ULAN COAL

GLENCORE

Surface Infrastructure Construction Noise Management Plan

Plan

Number: ULNCX-111515275-3661
Owner: Coordinator - Environment & Community
Status: Approved
Version: 1.0
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1. Purpose

The purpose of the Construction Noise Management Plan (CNMP) is to provide a process for managing, monitoring, and reporting noise that is generated during the construction of surface infrastructure approved by Modification 4 (MOD 4) on 17 July 2019.

MOD 4 included conceptual changes to the approved mine plans at both Ulan Underground (UUG) and Ulan West Operations (UWO) to enable longwall panels to be both lengthened and widened, providing access to an additional approximately 6.4 Mt ROM coal. This included extension of longwalls 30, 31, 32, 33 and longwalls W7 and W8, along with widening of longwall 33 at UUG and extension of longwalls 7 and 8 at UWO.

MOD 4 also included the provision of additional surface infrastructure to support mining activities in the proposed Modification area, including the conceptual redesign of infrastructure and provision for access tracks, dewatering infrastructure (boreholes and shedding), powerlines and pipelines.

2. Scope

This CNMP applies to all surface infrastructure construction activities for the project known as LW31-dewatering facilities for UUG.

Current operational noise from mining activities that occur for the Ulan Complex is managed under the approved Noise Management Plan (NMP).

Both the CNMP and NMP apply to all Ulan Complex employees and contractors in any capacity, and forms part of the Ulan Coal Environmental Management Strategy (EMS).

3. Project Approval Requirements

The *Ulan Continued Operations Project – Modification 4 Longwall Optimisation Project* (Mod 4, 2019) introduced the need for a Construction Noise Mangement Plan with the addition of Condtion 2A:

Noise Criteria – Modification 4 Surface Facilities Activities

2A. The Proponent must ensure that noise generated during the construction of surface infrastructure construction activities as outlined in Modification 4 does not exceed the limits shown in Table 2A.

Table 2A: Noise criteria dB(A)

Location*	Day	Evening	Night	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1\ (1\ min)}$

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R39 and R40	41	38	38	52
All other privately-owned land	40	35	35	52

**To identify the locations R39 and R40 see the figure in Appendix 3.*

However, this criterion does not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Note:
- *The noise acquisition criteria specified in Schedule 3 Condition 3 do not apply for surface infrastructure construction activities outlined in Modification 4.*

4. Noise Impact Assessment

4.1 Sensitive receptor locations and predicted noise impact

The Ulan Coal Noise Impact Assessment (MOD 4 NIA) completed by Umwelt for MOD 4, 2019 concluded activities associated with the construction of the dewatering infrastructure have the potential to exceed both day time and evening/night time noise criteria at receivers **R39 and R40** during construction Phases 1 and 2. The model has considered worst case meteorological conditions.

Ulan Coal Mines Pty Ltd (UCMPL) engaged Umwelt in July 2021 to complete an additional Noise Impact Assessment (2021 NIA) due to a change in duration of activities, and inclusion of additional equipment during Construction Phase 1. Construction Phase 1 activities only ocurr during the day. The 2021 NIA concluded activities associated with the Construction Phase 1 have the potential to exceed day time noise criteria at receivers **R39, R40, R33, R48 and R276**. The assessment has considered worse case meteorological conditions.

The private residences are shown on the map at **Appendix A -Private Residences.**

The predicted construction noise results for each receptor throughout each stage of construction are shown in the extracted tables from the MOD 4 NIA and the 2021 NIA in **Appendix B - Noise Impact Predictions**.

4.2 Construction of dewatering infrastructure

The construction of the dewatering infrastructure will occur over four (4) phases. Three (3) of the four (4) phases will occur during day time only, with Phase 2 occurring over 24 hours. **Figure 4-1 - Table 1.2 MOD 4 NIA** from the NIA provides a summary of the construction activities with indicative durations of noise impacts.

Table 1.2 Summary of construction activities and indicative durations of noise impacts, dB(A)

Construction Phase	Indicative duration of activities
Construction Phase 1 Site establishment including tree clearing, road construction and hardstand preparation	< 1 Month Day time activities only
Construction Phase 2 Drilling of borehole	6 Months – 1 Month per borehole (minimum of 2 per site). 24 hour operation
Construction Phase 3 Casing installation	< 1 Month Day time activities only
Construction Phase 4 Grouting of casing	1 Week - 2 days per borehole Day time activities only

Figure 4-1 - Table 1.2 MOD 4 NIA

4.3 Modelled Noise Sources

Each phase of construction has predicted equipment usage. **Figure 4-2 - Table 2 2021 NIA adopted sound power levels** from the 2021 NIA provides the adopted Sound Power Levels for equipment used in this model for Construction Phase 1. **Figure 4-3 - Table 3.1 MOD 4 NIA adopted sound power levels** for Construction Phases 2, 3 and 4 used in the model.

