	Measures N7, N33 and N40 require noise and vibration controls to be incorporated into inductions, environmental awareness training, pre-starts and toolbox talks.
	• Plant and equipment will be selected based on noise emission levels. This will include the consideration of alternative piling and stringing methods, such as the use of bored piling methods and drones for stringing.	Section 10	Measures N8, N46 and N47 require consideration of quieter equipment and alternative construction methods, including bored piling, to reduce noise emissions where feasible.
	• Noise-intensive works will be limited to less sensitive construction hours (i.e. Away from early morning and late afternoon periods) as far as practicable, when working in the vicinity of sensitive receivers.	Section 10	Measures N9, N35 and N36 require noisy activities to be scheduled during less-sensitive/daytime periods where practicable, particularly near sensitive receivers.
	• Plant and equipment will be well maintained to ensure that excessive noise is not generated.	Section 10	Measures N10, N34 and N37 require construction equipment to be maintained, appropriately silenced and inspected to prevent excessive noise emissions.
	• Noise level predictions for works undertaken outside standard working hours will be confirmed and verified in accordance with the ICNG (DECC, 2009) by the construction contractors. This will consider implementation of additional construction noise mitigation measures.	Section 6.2	Section 6.2 assesses predicted OOHW noise impacts and identifies affected receivers. OOHW noise predictions are subsequently verified through the project-specific assessment and OOHW process, with additional mitigation applied where required.
NV4	Where reasonable and feasible, measures will be taken to minimise noise emissions from construction compounds using the following principles: • The layout of the construction compounds C2 and C3 will be planned so that the primary noise sources are at a maximum distance from residences, with solid structures (sheds, containers, etc.) placed between residences and noise sources (and as close to the noise sources as is practical).	Section 10	Measures N12 to N14 require compound layouts to maximise separation from residences, use structures/enclosures to shield noise sources and take advantage of topography to block line of sight where reasonable and feasible.

ID	Environmental Measure	Applicable Section	How it is Addressed
	• Enclosures will be used to shield fixed noise sources such as pumps, compressors, fans, screens (where practicable). • Site topography will be considered when situating plant to block line of sight where possible.		
NV5	A project-specific OOHW protocol will be developed to define the process for considering, approving and managing OOHW. The protocol will include provisions to: • confirm and verify proposed noise level impacts for specific work activities proposed outside standard construction hours, including the potential for sleep disturbance impacts • confirm and verify the potentially affected sensitive receivers and the standard and additional mitigation measures that will be applied to such receivers • additional mitigation measures will be applied to affected sensitive receivers impacted by sleep disturbance for more than two consecutive nights • notify and engage with potentially noise affected receivers about upcoming work outside standard construction hours and address any associated complaints • identify appropriate respite for noise affected receivers (where required) • proactively communicate and engage with affected receivers	Appendix C – Out of Hours Works Protocol	The project-specific OOHW Protocol establishes the process for assessment, approval and management of works outside standard construction hours, including verification of impacts and affected receivers, additional mitigation, notification/engagement, complaints management and respite requirements.
NV6	Where vibration intensive activities are planned within vibration minimum working distances (including for sensitive or heritage structures and buried infrastructure), reasonable and feasible mitigation measures will be implemented. These measures will include, but not be limited to:	Section 6.5 Section 10	Sections 6.5 and 10 identify vibration-sensitive receivers and minimum working distances and require additional controls where vibration-intensive works occur within those distances, including alternative methods, monitoring and cessation of work where criteria may be exceeded.
	• pre- and post-construction condition surveys of vibration sensitive receivers within the recommended safe working distances prior to construction works	Section 6.5 Section 6.8 Section 10	Section 6.8 and Measure N17 require pre- and post-construction condition surveys of vibration-sensitive receivers within recommended safe/minimum working distances.
	• alternative construction methods and equipment with lower source vibration levels will be investigated and implemented, where feasible, this will include consultation with a suitably qualified heritage specialist for any potential vibration impacts on heritage structures	Section 6.5 Section 10	Measures N18 and N41 require lower-vibration equipment and alternative construction methods to be investigated and implemented where feasible, with specialist heritage input where potential impacts to heritage structures are identified.
	• schedule the use of vibration-sensitive equipment during the least sensitive times of the day	Section 6.5 Section 10	Measure N19 requires vibration-sensitive equipment to be scheduled during the least-sensitive times of day.
	• sequence operations to avoid or minimise concurrent vibration intensive activities	Section 6.5 Section 10	Measures N20 and N42 require construction sequencing to avoid or minimise concurrent vibration-intensive activities.

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	• vibration monitoring will be carried out at the start of work to determine actual vibration levels at the receiver work will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria	Section 6.5 Section 10	Measure N21 requires vibration monitoring at the commencement of relevant works to establish actual vibration levels at the receiver.
	• work will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria	Section 6.5 Section 10	Measure N22 requires works to cease where monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria. Section 6.5 also requires immediate cessation where an exceedance is identified near the Wallerawang Rail Bridge.
	• where potential vibration impacts relate to buried infrastructure, measures to protect the buried infrastructure will be developed in consultation will be undertaken with asset owners. These measures may include traffic management, construction equipment selection, construction bench siting and the placement of additional cover, plating or bog mats.	Sections 6.5 Section 10	Section 6.5 assesses potential vibration impacts to buried utilities, including the Fish River Water Supply Scheme, while Measure N23 requires protection measures to be developed in consultation with asset owners, including equipment selection, siting, additional cover, plating or bog mats where appropriate.
	• Where vibration intensive activities are proposed in the vicinity of historical mine workings (including but not limited to transmission tower locations 23D to 25D), geotechnical investigations and consultation with mine operators will be undertaken to consider the potential impacts associated with ground vibration generated by equipment during the project's construction.	Section 6.5 Section 10	Measure N24 requires geotechnical investigation and consultation with mine operators where vibration-intensive works are proposed near historical mine workings, including tower locations 23D to 25D.
NV7	Management of construction traffic noise on local roads will be included in the CNVMP. The CNVMP will consider the following controls: scheduling and routing of construction traffic to minimise impacts using the following principles: - more even distribution of traffic movements across the various access roads during the daytime period to reduce the peak 1-hr period traffic noise levels - scheduling of movements at less-sensitive times for impacted receivers. implementing temporary construction traffic speed limits on access roads in the vicinity of potentially impacted noise sensitive receivers	Section 7.4 Section 10	Section 7.4 and Measures N25, N26 and N52 provide for distribution of traffic movements during the daytime, scheduling of movements at less-sensitive times for affected receivers, and temporary construction traffic speed limits near the potentially affected noise-sensitive receivers identified in Section 6.6.
NV8	Where cumulative construction noise impacts are likely at sensitive receivers, coordination with other proponents will occur to minimise the cumulative construction noise impacts. This should involve: • scheduling of noise or vibration-generating construction activities to minimise the duration or level of impact • combined approach to mitigation, where considered reasonable and feasible, such as a temporary noise barrier that may provide mitigation for more than one project • consideration of cumulative noise levels in compliance monitoring	Section 10	Measure N27 requires coordination with other proponents where cumulative impacts are likely, including activity scheduling, combined mitigation, consideration of cumulative noise in monitoring and coordinated community consultation, notifications and complaints management. Section 7.5 identifies nearby projects and the project-specific coordination approach.

ID	Environmental Measure	Applicable Section	How it is Addressed
	• community consultation, notification and complaints handling are to include consideration of cumulative impacts.		
NV9	Management measures will be implemented to minimise drone noise at sensitive receivers where practicable and appropriate. Measures will include (but are not limited to) consultation with nearby sensitive receivers on upcoming work involving drones including scheduled dates, locations, indicative hours and a description of the proposed works.	Section 6.1.	Drone-based stringing was considered and excluded as it does not reduce noise impacts (Section 6.1).
NV10	For each residence where potential operational noise levels are predicted to exceed the noise criteria, verification monitoring is required to confirm actual operational noise levels. Monitoring will be carried out: • within six months of the commencement of operation • to respond to a request of the landowner within two (2) years after the commencement of operation. The noise monitoring will occur during weather/atmospheric conditions conducive to generating the corona effect. For residences where the monitoring identifies corona discharge levels above 35 dB(A) LAeq,15min at the most affected point of the residence, consultation will be undertaken with the landowner of the affected residence to identify reasonable and practicable measures. Measures may include at property treatment to upgrade aspects of the dwellings including the façade or ventilation systems. Once measures have been agreed with the landowner, these will be implemented within 12 months.	This mitigation measure is relevant for Operations phase. Not applicable to this CNVMP. Refer to Section 1.3	Not applicable to this construction-stage CNVMP. Section 1.3 confirms that operational noise monitoring and mitigation requirements will be addressed separately prior to commencement of the operational stage in accordance with the approved staging arrangements.
NV11	Consultation and co-ordination with nearby proponents, including proponents of the Great Western BESS, to minimise cumulative at-property impacts from audible corona noise.	Section 1.3. This will be managed during detailed design stage. This mitigation measure is relevant for Operations phase. Not applicable to this CNVMP	Not applicable to this construction-stage CNVMP. Section 1.3 establishes that operational noise requirements, including corona noise, will be addressed separately for the operational stage. Construction-phase coordination with nearby proponents is addressed through Section 7.5.
B07	Piling for structure foundations within 80 m of the rock outcrop will be conducted outside the breeding period for the Large-Eared Pied Bat (November to January), wherever possible, within the required work program. Biodiversity exclusion zones including a minimum 10 m buffer around the rock outcrop will be established. The boundary this of the exclusion zone is to be delineated using a method that does not restrict access for microbats to potential habitat. Pre-clearing targeted surveys by a qualified ecologist will be conducted of the rocky outcrop to confirm the presence/ absence of active roosts prior to construction. Weekly inspections of potential breeding habitat within the rocky outcrop will be conducted by an Environment Officer during construction where this includes the breeding period (NovemberJanuary).	Section 6.5.3	Section 6.5.3 sets out the REMM B07 measures. Measure N49 implements the mandatory requirements and Measure N51 the supplementary fauna noise controls.

ID	Environmental Measure	Applicable Section	How it is Addressed
	Re-routing of light vehicles will be undertaken to avoid the adjacent access track during the breeding season, if any microbats are recorded in pre-clearance or weekly inspections. Alternative lower impact piling methods and foundation designs will be considered during detailed design, subject to geotechnical constraints. This will consider the use of smaller drill rigs and methods of piling with lower noise and vibration impact.		

Conditions of Approval (CoA)

The CoA relevant to this Plan are listed in Table 2. A cross reference is also included to indicate where and how the conditions are addressed in this Plan or other Project management documents.

Table 2 - EIS Conditions of Approval

ID	Environmental Measure	Applicable Section	How it is addressed
B1	Noise and Vibration Construction Hours Pre-construction minor works, construction, demolition, upgrading or decommissioning activities may only be undertaken between: (a) 7 am to 6 pm Monday to Friday; (b) 8 am to 1 pm Saturdays; and (c) at no time on Sundays and NSW public holidays; unless the Planning Secretary agrees otherwise.	Section 5.2	The CNVMP establishes the approved construction hours of 7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday, with no works on Sundays or NSW public holidays unless otherwise permitted under the approval. Works outside these hours are subject to the applicable OOHW approval and management process.
B2	Exceptions to Construction Hours The following activities may be carried outside the hours specified in condition B1:	Section 5.4	The CNVMP identifies the circumstances permitted under Condition B2 for works outside standard construction hours and requires such activities to satisfy the applicable approval requirements and, where relevant, the Out of Hours Work Protocol before proceeding.
(a)	The delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;	Section 5.4	Delivery or dispatch of materials outside standard construction hours is permitted where requested by the NSW Police Force or another public authority for safety reasons, consistent with the exception provided by Condition B2.
(b)	Emergency work to avoid the loss of life, property or prevent material harm to the environment;	Section 5.4	Emergency works may be undertaken outside standard construction hours where required to avoid loss of life or property or prevent material environmental harm, consistent with the exception provided by Condition B2.
(c)	Development activities carried out in accordance with the hours, and noise limits specified in any negotiated agreements with sensitive receivers (owners and	Section 5.4	Works may be undertaken outside standard construction hours where a written negotiated agreement with the affected sensitive receiver

ID	Environmental Measure	Applicable Section	How it is addressed
	occupiers), provided the negotiated agreements are in writing and finalised before the commencement of the development activities;		specifies the agreed hours and noise limits and is finalised before the relevant activity commences.
(d)	Activities that do not result in noise affected sensitive receivers, as defined in Interim Construction Noise Guidelines (DECC, 2009) (or its latest version)	Section 5.4	Proposed activities outside standard construction hours are assessed to determine whether they would result in noise-affected sensitive receivers. Where receivers would not be noise affected in accordance with the ICNG, the activity may proceed subject to the applicable project approval and OOHW controls.
(e)	Road upgrades required by the relevant road authority to be undertaken outside the standard construction hours;	Section 5.4	Road upgrade works required by the relevant road authority to occur outside standard construction hours are recognised as a permitted exception and are managed through the applicable OOHW assessment and noise mitigation requirements.
(f)	where a rail authority requires a rail possession for the activities to be performed outside of standard construction hours;	Section 5.4 Appendix C Out of Hours Work Protocol	Where a rail authority requires works to occur during a rail possession outside standard construction hours, the works are assessed and managed through the OOHW process, including evaluation of noise impacts, required mitigation, approvals and receiver notification.
(g)	pre-construction minor works, construction and or upgrading that require a network outage on another distribution or transmission network, and the operator of the network requires the outage and associated works outside standard construction hours;	Section 5.4 Appendix C Out of Hours Work Protocol	Where network outages require construction activities to occur outside standard construction hours, the works are assessed through the OOHW process to confirm predicted impacts, affected receivers, required mitigation, notification and applicable approvals before commencement.
(h)	where different hours are permitted or required under an EPL in force in respect of the development; or	Appendix C Out of Hours Work Protocol	Where different working hours are permitted or required by an EPL applying to the development, those requirements are incorporated into the OOHW assessment and management process before the relevant works proceed.
(i)	pre-construction minor works, construction and or upgrading works carried out in accordance with an Out-of-Hours Work Protocol in accordance with condition B11.	Appendix C Out of Hours Work Protocol	The project-specific OOHW Protocol establishes the process for assessing, approving and managing construction outside approved hours, including risk assessment, noise verification, mitigation, approval and notification requirements.
B3	The Proponent must take all reasonable and feasible steps to minimise the pre-construction minor works, road upgrades, construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.	Section 10	The CNVMP requires reasonable and feasible noise controls throughout construction, including quieter plant and equipment, temporary noise screens and enclosures, maximising separation from sensitive receivers, appropriate work scheduling, equipment maintenance, minimising impulsive noise and controls for construction traffic noise.

ID	Environmental Measure	Applicable Section	How it is addressed
B4	The Proponent must ensure that the noise generated by any construction, upgrading or decommissioning activities is managed in accordance with the requirements outlined in the Interim Construction Noise Guideline (DECC, 2009) (or its latest version).	Section 2.1 Section 4.2, 4.4 Section 10	The CNVMP applies the ICNG framework by identifying sensitive receivers and background noise conditions, establishing project-specific construction noise management levels and implementing reasonable and feasible mitigation, monitoring and management measures to minimise construction noise impacts.
B5	The Proponent must implement mitigation measures with the aim of achieving the road traffic noise assessment criteria for land uses from NSW Road Noise Policy (DECCW, 2011).	Section 6.6	Construction traffic noise has been assessed against the NSW Road Noise Policy criteria. The CNVMP requires measures including designated routes, reduced vehicle speeds, minimising vehicle movements, scheduling movements at less-sensitive times and applying the Driver Code of Conduct, with monitoring used to verify impacts where required.
B6	The Proponent must implement mitigation measures with the aim of achieving the following vibration limits: (a) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); (b) BS 7385 Part 2-1993 “Evaluation and measurement for vibration in buildings Part 2” as they are “applicable to Australian conditions”; and (c) vibration limits set out in the German Standard DIN 4150-3: Structural Vibration – effects of vibration on structures (for structural damage).	Section 5.8	The CNVMP adopts vibration criteria for human comfort and structural damage from the specified DEC, BS 7385 and DIN 4150-3 standards. Minimum working distances are established for vibration-intensive equipment, with mitigation and monitoring applied where activities are undertaken within those distances.
B7	Where a sensitive receiver is identified as potentially exceeding the construction 'noise affected' noise management level or sleep disturbance criteria established using the Interim Construction Noise Guideline (DECC, 2009), or its latest version, as a result of construction or operation of the construction compounds, reasonable and feasible mitigation measures must be implemented with the objective of reducing construction noise below the relevant criteria at each relevant sensitive receiver. Activities that would exceed the 'noise affected' noise management level or sleep disturbance criteria during construction must not commerce until the measures identified in this condition have been implemented, unless otherwise agreed with the Planning Secretary. However, this does not apply if the Proponent has an agreement with the relevant owner/s of these receivers to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement. Note: Mitigation measures may include path barrier controls, at-property treatment, or a combination of path and at-property treatment.	Section 7.1, Section 7.3 Appendix A	Construction noise modelling identifies sensitive receivers predicted to exceed the applicable NML or sleep disturbance criteria. Before affected activities commence, reasonable and feasible controls are considered and implemented, including quieter plant, increased separation, shielding and changes to scheduling. Where residual impacts remain, additional mitigation, monitoring, notification and consultation requirements are applied to affected receivers.
B8	Except for corona discharge noise, the Proponent must ensure that the noise generated by the operation of the development does not exceed the project noise trigger levels (PNTL) established in accordance with the Noise Policy for Industry	Section 1.3. This will be managed during detailed design stage. This	Not applicable to this construction-stage CNVMP. Condition B8 relates to operational noise from the completed development. Section 1.3 confirms that

ID	Environmental Measure	Applicable Section	How it is addressed
	(NPfI), at the reasonably most affected point of the residence, at any residential receiver.	mitigation measure is relevant for Operations phase. Not applicable to this CNVMP	operational noise requirements will be addressed separately prior to commencement of the operational stage in accordance with the approved staging arrangements.
B9	The Proponent must: (a) take all reasonable and feasible steps to minimise corona discharge noise during operation of the project; (b) identify residences predicted to experience corona discharge noise levels above the PNTL at the reasonably most affected point of the residence, determined in accordance with the NPfI, and how often corona noise is expected to be above this level per year; (c) implement all reasonable and feasible noise mitigation measures, determined in accordance with the NPfI, at receivers where corona discharge noise levels exceed the PNTL identified in the monitoring program required in condition B10.	Section 1.3. This will be managed during detailed design stage. This mitigation measure is relevant for Operations phase. Not applicable to this CNVMP Section 7.6.1	Not applicable to this construction-stage CNVMP. Condition B9 relates to management and mitigation of corona discharge noise during operation. Section 1.3 confirms that operational noise requirements will be addressed separately for the operational stage.
B10	Within 12 months of the commencement of operation of the development, the Proponent must submit to the Planning Secretary, an Operational Noise Compliance Verification report. The assessment must include: (a) the results of baseline corona noise monitoring as required in condition B11(f); (b) the results of operational noise monitoring undertaken following the commencement of operation, including, but not limited to, at residences predicted to experience corona discharge noise levels above the PNTL(as required in condition B11(g)); (c) a comparison of the actual noise performance of the development against PNTLs established in accordance with the NPfI and against the baseline results in B10(a); (d) identification of any additional reasonable and feasible noise mitigation measures that would be required to be implemented to achieve the objective of meeting the PNTLs, a schedule of when these measures are to be implemented and how their effectiveness is to be measured. Any additional noise mitigation measures identified under (d) must be implemented within 12 months of submitting the Operational Noise Compliance Verification report, unless otherwise agreed by the Planning Secretary. The Applicant must undertake further noise monitoring of the development if required by the Planning Secretary.	Section 1.3. This will be managed during detailed design stage. This mitigation measure is relevant for Operations phase. Not applicable to this CNVMP	Not applicable to this construction-stage CNVMP. Condition B10 requires operational noise compliance verification following commencement of operation. In accordance with the project staging arrangements, operational monitoring, verification and any associated mitigation will be addressed separately prior to the operational stage.
B11	Prior to the commencement of construction, the Proponent must prepare a Noise and Vibration Management Plan to the satisfaction of the Planning Secretary. This plan must:	Section 1	This CNVMP has been prepared for the construction stage to establish the criteria, assessment processes, mitigation measures, monitoring arrangements, responsibilities and management procedures required to manage construction noise and vibration impacts.
(a)	include measures and processes to ensure the requirements in condition B1 to B9 are complied with	This Plan and as referenced above	The CNVMP incorporates the construction-stage requirements of Conditions B1 to B7 through controls for construction hours, OOHW, sensitive receivers,

ID	Environmental Measure	Applicable Section	How it is addressed
			construction and traffic noise, vibration criteria, mitigation, monitoring and exceedance management. Operational requirements under B8 and B9 are addressed separately under the approved staging arrangements.
(b)	include a description of the reasonable and feasible measures that would be implemented to minimise noise and vibration impacts of the development;	Section 10	The CNVMP specifies reasonable and feasible source, pathway and administrative controls for noise and vibration, including temporary shielding, quieter plant, equipment maintenance, separation distances, scheduling, lower-vibration construction methods, monitoring and cessation of works where applicable criteria may be exceeded.
(c)	include a detailed description of the noise and vibration management system for the development;	Section 7 Section 8 Section 9	The noise and vibration management system follows a Plan, Do, Check, Act approach. It provides for impact assessment and CNVIS preparation before relevant works, implementation of controls during construction, monitoring and inspection to verify performance, defined responsibilities, and corrective action where monitoring, complaints, incidents or non-compliances demonstrate that controls are not performing as intended.
(d)	include a protocol for the identification, notification and management of works that exceed the noise management levels;	Section 7	Potential exceedances are identified through construction noise and vibration modelling and CNVIS assessment. Where an exceedance is predicted, reasonable and feasible mitigation is determined before works commence, affected receivers are notified as required, and monitoring is undertaken to verify performance. Further controls are implemented where monitoring demonstrates that impacts are greater than predicted.
(e)	include a monitoring program that evaluates and reports on the effectiveness of the noise and vibration management systems and identify additional noise mitigation measures that are to be implemented and the timeframe to be implemented;	Section 8 Section 10	The monitoring program includes noise compliance monitoring, vibration monitoring, complaint-based monitoring, utility monitoring, OOHW monitoring and weekly environmental inspections. Results are compared against predictions and applicable criteria, with additional mitigation implemented and monitoring repeated where performance is not satisfactory. Works cease where additional controls cannot achieve a compliant outcome.
(f)	include a baseline corona noise monitoring program to be undertaken for 6 months or where a suitable sample of data collected during weather conditions conductive to	Section 1.3 Section 5.9	Section 5.9 details that this program will be provided in a future revision of the Plan and includes details on how and when this program will be provided. The

ID	Environmental Measure	Applicable Section	How it is addressed
	corona noise is obtained prior to operation to inform operational corona noise performance objectives, which must: (i) be prepared in accordance with the NPfI; (ii) include a combination of attended and unattended noise monitoring to evaluate the corona noise emitted by the existing operational transmission line; (iii) monitor noise at locations representative of the residences with the greatest risk of experiencing impacts to noise amenity from corona noise during operation; and (iv) include a detailed meteorological study, containing localised data collected near the monitoring locations to determine the weather conducive to corona noise that are associated with exceedance of NPfI objectives;		program will describe the monitoring program to be undertaken by Transgrid before operation, including attended and unattended monitoring at representative residences, collection of local meteorological information and monitoring during conditions conducive to corona noise. The program is undertaken over six months or until a suitable representative dataset has been obtained.
(g)	include a monitoring program that evaluates the operational noise performance of the development and the effectiveness of operational noise mitigation measures, which must: (i) be prepared in accordance with the NPfI; (ii) incorporates the results of the baseline corona noise monitoring in B11(f) above; (iii) monitor noise at locations representative of the residences with the greatest risk of experiencing impacts to noise amenity from corona noise during operation; and (iv) include a detailed meteorological study, containing localised data collected near the monitoring locations to determine the weather conducive to corona noise that are associated with exceedance of NPfI objectives; and (v) provide analysis of the statistical occurrences of meteorological conditions that cause exceedance of NPfI objectives;	Section 1.3 Section 5.9	The operational noise monitoring requirement is outside the scope of this construction-stage CNVMP. Section 1.3 confirms that the operational monitoring program and evaluation of operational mitigation effectiveness which will be addressed in separate documentation before commencement of operation. Section 5.9 establishes the baseline corona noise information that will inform that future operational assessment.
(h)	include an Out-of-Hours Work Protocol to identify a process for the consideration, management and approval of works outside the hours defined in condition B1, which must: (i) be prepared in consultation with the relevant Council; (ii) identify low risk activities that can be undertaken without the approval of the Planning Secretary and with the approval of the ER; (iii) identify high risk activities that must be approved by the Planning Secretary; and (iv) identify Department, Council and community notification arrangements for approved out of hours work Following approval, the Proponent must implement the Noise and Vibration Management Plan.	Appendix C Out of Hours Work Protocol	The project-specific OOHW Protocol establishes the process for considering, assessing, approving and managing works outside approved construction hours, including classification and approval of activities, assessment of affected receivers and predicted noise impacts, application of mitigation measures, and Department, Council and community notification requirements.

Commonwealth EPBC

The Commonwealth EPBC conditions relevant to this Plan are listed in Table 3 below. Where applicable, a cross reference is also included to indicate where and how the conditions are addressed in this Plan or other Project management documents.