Table 2 – Modelled Equipment Sound Power Levels for the Phases 1a and 1b, dB(A)

Equipment	SWL, Leq(15minute) dB(A)
Construction Phase 1a: Site Establishment – Clearing	
Mulcher	121
Water Cart	108
Excavator (with grab)	110
Construction Phase 1b: Site Establishment - Road and Pad Construction	
Heavy vehicle (articulated dump truck)	108
Grader	108
Roller	109
Excavator	110
D6 Bulldozer	112
Water Cart	108

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Figure 4-2 - Table 2 2021 NIA adopted sound power levels

Table 3.1 Modelled Equipment Sound Power Levels , dB(A)

Equipment	SWL, $L_{eq(15minute)}$ dB(A)
Construction Phase 1 - Site Establishment	
Excavator (with grab)	110
Grader	108
Heavy vehicle (with dog)	108
Agitator (concrete) truck	111
Construction Phase 2 – Drilling	
Drill rig with two compressors	111
Forklift with semi-trailer truck	108 $L_{eq(15\ minute)}$; 121 $L_{Amax\ (reversing)}$[1]
Lighting plant	90
Front end loader	95
Construction Phase 3 – Casing Installation	
Mobile crane	110
Needle gun	112
Lighting plant	90
Generator/portable welder	104
Construction Phase 4 – Grouting of Casing	
Agitator (concrete) truck	111
Lighting plant	90
Compressor	109

Note: 1. Including the maximum adjustment of 10 dB(A) for the combined annoying characteristics of tonality and intermittency.

Figure 4-3 - Table 3.1 MOD 4 NIA adopted sound power levels

If any phase of construction requires use of alternative equipment to what is listed above; and that equipment does not fit within similar sound power levels, a further noise impact assessment may be required to understand noise impacts to surrounding private properties.

If it is deemed that noise criteria could be exceeded at private residences; UCMPL will seek agreements with the affected private residences.

5. Implementation

5.1 Consultation

5.1.1 Community Consultation

The following consultation methods are undertaken with the affected residents, including but not limited to:

a) individual briefings to affected receivers detailing construction plans and noise mitigation measures to be implemented;

b) letter box drops;

c) project specific respite offer;

d) phone calls to receiver;

e) Specific notifications, either letterbox drops or hand delivered notifications no later than seven days ahead of specific construction activities that are likely to exceed the noise criteria.

The type(s) of community consultation implemented for the receivers is based on the anticipated level of noise at an individual receiver.

5.1.2 Other Stakeholder Consultation

a) This CNMP plan will be provided to DPI&E and EPA for information;

b) Consideration of the timing of the additional construction activities (such as the Liverpool Plains Windfarm powerline) and impacts of cumulative noise generated at neighbouring properties.

5.2 Noise Agreements

Noise Agreements that are valid for 12 months were secured with receivers R40, and R276. These agreements allow UCMPL to exceed noise criteria as follows:

- *R276 - Phase 1a – Site establishment (clearing)*
  - Maximum period of when noise can exceed criteria is two (2) weeks;
  - Hours of operation are Monday to Saturday between 7am and 6pm; and
  - Verbal agreement to extend period of exceedance.
- *R40 – Phase 1a - Site establishment (clearing) and Phase 1b – Site establishment (Road and Pad construction)*
  - Maximum period of when noise can exceed criteria is 10 weeks;
  - Hours of operation are Monday to Saturday between 7am and 6pm;
  - Further compensation has been agreed and payable for extension of maximum period;
  - A real time continuous noise logger has been installed on the property, with monthly reports provided to the landholder.

Attempts to obtain agreements with R39, R33 and R48 were unsuccessful. These receivers have the details of UCMPL employees they can contact to progress the agreements.

5.3 Noise management commitments

5.3.1 Hours of work

Construction hours will be limited to following times, except for during Phase 2 borehole drilling:

- 7:00am to 6:00pm Monday to Saturday
-

5.3.2 Noise Attenuation

5.3.2.1 Phase 2 - Drilling of borehole (24/7 operation)

A temporary noise barrier will be constructed between the drill rig and the receivers from a stack of standard shipping containers, 3 containers tall and 3 to 4 containers long (depending on available space) to acoustically shield the drilling activities.

The temporary noise barrier will be located approximately 10-15m from the drill.

Use of the forklift at the drilling site will be restricted during the night time period; and not be used between the hours of 10pm and 7am.

5.3.2.2 Day time period of all Phases

The forklift's reversing beeper will be replaced with a "smart" or broadband reversing alarm.

5.3.3 Operational Constraints

- Modification or pausing of construction activities during adverse meteorological conditions, particularly in the evening and night time. (This may include operating only one or two items of plant); and
- Programming the noisiest construction activities to occur during the day.

6. Monitoring

Noise monitoring will be undertaken during construction of the dewatering facilities to manage the noise levels at all recievers as follows:

a) The continous real time noise logger data installed at R40 will be monitored and analysed daily to confirm if exceedances of criteria are occuring during Phase 1 Construction activities;

b) A continous real time noise logger will be installed for phase 2 of the construction activities. The noise logger will be in a position that close to the construction site and capable of sending an alert to via email and SMS notification to the project manager and environmental staff;

c) **Appendix C - Trigger Action Response Plan (TARP)** has been developed to manage potential residual exceedances for phase 2;

d) Attended noise monitoring will be undertaken near the sensitive receivers at scheduled times to confirm the construction noise impacts and in response to complaints or requests.

7. Document Information

Relevant legislation, standards and other reference information must be regularly reviewed and monitored for updates and should be included in the site management system. Related documents and reference information in this section provides the linkage and source to develop and maintain site compliance information.

7.1 Related Documents

Related documents, listed in ***Table 7-1*** below, are *documents* directly related to or referenced from within this document.

Number	Title
ULNCX-111515275-232	Noise Management Plan
ULNCX-111515275-870	Environmental Management Strategy
PA 08_0184	Project Approval
	Mod4 Environmental Assessment
	Umwelt Briefing Note, Noise Assessment – MOD4 Surface Infrastructure Construction Noise (21 July 2021)

Table 7-1 – Related documents

7.2 Reference Information

Reference information, listed in ***Table 7-2*** below, is *information* that is directly referred to for the development of this document.

Reference	Title
	Ulan Coal Noise Impact Assessment – *Modification 4 to Project Approval 08_0184 – Longwall Optimisation Project*