Table 3 - Commonwealth EPBC conditions

ID	Condition Description	Applicable Section	How it is addressed
4	The approval holder must submit the detailed final layout plans as required by condition C11 of the NSW Approval to the department prior to commencement of construction.	N/A	Not applicable to this CNVMP. This is a project-level approval and design documentation requirement relating to submission of the final project layout. It is to be managed through the project approval/compliance process rather than the construction noise and vibration management system.
5	The approval holder must notify the department in writing of any proposed change to the NSW Approval that may relate to protected matters within 5 business days of formally proposing such a change and within 10 business days of becoming aware of any proposed change.	N/A	Not applicable to this CNVMP. This is an approval-holder notification obligation associated with proposed changes to the NSW Approval and is managed through the project compliance framework.
6	The approval holder must notify the department in writing of any change to the NSW Approval conditions that may relate to protected matters, within 5 business days of such a change to conditions coming into effect. Such notification must include a copy of the changed NSW Approval conditions showing what changes have been made.	N/A	Not applicable to this CNVMP. This is an approval-holder notification obligation concerning changes to the NSW Approval conditions and is managed through the project compliance framework.
7	The approval holder must notify the department electronically of the date of commencement of the Action, within 5 business days following commencement of the Action.	N/A	Not applicable to this CNVMP. Notification of commencement of the Action is an approval-holder/project-level reporting requirement rather than a noise and vibration management requirement.
8	The approval holder must not commence the Action later than 5 years after the date of this approval decision.	N/A	Not applicable to this CNVMP. This condition establishes the timeframe for commencement of the approved Action and does not impose a noise or vibration management requirement.
9	The approval holder must maintain accurate and complete compliance records and document the procedure for recording and storing compliance records	Sections 8 and 8.6	The CNVMP contributes to project compliance records by requiring noise and vibration monitoring records, environmental inspection records and records relating to incidents and non-compliances to be maintained. Section 8 states that monitoring records, reports and surveys are stored in the Project folder and made available for auditing. Overall EPBC compliance record management remains a project-level requirement.
10	If the department makes a request in writing, the approval holder must provide electronic copies of compliance records to the department within the timeframe specified in the request.	N/A	Not specifically addressed by this CNVMP. The Plan requires relevant noise and vibration records to be retained and available for auditing, but submission of EPBC compliance records to the Commonwealth Department is a project-level approval-holder

ID	Condition Description	Applicable Section	How it is addressed
	Note: Compliance records may be subject to audit by the department, or by an independent auditor in accordance with section 458 of the EPBC Act, and/or be used to verify compliance with the conditions. Summaries of the results of an audit may be published on the department's website or through the general media.		obligation.
11	The approval holder must ensure that any monitoring data, surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guidelines for biological survey and mapped data, Commonwealth of Australia 2018, or as otherwise specified by the Minister in writing.	N/A	Not applicable to this CNVMP. This condition relates to biological survey and mapped data required under the EPBC approval. Noise and vibration monitoring under this Plan does not constitute biological survey data. Relevant biodiversity spatial and survey requirements should be addressed through the Biodiversity Management Plan and project EPBC compliance processes.
12	the approval holder must ensure that any monitoring data, surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guide to providing maps and boundary data for EPBC Act projects, Commonwealth of Australia 2021, or as otherwise specified by the Minister in writing.	N/A	Not applicable to this CNVMP. This condition relates principally to EPBC spatial and boundary data requirements and should be addressed through the project biodiversity/spatial data and EPBC compliance processes.
13	The approval holder must submit all monitoring data, surveys, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to the department within 20 business days of the next anniversary of the date of this approval decision except where otherwise specified in a plan.	N/A	Not applicable to this CNVMP. This is an approval-level Commonwealth data submission requirement, including species occurrence data, and is not a construction noise and vibration management requirement.
14	The approval holder must prepare a compliance report for each Annual Compliance Report period (ACR period).	N/A	Not applicable to this CNVMP as a standalone requirement. Annual EPBC compliance reporting is an approval-holder/project-level obligation. Noise and vibration monitoring, incident and non-compliance records generated under this Plan may provide supporting evidence where relevant to an annual compliance report.
15(a)	The approval holder must ensure each compliance report includes: a)accurate and complete details of compliance and any non-compliance with: i)each condition imposed under NSW Approval, if a condition attached to this approval decision requires compliance with that NSW Approval condition, ii)each condition attached to this approval decision, and iii)all commitments made in each plan,	Sections 8.1, 8.2 and 8.6	The CNVMP supports this requirement by establishing monitoring, incident and non-compliance processes and retaining records demonstrating implementation of noise and vibration requirements. Compilation and submission of the Annual Compliance Report remains a project-level approval-holder obligation.
15(b)	"b)a schedule of all plans in effect in relation to these conditions during the ACR period"	N/A	Not applicable to this CNVMP. Preparation of the schedule of project plans is an Annual Compliance Report requirement and should be managed through the overarching project compliance framework.

ID	Condition Description	Applicable Section	How it is addressed
15(c)	c)4 accurate and complete details of how each plan was implemented during the ACR period, and	Sections 8 and 10	The CNVMP provides implementation evidence through monitoring records, inspections and application of the management and mitigation measures in Section 10. These records can support project-level reporting on implementation of this Plan during the relevant ACR period.
15(d)	d) If any incident occurred, accurate and complete details of each incident.	Sections 8.2 to 8.5	Sections 8.2 to 8.5 establish the process for recording, notifying, reporting and investigating noise and vibration-related incidents. Records produced through these processes may support the project Annual Compliance Report where applicable.
16	The approval holder must ensure each compliance report is completed to the satisfaction of the Minister and is consistent with the Annual Compliance Report Guidelines, Commonwealth of Australia 2023.	N/A	Not applicable to this CNVMP. This condition sets requirements for preparation of the project Annual Compliance Report rather than the CNVMP.
17	The approval holder must, within 20 business days following the end of each ACR period, in a format that is easily accessible and downloadable, publish on the website: a)each compliance report, and b)a shapefile showing all clearing of protected matters, and their habitat, undertaken within the ACR period.	N/A	Not applicable to this CNVMP. Publication of the Annual Compliance Report and protected-matter clearing shapefile is an approval-holder/project-level reporting requirement.
18	The approval holder must: a)a)If sensitive biodiversity data is excluded or redacted from a version of a compliance report published or otherwise provided to a member of the public, submit the full compliance report to the department Exclude or redact sensitive biodiversity data from each compliance report and shapefile published on the website or otherwise provided to a member of the public. b)within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website or otherwise provided to a member of the public. c)If sensitive biodiversity data is excluded or redacted from a version of a shapefile published or otherwise provided to a member of the public, submit the full shapefile to the department within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website or otherwise provided to a member of the public.	N/A	Not applicable to this CNVMP. The condition concerns sensitive biodiversity information contained in Commonwealth compliance reports and spatial data rather than construction noise and vibration information.
19	The approval holder must notify the department electronically, within 5 business days of each date of publication that the compliance report has been published on the website. In this notification, the approval holder must provide the department with the web address for where the compliance report and related shapefile are published on the website.	N/A	Not applicable to this CNVMP. This is an approval-holder administrative reporting requirement associated with publication of the Annual Compliance Report.

ID	Condition Description	Applicable Section	How it is addressed
20	The approval holder must keep each compliance report and related shapefile published on the website from the first date which that compliance report must be published and until the expiry date of this approval. Note: Compliance reports may be published on the department's website.	N/A	Not applicable to this CNVMP. This is a project-level public information and document-retention requirement.
21	The approval holder must notify the department electronically, within 2 business days of becoming aware of any incident. The approval holder must specify in each notification: a)any condition or commitment made in a plan which has not been, or may have not been, complied with, b)a short description of the incident, and c)the location (if applicable, including co-ordinates), date and time of the incident.	Sections 8.2 to 8.6; Project CEMP	Sections 8.2 to 8.6 establish the processes for identifying, recording, investigating and responding to noise and vibration incidents and non-compliances. Notification to the Commonwealth within 2 business days is managed through the Project CEMP, with information generated under this Plan provided to support the notification.
22	The approval holder must provide to the department in writing, within 12 business days of becoming aware of an incident, the details of that incident. The approval holder must specify: a)all corrective measures and investigations which the approval holder has already taken in respect of the incident, b)the potential impacts of the incident, c)the method and timing of any corrective measures that the approval holder proposes to undertake to address the incident, and d)any variation of these conditions or revision of a plan that will be required to prevent recurrence of the incident and/or to address its consequences.	Sections 8.2 to 8.5; Project CEMP	Sections 8.2 to 8.5 establish incident recording, investigation, and corrective and preventative actions for noise and vibration incidents. The written incident report to the Commonwealth within 12 business days is managed through the Project CEMP, with information generated under this Plan provided to support the report.
23	The approval holder must ensure that an independent audit of compliance with the conditions is conducted for every audit period.	N/A	Not applicable to this CNVMP as a standalone obligation. Independent EPBC compliance audits are project-level approval-holder requirements. Records generated under the CNVMP must be available to support audits where noise and vibration obligations fall within the audit scope.
24	The approval holder must submit details of the proposed independent auditor and their qualifications to the department within 10 business days following the end of each audit period.	N/A	Not applicable to this CNVMP. Appointment and submission of an independent auditor is an approval-holder/project-level responsibility.
25	The approval holder must ensure the scope of each independent audit is sufficient to determine the compliance status for each condition of approval, and each commitment made in each plan.	N/A	Not directly addressed by this CNVMP. The independent audit scope is established at project level; however, implementation and monitoring records generated under this Plan provide evidence against CNVMP commitments where included in the audit.
26	The approval holder must ensure the criteria for each independent audit and the undertaking of each independent audit are consistent with the Independent Audit and Audit Report Guidelines.	N/A	Not applicable to this CNVMP. This condition governs the conduct of project-level EPBC independent audits.

ID	Condition Description	Applicable Section	How it is addressed
27	The approval holder must submit an audit report to the department for written agreement from the department within 3 months following the end of each audit period, or as otherwise directed by the Minister in writing.	N/A	Not applicable to this CNVMP. Submission of the EPBC independent audit report is an approval-holder/project-level reporting obligation.
28	The approval holder must ensure each audit report is completed to the satisfaction of the Minister and is consistent with the Independent Audit and Audit Report Guidelines to the extent that the Independent Audit and Audit Report Guidelines are consistent with these conditions.	N/A	Not applicable to this CNVMP. This condition specifies requirements for the project-level independent audit report.
29	The approval holder must publish each audit report on the website, in a format that is easily accessible and downloadable, within 10 business days of the date the department agrees to that audit report in writing.	N/A	Not applicable to this CNVMP. This is a project-level publication requirement associated with the EPBC independent audit.
30	The approval holder must notify the department within 5 business days of the date the audit report is published on the website. In this notification, the approval holder must provide the department with the web address for where the audit report is published on the website.	N/A	Not applicable to this CNVMP. This is an approval-holder notification obligation.
31	The approval holder must keep each audit report published on the website from the first date which that audit report must be published and until the expiry date of this approval.	N/A	Not applicable to this CNVMP. This is a project-level document publication and retention requirement.
32	Within 20 business days after the completion of the Action, and, in any event, at least 20 business days prior to the expiry date of this approval, the approval holder must notify the department electronically of the date of completion of the Action and provide completion data. The approval holder must submit any spatial data that comprises completion data as a shapefile."	N/A	Not applicable to this CNVMP. Completion notification and submission of project completion/spatial data are approval-holder/project-level requirements rather than construction noise and vibration management requirements.
33	The approval holder must notify the department electronically at least 60, but not more than 70, business days prior to the expiry date of this approval, that the approval is due to expire. Note: Section 145C of the EPBC Act entitles the approval holder to request an extension to the period of effect of this approval.	N/A	Not applicable to this CNVMP. This is an administrative requirement applying to the approval holder near expiry of the Commonwealth approval.

Glossary

The terms used within this manual are defined as follows:

Terms	Definition
AAAC	Association of Australian Acoustical Consultants
ANZECC	Australian and New Zealand Environment and Conservation Council
AR	Amendment Report – Central West Orana REZ (2024)
AS/NZ	Australian Standard / New Zealand Standard
AVTG	Assessing Vibration: A Technical Guideline (DEC 2006)
Ambient noise	The all-encompassing noise associated with an environment at a given time
Approved hours	7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday, with no work on Sundays or NSW public holidays, as specified in Condition B1 unless the Planning Secretary agrees otherwise. Applies to pre-construction minor works, construction, demolition, upgrading or decommissioning activities.
Attenuation	Reduction in sound or vibration level
CEMP	Construction Environmental Management Plan
CNVG	Construction Noise and Vibration Guideline (Transport for NSW)
CNVIA	Construction Noise and Vibration Impact Assessment
CNVIS	Construction Noise and Vibration Impact Statement
CNVMP	Construction Noise and Vibration Management Plan
CSSI	Critical State Significant Infrastructure
CoA	Minister's Conditions of Approval (NSW)
CoA (Commonwealth)	Federal DCCEEW – Conditions of Approval
Compliance audit	Verification of implementation against CEMP and approvals
Council	Lithgow City Council
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEC	(former) Department of Environment and Conservation
DECC	(former) Department of Environment and Climate Change
DECCW	(former) Department of Environment, Climate Change and Water
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
DPI (Fisheries)	Department of Primary Industries – Fisheries
EIS	Environmental Impact Statement (Project specific)
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ER	Environmental Representative
EWMS	Environmental Work Method Statement
EnergyCo	Energy Corporation of NSW
Feasible and reasonable	Best-practice mitigation considering cost and practicality
HNA	Highly Noise Affected
Highly noise-intensive works	Works defined under ICNG (DECC 2009)

Terms	Definition
ICNG	Interim Construction Noise Guideline (DECC 2009)
LA90	Noise level exceeded 90% of the time
LAeq (15 min)	Equivalent continuous noise level over 15 minutes
LAmax	Maximum A-weighted noise level
LCVIMP	Landscape Character and Visual Impact Management Plan
Minister (the)	Minister for Planning and Public Spaces
NCA	Noise Catchment Area
NML	Noise Management Level
NPfI	Noise Policy for Industry (EPA 2017)
NSW	New South Wales
Non-compliance	Failure to comply with an approval, licence, permit, management measure, or other applicable project requirement
Non-conformance	Failure to comply with EMS or project documentation
OOHW	Out-of-Hours Works, applies to any work undertaken outside of “Approved hours”
POEO Act	Protection of the Environment Operations Act 1997
RBL	Rating Background Level
REMM	Revised Environmental Mitigation Measures
REZ	Renewable Energy Zone
RNP	NSW Road Noise Policy (2011)
SAP	Sensitive Area Plan
SSI	State Significant Infrastructure
SWL	Sound Power Level
Secretary	Secretary of DPHI (NSW)
Sensitive receiver	Receivers potentially affected by noise
Standard construction hours	The ICNG term for Approved hours. Has the same meaning as Approved hours.
Suitably qualified or experienced professional	An individual with demonstrated experience in construction noise and vibration prediction, assessment under the ICNG/CNVG and NSW vibration guidance, sleep-disturbance assessment, cumulative impact assessment and noise/vibration monitoring.
VDV	Vibration Dose Value
dB	Decibel
dBA	Decibel (A-weighted)

1. INTRODUCTION

1.1 Context

This Construction Noise and Vibration Management Plan (CNVMP or this Plan) only applies to the construction phase of Central West Orana REZ Non-Contestable Works Separable Portion 5 (the Project).

This plan has been prepared to manage noise and vibration impacts associated with construction activities undertaken for the Project and does not apply to the operational phase. Separate documentation will be prepared by the Proponent to cover obligations and management of the operational and subsequent phases.

1.2 Background And Project Description

The Government of New South Wales is advancing its inaugural Renewable Energy Zone (REZ) in the Central-West Orana area. Spanning approximately 20,000 square kilometres, this zone encompasses the areas around Dubbo and Dunedoo, situated on lands traditionally belonging to the Wiradjuri, Wailwan, and Kamilaroi peoples.

Transgrid is proposing to deliver approximately eight kilometres (km) of new 330 kilovolt (kV) transmission line between the Mount Piper and Wallerawang 330 kV substations (the project). The project would incorporate sections of an existing single-circuit 132 kV transmission line, where both transmission lines would share a widened easement and transmission structures. The project is located within the Central West region of NSW, in the Lithgow Local Government Area (Lithgow LGA).

The project is identified in the NSW Network Infrastructure Strategy (EnergyCo, 2023) and supports the key objectives of the NSW Electricity Infrastructure Roadmap (DPIE, 2020). The roadmap highlights that the expansion of renewable generation must be accompanied by increased transmission capacity to transfer power from Renewable Energy Zones (REZ) in inland NSW to major demand centres. The Mount Piper to Wallerawang Transmission Line Upgrade Project would provide the additional capacity required to reliably transmit power from the Central-West Orana REZ to the Greater Sydney region.

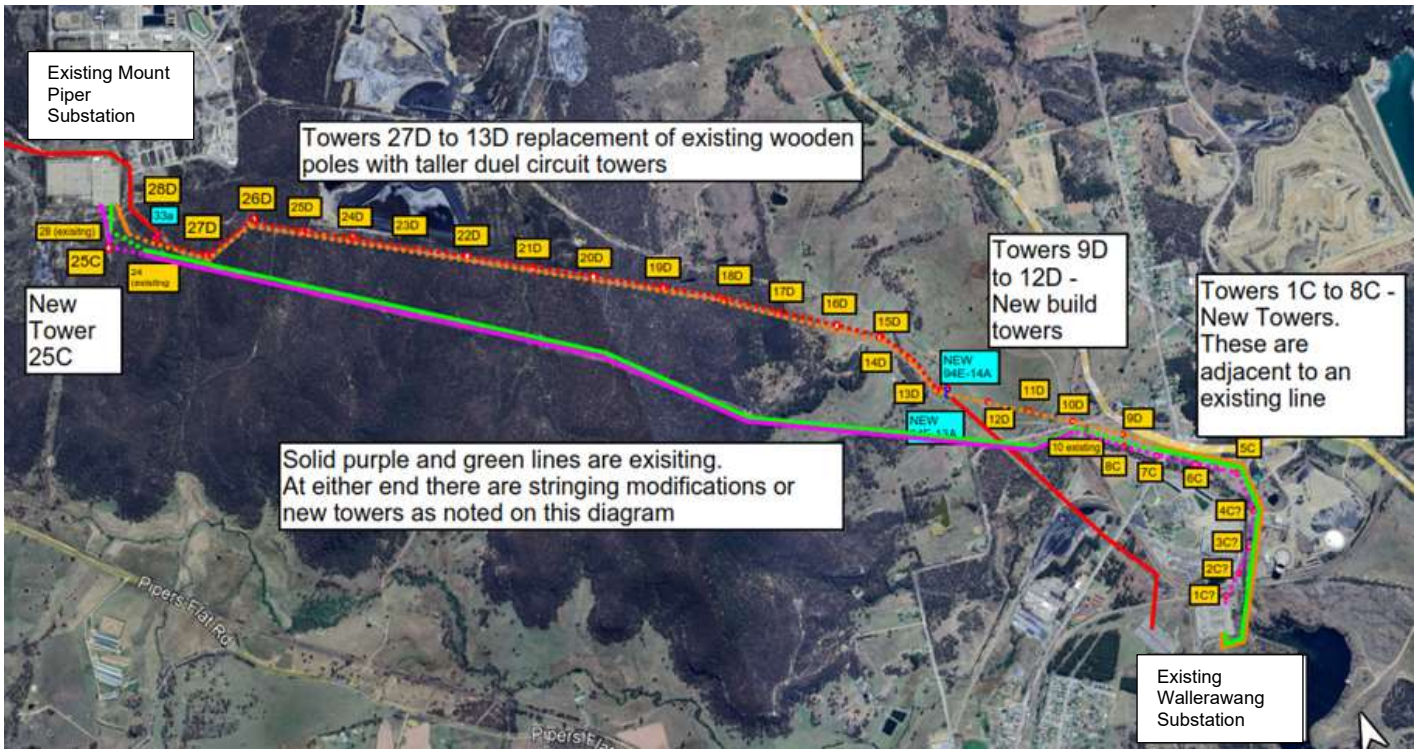
Zinfra has been engaged on behalf of Transgrid as the Principal Contractor to deliver this project. As part of the works, Zinfra must prepare a detailed Construction Environmental Management Plan (CEMP) and subplans, which must align with the Environmental Impact Statement (EIS) and Department of Planning, Heritage and Infrastructure's (DPHI) Conditions of Approval (CoA) developed for the 330 kV Transmission Line between Mount Piper and Wallerawang.

The CEMP and subplans are to be reviewed by Transgrid, Environemntal Representative (ER) and the DPHI to ensure conformance with the CoA prior to the commencement of site works. The CEMP must also include specific reference to, and information from, the CNVMP. Please note that this plan also requires to have Planning Secretary approval.

Zinfra will deliver approximately 8 km of new 330 kV transmission line between the Mount Piper and Wallerawang 330 kV substations in the Central West region of NSW (Lithgow LGA). The works will comprise:

- Establishment of site offices, parking, and storage facilities near Wallerawang Substation.
- Construction of access tracks to nominated tower locations.
- Installation of two culvert crossings.
- Vegetation clearing to widen the easement, including sections within the State conservation area.
- Construction of large augered foundations for nominated towers.
- Replacement of existing 132 kV three-pole structures with taller dual-circuit 330 kV towers.
- Erection of steel tower structures.
- Stringing and re-stringing of conductors and associated components.
- Removal of redundant line and structures.
- Site re-vegetation and rehabilitation upon completion of works.

Figure 1: Project location



1.3 Staging Report

A Staging Report has been developed in accordance with CoA C4-C6. Revision 2.1 of the Staging Report was endorsed by the Environmental Representative (ER) on 8 September 2026.

The Staging Report identified 3 stages. These Stages have the same meaning as the terms defined in the Infrastructure Approval. The Stages are:

- Pre-Construction
- Construction
- Operation

Future stages, including upgrading and decommissioning will be addressed through future revisions of the Staging Report, as required. Following endorsement of the Staging Report, Transgrid submitted a Staging Request to the Planning Secretary for staging specific to the CNVMP in accordance with Condition C7.

In accordance with the Staging Request, this Management Plan addresses the construction stage only. As such, operational noise and vibration impacts, and operation measures and monitoring do not fall within the scope of this CNVMP and are not addressed within the processes contained within this plan. Requirements applicable to the remaining stages, including operation, upgrading and decommissioning, will be addressed in a separate document prior to commencement of the relevant stage.

The following requirement of Condition B11 is excluded from this Plan revision:

- Condition B11(f) of the project approval requires a baseline corona noise monitoring program that establishes pre-development noise profiles. This will be provided as an appendix to this Plan in a future revision, that shall be provided to the Planning Secretary no later than six months from the commencement of construction.
- Condition B11(g) of the project approval requires a monitoring program that evaluates the operational noise performance of the development and the effectiveness of operations noise mitigation measures. This will be addressed in a separate document prior to the commencement of the operational phase.

The Staging Report and Staging Request are subject to update where the project staging arrangements are revised or further stages are progressed.

1.4 Interface With Other Planning Documents

This Plan is a component of a suite of documents prepared as part of the implementation of the Project's Environmental Management System (EMS) and forms part of the CEMP. The key documents that interface with this Plan are outlined in Table 4.

Table 4 - Key interfaces with this document

Plan	Interface
Construction Environmental Management Plan (CEMP)	• Provides the overall environmental management framework for construction of the Project • Provides details on overall Project staging, interactions between Sub-Plans of the CEMP, and management of cumulative impacts • Identifies procedures, processes and management systems that will apply in relation to construction activities • Provides environmental planning and controls for construction including environmental risk assessment, regulatory requirements, protection measures and sustainability requirements
Construction Traffic and Transport Management Plan (CTTMP)	• Provides details of transport routes, required road upgrade works, and associated management measures. • Includes mitigation measures of minimising traffic-related noise impacts.
Construction Aboriginal Cultural Heritage Management Plan (CACHMP) Construction Historic Heritage Management Plan (CHHMP)	• Outlines the measures to be implemented to avoid harm to known heritage items located outside the approved construction area. • Provides details of the measures to protect known heritage sites within the construction area, including procedures for managing potential vibration and other impacts on heritage items. • Establishes a program to monitor and report on the effectiveness of protection measures and any heritage impacts that may arise.
Community Consultation Strategy (CCS)	• Describes how community and stakeholder engagement will be managed • Facilitates communication about construction of the Project with the community • Specifies the process for receiving, addressing, resolving and recording complaints
Construction Biodiversity Management Plan (CBMP)	• Describes measures to be implemented to reduce vibration and noise impacts on sensitive and threatened fauna

1.5 Purpose and Scope

This Plan will be used to address the relevant requirements of the CoA (SSI-70279722) and applicable legislation.

The purpose of this Plan is to:

- Describe how Zinfra will manage potential noise and vibration impacts during the construction of the Project
- Provide a structured framework to identify, assess, and manage noise and vibration emissions
- Define roles, responsibilities, and accountabilities for all personnel involved in activities that generate noise and vibration
- Outline pre-construction and construction monitoring requirements and control measures.
- Ensure compliance with relevant legislation, approval conditions, and industry best practice.

1.6 Objectives and Targets

The primary objective of the CNVMP is to avoid and minimise potential noise and vibration impacts where practicable by ensuring all relevant mitigation and management measures are implemented, monitored and adapted (as necessary) throughout the construction phase. Noise and vibration measurements and targets are described in Table 5.

Table 5 - Construction Noise and vibration performance measurements and targets

Objective	Targets	Key Performance Indicators
Compliance with legislation, statutory approvals and the Infrastructure Approval	• Full compliance with statutory approvals. • No regulatory infringements (penalty infringement notices (PINs) or prosecutions) or formal regulatory warnings.	• Audit findings, environmental inspection records, monitoring records. • Number of regulatory infringements (PINs or prosecutions), formal regulatory warnings.
Implement and comply with the CNVMP	Zero non-compliances identified during each compliance audit of CNVMP.	Audit findings, environmental inspection records, monitoring records.
Provide regular project updates and other information to keep the community informed of the project, including out of hours works.	All project updates provided within the timeframes specified within the CCS.	Notification records including Out Of Hours Works (OOHW) notifications.
Record and respond to noise and vibration complaints, within a timely manner	All complaints are reviewed within the timeframes specified within the CCS	Timeliness of response to complaints as identified in complaints register.
Provide adequate training to ensure construction activities are undertaken safely and with minimal risk to the environment.	Regular environmental training that focuses on the specific project activities and associated noise and vibration risks	Records of inductions, toolbox talks and daily pre-start meetings with noise and vibration focus.

2. ENVIRONMENTAL REQUIREMENTS

2.1 Guidelines And Standards

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

- Interim Construction Noise Guideline (ICNG) (Department of Environment and Climate Change 2009)
- Construction Noise and Vibration Guideline (Roads) (CNVG) (TfNSW 2024)
- Noise Policy for Industry (NPfI) (EPA 2017)
- NSW Road Noise Policy (RNP) (Department of Environment, Climate Change and Water 2011)
- German Standard DIN 4150-3: Structural Vibration – effects of vibration on structures (DIN 4150-3) (German Standards 2016)
- Assessing Vibration: a technical guideline (AVTG) (Department of Environment and Conservation 2006)
- BS 5228.2 – 2009, Code of Practice Part 2 Vibration for noise and vibration on construction and open sites – Part 2: Vibration (British Standards 2009)
- Australian Standard AS1055: 2018 Description and Measurement of Environmental Noise (AS1055:2018).

2.2 Legislation

- Environmental Planning and Assessment Act 1979
- The Protection of the Environment Operations Act 1997 (NSW) (POEO Act)
- Protection of the Environment Operations (Noise Control) Regulation 2008

Minister's Conditions of Approval (NSW)

SSI-70279722 - Development for the Mount Piper to Wallerawang Transmission Line Upgrade Project as described in Section 38 of Schedule 5 of *State Environmental Planning Policy (Planning Systems) 2021.*

Revised Environmental Mitigation Measures

Relevant revised environmental mitigation measures (REMMs) are listed in Table 1. A cross reference is also included to indicate where the REMM is addressed in this plan or other project management documents.