Table 7-2 – Reference information

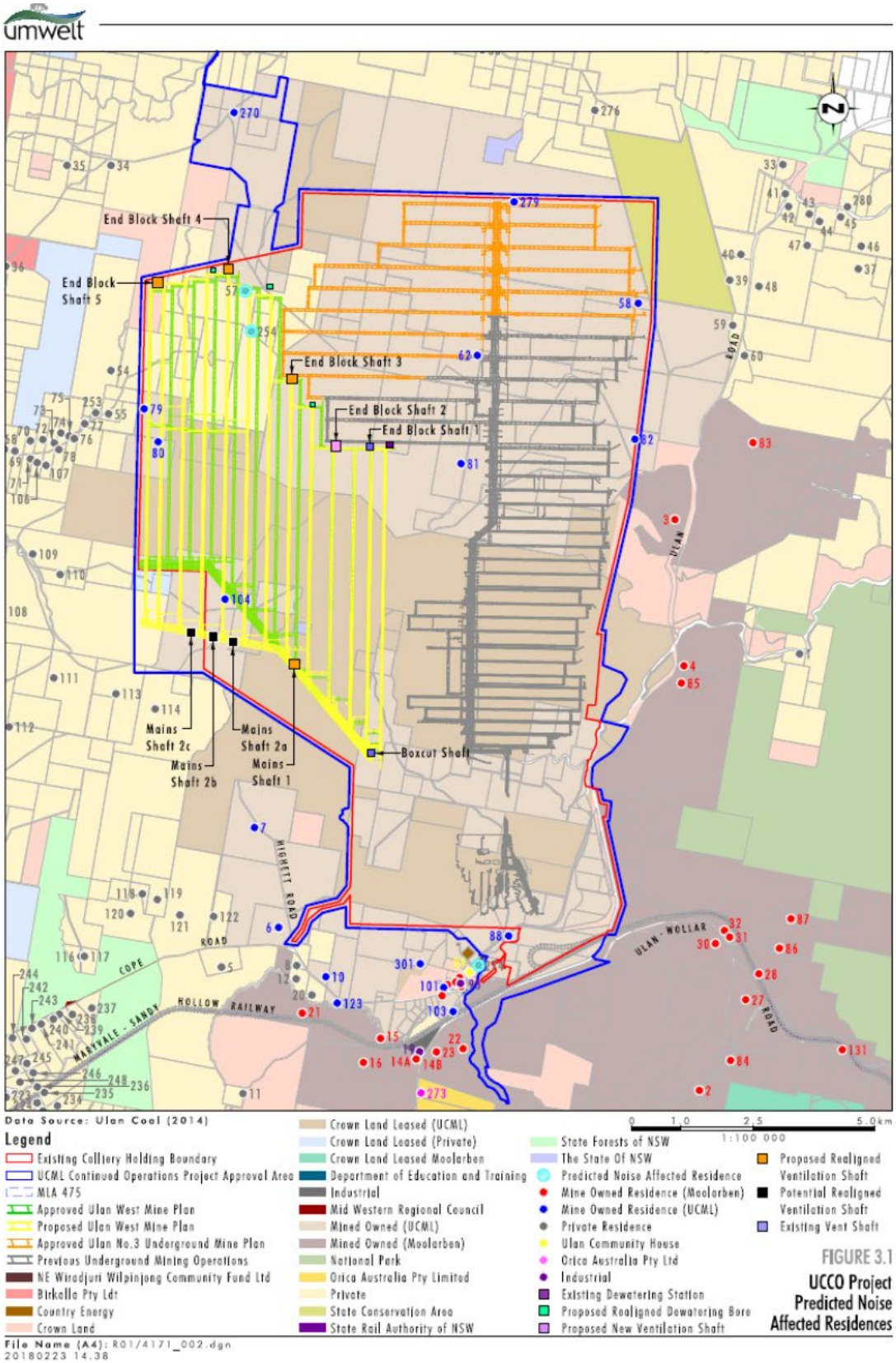
7.3 Change Information

Full details of the document history are recorded in the document control register, by version. A summary of the current change is provided in ***Table 13-3*** below. Example detail shown below.

Version	Date	Change Details
1.0	15/01/2021	New Document
2.0	8/09/2021	Updated to include changes as required by DPIE letter of 30 June 2021, inclusion of the updated noise impact assessment details, and details of noise agreements in place.

Table 7-3 – Change information

Appendix A - **Private Residences**



Appendix B - Noise Impact Predictions

B.1 MOD 4 NIA – Noise predictions without noise mitigation, Day Period

Table 4.1 Noise predictions without noise mitigation, Day period $L_{Aeq\ (15\ minute)}$ dB(A)

Construction Phase	Project noise trigger levels $L_{Aeq,15\ minutes}$	Receiver ID							
		R33	R37	R39	R40	R41	R42	R43	R44
Phase 1	40	<20 to 36	<20 to 28	23 to **41**	25 to **41**	<20 to 33	<20 to 32	<20 to 32	<20 to 32
Phase 2[1]	40	21 to 38	<20 to 33	32 to **49**	34 to **50**	<20 to **42**	20 to 39	24 to 40	23 to 39
Phase 3	40	<20 to 35	<20 to 28	23 to 40	25 to **41**	<20 to 33	<20 to 29	<20 to 31	<20 to 31
Phase 4	40	<20 to 31	<20 to 22	<20	21 to 38	23 to 38	<20 to 30	<20 to 27	<20 to 29
Receiver ID		**R45**	**R46**	**R47**	**R48**	**R59**	**R60**	**R276**	**R280**
Phase 1	40	<20 to 32	<20 to 29	<20 to 34	21 to 38	<20 to 37	<20 to 34	<20 to 35	<20 to 31
Phase 2[1]	40	<20 to 34	<20 to 30	<20 to 36	30 to **45**	22 to **45**	<20 to 38	<20 to **43**	23 to 35
Phase 3	40	<20 to 31	<20 to 29	<20 to 34	21 to 36	<20 to 37	<20 to 34	<20 to 35	<20 to 30
Phase 4	40	<20 to 28	<20 to 26	<20 to 23	<20 to 30	<20 to 34	<20 to 30	<20 to 30	<20 to 26

Note: 1. Including +10 dB adjustment to Forklift truck due to annoying characteristics (tonality +5 dB, intermittency +5 dB)

Table 4.2 Maximum exceedance of PNTL (Day time period, worst-case), dB(A)

Construction Phase	PNTL (Day, $L_{Aeq,15\ minutes}$)	Receiver ID					
		R39	R40	R41	R48	R59	R276
Phase 1	40	1	1	-	-	-	-
Phase 2	40	9	10	2	5	5	3
Phase 3	40	-	1	-	-	-	-
Phase 4	40	-	-	-	-	-	-

Note: Construction Phase 1 is now referred to as "Construction Phase 1a and Construction Phase 1b" under the 2021 NIA. The MOD 4 NIA Construction Phase 1 results no longer apply.