3. CONSULTATION

3.1 Consultation For CNVMP Preparation

The consultation requirements for this CNVMP are set out in the CoA. A summary of consultation undertaken with EPA NSW and Lithgow City Council, including responses received and how any issues raised were addressed in the development of this plan, has been provided to the Environmental Representative and Planning Secretary along with the relevant documents for submission, in accordance with Condition A20. Details of consultation undertaken, including agencies consulted, dates and outcomes, are provided below:

Table 6 - Consultation details: EPA NSW

Consultation Date	Description of consultation	Outcome
03/06/2026	Consultation on the plan	EPA NSW was satisfied with the plan. No further comments were provided.

Table 7 - Consultation details: Lithgow City Council

Consultation Date	Description of consultation	Outcome
03/06/2026	**Complaint Management** Discussion was held regarding complaint management processes. It was agreed that complaints should be effectively managed by the project team, with Council kept informed to assist in managing any community concerns or issues. In the first instance, any complaints received by Council will be referred directly to the project team for investigation and resolution. Once resolved, the project team will provide feedback to Council to ensure the matter is closed out appropriately. **Exceedance of Noise Limits** Council asked what is the remediation process if noise limits are exceeded? **Council Notification Process** Council advised that when notifying Council, communications should be sent to: Galip Kartop, Customer Service and Shaun Elwood. **Overnight Works** Council asked if there were planned night works?	Section 8.3 updated to include the contact details of Council representative to notify any complaints received. Informed about Section 8.2 and 8.3 Updated Section 5.4. The intention is not to undertake overnight works unless specifically requested by Transport for NSW (TfNSW) and/or Council. A request would be submitted to Council for the relevant Road Occupancy Licence (RoL) approval. Included this requirement within Section 8.2 of the OOHW Protocol.

3.2 Community and Stakeholder Engagement

Zinfra is committed to open, timely, and meaningful communication with our stakeholders, supporting informed decision-making and delivering positive, shared outcomes.

Community consultation and stakeholder notifications will be undertaken in accordance with the applicable CoA and the CCS.

Zinfra's approach includes:

- engaging stakeholders early to enable collaborative planning and decision-making
- identifying and respecting stakeholder preferences for communication and engagement
- delivering information in a clear, inclusive, and transparent manner
- defining when and how stakeholders can participate
- genuinely considering feedback and incorporating it where appropriate
- demonstrating how input has influenced decisions and outcomes
- equipping our teams with the skills and tools to enhance engagement, explore future opportunities, and foster a culture that values meaningful relationships.

Additional construction noise mitigation measures, including notification and respite, will be applied in accordance with Tables 23 and 24.

4. EXISTING ENVIRONMENT

4.1 Existing Environment Study

The study area for the Noise and Vibration Impact Assessment (NVIA) includes a three-kilometre area surrounding the project footprint which includes all receivers potentially impacted by noise and vibration from the project (see Appendix B).

The study area was divided into two noise catchment areas (NCAs) based on the types of sensitive receivers and the acoustic environments. NCA1 consists of suburban residential land uses within Wallerawang and non-residential receivers e.g. Wallerawang Bowling Club, Saint Thomas's Church and the Wallerawang Library. NCA2 consists of rural residential land uses and the majority of the study area outside Wallerawang. The NCAs are shown in Figure 2.

The study area includes a mix of rural, industrial and residential land uses. Noise and vibration sensitive receivers include both scattered rural residences and residential areas within the townships of Wallerawang and Lidsdale.

The existing acoustic environment within the study area is influenced by a range of land uses and associated noise sources, including heavy industry (power generation, transmission and mining), rural and suburban development, and road traffic. Traffic noise is a dominant source in areas surrounding the Castlereagh Highway and Great Western Highway. In less developed and vegetated areas, the existing acoustic environment is generally influenced by natural and rural sources. Other key existing noise sources include:

- Rail operations on the Main Western Rail Line at the southern end of the project footprint
- Lidsdale coal siding operations
- Overland conveyers operating between Lidsdale Siding, Springvale Coal Mine and Mount Piper Power Station
- Springvale Coal Mine
- Existing electricity infrastructure that results in audible corona noise under certain conditions.

4.2 Background Noise Monitoring

Unattended background noise monitoring was conducted in December 2023 at two locations, shown in Figure 2:

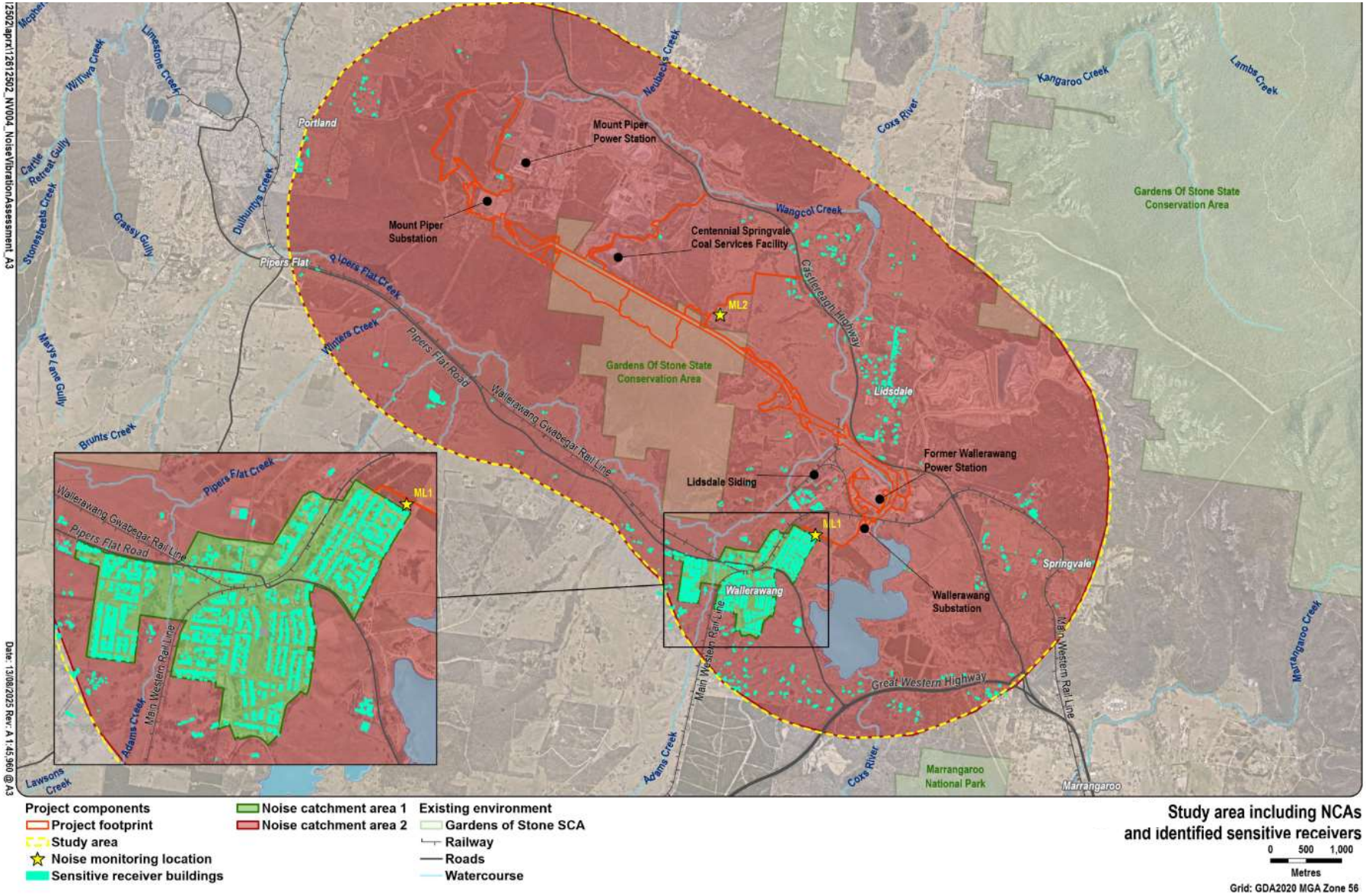
- monitoring location 1 (ML1) located in Noise Catchment Area 1 (NCA1)
- monitoring location 2 (ML2) located in NCA2.

The monitoring locations were identified with consideration to the ICNG and NPfI. The above locations were selected to provide the best representative locations for each NCA as they represent the closest receivers where possible while also ensuring security of the logger for the monitoring period.

- Noise level data was collected in accordance with specifications outlined in AS1055: 2018 Description and Measurement of Environmental Noise, using a calibrated noise logger deployed at each monitoring location for a period of up to 12 days. Data was recorded for the duration of deployment and was used to:
  - establish representative rating background levels (RBLs) for the two noise catchment areas
  - develop project specific construction noise management levels (CNMLs) for each noise catchment area.

The siting of the noise loggers and undertaking of background noise monitoring followed the specifications in Australian Standard AS1055 (2018) Description and Measurement of Environmental Noise. The noise loggers at ML1 and ML2 were placed approximately 50 m and 40 m, respectively from the sensitive receiver.

Figure 2: Study area including NCAs and identified sensitive receivers



4.3 Rating Background Levels (RBL)

The background noise levels and ambient (LAeq) noise levels were determined from the unattended noise monitoring described in section 5.1 from Technical Report 10 – Noise and Vibration Impact Assessment Report. At monitoring location ML1 for NCA1, the measured daytime rating background level (RBL) is below 35 dBA, which is the minimum RBL during the daytime period in the NPfI. ML1 and NCA1 RBLs are also below the minimum of 30 dBA for evening and nighttime periods. As a result, the adopted RBLs for NCA1 are 35 dBA for daytime and 30 dBA for evening and nighttime. At monitoring location ML2 for NCA2, the noise levels were found to be influenced by the nearby coal conveyor approximately 135 metres to the south of the monitoring location. Results indicate the presence of a relatively continuous noise source, with some intervening periods where noise levels return to levels typical of a rural environment. The coal conveyor operation is variable throughout the year, therefore the minimum

RBL of 35 dBA for daytime and 30 dBA for nighttime was also adopted for ML2 and NCA2. Refer to Table 5.1 and Table 5.2 in Technical Report 10 – Noise and Vibration Impact Assessment Report for results of the unattended noise monitoring. Based on the above, the adopted RBLs for both NCAs form the basis for establishing the applicable construction Noise Management Levels (NMLs) which are presented in Section 5.1. The adopted RBLs are as follows:

- Day time – 35 dba
- Evening – 30 dba
- Night – 30 dba.

4.4 Sensitive Receivers & Highly Affected Noise Receivers

Sensitive receivers are defined based on the type of occupancy and activities performed at a place or premise. Sensitive receivers considered for the assessment, in line with the ICNG, included:

- Private residences
- Classrooms at schools and other educational institutes
- Places of worship
- Community centres
- Passive recreational areas such as parks and reserves
- Active recreational areas such as sporting fields, golf courses.

The nearest residences are located approximately 58 metres (m) from the project footprint at Duncan Street, Lidsdale in NCA2. The nearest non-residential receivers and approximate distances to the project footprint include:

- Place of worship at Main Street, Wallerawang (60 m)
- Commercial premises at Wolgan Road, Lidsdale (60 m)
- Industrial premises at Main Street, Wallerawang (160 m)
- Temporary accommodation at Main Street, Wallerawang (400 m)
- Active recreation area at Brays Lane, Wallerawang (540 m)
- Passive recreation area at Lake Wallace (950 m)
- Community facility at Main Street, Wallerawang (1,360 m)
- Education facility at Barton Avenue, Wallerawang (1,650 m).
- Identified sensitive receivers and land uses are shown in Appendix B.

Sensitive receivers for vibration-generating works are those within minimum working distances of particular plant items.

5. NOISE AND VIBRATION CRITERIA

In accordance with Condition B5, Zinfra shall implement mitigation measures with the aim of achieving the road traffic noise assessment criteria for land uses from NSW Road Noise Policy (DECCW, 2011).

In accordance with Condition B6, Zinfra shall implement mitigation measures with the aim of achieving the following vibration limits:

(a) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure);

(b) BS 7385 Part 2-1993 “Evaluation and measurement for vibration in buildings Part 2” as they are “applicable to Australian conditions”; and

(c) vibration limits set out in the German Standard DIN 4150-3: Structural Vibration – effects of vibration on structures (for structural damage).

.Condition B8 applies to operational noise and is outside the scope of this Plan (Section 1.3). The detailed design of permanent infrastructure will consider B8, B9 and REMM NV11 through the design review process in Section 7.6.1. Compliance will be shown in the operational documentation.

5.1 Project Specific Noise Management Levels

The Project specific noise management levels are provided in Table 8 below:

Table 8 - Project specific construction noise management levels

Sensitive receiver type		Construction noise management level (LAeq 15min) (dBA)				
		Recommended standard hours		Out of hours work (OOHW)		
		Noise affected	Highly noise affected	Day	Evening	Night
Residential	NCA1 (suburban areas)	45	75	40	35	35
	NCA2 (rural areas)	45	75	40	35	35
Educational institutes		External noise level of 55 dBA (when in use)[1]				
Places of worship		External noise level of 55 dBA (when in use)[1]				
Active recreation		65 dBA (when in use)				
Passive recreation		60 dBA (when in use)				
Industrial		75 dBA (when in use)				
Commercial (also including temporary accommodation)		70 dBA (when in use)				
[1]Based on 10 dB attenuation through an open window to achieve an internal level of 45 dBA. Note: LAeq 15min is the average noise level during a 15-minute measurement period						

5.2 Standard Construction Hours

The potential noise impacts from the project have been assessed against the ICNG Construction Noise Management Levels (CNML) for daytime, evening and nighttime periods. The project construction hours include the ICNG standard construction hours, and some out of hours construction periods for which approval is required to be obtained prior to commencing works. In accordance with Condition B1 of CoA, the approved site working hours are

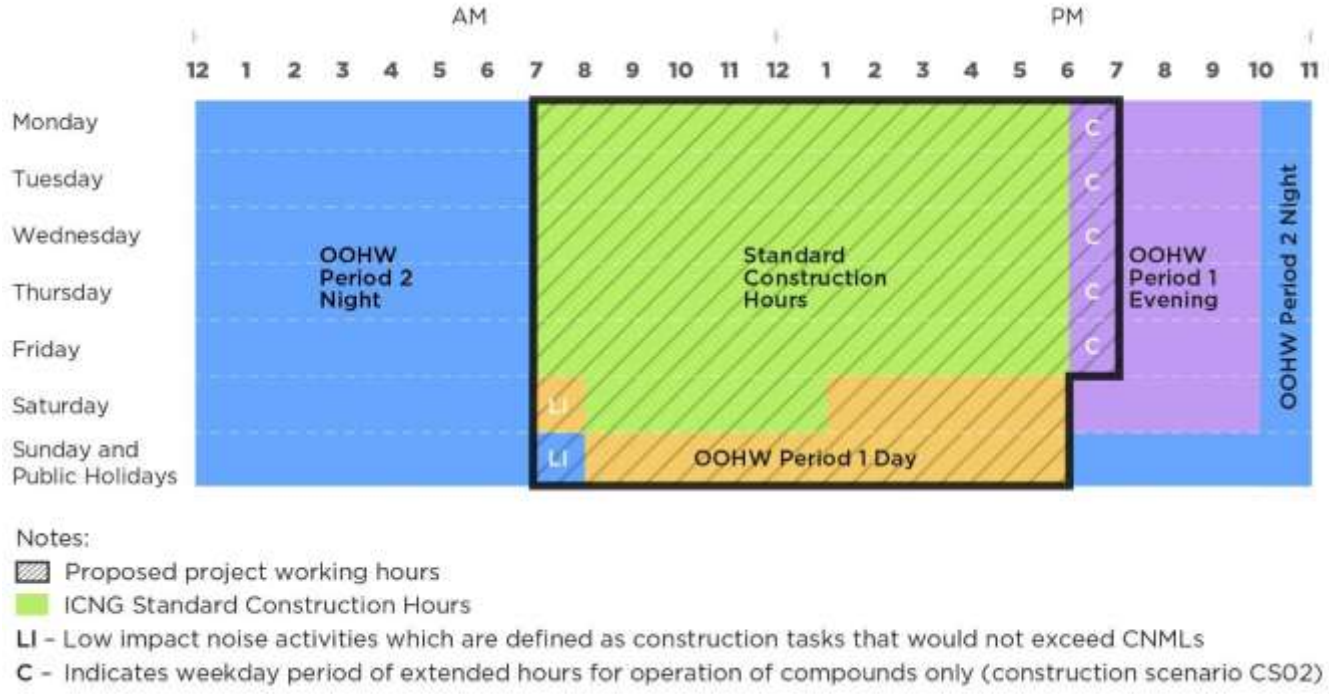
a) 7 am to 6 pm Monday to Friday;

b) 8am to 1pm Saturday and

c) At no time on Sundays NSW Public holidays

unless the Planning Secretary agrees otherwise.

Figure 3: Proposed project construction hours



5.3 Construction Noise Perception Categories Criteria

The perception of noise is strongly influenced by people's environment. A noise level that is perceived as loud in one situation may appear quiet in another. A comparison of noise perception categories, against noise levels and every-day examples of noisy activities is shown in Figure 4. For the purposes of undertaking an impact assessment, the CNVG's construction noise perception categories are adopted as outlined in Table 9.

Figure 4: Noise level comparisons

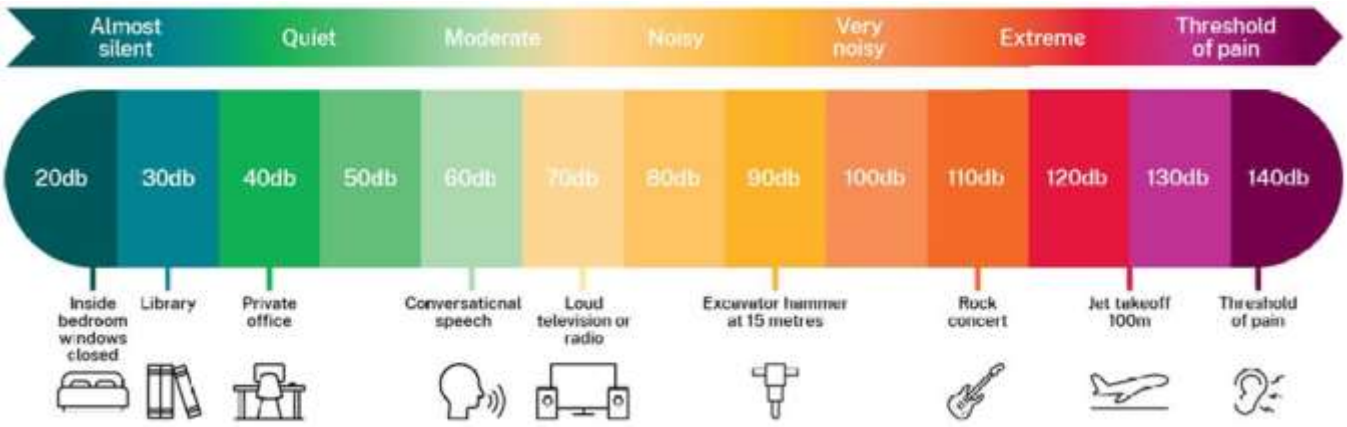


Table 9 - Construction noise perception categories

Noise perception category	Construction noise management level			
	Standard hours	**Outside standard construction hours - day**	**Outside standard construction hours - evening**	**Outside standard construction hours - night**
Noticeable	Not applicable	1 dBA to 5 dBA above CNML		
Clearly audible	1 dBA to 10 dBA above CNML	5 dBA to 15 dBA above CNML		

Noise perception category	Construction noise management level			
	Standard hours	**Outside standard construction hours - day**	**Outside standard construction hours - evening**	**Outside standard construction hours - night**
Moderately intrusive	10 dBA to 20 dBA above CNML	15 dBA to 25 dBA above CNML		
Highly intrusive	More than 20 dBA above CNML	More than 25 dBA above CNML		

Source: CNVG (TfNSW, 2024)

5.4 OOHW Periods

The works necessitate some out of hours works to be performed. This would only be in absolute accordance with the out of hours works protocol, including implementation of the controls nominated within the protocols. The works outside of hours would generally be pre-starts at 6.30am, and construction works performed on Saturday afternoons and Sundays.

In accordance with condition B2 of CoA, there are a number of activities that may be carried on outside the hours specified in Condition B1. These include

a) the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;

b) emergency work to avoid the loss of life, property or prevent material harm to the environment;

c) development activities carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of the development activities;

d) activities that do not result in noise affected sensitive receivers, as defined in Interim Construction Noise Guidelines (DECC, 2009) (or its latest version);

e) road upgrades required by the relevant road authority to be undertaken outside the standard construction hours;

f) where a rail authority requires a rail possession for the activities to be performed outside of standard construction hours;

g) pre-construction minor works, construction and or upgrading that require a network outage on another distribution or transmission network, and the operator of the network requires the outage and associated works outside standard construction hours;

h) where different hours are permitted or required under an EPL in force in respect of the development;

i) pre-construction minor works, construction and or upgrading works carried out in accordance with an OOHW Protocol.

There may be other times where OOHW are required, identified as Additional OOHW hours in Table 20 which include:

- works in proximity to live transmission lines requiring the work to be completed under a scheduled outage for network stability and worker safety
- network security and reliability constraints associated with the existing transmission network that require the works to be completed in an outage window
- an outage recall where the transmission line would be re-energised at short notice to meet network demands
- works required for stringing of conductors undertaken in planned rail shutdowns, as scheduled by rail operators, and during partial or full local road closures, as agreed with Lithgow City Council.

The OOHW construction periods are provided in Table 10 below:

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Table 10 - OOHW Construction Periods

Day	Standard Construction Hours	OOHW working hours
Monday to Friday	7:00 am – 6:00 pm	6:00 pm – 7:00 am
Saturday	8:00 am – 1:00 pm	12:00 am – 8:00 am and 1:00 pm – 12:00 am
Sunday	No construction permitted	All day (12:00 am – 12:00 am)
NSW Public Holidays	No construction permitted	All day (12:00 am – 12:00 am)

The CNVMP including an OOHW protocol has been prepared by Zinfra to mitigate and manage noise impacts from OOHW. Notification to neighbouring sensitive receivers and landowners would be required prior to OOHW.

In the event that night work is required in Period 1 Evening and Period 2 Night (See figure 3) for outage recalls, rail shutdown periods or local road closures, it would include the following construction scenarios:

- Structure assembly and erection
- Stringing transmission line
- Operation of the construction compounds to support structure assembly and erection, and stringing.

This work is expected to be infrequent and last less than three days per week but could impact receivers on more than one occasion.

The intention is not to undertake overnight works unless specifically requested by Transport for NSW (TfNSW), the Rail Infrastructure Manager and/or Council or where limited network outages are available. In this case, a request would be submitted to Council for the relevant Road Occupancy Licence (RoL) approval.

5.5 Construction Noise and Assessment Objectives

The ICNG provides guidelines for the assessment and management of construction noise. The ICNG focuses on applying a range of work practices to minimise construction noise impacts rather than focusing on achieving numeric noise levels. The main objectives of the ICNG are to:

- Identify and minimise noise from construction works
- Focus on applying all ‘feasible’ and ‘reasonable’ work practices to minimise construction noise impacts
- Encourage construction during the recommended standard hours only, unless approval is obtained for works that cannot be undertaken during these hours
- Reduce time spent dealing with complaints at the Project implementation stage
- Provide flexibility in selecting site-specific feasible and reasonable work practices to minimise noise impacts

5.6 Sleep Disturbance Criteria

Where OOHW works are required, there is potential for sleep disturbance during the nighttime period. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages as a result of maximum noise level events. Sleep disturbance noise impacts have been considered in accordance with the NPfI. The sleep disturbance criteria for construction noise as detailed in the NPfI are:

- 40 dBA LAeq,15min or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- 52 dBA LAFmax or the prevailing RBL plus 15 dB, whichever is the greater.

Typically, maximum (LAmax) noise levels are around 5 to 10 dB greater than the average noise levels for construction activities. The screening assessment assumes a 10 dB increase for maximum sound power levels relative to the average noise level (LAeq,15min) based values. The trigger level adopted for the assessment is the criterion of 52 dBA LAFmax.

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The sleep disturbance assessment also considered mitigation provided by a partially open or closed window at the receiver residence. A standard window will generally provide a 10 dB reduction when partially open and a 20 dB reduction when closed. For this assessment, it is assumed that a 7 dB reduction is achieved where windows would be kept partially open at potentially impacted residential dwellings.

Works likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable, or in accordance with the OOHW Protocol.

5.7 Road Traffic Noise Criteria

In accordance with Condition B5, Zinfra will implement mitigation measures with the aim of achieving the road traffic noise assessment criteria for land uses from NSW Road Noise Policy (RNP) (DECCW, 2011). The RNP has been applied for the assessment of traffic noise generated by construction road traffic. The assessment considers existing and proposed traffic generation on public roads, heavy vehicles, time periods, speeds and road surface types using information from Technical Report 8 – Revised Transport and Traffic Assessment (Rev 5, 17/12/2025). Traffic noise levels were calculated using the Transport for NSW Construction Noise Estimator for the following proposed construction routes and compound locations:

- Compound 1 (C1) – adjacent to the Mount Piper 330 kV substation
- Compound 2 (C2) – located east of Main Street adjacent to the entrance to the former Wallerawang Power Station site
- Compound 3 (C3) – located within the former Wallerawang Power Station site
- Main access point at 350 Boulder Road
- Access point from Heel Street
- Access point from Brays Lane
- Access points from Main Street
- Access points from Karawatha Drive
- Access points off the Castlereagh Highway south of Main Street.

As the Construction Noise Estimator assumes flat terrain, this construction traffic noise assessment is considered conservative and does not take into consideration attenuation from undulating landforms, which is characteristic of the study area. The detailed parameters used in the noise predictions are provided in Table 4.9 of the Technical Report 10 – Noise and Vibration Impact Assessment Report.

The results from the Construction Noise Estimator were compared against the road traffic noise criteria set out by the RNP (see Table 11 below). The criteria applies to residential receivers in the vicinity of existing arterial and local roads for construction and operational traffic to identify the potential road traffic noise impacts and the requirement for reasonable and feasible mitigation measures. Importantly, the RNP also outlines that if the road traffic noise increase is within 2 dBA of current levels during construction or operation of the project, then the objectives of the RNP are met and no specific mitigation measures are required, regardless of whether the values presented in Table 11 are exceeded.

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Table 11 - NSW Road Noise Policy Road Traffic Noise Criteria

RNP road category	RNP development type	Noise criteria for Day (7am to 10pm)	Noise criteria for Night (10pm to 7am)
Freeway/ arterial/ sub arterial roads	Existing residence affected by additional traffic on arterial roads (e.g., Castlereagh Highway is an arterial road) generated by land use developments	60 LAeq,15hr	55 LAeq,9hr
Local roads	Existing residence affected by additional traffic on local roads generated by land use developments (eg, Boulder Road, Brays Lane, Main Street, Wolgan Road and Heel Street are local roads)	55 LAeq,1hr	50 LAeq,1hr

5.8 Construction Vibration Criteria

Effects of ground vibration on buildings resulting from construction may be segregated into the following three categories:

- Human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed
- Effects on building contents – vibration where the building contents may be affected
- Effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

In accordance with Condition B6 of CoA, Zinfra will implement mitigation measures with the aim of achieving the following vibration limits:

a) vibration criteria established using the *Assessing vibration: a technical guideline* (DEC, 2006) (for human exposure);

b) BS 7385 Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2*" as they are "applicable to Australian conditions"; and

c) vibration limits set out in the German Standard DIN 4150-3: *Structural Vibration – effects of vibration on structures (for structural damage*).

5.8.1 Human Comfort

Vibration criteria relating to human comfort that are applicable to this project are taken from the DEC (2006) document Assessing Vibration – A Technical Guideline and include the following.

- Continuous vibration – from uninterrupted sources (Table 12)
- Impulsive vibration – up to three instances of sudden impact eg dropping heavy items, per monitoring period (Table 13)
- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (Table 14). All proposed vibration intensive activities are considered intermittent.

Table 12 - Human Comfort: continuous vibration acceleration criteria (m/s2) 1-80Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Day Time	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
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 13 - Human comfort: impulsive vibration acceleration criteria (m/s2) 1-80Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Day Time	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 14 - Intermittent vibration impacts criteria (m/s1.75) 1-80Hz

Location	Day time		Night time	
	Preferred values	Maximum values	Preferred values	Maximum values
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

The CNVG (TfNSW 2024) outlines a simple method for the assessment of construction vibration. This includes:

- Identifying safe working distances to comply with the human comfort and cosmetic damage criteria adopted from the CNVG.
- Identifying minimum working distances for vibratory intensive equipment
- Identifying the construction scenarios with vibratory equipment that are to operate within the minimum working distances
- Identifying suitable mitigation for sensitive receivers within the minimum working distances.

The minimum working distances associated with key construction equipment for standard dwellings are provided in Table 15. Where vibration intensive construction equipment is used at a greater distance from sensitive receivers than the specified minimum working distance, impacts are not considered likely. However, the minimum working distances are indicative and would vary depending on the item of plant or equipment and local geotechnical conditions.

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Table 15 - Vibration minimum working distances: standard dwellings (CNVG)

Equipment	Minimum working distance	
	Cosmetic damage (BS7385)	Human comfort (OH&E vibration guideline)
Vibratory roller (1-2 tonnes)	5 m	15 m to 20 m
Vibratory roller (2-4 tonnes)	6 m	20 m
Vibratory roller (4-6 tonnes)	12 m	40 m
Vibratory roller (7-13 tonnes)	15 m	100 m
Vibratory roller (13-18 tonnes)	20 m	100 m
Vibratory roller (>18 tonnes)	25 m	100 m
Small hydraulic hammer 300 kg (5-12texcavator)	2 m	7 m
Medium hydraulic hammer 300 kg (12-18t excavator)	7 m	23 m
Large hydraulic hammer 300 kg (18-34t excavator)	22 m	73 m
Piling rig - vibratory (sheet piles)	2 m to 20 m	20 m
Piling rig ‑ bored (≤ 800 mm)	2 m (nominal)	4 m
Piling rig – hammer (12 t down force)	15 m	0 m
Jackhammer (handheld)	1 m (nominal)	Avoid contact with structure

Minimum working distances for heritage items and other potentially vibration sensitive structures, derived from DIN 4150-3:2016 guideline values are listed in Table 16.

Table 16 - Vibration minimum working distances: heritage structures

Activity/Equipment	Minimum working distance – heritage structures
Roller	24 m
15 tonne vibratory roller	35 m
Dozer	15 m
Backhoe	3 m
Excavator with hammer	24 m
Piling (bored)1	35 m

Note 1: Based on levels derived from BS 5228-2. Bored piling through stones or other obstructions

5.9 Baseline Corona Noise Monitoring Program

In order to understand the level of impact of the project on corona noise generation, data on existing corona noise will be gathered. The method for undertaking this activity will be provided as the "Baseline Corona Noise Monitoring Program". This program will be provided as an appendix to a future revision of this Plan, as described in Section 1.3 and the project's Staging Plan. The revised CNVMP including the Baseline Corona Noise Monitoring Program will be provided to DPHI no later than six months from the commencement of construction. The program must be approved by the Planning Secretary, or their delegate, prior to implementation.

In accordance with Condition B11(f), Transgrid will engage a suitably experienced and qualified specialist to undertake a baseline corona noise monitoring program. The intent of the monitoring is to establish a baseline set of data on corona noise. The monitoring program shall be undertaken in accordance with the Noise Policy for Industry (2017) (NPfI).

Noise data collection shall be undertaken at locations representative of the residences with the greatest risk of experiencing corona noise impacts during operation. The collection of this data will use both attended and unattended noise monitoring techniques to evaluate the corona noise emitted by the existing operational transmission line.

In addition to the collection of noise monitoring data, a detailed meteorological study, containing localised data collected near the monitoring locations will be conducted to determine the weather conducive to corona noise that are associated with any exceedance of NPfI objectives.

Corona noise monitoring shall be undertaken in weather conditions that are conducive to corona noise generation, such as periods of fog or light rain. Records will be kept verifying meteorological conditions at the recording site at the time of the data collection. The data shall be collected over a six-month period, or where a suitable sample of data collected during weather conditions conductive to corona noise is obtained prior to operation to inform operational corona noise performance objectives. The data shall be collected prior to operation of the development to ensure that suitable baseline data is available.

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6. ENVIRONMENTAL ASPECTS AND IMPACTS

6.1 Construction Activities Impacts During Standard Construction Hours

As part of the EIS, construction noise levels were predicted at noise-sensitive receivers for a range of construction scenarios. The anticipated impacts associated during standard construction hours are summarised in Table 17.

Table 17 - Standard construction hours noise management level exceedances

Activity/ Construction Scenario	Highest predicted noise level (dBA)	Number of affected receivers with NML exceedances above CNML of 45 dBA				Number of highly noise affected receivers (>75 dBA)
		1 – 10 dBA	10 – 20 dBA	>20 dBA	Total	
Site establishment works (CS01)	68	59	14	3	76	0
Construction compounds (CS02)	54	36	0	0	36	0
Access track upgrades (CS03)	82	224	36	12	272	5
Vegetation clearing (CS04)	82	210	30	19	259	5
Earthworks & civil works (CS05)	72	168	18	7	193	0
Structure footing construction (bored piling) (CS06B)	71	143	19	5	167	0
Structure assembly and erection (CS07)	66	21	9	2	32	0
Stringing transmission line (CS08)	69	49	16	3	68	0
Demobilisation / rehabilitation (CS09)	76	228	20	12	260	1

The largest number of receivers predicted to experience highly intrusive noise levels (exceedance of the CNML by more than 20 dBA) are for vegetation clearing (CS04), with 19 impacted sensitive receivers. These residential receivers are located on Duncan Street and Wolgan Road, Lidsdale; Karawatha Drive, Wallerawang; and Brays Lane, Wallerawang.

Six receivers in NCA2 are predicted to experience noise levels greater than 75 dBA during standard hours. These receivers are highly noise affected as defined by the ICNG criteria and their location is shown on Figure 5. These six receivers and the relevant construction scenarios are:

- Receivers RES0748, RES0750, RES0752, RES0829, RES0833 - access track upgrades (CS03) and vegetation clearing (CS04), with levels predicted between 76 to 81 dBA
- Receiver RES0862 - demobilisation and rehabilitation (CS09), with levels predicted as 76 dBA.

The duration of noise impacts for individual receivers who are highly noise affected are expected to be one week for access track upgrades, vegetation clearing and demobilisation activities.

In accordance with Condition NV1, Zinfra undertook an updated Construction Noise and Vibration Assessment based on detailed construction methodologies, work locations, selected plant and equipment, and the proposed standard construction hours and OOHW periods. The assessment confirms the predicted construction noise impacts and is

provided in Appendix A. Vibration impacts have been assessed using the minimum working distances in Section 5.8 and are addressed in Section 6.5.

Investigation into work methods and additional engineering advice has identified that there is no need for impact piling during the Project. As such, impact piling will not be employed. This will reduce potential noise and vibration impacts.

The use of drones for stringing activities has been considered during design. It has been identified that drone use does not realise a reduction in noise impact when compared to traditional ground-based stringing activities. As such, drone-based stringing will not be required for the Project.

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Figure 5: Location of highly intrusive (>20dBA above CNML) and highly noise intrusive affected (>75dBA) sensitive receivers - standard construction hours

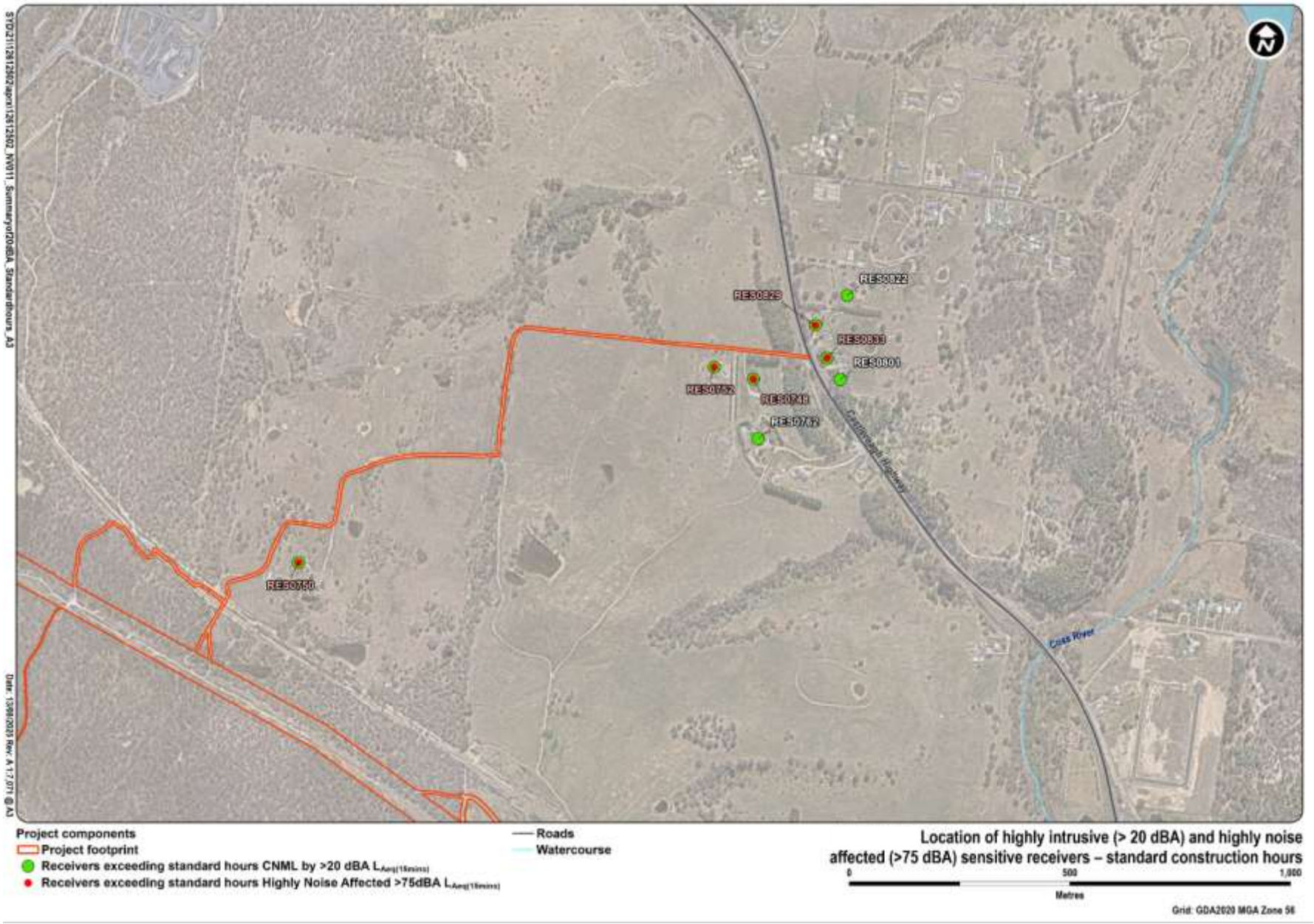
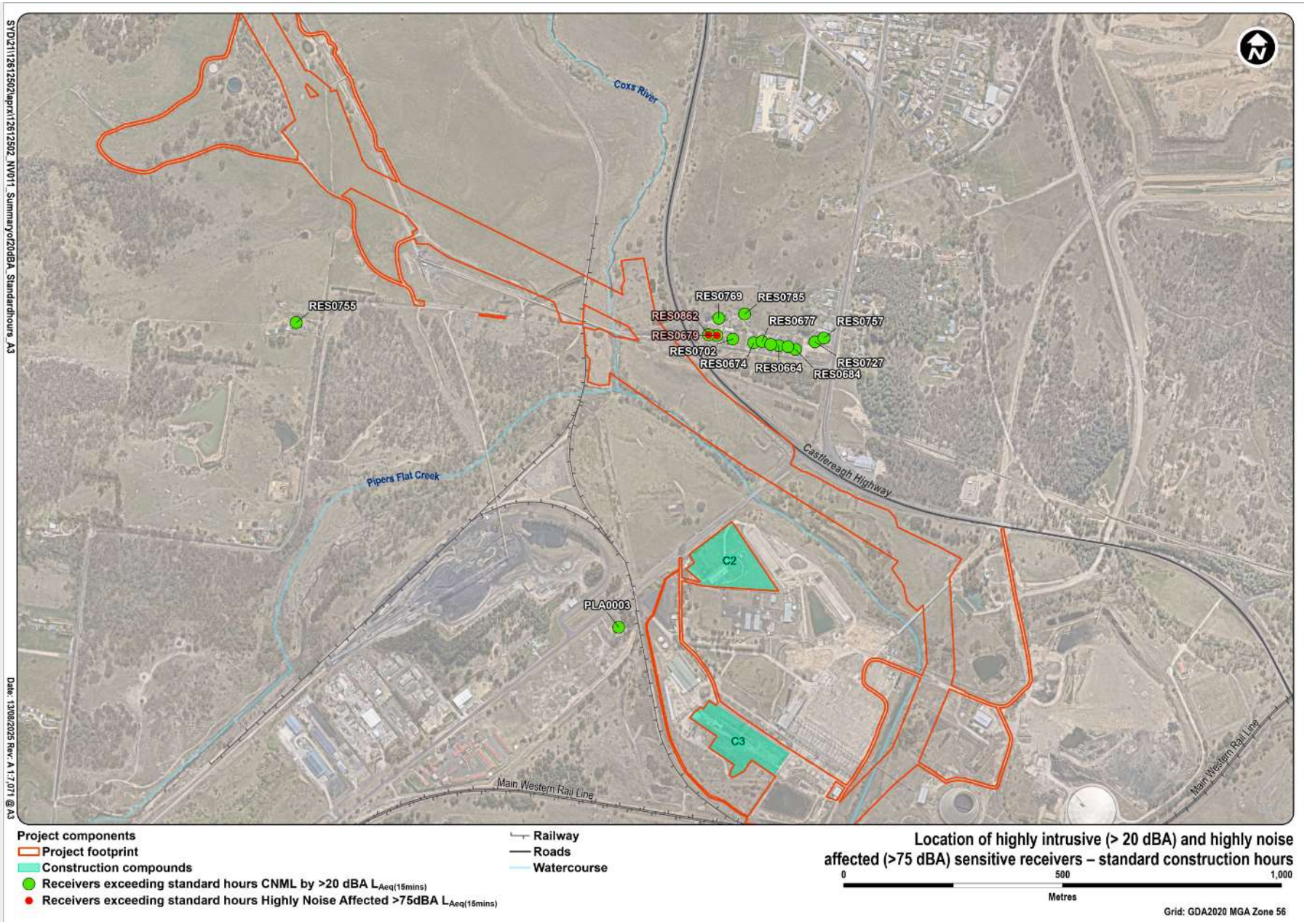


Figure 6: Location of highly intrusive (>20dBA) and highly noise affected (>75dBA) sensitive receivers - standard construction hours



6.2 Out Of Hours Construction Activities Impacts

As part of the EIS, construction noise levels were predicted at noise-sensitive receivers for a range of construction scenarios. The anticipated impacts associated with OOHW construction activities are summarised in Table 18.

In accordance with Condition NV1, Zinfra undertook an updated Construction Noise and Vibration Assessment based on detailed construction methodologies, work locations, selected plant and equipment, and the proposed OOHW periods. The assessment confirms the predicted construction noise impacts and is provided in Appendix A. Vibration impacts have been assessed using the minimum working distances in Section 5.8 and are addressed in Section 6.5.Table 18 - Out of hours work: day period noise management level exceedances

Activity/ Construction Scenario	Number of affected receivers with NML exceedances above 40 dBA				
	OOHW – Period 1 Day (Saturdays 7am to 8am and 1pm to 6pm, Sundays and public holidays 8am to 6pm)				
	Total number of exceedances	1 – 5 dBA	5 – 15 dBA	15 – 25 dBA	> 25 dBA
Site establishment works (CS01)	235	119	96	17	3
Construction compounds (CS02)	175	125	50	0	0
Access track upgrades (CS03)	530	231	244	38	17
Vegetation clearing (CS04)	514	221	236	36	21
Earthworks & civil works (CS05)	379	167	185	19	8
Structure footing construction (bored piling) (CS06B)	334	141	168	18	7
Structure assembly and erection (CS07)	167	125	29	11	2
Stringing transmission line (CS08)	213	116	75	18	4
Demobilisation / rehabilitation (CS09)	552	250	270	18	14

Table 19 provides a summary of the predicted noise levels for work expected to be undertaken outside of standard hours, during the evening and night on any day of the week. With the exception of compound use between 6pm and 7pm on weekdays, evening and night works would only be undertaken for the following reasons:

- Outage recalls by the network operator
- Work within rail corridor shutdown periods scheduled by the rail operator
- To comply with road closure licence requirements from the local road authority.

Construction scenarios that may need to be undertaken during OOHW Period 1 Evening and Period 2 Night are:

- Structure assembly and erection (CS07)
- Stringing transmission line (CS08)
- Associated operation of the construction compounds (CS02) to support structure assembly and stringing.

Table 19 - Out of hours work: evening/ night period noise management level exceedances

Activity/ Construction Scenario	Number of affected receivers with NML exceedances above CNML of 35 dBA				
	OOHW – Evening/Night (Monday to Saturday 10pm to 7am, Sunday to 8am)				
	Total number of exceedances	1 – 5 dBA	5 – 15 dBA	15 – 25 dBA	> 25 dBA
Construction compounds (CS02)	386	190	176	20	0
Structure assembly and erection (CS07)	334	139	170	18	7
Stringing transmission line (CS08)	444	209	206	18	11

6.2.1 Proposed Works During OOHW Periods

Any works undertaken outside of standard construction hours as identified in Condition B1 must meet the requirements of Condition B2, including any approval required under the OOHW Protocol. Table 20 provides the list of proposed works during OOHW.

Table 20 - Proposed works during OOHW

Project construction work hours	OOHW Period	OOHW working hours	Proposed Activities
Proposed project work hours	Period 1 - Day	• 7am to 8am Saturday (only for construction tasks that would not exceed CNMLs) • 1pm to 6pm Saturday • 8am to 6pm Sunday	**All construction works** – this is to reduce the project duration and improve network stability and reliability
	Period 1 – Evening	• 6pm to 7pm Monday to Friday (use of construction compounds only)	**Low impact works at construction compounds (CS02)** – to enable timely start and finish times for works during Period 1 – Day.
	Period 2 - Night	• 7am to 8am Sunday (only for construction tasks that would not exceed CNMLs)	**Low impact works at construction compounds (CS02)** - to enable timely start and finish times for works during Period 1 – Day.
Additional OOHW hours	Period 1 – Evening	• 6pm to 10pm Monday to Saturday	• Outage recalls by the network operator • Work within rail corridor shutdown periods scheduled by the rail operator • To comply with road closure licence requirements from the local road authority.
	Period 2 - Night	• 10pm to 7am Monday to Saturday • 6pm to 7am Sunday and public holiday	• Pre-start meetings to occur from 06:30am • Outage recalls by the network operator • Work within rail corridor shutdown periods scheduled by the rail operator

Project construction work hours	OOHW Period	OOHW working hours	Proposed Activities
			• To comply with road closure licence requirements from the local road authority.

Condition B1(c) provides that construction must not be undertaken on Sundays or NSW public holidays unless the Planning Secretary agrees otherwise. Condition B2(i) permits such works where carried out in accordance with an Out of Hours Work Protocol prepared under Condition B11(h). The project-specific OOHW Protocol (Rev 0.1) has been prepared for this purpose in consultation with Lithgow City Council and is submitted for the approval of the Planning Secretary as part of this CNVMP.

All works proposed on Sundays, NSW public holidays and in other out of hours periods — including works arising from the roster described in Section 6.2.2 — are assessed via a CNVIS and approved through the OOHW Permit process. Section 6 and Table 5 of the Protocol assign each activity to one of four categories: Category 1 (Permitted) and Category 2 (Negligible Risk) are authorised by the Environmental Business Partner; Category 3 (Low Risk) requires Environmental Representative approval; and Category 4 (High Risk) requires Planning Secretary approval, sought via the Major Projects Portal at least 20 days prior to commencement in accordance with Section 8.3 of the Protocol. No Sunday or public holiday work will proceed without an approved OOHW Permit and the applicable approval.

Implementation and compliance will be verified through the monitoring described in Section 9 of the Protocol and Section 8.1 and Table 27 of this Plan, with records retained in the Project folder.

6.2.2 Out of Hours Works and Roster Periods

As described in the GHD Technical Memorandum (17/12/2025), construction activities are planned around a roster of approximately 20 consecutive workdays followed by 8 non-workdays (including travel days), together with a commitment to avoid work on every second Sunday. Construction scheduling is also coordinated with planned transmission line outages to maximise efficiency and minimise the duration of outage-constrained works. These arrangements reduce the frequency of work during out-of-hours periods and provide regular respite periods for nearby receivers.

The proposed roster and construction scheduling arrangements substantially reduce the frequency of out-of-hours construction noise impacts. During the representative three-month assessment period, works would occur on only five of a possible 13 Sundays (approximately 38%), with no consecutive Sundays worked. Saturday works would occur on approximately nine of 13 Saturdays (approximately 69%), with no more than three consecutive Saturdays experiencing noise exceedances. The roster also provides approximately five weeks across the three-month period where no OOHW noise exceedances would occur, resulting in regular respite periods for sensitive receivers. Noise impacts are also expected to reduce as construction activities progressively move away from individual receivers along the project alignment.

Work outside of roster period may occur during standard construction hours. Any OOHW arising from this roster period will be subject to assessment via the OOHW Protocol.