B.2 MOD 4 NIA – Noise predictions with noise mitigation, Day Period

Table 6.1 Noise predictions with noise mitigation, Day period $L_{Aeq\ (15\ minute)}$ dB(A)

Construction Phase	Project noise trigger levels $L_{Aeq,15\ minutes}$	Receiver ID							
		R33	R37	R39	R40	R41	R42	R43	R44
Phase 1	40	<20 to 36	<20 to 28	23 to **41**	25 to **41**	<20 to 33	<20 to 32	<20 to 32	<20 to 32
Phase 2[1]	40	<20 to 28	<20 to 22	20 to 38	22 to 38	<20 to 30	<20 to 27	<20 to 28	<20 to 27
Phase 3	40	<20 to 20	<20	<20 to 24	<20 to 23	<20	<20	<20	<20
Phase 4	40	<20	<20	<20	<20	<20	<20	<20	<20
Receiver ID		R45	R46	R47	R48	R59	R60	R276	R280
Phase 1	40	<20 to 32	<20 to 29	<20 to 34	21 to 38	<20 to 37	<20 to 34	<20 to 35	<20 to 31
Phase 2[1]	40	<20 to 20	<20	<20 to 23	<20 to 33	<20 to 35	<20 to 28	<20 to 30	<20 to 22
Phase 3	40	<20	<20	<20	<20 to 22	<20	<20	<20 to 35	<20
Phase 4	40	<20	<20	<20	<20	<20	<20	<20 to 30	<20

Note 1: Forklift operating with "smart" or broadband reversing alarm

Note: Construction Phase 1 is now referred to as "Construction Phase 1a and Construction Phase 1b" under the 2021 NIA. The MOD 4 NIA Construction Phase 1 results no longer apply.

B.3 2021 NIA – Noise predictions during Phase 1 Construction

Table 3 – Noise predictions during Phase 1 Construction Phase, day period $L_{Aeq,15minute}$ dB(A)

Receiver	MOD4 Predictions	Phase 1a		Phase 1b	
		Calm Neutral	Noise Enhancing	Calm Neutral	Noise Enhancing
R33	< 20 to 36	30	< 20 to 43	26	23 to 39
R37	< 20 to 28	22	< 20 to 33	20	< 20 to 31
R39	23 to 41	29	24 to 46	31	27 to 43
R40	24 to 41	28	23 to 47	32	29 to 44
R41	< 20 to 33	20	< 20 to 33	19	< 20 to 36
R42	< 20 to 32	23	< 20 to 38	22	< 20 to 34
R43	< 20 to 32	23	< 20 to 38	23	< 20 to 35
R44	< 20 to 32	25	< 20 to 39	22	< 20 to 35
R45	< 20 to 32	24	< 20 to 38	22	< 20 to 35
R46	< 20 to 29	22	< 20 to 36	20	< 20 to 32
R47	< 20 to 34	21	< 20 to 39	20	< 20 to 38
R48	22 to 38	27	< 20 to 46	29	24 to 40
R59	< 20 to 37	29	< 20 to 39	25	21 to 40
R60	< 20 to 34	28	< 20 to 39	22	< 20 to 38
R276	< 20 to 35	28	< 20 to 46	18	< 20 to 33
R280	< 20 to 31	24	< 20 to 37	25	21 to 34

Note: Predictions including noise mitigation were not modelled for construction Phase 1a and Construction Phase 1b of the 2021 NIA. Noise Agreements have been entered into with two (2) receivers. Attempts to enter into Noise Agreements with the remaining impacted receivers were unsuccessful due to nil response to contact made by UCMPL.