Figure 7: Location of highly intrusive (>25dBA) sensitive receivers - OOHW Day

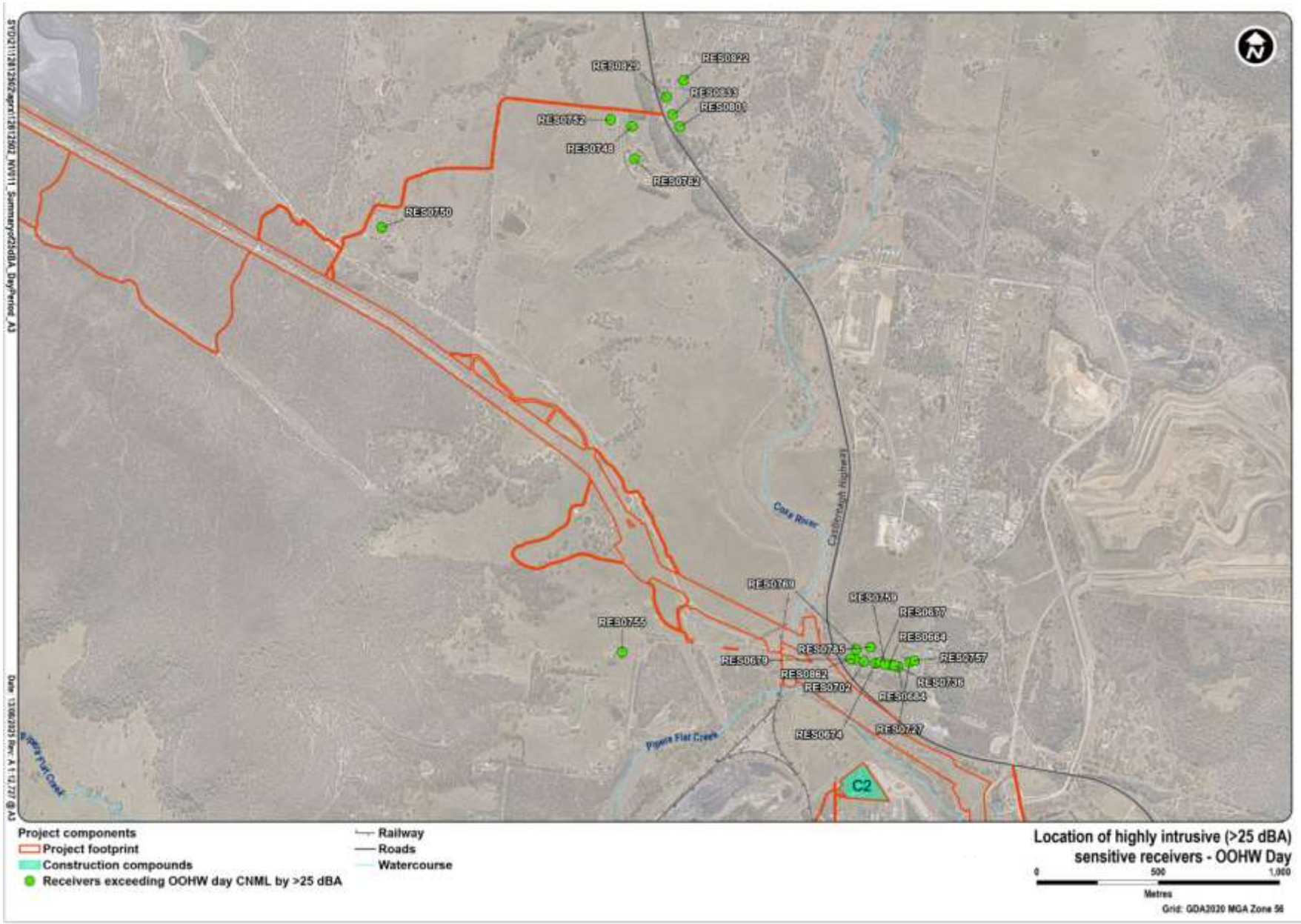
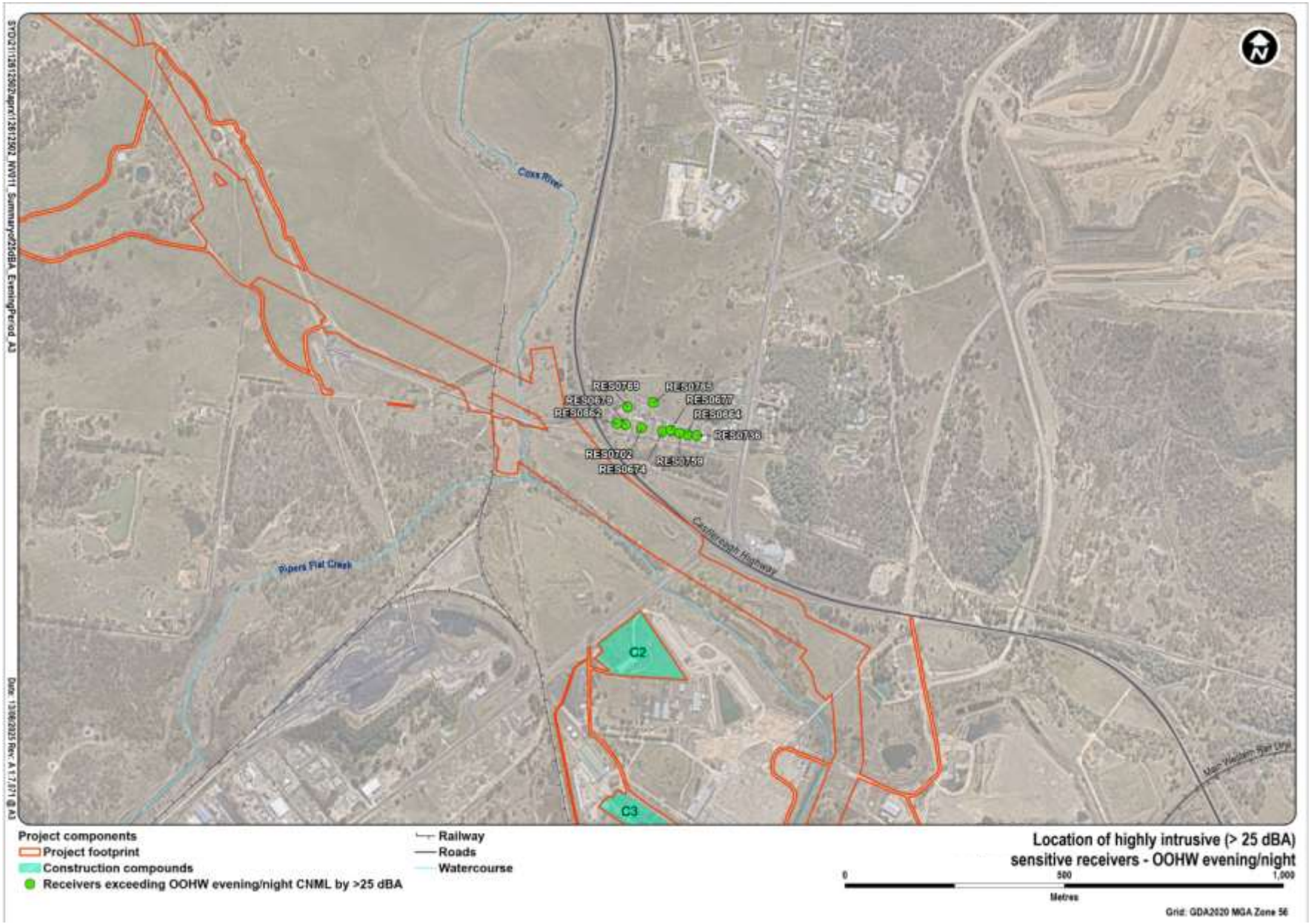


Figure 8: Location of highly intrusive (>25dBA) sensitive receivers - OOHW evening/night



6.3 Potential Construction Noise Impacts

Construction scenarios CS07 (structure assembly) and CS08 (transmission line stringing) are expected to cause highly intrusive noise impacts (exceeding CNML by over 20 dBA) during all out-of-hours work (OOHW) periods.

CS07 - Structure assembly and erection:

- Up to 2 residential receivers affected during OOHW day periods (approx. one week per structure).
- Up to 7 receivers affected during OOHW evening/night periods.

CS08 – Stringing Transmission Line:

- 7 receivers affected during OOHW day.
- 11 receivers affected during OOHW evening/night (up to 3 consecutive nights).

Noise exceedances are mainly linked to infrequent outage recalls, and not all outages will result in impacts. Effects vary based on location and proximity to sensitive receivers. In areas with closely spaced structures, some receivers may be impacted multiple times.

Mitigation will include minimising work during these periods and managing impacts through an OOHW protocol, including consultation with affected stakeholders.

6.4 Potential Sleep Disturbance Impacts

A screening assessment found potential for sleep disturbance impacts during night-time construction (10 pm–7 am weekdays, 10 pm–8 am Sundays/public holidays), especially for scenarios CS02, CS07, and CS08. CS08 may affect up to 167 residential receivers, based on worst-case proximity.

This CNVMP includes a project-specific OOHW protocol in Appendix C to confirm predicted noise levels and apply reasonable mitigation measures in line with the ICNG to minimise sleep disturbance.

Table 21 - Sleep disturbance screening assessment for out of hours work night period

Activity/ Construction Scenario	Number of receivers exceeding the NPfl screening criterion of 52 dBA LAFmax	
	Total number of exceedances	Maximum predicted exceedance above the criterion (dBA LAFmax)
Construction compounds (CS02)	112	12
Structure assembly and erection (CS07)	95	24
Stringing transmission line (CS08)	167	27

6.5 Potential Construction Vibration Impacts

Vibration impacts from construction activities were assessed for both cosmetic damage to structures and underground utilities, and human comfort, particularly where vibratory-intensive equipment is used. Key scenarios include CS03 (access track construction), CS05 (earthworks), CS06B (structure footings - bored piling), and CS09 (demobilisation/rehabilitation).

Human comfort impacts may potentially be experienced at sensitive receivers located within 100 m of vibration-generating activities, especially during access track and earthworks construction. These impacts are expected to be intermittent rather than continuous, depending on the equipment used and local ground conditions.

No residential dwellings are located within the minimum working distances for cosmetic damage. Up to two structures were identified within the minimum working distances for cosmetic damage during CS03 works. These are sheds located at receiver RES0750 near Karawatha Drive, Wallerawang. All identified structures are unoccupied and therefore not expected to result in human comfort impacts. Impacts to these sheds will be mitigated per Section 10.

If a complaint relating to human comfort is received from the sensitive receptors, Vibration Dose Value (VDV) assessment will be undertaken, which measures the cumulative effect of vibration over time. As VDV assessment considers both vibration magnitude and duration, it provides a more representative assessment of human exposure during intermittent, or impulsive vibration events.

6.5.1 Potential Vibration Impacts to Heritage

A review of heritage-listed items identified one structure within minimum vibration distances for vibratory rolling and rock breaking - the Wallerawang Rail Bridge over Coxs River. This structure is listed on the State Heritage Register and may be at risk of damage if mitigation measures are not implemented. Other heritage items which were identified during the review, St John the Evangelist Church and Braemai are located outside the project footprint/minimum vibration distances and are unlikely to be affected.

6.5.2 Management of Works near to Wallerawang Rail Bridge

Where works are to occur within the minimum working distances of the Wallerawang Rail Bridge, vibration monitoring shall be undertaken for the duration of the works to ensure that vibration levels remain under the level required by DIN 4150-3 (3mm/s). See vibration minimum working distances for heritage structures outlined in Table 16.

Mitigation measures to manage vibration impacts include selecting lower-intensity equipment, refining construction methods, and conducting vibration monitoring. These measures are outlined in Section 10.

Where an exceedance is identified, works are to cease immediately, and the incident is to be managed in accordance with Section 6.1.2.1 of the Construction Historic Heritage Management Plan (CHHMP). The CHHMP process includes details of the appropriate response and further mitigations that may need to be implemented to ensure negligible impact.

6.5.3 Management of Works near sensitive, threatened fauna

In accordance with REMM B07 and the Construction Biodiversity Management Plan for this project which was developed by a qualified ecologist, the following measures will be implemented to protect the Large-Eared Pied Bat at the rock outcrop:

- The Project will not use impact piling at this or any other location. Alternative lower impact piling methods and foundation designs will be considered during detailed design, subject to geotechnical constraints, including the use of smaller drill rigs and piling methods with lower noise and vibration impact.
- Piling for structure foundations within 80 m of the rock outcrop will be conducted outside the breeding period for the Large-Eared Pied Bat (November to January), wherever possible, within the required work program.
- Prior to construction, a biodiversity exclusion zone with a minimum 10 m buffer shall be established around the rock outcrop. The boundary will be delineated using a method that does not restrict microbat access to potential habitat.
- Pre-clearing targeted surveys will be conducted of the rocky outcrop by a qualified ecologist to confirm the presence or absence of active roosts prior to construction.
- Weekly inspections of potential breeding habitat within the rock outcrop will be conducted by an Environment Officer or ecologist during construction where this includes the breeding period (November to January).
- Light vehicles will be re-routed to avoid the adjacent access track during the breeding season if microbats are recorded during pre-clearance surveys or weekly inspections.

In addition, where practicable:

- High noise and vibration-generating activities near sensitive and threatened fauna habitat will be scheduled to avoid sensitive breeding or roosting periods;
- Plant and equipment will be maintained and operated in accordance with the applicable construction noise requirements;
- Stationary noise-generating equipment will be located away from sensitive habitat or screened where practicable; and
- Unnecessary idling, use of horns or other avoidable noise will be minimised.

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6.5.4 Potential Vibration Impacts to utilities

Transgrid has engaged with WaterNSW regarding the underground utilities including the Fish River Water Supply Scheme, which crosses the project area in multiple locations.

Transgrid has issued a copy of the memorandum prepared to address concerns raised by WaterNSW in its response to the project's Environmental Impact Statement (EIS) regarding potential vibration impacts. The memorandum was prepared by Transgrid and outlines the assessment and responses to the issues identified by WaterNSW.

Typical construction-induced ground borne vibration is primarily in the form of surface waves, which carry much of the vibrational energy. British Standard BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings notes that structures below ground are known to sustain higher levels of vibration and are very resistant to damage, unless in very poor condition.

Guideline values to evaluate the effects of vibration on buried pipework is provided in German Standard DIN 4150-3. Typical reference distance vibration levels for construction equipment listed in Technical Report 10 – Noise and Vibration Impact Assessment have been sourced from the Environmental Noise Management Manual (ENMM) (2001), British Standard BS 5228.1 Code of Practice for noise and vibration control on construction and open sites: Part 2 Vibration and the Construction Noise and Vibration Guideline (Roads) (TfNSW, 2024). The typical reference distance vibration level for bored piling at a 10-metre horizontal distance is about 7.4mm/s. Using the ENMM (2001) as a basis for estimating vibration levels at distance from construction activity, estimates for bored piling at 20 and 50 metres are 4.3 and 2.1 mm/s respectively (GHD, 2025).

Based on the guideline values for vibration on buried metal pipework (German Standard DIN 4150-3) and the proximity of the nearest transmission structure to the Scheme, the risk of damage from nearby construction activities (including bored piling, excavation, and earthworks) is low and below the estimated vibration guideline values.

Ongoing consultation with any utility owner within the project footprint will ensure appropriate mitigation is in place to protect the assets during construction.

6.6 Construction Traffic Noise

Construction traffic volumes are based on the Revised Transport and Traffic Assessment (Rev 5, 17/12/2025). Traffic noise impacts on local roads are expected from the movement of construction vehicles during the construction phase. The highest traffic-related noise levels are expected during peak construction activities, when traffic generation may reach up to approximately 350 light vehicle movements and 150 heavy vehicle movements per day. Peak-hour traffic generation is estimated at up to 160 light vehicle movements and 15 heavy vehicle movements, representing a conservative worst-case scenario for assessment purposes. Traffic volumes, and associated noise impacts, would reduce outside peak construction periods.

Local roads including Boulder Road, Karawatha Drive, Brays Lane, and Main Street are predicted to experience increased traffic noise levels ranging from 2.3 dB to 20.7 dB LAeq above existing conditions. In contrast, arterial roads such as the Castlereagh Highway are expected to experience minimal increases, generally less than 2 dB LAeq.

Sensitive receivers potentially impacted by traffic noise were identified based on buffer distances where predicted levels exceed the RNP criteria of 55 dB LAeq(1hr) for daytime and 50 dB LAeq(1hr) for night-time periods. These include:

- One receiver on Boulder Road affected during both daytime and night-time periods.
- Two receivers on Karawatha Drive during the day, and six receivers during the night, mostly near the Castlereagh Highway intersection.
- Five receivers on Brays Lane during night-time, located near Duncan Street.
- Twenty receivers on Main Street during night-time, near Duncan Street and Wolgan Road in Lidsdale.

These impacts are expected to occur primarily during peak construction periods, when vehicle movements are most frequent. Night-time traffic noise would only occur during infrequent night works, typically limited to up to three consecutive nights, as well as where there are unexpected night-time recalls.

Mitigation measures to manage traffic noise impacts are outlined in Section 10 and include scheduling, traffic management, and community consultation. Detailed assessment results are provided in Table 22 below.

Table 22 - Construction Traffic Assessment

Road	Road Type	LAeq Assessment Period	Change in noise levels due to construction traffic dB LAeq (period)		Criteria dB LAeq (period)		Is the change >2 dB?	
			Day	Night	Day	Night	Day	Night
Castlereagh Highway north of Boulder Road	Arterial	15 hr (day); 9 hr (night)	0.2	0.2	60	55	No	No
Boulder Road	Local Road	1 hr day/night	2.3	2.9	55	50	Yes	Yes
Castlereagh Highway north of Karawatha Drive	Arterial	15 hr (day); 9 hr (night)	1.1	1.1	60	55	No	No
Karawatha Drive	Local Road	1 hr day/night	20.1	18.3	55	50	Yes	Yes
Castlereagh Highway north of Brays Lane	Arterial	15 hr (day); 9 hr (night)	0.4	0.4	60	55	No	No
Brays Lane	Local Road	1 hr day/night	10.0	20.7	55	50	Yes	Yes
Castlereagh Highway north of Main Street	Arterial	15 hr (day); 9 hr (night)	0.8	0.8	60	55	No	No
Main Street	Local Road	1 hr day/night	3.2	2.8	55	50	Yes	Yes
Castlereagh Highway south of Main Street	Arterial	15 hr (day); 9 hr (night)	0.9	0.9	60	55	No	No

6.7 Additional construction noise mitigation measures

After applying the standard ICNG mitigation measures for construction, additional mitigation measures detailed in Table 23 would be considered if residual noise impacts remain. Table 23 lists the non-project-specific measures that can be implemented if residual construction noise levels continue to exceed CNMLs, following the implementation of standard noise mitigation measures. A description of the additional mitigation measures is detailed in Table 24. Table 23 and Table 24 are adopted from Transport for NSW's (TfNSW) Construction and maintenance Noise Estimator Tool.

Table 23 - Additional construction noise mitigation measures

Noise perception category	CNML (dB(A))	CNML Noise level Exceedance (dB(A))	Additional mitigation(s) [2, 3]
All Hours			
75 dBA or greater[5]			N, V, PC, RO, DR
Standard construction hours: Mon-Fri (7am – 6pm), Sat (8am - 1pm), Sun/Pub Hol (Nil)			
Noticeable	45 (RBL + 10 dB)	0	-
Clearly Audible		1 to 10	-
Moderately Intrusive		10 to 20	N, V

Noise perception category	CNML (dB(A))	CNML Noise level Exceedance (dB(A))	Additional mitigation(s) [2, 3]
Highly Intrusive		> 20	N, V
OOHW Period 1 Day: Sat (7am – 8am and 1pm – 6pm), Sun/Pub Hol (8am - 6pm)			
Noticeable	40 (RBL + 5 dB)	< 5	-
Clearly Audible		5 to 15	N, V
Moderately Intrusive		15 to 25	N, V
Highly Intrusive		> 25	N, V, RO, DR
OOHW Period 1 Evening / Period 2 Night [4]: Mon-Sat (6pm – 10pm) / Mon-Sat (10pm – 7am), Sun/Pub Hol (6pm – 8am)			
Noticeable	35 (RBL + 5 dB)	< 5	N
Clearly Audible		5 to 15	N, V
Moderately Intrusive		15 to 25	N, V, SN, RO, DR
Highly Intrusive		> 25	N, V, SN, RO, DR, AA

[2] N = Notification, V = Verification, PC = Phone Calls, RO = Respite Offers, DR = Duration Respite, SN = Specific Notifications, AA = Alternative Accommodation

[3] Additional mitigation measures may be amended following consultation with affected receivers.

[4] Additional mitigation measures noted would not apply to proposed compound use Mon-Fri 6pm – 7pm.

[5] Highly affected sensitive receivers

Table 24 - Description of additional mitigation measures identified

Additional mitigation measure	Description
Notification (N) (letterbox drop or equivalent)	• Letterbox drop for receivers within affected areas or targeted notification to certain receivers. Notifications are to include duration of work activity, proposed start date, duration and hours of use, and contact telephone number. Notification will be sent a minimum of seven calendar days prior to the start of works.
Verification (V)	• Monitoring is proposed to review actual measured noise impacts against noise predictions. • Noise management levels and management measures would be reviewed in response to monitoring results.
Phone Calls (PC)	• Phone calls detailing relevant information made to identified/affected stakeholders. • Phone calls provide affected receivers with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs.
Respite Offers (RO)	• Respite offers should be considered where there are high-noise and vibration generating activities near identified receivers. As a guide, work should be carried out in continuous blocks that do not exceed three hours each with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of, and amenity at nearby receivers. The purpose is to provide receivers with respite from an ongoing impact.

Additional mitigation measure	Description
Duration Respite (DR)	• Duration Respite (DR) is offered when works are unable to comply with RO. Where it can be strongly justified it may be beneficial to increase the work duration (number of evenings or nights worked) so that the project can be completed more quickly. This allows for the schedule to condense OOHW into blocks to reduce the overall works duration.
Specific Notifications (SN)	• Specific notifications are letterbox dropped (or equivalent) to identified sensitive receivers likely to be affected by construction activities that are likely to exceed the applicable noise objectives. Specific notifications provide detailed information on the nature of the works, timing, duration, expected impacts, respite periods where relevant, and contact details. They may also be used to supplement periodic notifications or to advise of unscheduled works.
Alternative Accommodation (AA)	• Could be considered for receivers predicted to experience noise levels exceeding the night CNML by more than 25 dBA. Note that night work (if required) would be very infrequent and last for no more than three consecutive nights.

6.8 Additional construction vibration mitigation measures

Where vibration intensive activities are planned within vibration minimum working distances (including for sensitive or heritage structures and buried infrastructure), reasonable and feasible mitigation measures will be implemented. These measures will include, and not be limited to:

- pre- and post-construction condition surveys of vibration sensitive receivers within the recommended safe working distances prior to construction works
- alternative construction methods and equipment with lower source vibration levels to be investigated and implemented, where feasible
- schedule the use of vibration-sensitive equipment during the least sensitive times of the day
- sequencing of operations to avoid or minimise concurrent vibration intensive activities
- vibration monitoring to be carried out at the start of work to determine actual vibration levels at the receiver
- work ceasing if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.
- where potential vibration impacts relate to buried infrastructure, consultation will be undertaken with asset owners.

7. NOISE AND VIBRATION MANAGEMENT SYSTEM

The construction noise and vibration management system for the Project follows a continuous improvement approach based on the **Plan, Do, Check, Act** framework. During the planning phase, applicable noise and vibration criteria are established, including Construction Noise Management Levels (CNMLs), sleep disturbance criteria and vibration criteria. Predicted noise and vibration impacts at sensitive receivers are then assessed based on the proposed construction methodology, and where potential exceedances are identified, appropriate mitigation and management measures are developed through the Construction Noise and Vibration Impact Statement (CNVIS).

The implementation phase involves the application of these mitigation measures during construction activities. Monitoring and compliance assessments are then undertaken to verify predicted impacts, evaluate the effectiveness of control measures and identify any unanticipated impacts.

Where monitoring, inspections, complaints, incidents or non-conformances indicate that controls are not performing as intended, corrective actions will be implemented, which may include reviewing and updating impact predictions, revising mitigation measures, and implementing additional controls to achieve compliance and minimise impacts on surrounding receivers. This review will be carried out by the Environmental BP.

This Section and Section 8 are the protocol for the identification, notification and management of works that exceed the noise management levels.

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7.1 Exceedance Of Noise and Vibration Management Levels

If construction activities are identified that are likely to exceed the relevant ICNG (DECC 2009) construction NMLs or sleep disturbance criteria at any sensitive receivers due to vibration, additional reasonable and feasible measures, aimed at reducing construction noise and vibration below the relevant criteria, would be implemented prior to commencing such works, in accordance with this plan and in particular the measures specified in Section 10. Works likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable, or in accordance with the OOHW Protocol.

Where a sensitive receiver is identified as potentially exceeding the construction 'noise affected' noise management level as a result of construction or use of the construction compounds (i.e. as per CoA B7), the following measures will be considered with the aim of reducing predicted noise impacts below the relevant noise management level:

- Identify if any alternate plant or equipment with lower noise levels can be used
- Identify any site layout changes or orientation of equipment that maximises shielding of noisy items or activities
- Identify if any scheduling of activities can be implemented to minimise concurrent use of noisy plant/equipment
- Identify if any reasonable and feasible path control measures can be implemented (eg noise barriers or shielding).

Where the above measures do not reduce predicted noise impacts below the relevant noise management level or cannot be feasibly implemented and the impact is predicted for short term or intermittent impacts only, affected receivers will be notified as outlined below. Where the impact is predicted to occur over longer durations, consultation will be undertaken with the affected receiver to identify any further measures that may be applied.

7.1.1 Notification of Works

Where exceedances of noise and vibration management levels are predicted, residents/sensitive receivers will be notified of construction activities that are likely to affect their noise and vibration amenity.

This proactive communication will include:

- The types of activities to be undertaken and equipment used
- The timing of activities including expected start and finish
- The location of activities
- Likely impacts of the activities and applicable mitigation measures
- Details of the community information line and how to make an enquiry and/or a complaint

Notification of OOHW will also be undertaken in accordance with the notification requirements of the OOHW Protocol. A range of tools will be utilised to communicate with the community and stakeholders and will include community and stakeholder notifications, email and door knocks.

Due to the relative isolation of the project from nearby sensitive receivers, potential construction vibration impacts are considered to be limited to a small number of receivers as follows:

– Two sheds located on a residential property at Karawatha Drive are within the CNVG minimum distance for cosmetic damage during access track upgrades (CS03).

– The heritage listed Wallerawang rail bridges over the Coxs River is within the CNVG minimum working distances for vibratory rolling, excavation and piling.

– Human comfort impacts at the following:

- Seven sensitive receivers are within 100 m of access track works (CS03).
- Three sensitive receivers are within 100 m of earthworks and civil works (CS05).

Potential vibration impacts outlined above would be avoided and mitigated through various methods including but not limited to selection of construction methods to minimise vibration impact and monitoring of vibration during construction. Monitoring will be undertaken as described in Section 8.

7.2 Noise And Vibration Modelling

A project-specific construction noise and vibration management tool will be developed to calculate the potential noise and vibration impacts for construction activities. The tool will be responsible for modelling the construction scenarios pertaining to that site/activity, considering plant and equipment and their source noise emission (Sound Power Levels, LW or SWL), and the distance to potentially affected receivers.

The tool will also estimate whether any vibration-sensitive receivers are within minimum working distances from the proposed construction activities.

The tool will:

- Apply relevant modifying factor corrections for annoying noise characteristics, including impulsiveness, intermittency, tonality and low-frequency noise, where applicable.
- Consider the location of the proposed activities
- Consider the noise and vibration generating activities that will take place and determine if they are low/moderate or high-risk activities
- Assess the predicted noise and vibration levels against the relevant management levels
- Identify feasible and reasonable mitigation and management measures in accordance with the ICNG
- Be based upon reasonable worst-case scenario
- Additionally, where OOHW are being proposed for multiple work areas concurrently, consideration will be given to any cumulative impact associated with the proposed OOHW.

Noise and vibration monitoring will be undertaken as described in Section 8.1. Results will be compared against the predicted levels, where applicable, to validate and, where required, identify amendments to the predictive modelling tool.

7.3 Construction Noise and Vibration Impact Statements

A Construction Noise and Vibration Impact Statement (CNVIS) will be prepared for key construction areas including construction compounds, areas of specific sensitivities or criteria (such as works at the Wallerawang Rail Bridges), or where there are major changes in construction method and whilst undertaking OOHW. Each CNVIS will assess potential noise and vibration impacts by using the outcomes of the noise modelling tool and the safe work distances for vibration intensive plant and applying relevant mitigations to ensure compliance with noise and vibration criteria discussed in Section 5.

The CNVIS forms the primary project record demonstrating how reasonable and feasible mitigation measures have been considered, selected, implemented, or discounted, including justification for decisions and supporting evidence.

Each CNVIS will consider:

- Proposed scope of works for the location, including assessment of realistic and/or worst-case scenario activities generating the highest noise or vibration impacts
- Proximity and type of sensitive receivers/land uses
- The effects of noise shielding provided by noise barriers or natural topographic features
- Predicted levels for construction scenarios at sensitive receiver groups
- Predicted exceedances against the noise and vibration goals
- Mitigation options and preferred management measures, including those measures identified through consultation with affected sensitive land users and asset owners (i.e. for utilities such as Fish River Pipeline)
- Safe working distances for vibration intensive activities or further investigation, monitoring and mitigation to be applied where these cannot be met
- Activity specific monitoring/verification requirements if required in Table 23

In accordance with Condition B7, where a sensitive receiver is identified as potentially exceeding the construction 'noise affected' noise management level or sleep disturbance criteria established using the Interim Construction

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Noise Guideline (DECC, 2009), or its latest version, as a result of construction or use of the construction compounds, reasonable and feasible mitigation measures will be implemented with the objective of reducing construction noise below the relevant criteria at each relevant sensitive receiver.

Activities that would exceed the 'noise affected' noise management level or sleep disturbance criteria during construction must not commerce until the measures identified in this condition have been implemented, unless otherwise agreed with the Planning Secretary.

7.4 Construction Traffic

Mitigation measures must be implemented with the aim of achieving the road traffic noise assessment criteria for land uses from NSW RNP (DECCW, 2011).

The RNP provides traffic noise criteria for residential sensitive receivers in the vicinity of existing arterial and local roads. The criteria (refer to Table 11) are applied to construction traffic on public roads to identify potential road traffic noise impacts and the requirement for reasonable and feasible mitigation measures.Additionally, the RNP application notes state that "*for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development.*

This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night criterion."

Therefore, if the road traffic noise increase is within 2 dBA of current levels during construction of the project, then the objectives of the RNP are met and no specific mitigation measures are required, regardless of whether values presented in Table 11 are exceeded.

As the assessment carried out in the EIS was for the worst-case scenario, it is likely that there will be times during construction when less vehicle movements are required and/or the construction peak occurs during the day-time period, resulting in reduced road traffic noise impacts. The mitigation measures outlined below will be implemented with the aim to achieve the road traffic noise assessment criteria for land uses from NSW RNP (DECCW, 2011).

The CNVMP establishes the construction traffic noise objectives and associated mitigation requirements, while implementation of traffic-related controls, including vehicle routing, scheduling, speed management, loading practices and driver requirements, will be managed through the CTTMP and its Driver Code of Conduct, as applicable.

Mitigation measures will include:

- Distributing construction traffic movements across the available access roads during the daytime period, where practicable, to reduce peak 1-hour traffic noise levels on any single local road
- Scheduling construction vehicle movements on Boulder Road, Karawatha Drive, Brays Lane and Main Street at less sensitive times for affected receivers, and avoiding night-time movements except where required for approved OOHW
- Implementing temporary construction traffic speed limits on access roads in the vicinity of the potentially affected sensitive receivers identified in Section 6.6, subject to agreement with the relevant road authority where on a public road
- Designation of dedicated traffic routes
- Minimising traffic movements by ensuring full loads
- Schedule noisy activities during daytime when background noise levels are higher.
- Avoid peak traffic hours to reduce cumulative noise impacts
- Ensuring vehicles are maintained and roadworthy
- Implementing the Driver Code of Conduct (outlined in the CTTMP)

Vehicle speed reductions will also apply on off-road access tracks, including unpaved tracks, for safety and environmental management (for example, dust generation), which will further reduce vehicle noise emissions.

Mitigation measures will be monitored and reported through a combination of noise and vibration monitoring, compliance checks, and stakeholder communication. Noise levels will be measured at identified sensitive receivers using calibrated equipment in accordance with relevant standards, and results will be documented in Noise

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Monitoring Reports to verify compliance with project-specific criteria. Community notifications will be issued prior to activities that may generate elevated noise or vibration, and records of these communications will be maintained to demonstrate proactive engagement. For any Out-of-Hours Work (OOHW), compliance with approved permits will be confirmed through site inspections and documented in OOHW compliance reports, including verification of mitigation measures such as the use of quieter equipment and temporary noise barriers. All monitoring data, inspection findings, and community feedback will be consolidated into periodic reports and made available for relevant stakeholders and regulatory authorities to ensure transparency and accountability.

7.5 Cumulative Impacts

Projects with the potential of generating cumulative impacts for the community were identified during the development of the Environmental Impact Statement. In accordance with Mitigation Measure C1, coordination and engagement with relevant project proponents and/or construction contractors commenced during detailed design and will continue through the pre-construction phase to confirm construction timing and identify any potential cumulative impacts. Consistent with Mitigation Measure S1, communications and engagement activities will include sharing information about the Project with other regional stakeholders to support coordination across projects and assist in managing cumulative impacts on local and regional communities.

Cumulative impacts may arise where multiple projects are occurring within the same locality and timeframe, resulting in increased disruption or impacts experienced by the community. Potential cumulative impacts relevant to community consultation and engagement may include, but are not limited to, cumulative noise impacts (including out-of-hours works), increased traffic movements and changes to road conditions, impacts on local businesses and services, workforce and accommodation pressures, and increased community enquiries or concerns. Where multiple projects may affect the same receivers or community stakeholders, a coordinated approach to communication, notification and impact management will be considered to minimise disruption and provide consistent information to the community.

Regular and on-going construction program update briefings will be conducted with projects to support early identification of potential overlapping impacts, alignment of community notifications where appropriate, and collaboration between proponents to maximise opportunities for the local community and minimise impacts.

As part of this ongoing coordination, Zinfra has agreed to participate in a local business briefing organised by the Lithgow Business Chamber. The briefing will include the identified proponents and will support ongoing coordination between projects in the area to maximise opportunities for the local community and minimise impacts.

Table 25 summarises the projects identified to date as having the potential for cumulative impacts and the proposed management approach. The table will be reviewed and updated, as required, as engagement with relevant proponents and contractors continues through the pre-construction phase.

Table 25 - Identification and management of Cumulative Impacts

Project	Assessment of impact risk	Proponent	Management Approach
Wallerawang BESS – Mod 1 - Layout reconfiguration and capacity increase	Potential overlap in works from mid-2027 depending on the outcome of their approval process towards the end of 2026.	Greenspot Wallerawang Pty Ltd	Ongoing engagement between Zinfra and the Wallerawang BESS project to ensure proactive identification and management of any community impacts.
Lake Lyell Pumped Hydro Energy Storage	Anticipated timeline: end of 2027 - 2032. Unlikely that construction will overlap.	Energy Australia NSW Pty Ltd	Whilst cumulative impacts are unlikely, Zinfra and Energy Australia have agreed to stay in contact and provide updates on anticipated construction timelines.
Ben Bullen Wind Farm	Still in feasibility study phase. Construction will not overlap with the timeline for delivery of this project.	Alinta Energy	n/a

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Project	Assessment of impact risk	Proponent	Management Approach
Mount Piper BESS	Anticipated timeline: Mid 2026 - 2028. Potential for some works to commence towards the end of 2027 pending the outcome of final investment decision towards the end of 2026.	Energy Australia NSW Pty Ltd	Ongoing engagement between Zinfra and the Mt Piper BESS project to ensure proactive identification and management of any community impacts. Both projects are also working with the Lithgow Business Chamber to provide a local business briefing.
Great Western BESS	Construction likely to overlap in 2027.	Neoen Australia Pty Ltd	Monthly meetings have been established between Transgrid/Zinfra and Neoen to ensure early planning and identify potential cumulative impacts and management strategies early.
Wallerawang Railway Station Upgrades	Some construction overlap possible towards the end of 2026. These should be minor.	Transport for NSW	Zinfra to monitor the Station Upgrades and communications to ensure awareness of planned works to avoid cumulative impacts.
Pinecrest BESS	No cumulative impacts likely as construction not anticipated until 2028.	Banpu Energy (owned by centennial coal)	Regular engagement established and lead by Transgrid. Zinfra to be involved closer to construction commencement to ensure proactive identification and management of any community impacts.

7.6 Selection, Assessment and Documentation of Mitigation Measures

Noise and vibration mitigation measures are considered at two stages:

- during detailed design and development of the construction methodology, where decisions are made that fix the permanent design, foundation types, compound layouts, plant selection and construction methods (Section 7.6.1); and
- before and during construction for each activity or work area (Section 7.6.2).

Table 26 sets out the steps for each stage, the responsible person and the record kept.

7.6.1 Detailed Design Methodology

A number of requirements of the Conditions of Approval and REMMs must be considered during detailed design and development of the construction methodology. These include REMMs NV2, NV3, NV4, NV6 and B07, and measures N8, N11, N12, N15, N18, N24, N47 and N49 in Table 29.

Before design starts, the Environmental BP will issue the Design Lead with documentation sourced from the EIS, Technical Assessments, the Amendment Report and utility owners. The documentation will include noise and vibration requirements that have design or methodology implications. The Design Lead will include these requirements in the design inputs for each relevant design package. Examples include foundation and piling design, compound layout, plant and equipment selection, works within minimum working distances of the Wallerawang Rail Bridge, and works near the Fish River Pipeline.

Each design package will have an environmental design review before it is issued for construction. In that review the Environmental BP will check the design requirements, and determine if the requirement has been met. Where a requirement has not been met, a reason must be provided.

Decisions on what is reasonable and feasible will follow the ICNG (DECC, 2009) and CNVG (TfNSW, 2024). The Design Leadwill consider engineering and geotechnical constraints, safety, network outage constraints, the noise or vibration benefit, existing agreements with asset owners, and any other environmental impacts. Each justification will refer to supporting evidence, such as a geotechnical report, specialist advice (heritage specialist, ecologist or acoustic specialist) or the options assessment. Where a CoA or REMM requirement is qualified (for example "wherever possible"), the decision and reasons will be approved by the Project Manager and provided to Transgrid.

Examples of design-stage decisions already made include excluding impact piling (Amendment Report, Amendment 12) and not using drones for stringing (Section 6.1).

Measures adopted at design stage will be included into the construction methodology, EWMS and CNVIS, and are then managed under Section 7.6.2. Any design change after issue for construction that affects a noise or vibration requirement must go through the environmental design review again.

The detailed design of permanent infrastructure will also consider the operational noise requirements of Conditions B8 and B9 and REMM NV11, through the same review process. Compliance with these operational requirements will be shown in the separate operational documentation under the Staging Report (Section 1.3).

Design-stage records will be kept in the project document management system and made available to the ER, the Department and auditors on request. These include the design review records, options assessments, specialist advice and IFC design documents.

7.6.2 Construction Methodology

During development of construction methodologies, all reasonable and feasible noise and vibration mitigation measures identified in this CNVMP will be considered in accordance with the ICNG (DECC, 2009), CNVG (TfNSW, 2024) and project approval requirements.

The selection of mitigation measures will be informed by:

- construction methodology and staging;
- location of works relative to sensitive receivers;
- predicted construction noise and vibration levels;
- predicted sleep disturbance impacts;
- practicality of implementation;
- safety considerations;
- engineering constraints;
- effectiveness of the proposed mitigation measure; and
- cumulative impacts where relevant.

Mitigation measures selected for a particular activity or work area will be documented in the applicable:

- Construction Noise and Vibration Impact Statement (CNVIS);
- Out of Hours Works (OOHW) Permit;
- Environmental Work Method Statement (EWMS);
- Construction methodology documentation; and/or
- Environmental inspection records

Where a project-specific mitigation measure identified within Table 29 is not implemented, the justification for the decision will be documented within the applicable CNVIS, OOHW Permit, construction methodology or EWMS. Records will be retained within the project document management system and made available for auditing and compliance purposes.

The table below provides step by step actions to implement the mitigation measures along with identifying the responsible person for implementing them and the records that will be maintained.

Table 26 - Step by Step actions to implement mitigation measures and responsibilities

Step	Action	Responsibility	Record
Part A: Detailed design			
D1	Identify noise and vibration requirements with design or methodology implications and issue them to the design team	Environmental BP	Source documents as noted in Section 7.6.1
D2	Include the requirements in the design inputs for each relevant design package	Design Lead	Safety in Design workshop

Step	Action	Responsibility	Record
D4	Develop and assess design and method options, getting specialist input where required (geotechnical, heritage, ecology, acoustic)	Design Lead with Environmental BP	Safety in Design workshop
D5	Carry out the environmental design review	Environmental BP	BlueBin, TeamBinder software program
D6	Issue the design for construction and carry adopted measures into the methodology, EWMS and CNVIS	Design Lead	IFC documents; construction methodologys and work instructions; EWMS
D7	Review any design change that affects noise or vibration requirements (repeat D3 to D6)	Environmental BP	BlueBin, TeamBinder software program
Part B: Construction			
C1	Review upcoming works against CNVMP and construction program	Construction Manager	Construction Program
C2	Assess potential noise and vibration impacts using modelling tool	Environmental BP	Noise Modelling Assessment
C3	Determine whether CNVIS is required	Environmental BP	CNVIS Register / assessment record
C4	Prepare CNVIS where required	Environmental BP	CNVIS
C5	Identify mitigation, notification and monitoring requirements	Environmental BP	CNVIS
C6	Approve CNVIS	Construction Manager	Approved CNVIS
C7	Notify affected receivers	Project Engagement Lead	Notification records
C8	Implement mitigation measures	Supervisor	Site records
C9	Undertake monitoring where required	Environmental BP	Monitoring Records
C10	Review results and implement corrective actions if required	Environmental BP	Monitoring Report
C11	Retain records within Project EMS	Environmental BP	Project records

8. MONITORING OF MANAGEMENT SYSTEMS

8.1 Monitoring Program

In accordance with Condition B11 (e) of CoA, Zinfra will implement a monitoring program that evaluates and reports the effectiveness of the noise and vibration management systems. The impacts and environmental performance of the Project relevant to noise and vibration, including the effectiveness of the management systems, will be monitored through the monitoring program outlined in Table 27. It is noted that the undertaking of monitoring activities may be subject to resident and/or property owner access permission.

Outcomes of monitoring will be considered against noise and/or vibration predictions for applicable works to assist in refining the modelling tool(s) and reducing noise and vibration impacts. Where specific criteria apply, monitoring outcomes will also be compared against the applicable criteria to ensure compliance.

Monitoring may be attended or unattended, as required, to obtain noise results over longer periods.

Consideration will be given to the following aspects when determining if monitoring will be undertaken attended or unattended:

- Impacts to structures and infrastructure
- Duration of activity, impact to residents, and duration of monitoring;
- Location of monitoring; new locations not previously impacted, proximity of sensitive receivers, access to appropriate monitoring location, and security of equipment
- Activity type being undertaken and new activity not previously conducted elsewhere on the project.

- Weather conditions

Longer duration monitoring is typically undertaken unattended with shorter duration attended monitoring undertaken to validate results of unattended monitoring.

In accordance with Condition B34, Zinfra will also undertake an independent dilapidation survey of all local or regional roads on the transport route including local road crossings. The survey will assess the existing condition prior to use of the relevant road by development related heavy vehicles for the purposes of construction, upgrade or decommissioning works; and assess the condition within 1 month of all the completion of construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant roads authority/manager; and on an annual basis during construction, or within a timeframe agreed to by the relevant authority/manager. This is also addressed in the Construction Traffic and Transport Management Plan (CTTMP).

Pre- and post-construction condition surveys of vibration sensitive receivers within the recommended safe working distances will also be undertaken.

All the monitoring records, reports and surveys will be stored in the Project folder and will be made available for auditing purposes throughout the project.

8.1.1 Monitoring Response Framework

Where monitoring results exceed predicted noise or vibration levels, in accordance with Condition B11 (e) of CoA, additional mitigation measures will be implemented within the agreed timeframe. The following actions will be undertaken in sequence. These will be implemented in a timely manner in order to reduce any potential impacts on receivers, and reduce those impacts so far as reasonably practicable:

1. Confirm monitoring validity by ensuring results are not influenced by external noise or vibration sources unrelated to construction and ensure that mitigation measures have been implemented as required by the CNVIS and/or OOHW Permit. Where confounding sources are present, monitoring will be repeated when these sources are absent, or the affected data will be excluded where appropriate.
2. Confirm works are consistent with any CNVIS or approved OOHW Permit. Where works differ from those described in the permit, activities will be adjusted to align with the permit and monitoring repeated. Works that do not align with the OOHW permit, these activities must immediately cease.
3. Identify and implement additional reasonable and feasible mitigation measures, where available, and repeat monitoring. Any CNVIS and/or OOHW Permit will be updated where necessary. Repeat monitoring. If monitoring still exceeds predicted levels, report as a non-compliance.
4. Cease works where the above measures do not achieve a compliant outcome.
5. Review and refine the noise or vibration assessment methodology, incorporating lessons learned from monitoring results to improve the accuracy of future predictions.
6. Communicate findings and lessons learned to relevant project personnel.

Where required, a revised CNVIS and/or OOHW Permit may be prepared and approved before works recommence. Monitoring results and lessons learned will be reviewed to inform future OOHW planning and the application of mitigation measures to minimise potential impacts. Where monitoring outcomes trigger an incident, the incident management process described in Section 8.2 will be followed.

The requirement for activity-specific noise and vibration monitoring, including the monitoring location, timing and frequency, will be determined during the assessment of the relevant construction activity and documented in the applicable CNVIS and/or OOHW Permit prior to commencement of the activity. Where monitoring is triggered directly by this CNVMP, including works within vibration minimum working distances, the monitoring requirements specified in this Plan will apply.

Monitoring undertaken in accordance with these requirements will be documented in Noise and/or Vibration Monitoring Reports. Monitoring Reports will record, as applicable, the monitoring location, date and time, construction activity and plant operating during the monitoring period, applicable assessment criteria and predicted levels, measured results, meteorological conditions, identified exceedances, and any corrective or additional mitigation measures implemented. Monitoring Reports and supporting monitoring records will be maintained in the Project folder and made available for inspection and auditing.

Table 27 below identifies the circumstances that trigger monitoring and the document in which the activity-specific monitoring requirement and frequency will be recorded.

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Table 27 - Noise and Vibration Monitoring Requirements

Action	Action Description	Frequency	Responsibility	Records /reporting
Noise Compliance Verification and Monitoring	During the undertaking of an activity, to confirm compliance of noise criteria as identified within this CNVMP and included in the Infrastructure Approval and Revised Mitigation Measures or where modelling indicates that an exceedance could occur at sensitive locations and no existing comparable data is available.	As identified by noise modelling predictions in line with Table 23	Environmental Business Partner	Noise monitoring records
Vibration Monitoring for Heritage impact Considerations	As described in the Construction Historic Heritage Management Plan, and in addition to monitoring of any activities within 'minimum working distances' of sensitive receivers, some heritage items have specific vibration monitoring requirements.	As detailed in the CHHMP. When works are planned within minimum working distances, as required.	Environmental Business Partner	Vibration monitoring records
Complaint-based noise and Vibration Monitoring which could include human comfort and structures	Where complaints are received, noise and/or vibration monitoring may be undertaken at sensitive receivers to determine if the actual construction noise generated exceeds the predicted 'worst case' construction noise levels identified in this plan or to confirm predicted vibration levels.	As determined by the Environmental Business Partner following assessment of the complaint, with any required monitoring frequency documented as part of the complaint investigation.	Environmental Business Partner	Noise and vibration monitoring records
Request based Vibration Monitoring (utilities)	Where reasonable requests are received, vibration monitoring may be undertaken at their utility assets to determine actual vibration levels at the asset.	As agreed with the relevant asset owner and documented in the applicable CNVIS and/or agreed asset protection requirements.	Environmental Business Partner	Noise and vibration monitoring records
OOHW noise and vibration Monitoring	As triggered by specific mitigation requirements described in an OOHW Permit	As described in the OOHW Permit, but typically at the commencement and/or most representative works that trigger the monitoring	Environmental Business Partner	Noise and vibration monitoring records
Environmental Site Inspections	Assesses the ongoing effectiveness and suitability of the Project's environmental controls, such as acoustic barriers or offsetting noise and/or vibration emitting plant and equipment. Refer to the Project CEMP for further detail.	Weekly	Environmental Business Partner	Environmental inspection checklists
CNVMP compliance auditing	Review implementation of the CNVMP, relevant approval requirements, mitigation measures and associated monitoring records to confirm compliance and identify corrective actions or opportunities for improvement.	As required	Environmental Business Partner	Noise and vibration monitoring records

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8.2 Incident Management

In accordance with CoA, an incident is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Material Harm is harm that

- involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or
- results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $50,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

This definition excludes “harm” that is authorised under either this approval or any other statutory approval.

All incidents will be reported immediately to the Transgrid Project Manager and must be entered by Zinfra into OMNIA within 24 hours, Zinfra’s Risk and Compliance Management System, which serves as the project’s incident management database to ensure that actions are tracked and completed within the required timeframes.

OMNIA supports the management of:

- Enterprise- and Business Unit-level risks, including associated controls, causes, and actions
- Compliance obligations and related documentation

Where an incident has occurred, additional monitoring may be required in accordance with the Monitoring Response Framework described in 8.1.1.

8.3 Incident Notification

In accordance with CoA C16, the Zinfra Environmental Business Partner (through Transgrid) will notify the Department and NPWS within 24 hours of becoming aware of an incident. The notification to the Department must be made via the NSW planning portal (Major Projects) and address details of the incident, including:

(a) date, time and location;

(b) a brief description of what occurred and why it has been classified as an incident;

(c) a description of what immediate steps were taken in relation to the incident; and

(d) identifying a contact person for further communication regarding the incident.

Specifically, where a noise or vibration related complaint is received by the Project, the Lithgow City Council will also be notified. The notification will be provided to the below contact details:

Customer Service - council@lithgow.nsw.gov.au

Shaun Elwood - shaun.elwood@lithgow.nsw.gov.au

Galip Kartop - Galip.Kartop@lithgow.nsw.gov.au

Once the compliant is resolved, the project team will provide feedback to Council to ensure the matter is closed out appropriately.

In addition to the above, where the construction activities result in actual or potential damage to a heritage structure, the Zinfra Environmental Business Partner (through Transgrid) will also notify the Heritage Council of NSW within 24 hours of becoming aware of an incident.

8.4 Incident Report

In accordance with CoA C17, the Zinfra Environmental Business Partner (through Transgrid) will provide the Department and NPWS with a subsequent incident report via the NSW planning portal (Major Projects) within 7 days (or as otherwise agreed by the Planning Secretary) of the incident notification (in accordance with condition C16). The incident report shall

a. identify how the incident was detected;

b. identify when the Proponent became aware of the incident;

c. identify any actual or potential non-compliance with conditions of consent;

d. identify further action(s) that will be taken in relation to the incident; and

e. provide a summary of the incident;

f. provide outcomes of an incident investigation, including identification of the cause of the incident;

g. detail corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence, including the period for implementing any corrective and/or preventative actions; and

h. detail any communication with other stakeholders regarding the incident.

Zinfra shall also submit any further reports as directed by the Planning Secretary.

8.5 Incident Investigation

An investigation will be initiated by the Zinfra Project Manager promptly following any reported incident. The scope and depth of the investigation will depend on the severity and potential impact of the incident. Key elements may include:

- Determining the cause, extent, and responsibility of the incident.
- Additional monitoring (where appropriate)
- Identifying and implementing corrective actions to prevent recurrence.
- Assigning responsibility for carrying out corrective measures.
- Reviewing and updating controls and procedures as needed.
- Notifying relevant stakeholders, including regulatory authorities, if significant noise or vibration impacts have occurred.

Investigations will follow the ICAM (Incident Causation Analysis Method), in alignment with Transgrid's investigation requirements. The level of investigation, team composition, and reporting obligations will be determined based on the actual and potential severity of the incident.

8.6 Non-Compliances

An environmental non-compliance occurs when a condition of approval, licence condition, or any other statutory requirement relevant to a Project activity or location is breached.

Non-compliances may include incident-related significant non-compliances, which may result from construction activities.

For any non-compliances that are not classified as incidents and are identified through inspections, audits, or observations, in accordance with CoA C15, Transgrid's Environmental Business Partner will notify the Department via the Major Projects website within seven (7) days of becoming aware of the non-compliance. Zinfra will provide all necessary information to assist Transgrid in preparing this notification.

The written notification will include the following details:

- The development, including the development application number and Project name.
- The specific Condition of Approval that has not been met.
- The reasons for the non-compliance, if known; and
- Actions that have been undertaken, or are planned, to address the non-compliance, including expected timing for completion.

Where a non-conformance has occurred, additional monitoring may be required in accordance with the Monitoring Response Framework described in 8.1.1.

8.7 Complaints

Where a community complaint is received which is related to construction noise and vibration, the Project Engagement Lead will work to ensure the complaint is resolved in a timely manner and measures are taken to mitigate the risk of future complaints where possible. Below is a short summary of the approach to the management and resolution of complaints.

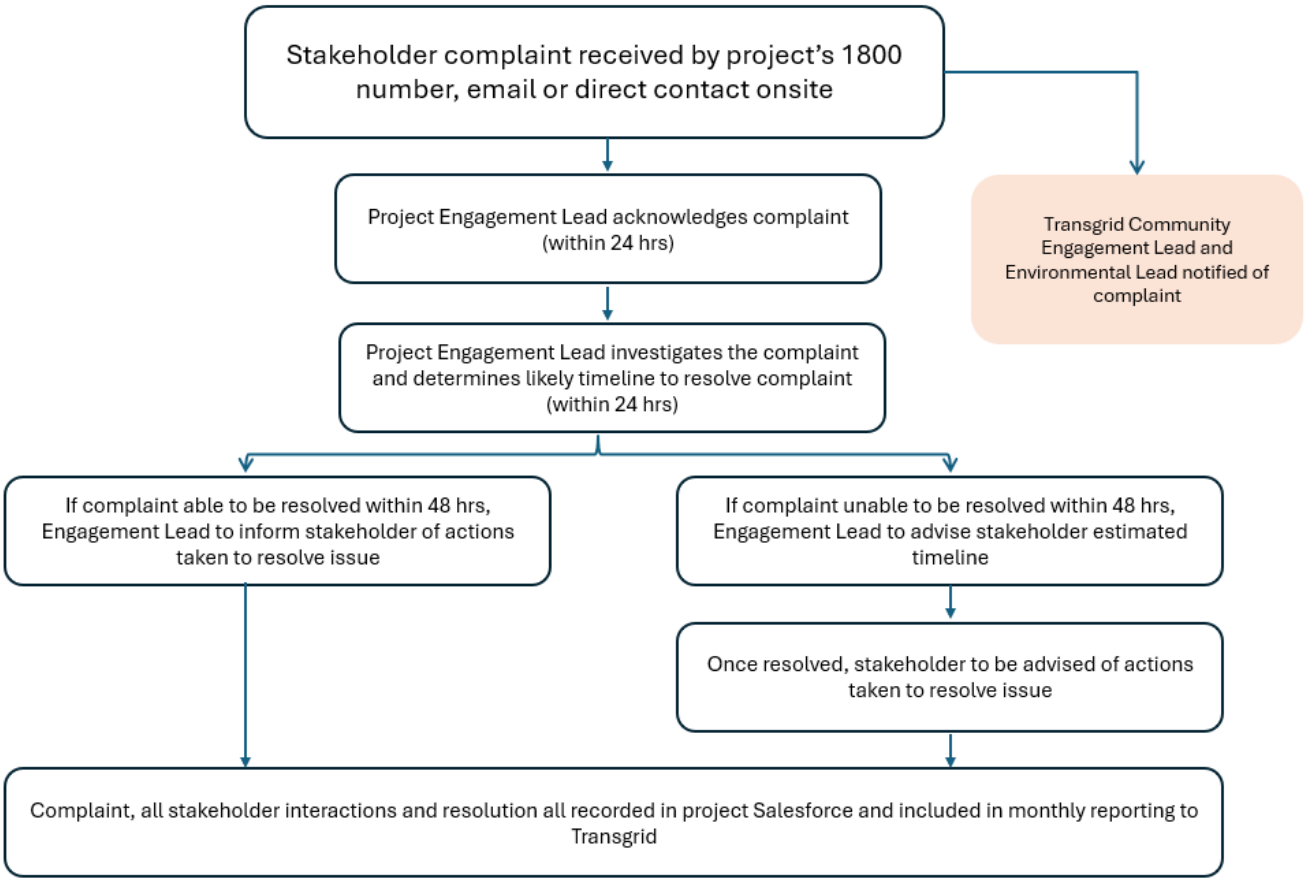
Complains will be managed in accordance with the Community Communication Strategy and the Complaints Handling Protocol. In responding to complaints, Zinfra will:

- Record details of every complaint received and describe how it was managed and closed out (or, if the complaint remains under investigation, noting the timeframe for resolving the complaint) in the Salesforce database, within 1 business day of receipt
- The following information will be recorded in the complaints register:
  - ✓ Date of complaint
  - ✓ Time received
  - ✓ Channel complaint received (i.e. email)
  - ✓ Contact details of complainant (i.e. telephone number)
  - ✓ Name of complainant
  - ✓ Property number or name (if relevant)
  - ✓ Address of complainant
  - ✓ Complaint details
  - ✓ Response
  - ✓ Actions taken and by which responsible party
  - ✓ Date that the complaint was closed

Personal information that identifies individuals will only be disclosed or used by Zinfra or Transgrid as permitted under the relevant privacy laws, secrecy provisions and any relevant confidentiality obligations. A stakeholder's contact information along with their complaint will be recorded for the purposes of addressing their complaint. If they wish to remain anonymous, the complaint will be registered as an 'Anonymous' stakeholder for record keeping and reporting purposes.