B.4 MOD 4 NIA – Noise predictions without noise mitigation, Evening & Night Period (Phase 2 only)

Table 4.3 Noise predictions without noise mitigation and exceedances above assessment levels, Evening & Night periods (Phase 2 only) dB(A)

Receiver	Predicted noise levels without mitigation Maximum LAeq (15 min) & LAmax	Exceedance above, (dB)			
		PNTL Evening	PNTL Night	Sleep Disturbance screening level	
		LAeq (15 min) 35 dB(A)	LAeq (15 min) 35 dB(A)	LAeq (15 min) 40 dB(A)	LAFmax 52 dB(A)
R33	21 to **38**	3	3	-	-
R37	<20 to 33	-	-	-	-
R39	32 to **49**	14	14	9	-
R40	34 to **50**	15	15	10	-
R41	<20 to **42**	7	7	2	-
R42	20 to **39**	4	4	-	-
R43	24 to **40**	5	5	-	-
R44	23 to **39**	4	4	-	-
R45	<20 to 34	-	-	-	-
R46	<20 to 30	-	-	-	-
R47	<20 to 36	-	-	-	-
R48	30 to **45**	10	10	5	-
R59	22 to **45**	10	10	5	-
R60	<20 to **38**	3	3	-	-
R276	<20 to **43**	8	8	3	-
R280	23 to 35	-	-	-	-

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B.5 MOD 4 NIA – Noise predictions with noise mitigation, Evening & Night Period (Phase 2 only)

Table 6.2 Noise predictions with noise mitigation and exceedances above assessment levels, Evening & Night periods (Phase 2 only) dB(A)

Receiver	Predicted noise levels with mitigation Maximum LAeq (15 min) and LAmax	Exceedance above, (dB)			
		PNTL Evening	PNTL Night	Sleep Disturbance screening level	
		LAeq (15 min) 35 dB(A)	LAeq (15 min) 35 dB(A)	LAeq (15 min) 40 dB(A)	LAFmax 52 dB(A)
R33	<20 to 28	-	-	-	-
R37	<20 to 22	-	-	-	-
R39	20 to **38**	3	3	-	-
R40	22 to **38**	3	3	-	-
R41	<20 to 30	-	-	-	-
R42	<20 to 27	-	-	-	-
R43	<20 to 28	-	-	-	-
R44	<20 to 27	-	-	-	-
R45	<20 to 20	-	-	-	-
R46	<20	-	-	-	-
R47	<20 to 23	-	-	-	-

Appendix C - TARP (Night time activities)

Normal State	*Low Frequency noise level below trigger levels at UCMPL real time noise monitor.*

TARP Noise Alarms for real time noise monitor SX3 (Ulan Hire)	**Level 1 Trigger – Alert / Investigate**	**Level 2 Trigger – High Alert / Rectify**	**Level 3 Triggers – Stop – Withdrawal / Removal**
	Low Frequency noise level approaching noise criteria at UCMPL real time noise monitors or noise complaint received. SentineX Noise Alarm N1LF>31 N1LF<33	Low Frequency noise level approaching noise criteria at UCMPL real time noise monitors or noise complaint received. SentineX Noise Alarm N1LF>33 N1LF<35.	Low Frequency noise level exceeded noise criteria at UCMPL real time noise monitors. SentineX Noise Alarm N1LF>35 or Noise complaint received.

Persons affected	**Action / Response**	**Action / Response**	**Action / Response**
Project Supervisors	Stream audio from the monitor identify possible noise sources. If mining noise is identified in streaming of audio, consider relocation of known/identified noisier equipment to lower areas of the pit. Record actions taken in Shift Report.	Stream audio from the monitor identify possible noise sources. Shut down noisiest piece of equipment 30 minutes, continue to shut down if alarms continue. Record actions taken in Shift Report.	Stream audio from the monitor to identify possible noise sources, shut down operations in work area closest to monitor for 30 minutes, continue to shut down if alarms continue. Record actions taken in Shift Report.
	Note: Noise alarms will not generate at wind speeds >3 metres per second. Localised wind rush can elevate noise levels at <3m/s, however it cannot be assumed that wind is the reason for noise alarm without investigation via streaming audio from the monitor at ***https://www.sentinex.com.au/*** or sending someone to listen near to the location. Logon for SentineX **Username: usooce** and **Password: usooce**		
E&C Team / ECO			Conduct assessment of noise alarms including review of sound files, meteorological data and noise data. If assessment determines the cause of the alarms is mine noise, arrange for attended monitoring to occur in accordance with the Noise Management Plan.
All Personnel	Stop or modify work as directed by the Shift Supervisor.		