Zinfra has developed a Complaint Handling Protocol for managing community complaints and is provided in Figure 9 below:

Figure 9: Complaint Handling protocol



9. ROLES AND RESPONSIBILITIES

The key roles and responsibilities relating to managing the noise and vibration aspects on the project are detailed in Table 28 below:

Table 28 - Roles and Responsibilities

Role	Responsibilities
Project Director	• Ensure adequate resources are allocated to effectively implement the CNVMP • Ensure effective lines of communication with the proponent, the business, the Project team, stakeholders, and subcontractors. • Ensure all Project personnel receive environmental inductions and training to ensure competency.
Project Manager	• Accountable for overall implementation of this CNVMP • Notify environmental harm and non-compliances to Transgrid if and when identified, and within required timeframes. • Ensure all environmental incidents and non-compliances are fully investigated and corrected, and preventative measures applied where practicable. • Regularly check environmental performance and advising relevant parties. Also intervening on environmental matters where performance is sub-par. • Support the implementation of agreed Project environmental controls to occur within a timely manner. • Ensure relevant environmental expectations and newly identified risks from Transgrid and/or authorities are promptly communicated to Project personnel. • Facilitate access and resources for Departmental visits, and periodic Project compliance audits. • Initiate incident investigations promptly and ensure corrective and preventative actions are assigned and implemented
Construction Manager	• Ensures upcoming work is checked against the CNVMP, predicted noise/vibration levels and applicable work-hour restrictions.

Role	Responsibilities
	• Implement noise/vibration controls identified in the CNVMP. • Monitor general environmental performance and regularly advising the Project Manager. • Promptly advise Transgrid and the Project Manager of any environmental incident and non-compliance matters. • Minimise environmental risk and acting to prevent or mitigate environmental harm should situations arise (e.g. stop work) and promptly seek assistance from HSE Project support. • Approve CNVIS developed by Environmental BP and ensure it is available before the relevant works commence.
Environmental Manager	• Ensure CNVMP is developed in accordance with CoA and REMM's. • Facilitate internal HSE audits
Environmental Business Partner	• Identify OOHW, assess them, obtain any required approvals/permits and ensure CNVIS requirements are met. • Identify when a CNVIS is required, develop them. • Undertake noise assessments and modelling and informs the Project Engagement Lead the requirements to notify affected sensitive receptors. • Organise noise and vibration monitoring, select locations, review results and maintains the monitoring program. • Ensure proposed plant is consistent with the assumptions in the modelling and for reassessing impacts where substantially different plant is proposed. • Review monitoring results and determines when additional mitigation, investigation or further monitoring is required • Act as Environment Officer for REMM B07, undertaking (or arranging a qualified ecologist to undertake) weekly inspections of potential breeding habitat at the rock outcrop during construction in November to January • Notify the Department and NPWS through Transgrid within 24 hours of becoming aware of an incident. • Notify the Heritage Council of NSW through Transgrid within 24 hours where construction causes actual or potential damage to a heritage structure. • Provide the incident report within 7 days, plus any further reports the Planning Secretary directs. • Enter incidents into OMNIA, or make sure they are entered, within 24 hours.
Design Lead	• Include the noise and vibration requirements from the Design Environmental Requirements Register in the design inputs. • Assess design and method options, including lower-impact piling and foundation designs (REMM B07), compound layout (NV4) and plant selection (NV3). • Provide design documents for environmental design review before issue for construction. • Refer any design change that affects noise or vibration requirements back for review.
Project Engagement Lead	• Receive, log, investigate and respond to noise/vibration complaints, and escalates them to Construction manager, Environmental BP and Transgrid. • Provides notifications to sensitive receptors prior to undertaking noisy/ OOHW activities. • Coordinate with WaterNSW and other utility owners who may have infrastructure impacted by vibration.
Supervisor	• Ensure proposed plant is consistent with the assumptions in the modelling and for reassessing impacts where substantially different plant is proposed. • Verify that barriers, enclosures, equipment controls, respite arrangements etc. are in place before/during the works. • Promote employee awareness to the Project CEMP, this plan and EMS and incorporate requirements into work areas and activities. • Plan and ensure preventative behaviours and field mitigations are applied to lessen the likelihood of environmental issues and incidents. • Check employees for site compliance and environmental awareness (e.g. inductions, weed hygiene, spill kits, etc.). • Advise delays or work changes to management such that environmental factors con be considered.

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Role	Responsibilities
Subcontractors, Workers & Visitors	• Adhere to Duty of Care principals and following Project environmental compliance requirements. • Report environmental incidents, near misses and non-conformances to Supervisors and Environmental BP/ • Attend required environmental awareness, induction and training sessions.
Transgrid Project Manager	• Receives immediate notification of incidents.
Transgrid Environmental BP	• Submits notifications and reports through the ajor Projects portal.

10. MANAGEMENT AND MITIGATION MEASURES

The following mitigation measures consolidate the requirements of the Project CoA, the environmental safeguards and REMMs identified in the EIS, and relevant industry best practice. These measures will be incorporated into construction planning and implemented during all construction activities to minimise potential noise and vibration impacts and ensure compliance with project approval requirements.

The responsible person identified in Table 29 is responsible for assessing the applicability of the mitigation measure to the relevant activity and ensuring implementation where reasonable and feasible. Decisions regarding the implementation, modification or non-implementation of project-specific environmental controls must be documented within the applicable CNVIS, OOHW Permit, EWMS or construction methodology documentation together with any supporting justification.

Table 29 - Noise and Vibration Management and Mitigation Measures

Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
N1	Portable temporary noise screens will be erected adjacent to stationary or long-term static noise sources, or noise generating items, where reasonable and feasible.	Construction	Construction Manager	NV2	CNVIS; site inspection records; photos
N2	Spotters, “smart” reversing alarms, or broadband reversing alarms will be used in place of traditional tonal beeper reversing alarms, particularly on equipment where reversing alarms are frequently in use such as rollers, loaders or compactors.	Construction	Construction Manager	NV2	Plant inspection records; site inspection records
N3	Noise source controls, such as the use of residential class mufflers, will be used to reduce noise from all plant including cranes, excavators and trucks.	Construction	Construction Manager	NV2	Plant specifications; plant inspection records
N4	The offset distance between noisy plant items and sensitive receivers will be maximised, where reasonable and feasible.	Construction	Supervisor	NV2	CNVIS; site layout; site inspection records
N5	Machinery will be operated in a manner which reduces maximum noise level events such as shaking excavator buckets, dropping materials into trucks from a, height or steel on steel contact.	Construction	Supervisor	NV2	Pre-start/toolbox records; site inspection records
N6	Construction plant and equipment will be turned off when not in use.	Construction	Supervisor	NV2	Site inspection records
N7	Environmental awareness training and inductions for site personnel will include noise mitigation techniques/measures to be implemented when on site and accessing the site.	Construction	Environmental BP	NV3	Induction and training records
N8	Plant and equipment will be selected based on noise emission levels. This will include the consideration of alternative piling and stringing methods, such as the use of bored piling methods.	Detailed Design	Design Lead / Construction Manager	NV3	Plant selection records; CNVIS

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Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
N9	Noise-intensive works will be limited to less sensitive construction hours (i.e. away from early morning and late afternoon periods) as far as practicable, when working in the vicinity of sensitive receivers.	Construction	Supervisor	NV3	Construction program; CNVIS; OOHW Permit
N10	Plant and equipment will be well maintained to ensure that excessive noise is not generated.	Construction	Supervisor	NV3	Plant maintenance records; inspection records
N11	Noise level predictions for works undertaken outside standard working hours will be confirmed and verified in accordance with the ICNG (DECC, 2009). This will consider implementation of additional construction noise mitigation measures.	Detailed Design & Construction	Environmental BP	NV3	CNVIS; OOHW Permit; noise monitoring report
N12	The layout of the construction compounds C2 and C3 will be planned so that the primary noise sources are at a maximum distance from residences, with solid structures (sheds, containers, etc.) placed between residences and noise sources (and as close to the noise sources as is practical).	Detailed Design	Project Manager	NV4	Compound layout; CNVIS; site inspection records
N13	Enclosures will be used to shield fixed noise sources such as pumps, compressors, fans, screens (where practicable).	Construction	Construction Manager	NV4	CNVIS; site inspection records; photos
N14	Site topography will be considered when situating plant to block line of sight where possible.	Construction	Construction Manager	NV4	CNVIS; site layout
N15	A project-specific OOHW protocol will be developed to define the process for considering, approving and managing OOHW. The protocol will include provisions to: • confirm and verify proposed noise level impacts for specific work activities proposed outside standard construction hours, including the potential for sleep disturbance impacts • confirm and verify the potentially affected sensitive receivers and the standard and additional mitigation measures that will be applied to such receivers • additional mitigation measures will be applied to affected sensitive receivers impacted by sleep disturbance for more than two consecutive nights • notify and engage with potentially noise affected receivers about upcoming work outside standard construction hours and address any associated complaints • identify appropriate respite for noise affected receivers (where required)	Detailed Design & Construction	Project Manager	NV5	Approved OOHW Protocol; OOHW Permits; notification records

Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
	• proactively communicate and engage with affected receivers.				
N16	Where vibration intensive activities are planned within vibration minimum working distances (including for sensitive or heritage structures and buried infrastructure), reasonable and feasible mitigation measures will be implemented.	Construction	Construction Manager	NV6	CNVIS; EWMS; monitoring records
N17	Pre- and post-construction condition surveys of vibration sensitive receivers within the recommended safe working distances prior to construction works.	Construction	Project Manager	NV6	Pre- and post-condition survey reports
N18	Alternative construction methods and equipment with lower source vibration levels will be investigated and implemented, where feasible, this will include consultation with a suitably qualified heritage specialist for any potential vibration impacts on heritage structures.	Detailed Design & Construction	Project Manager	NV6	CNVIS; construction methodology; heritage specialist advice
N19	Schedule the use of vibration-sensitive equipment during the least sensitive times of the day.	Construction	Supervisor	NV6	Construction program; CNVIS; OOHW Permit
N20	Sequence operations to avoid or minimise concurrent vibration intensive activities.	Construction	Supervisor	NV6	Construction program; CNVIS; pre-start records
N21	Vibration monitoring will be carried out at the start of work to determine actual vibration levels at the receiver.	Construction	Environmental BP	NV6	Vibration monitoring report
N22	Work will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.	Construction	Environmental BP	NV6	Vibration monitoring report; stop-work record
N23	Where potential vibration impacts relate to buried infrastructure, measures to protect the buried infrastructure will be developed in consultation will be undertaken with asset owners. These measures may include traffic management, construction equipment selection, construction bench siting and the placement of additional cover, plating or bog mats.	Construction	Construction Manager	NV6	Asset owner consultation; CNVIS; EWMS
N24	Where vibration intensive activities are proposed in the vicinity of historical mine workings (including but not limited to transmission tower locations 23D to 25D), geotechnical investigations and consultation with mine operators will be undertaken to consider the potential impacts associated with ground vibration generated by equipment during the project's construction.	Detailed Design & Construction	Construction Manager	NV6	Geotechnical report; mine operator consultation

Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
N25	Traffic movements will be managed to minimise noise and disturbance by using designated haulage routes, distributing movements across the available access roads during the daytime period to reduce peak 1-hour noise levels, scheduling movements at less sensitive times for affected receivers, maximising vehicle load efficiency to reduce the number of trips, avoiding peak traffic periods where practicable, and implementing the Driver Code of Conduct outlined in the CTTMP.	Construction	Supervisor	NV7	CTTMP; Driver Code of Conduct; site inspection records
N26	Construction and transport-related noise will be minimised by scheduling noisier activities during daytime periods where practicable, when background noise levels are generally higher, and ensuring all vehicles and plant are appropriately maintained, roadworthy, and fitted with effective noise suppression measures where required	Construction	Supervisor	NV7	Construction program; maintenance records; inspections
N27	Where cumulative construction noise impacts are likely at sensitive receivers, coordination with other proponents will occur to minimise the cumulative construction noise impacts. This should involve: • scheduling of noise or vibration-generating construction activities to minimise the duration or level of impact • combined approach to mitigation where considered reasonable and feasible such as a temporary noise barrier that may provide mitigation for more than one project • consideration of cumulative noise levels in compliance monitoring • community consultation, notification and complaints handling are to include consideration of cumulative impacts.	Construction	Construction Manager	NV8	Coordination meeting records; construction program; notifications
N28	Undertake all reasonable and feasible steps to minimise the pre-construction minor works, road upgrades, construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.	Construction	Construction Manager	B3	CNVIS; EWMS; site inspection records
N29	Ensure that the noise generated by any construction, upgrading or decommissioning activities is managed in accordance with the requirements outlined in the Interim Construction Noise Guideline (DECC, 2009) (or its latest version).	Construction	Environmental BP	B3	CNVIS; monitoring reports; audit records

Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
N30	Manage behaviour on site, such as avoiding shouting or swearing, turning off idling equipment when not in use, and minimising impulsive noise (e.g. metal-on-metal contact).	Construction	Supervisor	Best Industry practice	Pre-start/toolbox records; site inspection records
N31	Workers will avoid congregating in areas adjacent to sensitive receptors during breaks and shift changes.	Construction	Supervisor	Best Industry practice	Pre-start/toolbox records; site inspection records
N32	Equipment, materials, and tools will be handled in a manner that minimises impacts, dropping, banging, or unnecessary contact noise.	Construction	Supervisor	Best Industry practice	Pre-start/toolbox records; site inspection records
N33	Regular training on noise and vibration impacts, including site inductions, daily pre-start meetings, specific toolboxes.	Construction	Environmental BP	Best Industry practice	Induction, pre-start and toolbox records
N34	All project equipment will be appropriately silenced and maintained in accordance with manufacturer's requirements	Construction	Supervisor	Best Industry practice	Plant maintenance and inspection records
N35	Works scheduling will be used to minimise disturbance to adjacent residents and parties where practicable	Construction	Construction Manager	Best Industry practice	Construction program; CNVIS; OOHW Permit
N36	Schedule noisy activities during daytime and avoid periods between midnight and 7am where practicable	Construction	Supervisor	Best Industry practice	Construction program; CNVIS; OOHW Permit
N37	All equipment will be inspected prior to being operated to ensure good working order.	Construction	Supervisor	Best Industry practice	Pre-start plant inspection records
N38	Any complaints relating to noise/vibration will be directed to Construction Manager and reported to Transgrid, addressed and resolved as soon as possible consistent with CCS.	Construction	Construction Manager	Best Industry practice	Complaints register; investigation and close-out records
N39	Maximise offset distance between noisy equipment and sensitive receivers.	Construction	Supervisor	Best Industry practice	CNVIS; site layout; site inspection records
N40	Include noise awareness training in site inductions.	Construction	Environmental BP	Best Industry practice	Site induction records
N41	Use lower-vibration equipment where feasible.	Construction	Supervisor	Best Industry practice	Plant selection records; CNVIS
N42	Avoid concurrent vibration-intensive activities where feasible.	Construction	Construction Manager	Best Industry practice	Construction program; CNVIS; pre-start records
N43	Confirm noise predictions for OOHW and apply additional mitigation as needed.	Construction	Environmental BP	Best Industry practice	CNVIS; OOHW Permit; monitoring report

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Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
N44	Inducting personnel into OOHW Permits to ensure that they understand what works are allowed to proceed under the permit.	Construction	Environmental BP	Best Industry practice	OOHW Permit induction records
N45	Implement respite periods at locations involving excessively noisy activities.	Construction	Supervisor	Best Industry practice	CNVIS; OOHW Permit; respite records
N46	Select quieter equipment where possible, including smaller, lower-powered, newer, or well-maintained machinery.	Construction	Supervisor	Best Industry practice	Plant selection and inspection records
N47	Consider alternative technologies or methods to complete activities more quietly.	Detailed Design & Construction	Construction Manager	Best Industry practice	Construction methodology; CNVIS
N48	Ensure appropriate consultation and notification of affected receivers	Construction	Project Engagement lead	Best Industry practice	Consultation and notification records
N49	Implement the REMM B07 measures for the Large-Eared Pied Bat described in Section 6.5.3: no impact piling; piling within 80 m of the rock outcrop outside the November–January breeding period wherever possible; a minimum 10 m biodiversity exclusion zone around the rock outcrop that does not restrict microbat access; pre-clearing targeted roost surveys by a qualified ecologist; weekly inspections of potential breeding habitat by an Environment Officer during construction in November–January; and re-routing of light vehicles off the adjacent access track during the breeding season if microbats are recorded.	Detailed Design & Construction	Environmental BP	REMM B07	Ecologist survey and inspection records; exclusion-zone records
N50	Scheduling measures to minimise OOHW impacts include a 20-day on/8-day off roster, no works on every second Sunday, no consecutive Sundays worked, limits on consecutive weekends of noisy works, and provision of regular respite periods for nearby receivers.	Construction	Project Manager	GHD Technical Memorandum (17/12/2025)	Construction roster and program; OOHW Permits
N51	Where practicable, noise and vibration impacts on sensitive and threatened fauna will be minimised by scheduling high-impact activities outside sensitive breeding and roosting periods, maintaining plant and equipment, locating or screening stationary noise sources away from sensitive habitat, and minimising unnecessary noise including equipment idling and horn use.	Construction	Supervisor	REMM B07	Construction program; plant inspections; site inspection records
N52	Temporary construction traffic speed limits will be implemented on access roads in the vicinity of the potentially affected noise sensitive receivers identified in Section 6.6,	Construction	Construction Manager	NV7	CTTMP; road authority agreement; site inspection records

Item	Project-Specific Environmental Controls	Timing	Responsibility	Reference	Evidence
	subject to agreement with the relevant road authority where on a public road.				
N53	Report all incidents immediately to the Transgrid Project Manager and enter them into OMNIA within 24 hours. Notify DPHI (via the Major Projects portal) and NPWS within 24 hours. Notify the Heritage Council of NSW within 24 hours where construction activities cause actual or potential damage to a heritage structure. Provide the incident report within 7 days of notification. Initiate an ICAM investigation promptly, in line with Transgrid's investigation requirements. This should cover cause, extent and responsibility; any additional monitoring; corrective actions and who is responsible for them; review of controls; and notification of stakeholders.	Construction	Zinfra Project Manager, Environmental BP, Transgrid	CoA C16, C17	OMNIA incident records; incident notifications; incident report; ICAM investigation report; records of notifications to DPHI, NPWS and the Heritage Council of NSW; records of additional monitoring

11. APPENDIX A – INDIVIDUAL LOCATION NOISE IMPACT ASSESSMENT

This section presents the noise impact assessment undertaken for each tower location along the project alignment. The assessment was completed using a predictive noise modelling tool to evaluate potential construction noise impacts associated with the proposed works. The purpose of this assessment is to compare the predicted construction noise levels against the relevant noise criteria and determine whether mitigation measures are required.

The noise modelling was conducted in accordance with the applicable environmental noise guidelines and construction noise management standards. For each tower location, the following inputs were incorporated into the noise model:

- Construction activity type and plant/equipment configuration
- Operational sound power levels (SWL) for each equipment type
- Proposed working hours
- Distance and topographical relationship between the tower location and nearby sensitive receivers (e.g. residential dwellings)
- Meteorological conditions as assumed within the modelling tool

A consistent modelling approach was applied across all tower locations to ensure comparability of results.

Sample screenshots of the modelling inputs used for each tower location are provided below. A total of five construction scenarios have been assessed, representing the activities with the highest potential noise generation during construction:

- Vegetation Clearing works
- Access track upgrades/ earthworks and civil works
- Bored piling works (CS06B)
- Stringing works (CS08)
- Tower erection (CS07)

Example modelling inputs are shown below for reference.



Receptor ID	SELECT RECEPTOR TYPES BELOW	SELECT EXISTING ENVIRONMENT	Rating Background Level (RBL)			Construction Noise Management Level (NML)			Sleep Disturbance Criteria		Distance from works
			Day	Evening	Night	Day	Evening	Night	Leq, 15 min	Lmax	metres (m)
1	Industrial (e.g. factory)	R0	35	30	30	70	70	70	-	-	223
2	-	R0	-	-	-	-	-	-	-	-	0
3	-	R0	-	-	-	-	-	-	-	-	0
4	-	R0	-	-	-	-	-	-	-	-	0
5	-	R0	-	-	-	-	-	-	-	-	0
6			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
7			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
8			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
9			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
10			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0

INPUT SCENARIO NAME:	Assessment Scenario: Bored piling work Str 1C (CS06B)	INPUT CONSTRUCTION SCENARIO BELOW (Worst Case - 15 Minute Period)						
		Lw, Item		Quantity	Shielding / Hoarding	Duty Factor	Lw, Modified	
Equipment ID	SELECT EQUIPMENT TYPES BELOW	Leq	Lmax	(Q)	(Y / N)	(DF)	Leq	Lmax
1	Drill Machine	105.0	115.0	1	N	20%	101.5	115.0
2	Forklift (e.g. 6 tonne)	95.0	100.0	1	N	20%	85.0	106.0
3	Light Vehicle (4WD)	102.0	107.0	4	N	10%	99.0	113.0
4	Lighting Tower	93.0	93.0	3	N	100%	93.0	93.0
5	Mobile Crane (e.g. Truck Mounted)	104.0	113.0	1	N	20%	97.0	113.0
6	Truck (Medium Rigid)	103.0	105.0	1	N	10%	93.0	106.0
7	Concrete Agitator	109.0	111.0	1	N	20%	102.8	111.0
8	-	0.0	0.0	0	N	0%	0	0
9	-	0.0	0.0	0	N	0%	0	0
10	-	0.0	0.0	0	N	0%	0	0
	TOTAL	112.4	118.7				107.8	119.5

Notes:
Environment Type: Refer Environment Type Tab – Representative Background Noise levels (LA90)
Receptor Type: Refer Receptor Type Tab – Receptor type dictates on the Noise management level
Distance from works: The distance between receptor and construction activities (in metres)
Quantity (Q): The number that type of equipment
Shielding/Hoarding: Will mobile hoarding be implemented for this equipment?
Duty Factor (DF): Percentage of time the equipment will be operating (per 15 minute period)
RBL Day: The period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays
RBL Evening: The period from 6 pm to 10 pm
RBL Night: The remaining periods



Receptor ID	SELECT RECEPTOR TYPES BELOW	SELECT EXISTING ENVIRONMENT	Rating Background Level (RBL)			Construction Noise Management Level (NML)			Sleep Disturbance Criteria		Distance from works
			Day	Evening	Night	Day	Evening	Night	Leq, 15 min	Lmax	metres (m)
1	Industrial (e.g. factory)	R3	35	30	30	75	75	75	-	-	347
2	Commercial (e.g. offices, retail outlets)	R3	35	30	30	70	70	70	-	-	200
3	Residential (dwelling)	R3	35	30	30	45	35	35	40	52	418
4	-	R3	-	-	-	-	-	-	-	-	0
5	-	R3	-	-	-	-	-	-	-	-	0
6			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
7			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
8			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
9			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
10			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0

INPUT SCENARIO NAME	Assessment Scenario: Stringing work Str SC (CS08)	INPUT CONSTRUCTION SCENARIO BELOW (Worst Case - 15 Minute Period)						
Equipment ID	SELECT EQUIPMENT TYPES BELOW	Lw, Item		Quantity	Shielding / Hoarding	Duty Factor	Lw, Modified	
		Leq	Lmax	(Q)	(Y / N)	(DF)	Leq	Lmax
1	Trailer (65 HP)	106.0	110.0	1	N	75%	104.5	110.0
2	Hand Tools (Electric)	102.0	110.0	1	N	13%	96.8	113.0
3	Mobile Plant	103.0	105.0	1	N	13%	94.8	105.0
4	Lighting Tower	80.0	88.0	1	N	100%	80.0	88.0
5	Elevated Work Platform	97.0	102.0	1	N	38%	94.8	181.0
6	Light Vehicle (4WD)	103.0	107.0	12	N	13%	103.0	117.0
7	-	0.0	0.0	1	N	0%	0	0
8	-	0.0	0.0	0	N	0%	0	0
9	-	0.0	0.0	0	N	0%	0	0
10	-	0.0	0.0	0	N	0%	0	0
	TOTAL	110.0	116.7	-	-	-	108.0	116.0

Notes:
Environment Type: Refer Environment Type Tab - Representative Background Noise level (AS1055)
Receptor Type: Refer Receptor Type Tab - Receptor type determines the Noise management level
Distance from works: The distance between receptor and construction activities (in metres)
Quantity (Q): The number that type of equipment
Shielding / Hoarding: Will shield or hoarding be implemented for this equipment?
Duty Factor (DF): Percentage of time the equipment will be operating (per 15 minute period)
RBL Day: the period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays
RBL Evening: the period from 6 pm to 10 pm
RBL Night: the remaining periods



Receptor ID	SELECT RECEPTOR TYPES BELOW	SELECT EXISTING ENVIRONMENT	Rating Background Level (RBL)			Construction Noise Management Level (NML)			Sleep Disturbance Criteria		Distance from works
			Day	Evening	Night	Day	Evening	Night	Leq, 15 min	Lmax	metres (m)
1	Industrial (e.g. factory)	R3	35	30	30	75	75	75	-	-	347
2	Commercial (e.g. offices, retail outlets)	R3	35	30	30	70	70	70	-	-	200
3	Residential (dwelling)	R3	35	30	30	45	35	35	40	52	418
4	-	R3	-	-	-	-	-	-	-	-	0
5	-	R3	-	-	-	-	-	-	-	-	0
6			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
7			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
8			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
9			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0
10			#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	-	0

INPUT SCENARIO NAME	Assessment Scenario: Tower erection work Str SC (CS07)	INPUT CONSTRUCTION SCENARIO BELOW (Worst Case - 15 Minute Period)						
Equipment ID	SELECT EQUIPMENT TYPES BELOW	Lw, Item		Quantity	Shielding / Hoarding	Duty Factor	Lw, Modified	
		Leq	Lmax	(Q)	(Y / N)	(DF)	Leq	Lmax
1	Crane 130T	98.0	113.0	1	N	50%	95.0	113.0
2	Crane 90T	98.0	113.0	1	N	50%	95.0	113.0
3	Light Vehicle (4WD)	103.0	107.0	12	N	5%	103.8	117.0
4	Elevated Work Platform	97.0	102.0	2	N	70%	98.5	105.0
5	Hand Tools (Electric)	102.0	110.0	2	N	10%	98.8	113.0
6	-	0.0	0.0	0	N	0%	0	0
7	Lighting Tower (Generator)	88.0	88.0	6	N	100%	103.4	105.8
8	-	0.0	0.0	0	N	0%	0	0
9	-	0.0	0.0	0	N	0%	0	0
10	-	0.0	0.0	0	N	0%	0	0
	TOTAL	107.8	117.6	-	-	-	108.8	121.2

Notes:
Environment Type: Refer Environment Type Tab - Representative Background Noise level (AS1055)
Receptor Type: Refer Receptor Type Tab - Receptor type determines the Noise management level
Distance from works: The distance between receptor and construction activities (in metres)
Quantity (Q): The number that type of equipment
Shielding / Hoarding: Will shield or hoarding be implemented for this equipment?
Duty Factor (DF): Percentage of time the equipment will be operating (per 15 minute period)
RBL Day: the period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays
RBL Evening: the period from 6 pm to 10 pm

The model outputs provide the predicted construction noise levels at the nearest noise-sensitive receivers for each tower location. These results have been compared against the applicable noise criteria to identify any exceedances.

For each tower, noise levels were assessed against the applicable Noise Management Levels (NMLs) for:

- Standard construction hours (Mon–Fri 7am–6pm, Sat 8am–1pm)
- Out-of-Hours Work (OOHW) Period 1 (Mon–Fri 6pm–10pm, Sat 7am–8am & 1pm–10pm, Sun/Public Holidays 8am–6pm)
- OOHW Period 2 – Overnight (Mon–Fri 10pm–7am, Sat 10pm–8am, Sun/Public Holidays 6pm–7am)

Based on the results of the modelling, management and mitigation requirements have been assigned to each tower location in accordance with the Construction Noise and Vibration Guidelines (CNVG), including:

- No Requirement
- Notification
- Verification Monitoring
- Respite Period 1 / Respite Period 2

- Duration Respite
- Specific Notifications
- Individual Briefings / Phone Calls:

The full assessment outcomes for each tower and construction activity are summarised below.

Noise Management Plan (If tower is not listed below, means there is no sensitive receiver near by)				
TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
1C	Vegetation Clearing	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	No Requirement
	Tower erection/Assembly	No Requirement	No Requirement	No Requirement
	Stringing	No Requirement	No Requirement	No Requirement
2C	Vegetation Clearing	No Requirement	No Requirement	No Requirement
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	No Requirement
	Tower erection/Assembly	No Requirement	No Requirement	No Requirement
	Stringing	No Requirement	No Requirement	No Requirement

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
3C	Vegetation Clearing	No Requirement	No Requirement	No Requirement
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	No Requirement
	Tower erection/Assembly	No Requirement	No Requirement	No Requirement
	Stringing	No Requirement	No Requirement	No Requirement
4C	Vegetation Clearing	No Requirement	No Requirement	No Requirement
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	No Requirement
	Tower erection/Assembly	No Requirement	No Requirement	No Requirement
	Stringing	No Requirement	No Requirement	No Requirement

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
5C	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite
6C	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
7C	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite
8C	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
9D	Vegetation Clearing	Verification, Notification,	Individual briefings,Phone calls,Verification, Notification, Respite Period 1, Duration Respite,Specific Notifications	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	Notification, Respite Period 1, Duration Respite	Verification, Notification, Respite Period 2, Duration Respite
10D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	Individual briefings,Phone calls,Verification, Notification, Respite Period 2, Duration Respite,Specific Notifications

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
11D	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Notification
12D	Vegetation Clearing	No Requirement	No Requirement	No Requirement
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	No Requirement
	Tower erection/Assembly	No Requirement	No Requirement	No Requirement
	Stringing	No Requirement	No Requirement	No Requirement

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
13D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	No Requirement
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite
14D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Notification

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
15D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Notification
16D	Vegetation Clearing	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Notification

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
17D	Vegetation Clearing	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Notification
18D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite

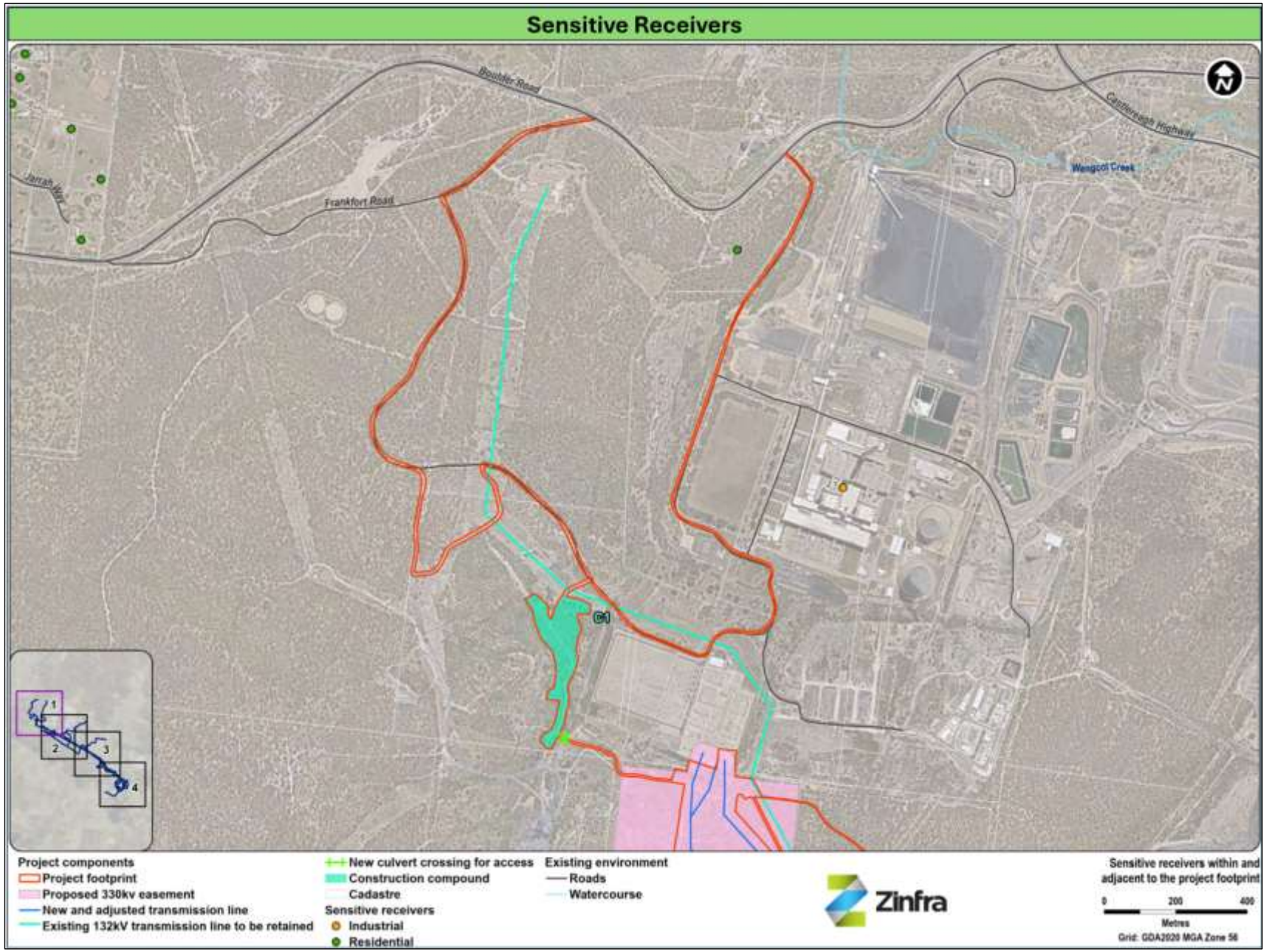
TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
19D	Vegetation Clearing	Verification, Notification,	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	Individual briefings,Phone calls,Verification, Notification, Respite Period 2, Duration Respite,Specific Notifications
20D	Vegetation Clearing	No Requirement	Verification, Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	Notification, Respite Period 1, Duration Respite	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite

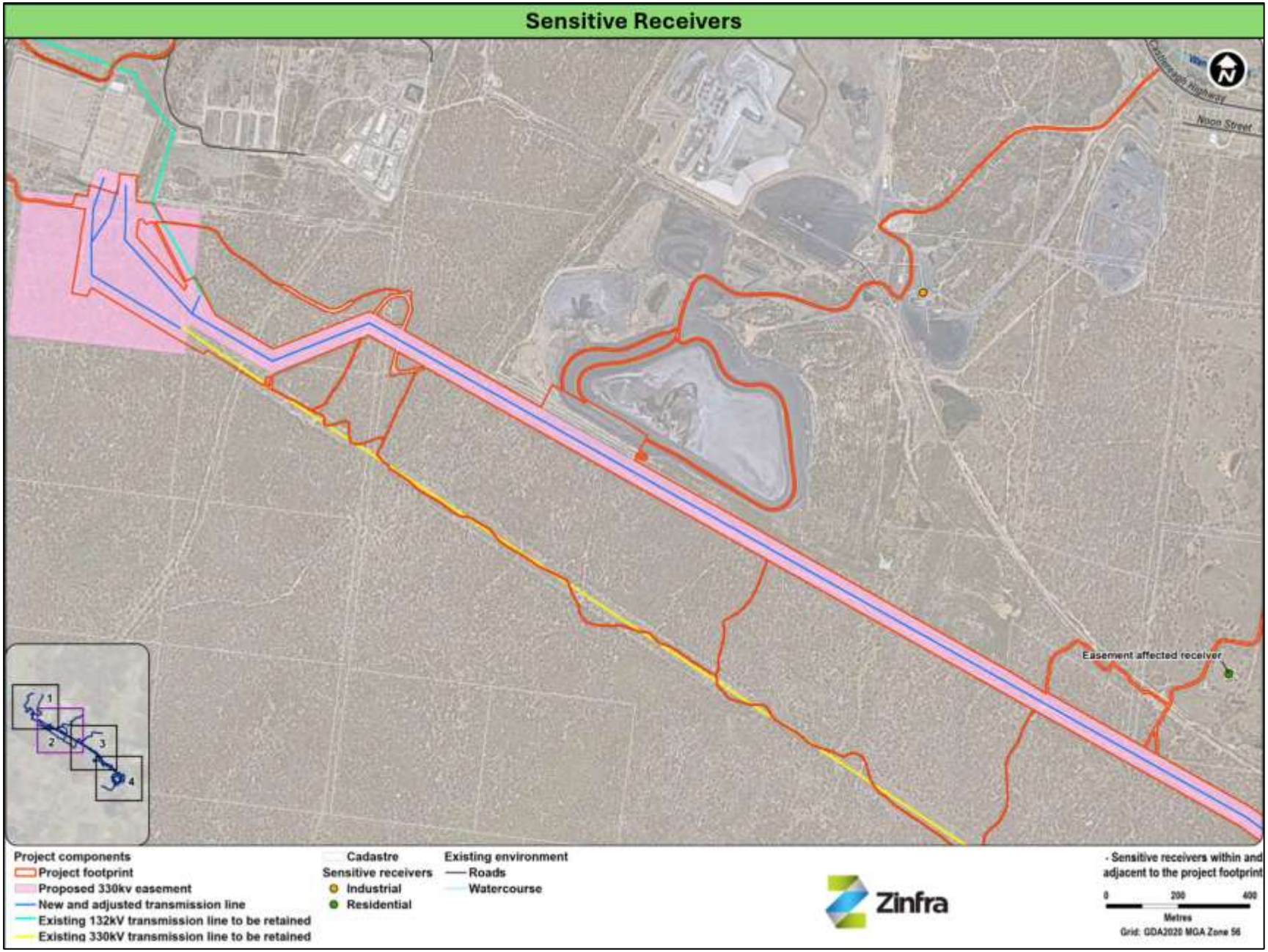
TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
21D	Vegetation Clearing	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Access track upgrades / Earthworks and Civil Works	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Bored Piling	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Tower erection/Assembly	No Requirement	No Requirement	None Applicable. Works will not be performed in these times
	Stringing	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite
22D	All works as above	Same nearest receveir as 21D but further. 21D will be aopted for this tower		
23D	All works as above	Same nearest receveir as 21D but further. 21D will be aopted for this tower		
24D	All works as above	Same nearest receveir as 21D but further. 21D will be aopted for this tower		
25D	All works as above	Same nearest receveir as 21D but further. 21D will be aopted for this tower		
26D	All works as above	Same nearest receveir as 21D but further. 21D will be aopted for this tower		
33A		Same nearest receveir as 21D but further. 21D will be aopted for this tower		

TOWER ID	Activity	Mitigation / Management Requirement		
		Standard Hours Mon-Fri (7am-6pm) Sat (8am-1pm) Sun/Public holiday (Nil)	OOHW Period 1 Mon-Fri (6pm-10pm) Sat (7am-8am,1pm-10pm) Sun/Public holiday (8am-6pm)	OOHW Period 2(overnight) Mon-Fri (10pm-7am) Sat (10pm-8am) Sun/Public holiday (6pm-7am)
Cosntruction Office Area	Pre-start Discussions (6.30am - 7am)	No Requirement	No Requirement	No Requirement
	General use including unloading and loading of trucks and use of outdoor workshop facilties	No Requirement	No Requirement	Verification, Notification, Respite Period 2, Duration Respite

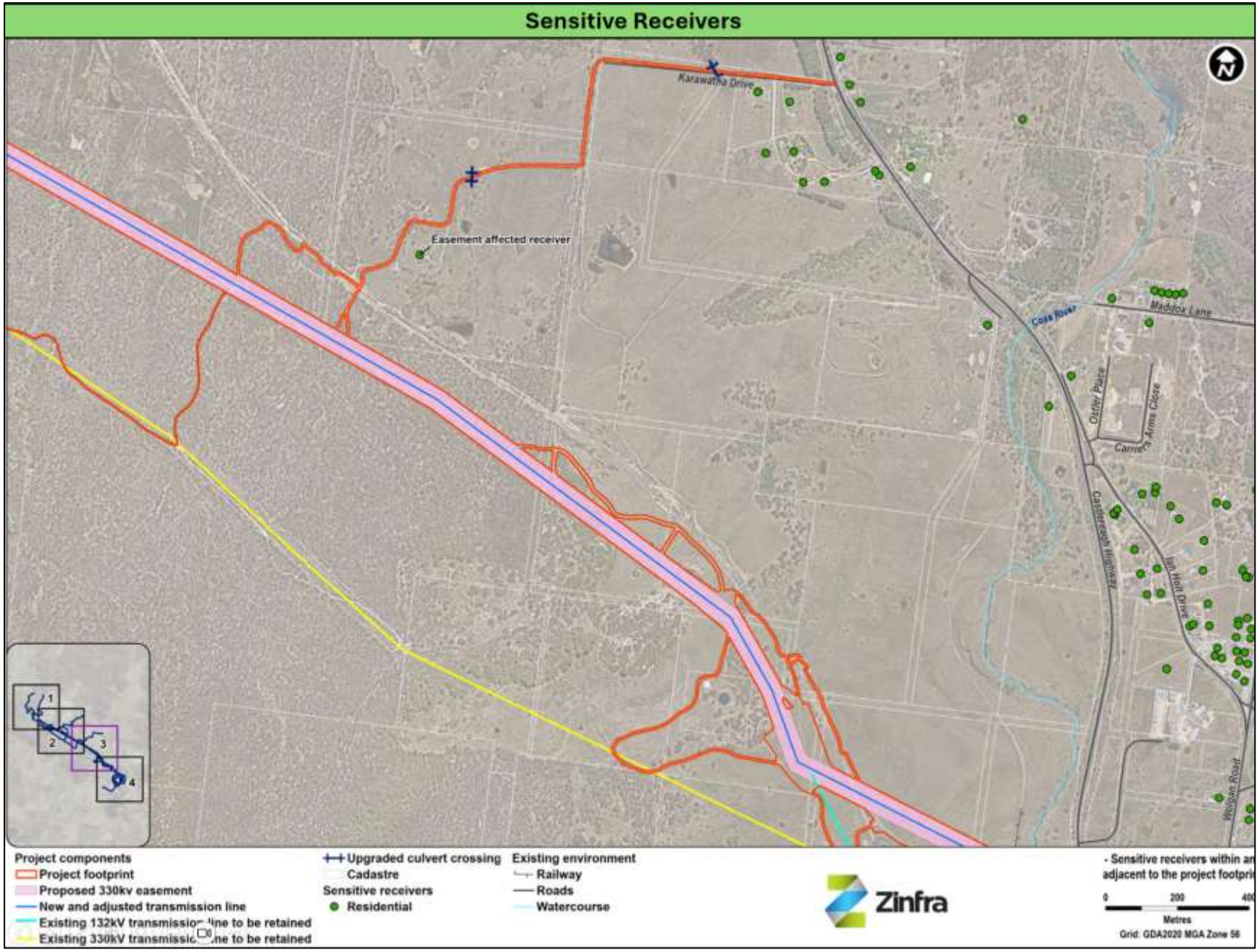
12. APPENDIX B – SENSITIVE RECEIVERS MAPS

The following sensitive receiver maps have been extracted from the Mount Piper to Wallerawang Noise and Vibration Impact Assessment (part of the Amendment Report, Transgrid 2025).

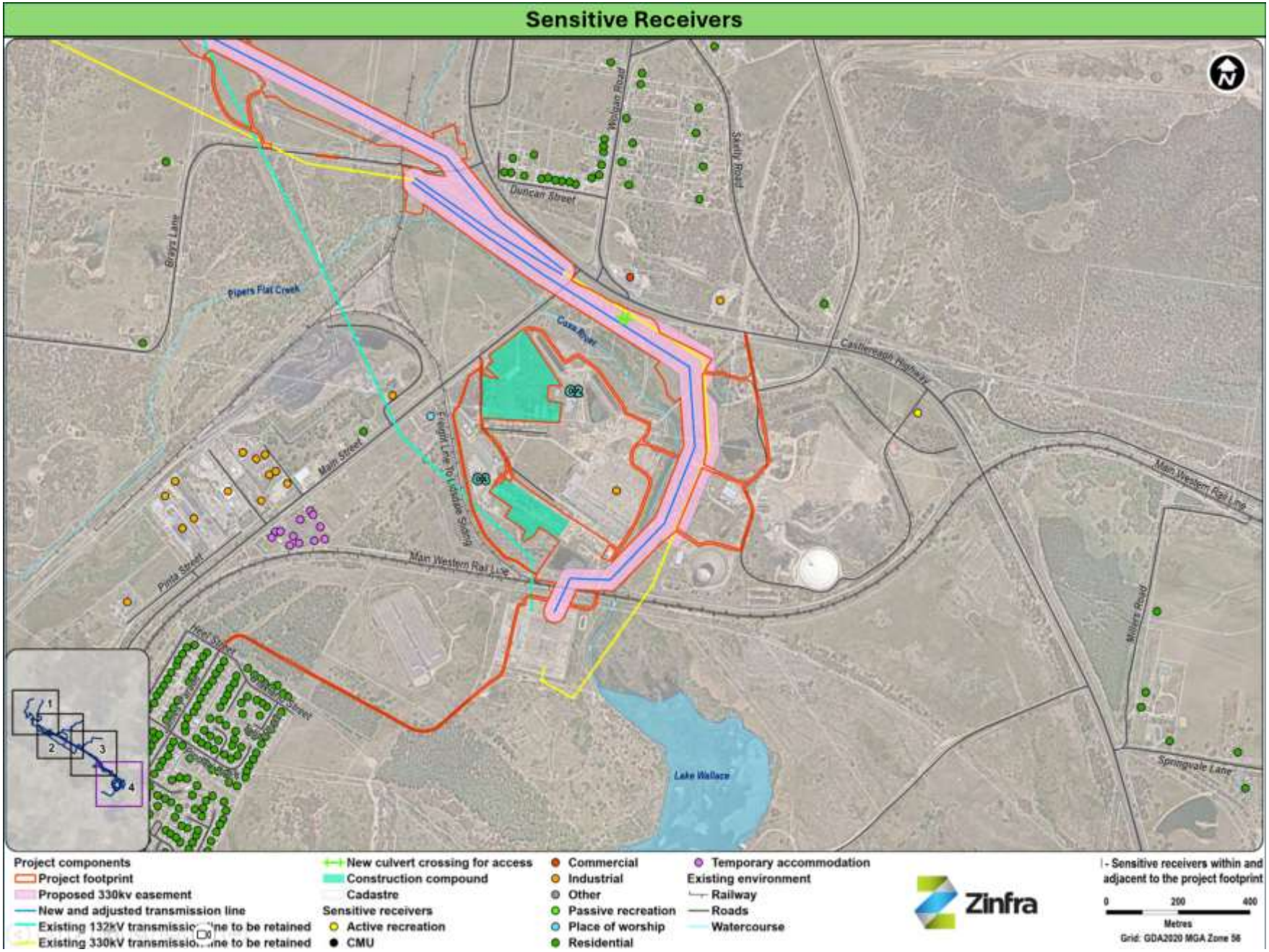

Sensitive Receivers
Boulder Road
Frankfort Road
Jarrah Way
Canberra Highway
Wanggol Creek
C1
1
2
3
4
Project components
Project footprint
Proposed 330kv easement
New and adjusted transmission line
Existing 132kV transmission line to be retained
New culvert crossing for access
Construction compound
Cadastre
Sensitive receivers
Industrial
Residential
Existing environment
Roads
Watercourse
Zinfra
Sensitive receivers within and adjacent to the project footprint
0
200
400
Metres
Grid: GDA2020 MGA Zone 56


Sensitive Receivers
Nixon Street
Easement affected receiver
1
2
3
4
Project components
Project footprint
Proposed 330kv easement
New and adjusted transmission line
Existing 132kV transmission line to be retained
Existing 330kV transmission line to be retained
Cadastre
Sensitive receivers
Industrial
Residential
Existing environment
Roads
Watercourse
Zinfra
- Sensitive receivers within and adjacent to the project footprint
0
200
400
Metres
Grid: GDA2020 MGA Zone 56

Official


Sensitive Receivers
Karawatha Drive
Easement affected receiver
Coss Road
Maddox Lane
Ottley Place
Carnie's Anna Close
Ian Holt Drive
Project components
Project footprint
Proposed 330kv easement
New and adjusted transmission line
Existing 132kV transmission line to be retained
Existing 330kV transmission line to be retained
Upgraded culvert crossing
Cadastre
Sensitive receivers
Residential
Existing environment
Railway
Roads
Watercourse
Zinfra
- Sensitive receivers within ar
adjacent to the project footpri
0
200
Metres
Grid: GDA2020 MGA Zone 56

Official


Sensitive Receivers
Duncan Street
Wollaton Road
Sakilly Road
Bridge Lane
Pipers Flat Creek
Castlereagh Highway
Main Street
Freight Line To Lidsdale Siding
Main Western Rail Line
Pinta Street
Heel Street
Lake Wallace
Springvale Lane
Project components
Project footprint
Proposed 330kv easement
New and adjusted transmission line
Existing 132kV transmissio ne to be retained
Existing 330kV transmissio ne to be retained
New culvert crossing for access
Construction compound
Cadastre
Sensitive receivers
Active recreation
CMU
Commercial
Industrial
Other
Passive recreation
Place of worship
Residential
Temporary accommodation
Existing environment
Railway
Roads
Watercourse
Zinfra
- Sensitive receivers within and adjacent to the project footprint
0
200
400
Metres
Grid: GDA2020 MGA Zone 56

Official

13. APPENDIX C – OUT OF HOURS PROTOCOL

The Out of Hours Work Protocol (Rev 0.1) forms part of this Plan and is provided under separate cover.

14. APPENDIX D – CONSULTATION SUMMARY

EPA NSW

Consultation Date	Description of consultation	Outcome
03/06/2026	Consultation on the plan	EPA were satisfied with the plan, and no comments were provided by them.

Lithgow City Council

Consultation Date	Description of consultation	Outcome
03 June 2026	**Complaint Management** Discussion was held regarding complaint management processes. It was agreed that complaints should be effectively managed by the project team, with Council kept informed to assist in managing any community concerns or issues. In the first instance, any complaints received by Council will be referred directly to the project team for investigation and resolution. Once resolved, the project team will provide feedback to Council to ensure the matter is closed out appropriately. **Exceedance of Noise Limits** Council asked what is the remediation process if noise limits are exceeded?	Section 8.3 updated to include the contact details of Council representative to notify any complaints received.
	Council Notification Process Council advised that when notifying Council, communications should be sent to: Galip Kartop, Customer Service and Shaun Elwood.	Informed about Section 8.2 and 8.3
	Overnight Works Council asked if there were planned night works?	Updated Section 5.4. The intention is not to undertake overnight works unless specifically requested by Transport for NSW (TfNSW) and/or Council. A request would be submitted to Council for the relevant Road Occupancy Licence (RoL) approval. Included this requirement within Section 8.2 of the OOHW Protocol.